

**THE UNIVERSITY OF HULL**

**POSTNATAL PERINEAL TRAUMA AND GENERAL  
HEALTH IN MALTESE WOMEN**

**Being a Thesis submitted for the Degree of  
Doctor of Philosophy  
in the University of Hull**

**by**

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## **Abstract**

Over the last twenty years there has been an increasing international research interest in women's experience of postnatal perineal trauma and its impact on their physical, psychological and sexual health. To date, however, no research on perineal morbidity and general health has been undertaken in Malta.

Using a longitudinal descriptive correlational design, a homogenous systematic sample of 144 Maltese postnatal mothers was recruited with the aim of exploring the relationship between perineal trauma and general health following normal delivery. Self-administered questionnaires within 48 hours of delivery and again at 10 days, 6 weeks and 13 weeks sought to assess perineal pain, urinary and faecal continence, resumption of sexual intercourse and dyspareunia. The General Health Questionnaire-12 (Goldberg and Williams, 1998) assessed mothers' psychosocial health. Open-ended questions explored further their experience of perineal trauma and general health. The retention rate at the end of time 4 was 86.1%.

Following descriptive and inferential statistical analysis, the key findings revealed a constant decline in perineal trauma and an inconsistent but significant rise in general health over time. Mothers sutured by senior hospital officers reported higher scores of well-being, and resumed sexual intercourse earlier than those sutured by registrars and senior registrars. Significant negative correlations persisted between postnatal total perineal trauma and resumption of sexual intercourse at 13 weeks but not at 6 weeks.

Qualitative data generated three main themes: experiencing total perineal trauma, resuming sexual intercourse and maintaining general health. Mothers identified tiredness, exhaustion and emotional pain as other burdens alongside a painful perineum. 'Being not ready yet', 'fear of falling pregnant again' and 'caring for the baby and family' were reasons preventing postpartum sexual intercourse.

Tedeschi, Park and Calhoun's (1998) post-traumatic growth theory provided an overarching theoretical framework.

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# Chapter 1

## 1.0 Introduction to the study

This chapter provides the context for the study. It introduces an overview of the research problem followed by a background to the study. Included is an outline of the research limitations and the theoretical framework for the qualitative data of the study. A short sociological review explains the current women's general health and position in Malta.

### 1.1.0 An overview of the research problem

The literature indicates that many women following childbirth suffer from perineal trauma (Williams et al., 2007a, Signorello et al., 2001, Barrett et al., 2000, Sultan et al., 1998, Glazener, 1997, Wilson et al., 1996). In the current study, perineal trauma comprises perineal pain, urinary and/or faecal incontinence. Perineal trauma and its associated morbidity may influence women's general health, including physical, psychological, sexual and social aspects (Barrett et al., 2005, Thompson et al., 2002, Lydon-Rochelle et al., 2001, Saurel-Cubizolles et al., 2000).

Acute postpartum perineal pain is common among all women (Williams et al., 2007a). However, perineal pain is more frequent and severe for women with the most severe of tears (third- and fourth- degree tears) (Andrews et al., 2007, Macarthur and Macarthur, 2005, Samuelsson et al., 2002). Studies of perineal pain have tended to focus on technical aspects, such as method of suturing and the use of suturing material for perineal repair (Kettle et al., 2002, Kettle and Johanson, 2000a, Kettle and Johanson, 2000b), or aspects associated with perineal trauma such as method of birth and history of previous trauma (Lydon-Rochelle, 2001, Eason et al., 2000). Perineal management during spontaneous vaginal delivery has also been evaluated in randomised controlled trials which included perineal pain at 10 days as the main outcome measure (Oboro et al., 2003, Lundquist et al., 2000, Gordon et al., 1998) and pain and dyspareunia at 3 months as additional outcomes (Barrett et al., 2000, McClandish et al., 1998, Glazener, 1997). Consequently, relatively little is known of the maternal prolonged experiences of perineal trauma and how changing medical and sometimes cultural perspectives contribute to the contemporary experience of perineal trauma. The research described in this thesis makes a contribution to this body of knowledge.

Mediolateral episiotomy was not found to protect against urinary and faecal incontinence and is associated with lower pelvic floor muscle strength, compared with spontaneous perineal lacerations, and with more dyspareunia and perineal pain (Sartore et al., 2004, Eason et al., 2002). A high proportion of women experienced stress incontinence following spontaneous vaginal delivery and some women reported severe symptoms with leakage on a daily basis (Glazener et al., 2001, Jones, 2000, Mason et al., 1999a, Mason et al., 1999b, Wilson et al., 1996). Faecal incontinence as an immediate consequence of childbirth is more common than previously realised (MacArthur et al., 2001, MacArthur et al., 1997). Had incontinence of flatus been included, prevalence of faecal incontinence would have been even higher (MacArthur et al., 2001). The mechanisms of causation of childbirth-related anorectal incontinence have recently been studied by measuring neurological and mechanical injury and relating these measures to obstetric factors such as a mediolateral episiotomy (Williams et al., 2005). Episiotomies angled closer to the midline were found to be significantly associated with such injuries of anal sphincter (Andrews et al., 2006).

The extent to the return to normal and satisfactory sexual functioning, such as resumption of sexual intercourse, depends on the type and degree of perineal trauma (De Judicibus and McCabe, 2002, Signorello et al., 2001). The degree of perineal tissue damage is predictive of the extent of suturing required and of postpartum pain. Forty percent of a primiparous population reported dyspareunia at three months postpartum implying a role for mechanical damage to the perineum with respect to sexual functioning (Buhling et al., 2005). The average time interval of resumption of sexual intercourse was six to eight weeks after delivery. The standard 6 week postnatal visit is the last routine assessment following childbirth, marking the end of the puerperium and the woman's discharge from maternity care services, based on the assumption that physical recovery is essentially complete. Recent research indicates, however, that women experience continuing morbidity past the 6 week postpartum mark through perineal pain, stress incontinence, dyspareunia, and other more psychological morbidities such as post-traumatic stress disorder (Thompson et al., 2002, Ayers and Pickering, 2001). All or some of these are the problems that may influence the general health of the child-bearing woman.



There is some indication that relationship between perineal trauma (defined earlier as perineal pain, urinary and faecal incontinence), resumption of sexual intercourse and general health is common and of longer duration than expected in normal vaginal deliveries.

### **1.1.1 Background to the study**

First-time mothers who generally receive a higher proportion of episiotomies and more spontaneous tears including third- and fourth-degree lacerations in particular are known to sustain greater trauma to the genital tract with vaginal birth than women having subsequent births (Albers et al., 2006, Albers et al., 2005, Albers et al., 1999). In a randomised clinical trial of perineal management techniques, Albers et al., (2006) found that genital tract trauma with normal spontaneous vaginal birth was very common. Approximately 77% of all women experienced some form of trauma at one or more sites of the perineum and 20% of all women had sufficient trauma to warrant suturing (Albers et al., 2006).

Research on perineal trauma does not indicate that episiotomy is effective in preventing severe lacerations (Martin et al., 2001, Albers et al., 1999, Sleep, 1991) and pelvic floor relaxation, or that recovery is more rapid and morbidity less than when having spontaneous tears (Albers et al., 2006, Albers et al., 1999). Indeed, mediolateral episiotomy was found to increase the risk of more obstetric anal sphincter injury (Andrews et al., 2006, Henriksen et al., 1992). Thus, many different aspects of health and well-being (Hill et al., 2006, Symon et al., 2002) are affected by certain health problems with the perineum that arise after childbirth, together with difficulties with sexual activity, all of which render postnatal mothers' experience rather complex and personal, but which somehow resolve over the six months postpartum (Thompson et al., 2002).

An interest in postnatal health arose in the researcher while practising as a midwife through meeting postnatal women who shared their experiences of postnatal morbidity after an otherwise uneventful childbirth. Following a preliminary literature search on postnatal morbidity, it became apparent how much the health needs of postnatal women in Malta were probably not being met. In Malta, as in other developed countries, medical interventions including the liberal use of episiotomy have become routine in normal childbirth, despite a lack of evidence of

their effectiveness (Johanson et al., 2002). Studies from Sweden, Australia and Canada, all indicate substantial maternal postnatal morbidity that continues well past the routine discharge of women from maternity services (Brown and Lumley, 1998a, Brown and Lumley, 1998b, Gunn et al., 1998, Glazener, 1997, Glazener et al., 1995, MacArthur et al., 1991). This led the researcher to consider the relationship between perineal trauma, resumption of sexual intercourse and general health on a longitudinal scale across thirteen weeks postpartum among Maltese mothers following normal vaginal delivery.

### **1.1.2 Research limitations**

Most of the research available on perineal trauma and general health of mothers after childbirth has been mainly conducted in the United Kingdom (UK), followed by some in Australia, Canada and Sweden. Research in Malta is still in its infancy, and no such research was traced on the Maltese postnatal mothers. In UK, research has reported a 92% incidence of perineal pain on day 1, resolving in 88% at 2 months (Andrews et al., 2007). Williams et al., (2007a) demonstrated a high level of perineal morbidity in a sample of 482 postnatal mothers with 53.8% urinary stress incontinence, 9.9% liquid faecal incontinence, 54.5% with one index of sexual morbidity and 30.3% dyspareunia. It is thus clear that significant morbidity persists in women with perineal trauma which influences their general health (Williams et al 2007a): the incidence will probably be similar for both trauma and morbidity in Maltese women where, according to the National Obstetrics Information System (NOIS), (2007) episiotomy rate is 30% and perineal trauma that needed repair is 65%. It would seem intuitive that mothers would suffer similar detriment in terms of morbidity and general health. This study addresses perineal trauma and general health in Maltese women in the first 13 weeks postnatal.

The literature searched addressing the two main variables under investigation, namely perineal trauma and general health, consists mainly in descriptive, prospective and longitudinal surveys that indicate the challenge of recovery from perineal trauma. No current evidence in the Maltese population exists. Consequently, this study adopts the longitudinal design which helps to assess relationship between the variables as early as 48 hours and the first 13 weeks after delivery of the baby. Eventually, patterns and fluctuations of results are identified over time. Literature also provided findings about the high levels of perineal pain on

day 1, after birth (Andrews et al., 2007, Macarthur and Macarthur, 2005, Albers et al., 1999). Pain declined over time and a gradient in pain was observed according to the site and complexity of trauma with 40% resuming coitus within 2 months regardless of whether perineal trauma occurred or not (Andrews et al., 2007). The current longitudinal study intends to shed light on the possible impact of the Maltese culture on the levels of postnatal perineal pain, resumption of sexual intercourse and general health, influenced as they are by the closely knit family-centred support at the time of childbirth and childrearing.

The majority of the studies on perineal trauma and general health of women are mainly surveys, quantitative in nature, such as Andrews et al., (2007), Williams et al., (2007a) and Albers et al., (1999). Thus, in attempting to provide a fuller perspective of the relationship between the variables, the researcher came to a decision to study the identified variables by combining the quantitative and the qualitative data findings. Since the nature of the study required a longitudinal correlational design, a quantitative approach was chosen. Moreover, qualitative data would enhance the interpretation of the direction of the relationship between the variables of perineal trauma, resuming sexual intercourse and general health. A theoretical framework complemented the theoretical analysis of the qualitative data.

### **1.1.3 The theoretical framework**

Several theories were examined, most of which aim to define positive psychological functioning (Ryff, 1989). For example, Ryff's theory (1989) consists of six dimensions, all characteristic of mental health and life span development such as maturity in life. However, this theory was felt to be too broad in its application for the purpose of studying the recovery of postnatal mothers with perineal trauma. Tedeschi, Park and Calhoun's (1998) Post-Traumatic Growth theory (PTG) is a similar theory of positive psychological functioning, where growth of the person after a traumatic event is enhanced by the process of ruminative activity, a process through which the person, in dealing with the emotional reactions to the trauma, tries to make sense of what has happened. A similar process occurs in the childbirth context, where mothers ruminate on their experience of childbirth and perineal trauma and its impact on their lives while they are recovering physically, psychologically and sexually.

A short sociological review of women, childbirth and motherhood in Malta follows, intended to give some general aspects of the Maltese culture amongst women where this study was carried out.

### **1.2.0 Maltese cultural perspectives of mothers**

The Maltese female has been honoured since time immemorial. The Goddess of Fertility statues discovered at the Neolithic Temples in Malta emphasize the value of femininity and the essential role of the mother in the family (Mifsud de Gray, 2005). The idea that her presence in the family is important for very young children still persists, even today. Though a large proportion of Maltese pregnant women (53%) were reported to be gainfully employed (NOIS, 2007), nursery facilities for three year old or less are still hard to find. Those who wish to combine a career with motherhood have to resort to grandparents or relatives who are willing to look after their very young children. Maternity leave is similar to that found in most European Union countries. It consists of paid leave of thirteen weeks before or after the birth of the baby, and a year of unpaid leave after the birth of the baby. For women who are employed by government departments there is also an allowance of six-month's sick leave a year. Job sharing and other flexible ways of work are not very common.

Few women in Malta occupy influential positions. At present, there are 6 female members of parliament out of 69 members, giving Malta the lowest percentage of women legislators in any European country (House of Representatives of Malta, 2008, Lane, 2005), even though the majority of party members are women. There are a number of women's associations, for example, the Council of Women whose aim is to make their voice heard mainly on the woman's rights and equality. The number of female personalities in the media is ever increasing, including council mayors, business women, lady lawyers, academics, bank managers and executive directors of the local national commissions, physicians and surgeons.

The very few women who resign from high position in society think that a woman's proper role is that of mother and housekeeper. This is in line with conservative church teachings on the role of the woman which reflects the lack of a large number of women pursuing careers outside the home (Lane, 2005). The life pattern of the woman inside the home has provided few opportunities for the efforts required to pursue a political career. In fact those who in the past have been successful women

in politics were not married, and others may be successful because they have entered into politics through family connections (Abela, 2000).

Many of the women leave the labour market by the age of twenty-five, although those in the thirty to forty-five age groups seem to be returning (Press Release, 2004). However, Malta's main wage-earners (*breadwinners*) are still predominantly male, and care-giving has remained a woman's role at home (Lane, 2005). The country has introduced several measures to encourage women to work such as paid maternity leave, unpaid parental leave, career breaks for public workers, the creation of state kindergartens for children between three and five years of age and summer school programmes for pupils in primary schools (Press Release, 2004).

The use of illicit drugs among females has increased in the last decades, this being reflected by an increase in the number of female drug abusers who present themselves in pregnancy (personal communication with C. Savona-Ventura, April 19, 2007, Savona-Ventura, 2004). When the socio-biological characteristics of such women were assessed and compared to similar parameters in the remaining pregnant population, they have been shown to be generally unmarried and younger than 25 years of age. These women tend to seek antenatal care late in pregnancy. Their associated medical problems include Hepatitis C infection and an increased predisposition to pre-existing diabetes with the risk of a low or large birth weight and premature infant (Savona-Ventura, 2004), which means that there may be unanticipated complications and traumas during labour and delivery.

Maternal mortality statistics in the Maltese Islands since 1935 have been reviewed (NOIS 2007) and it has been shown that there has been a marked decrease in maternal mortality rates. This decrease is probably related to a reduction in family size and improvements in the perinatal care of mothers (Savona-Ventura, 2004). At present, hypertensive disease is the most notable cause of maternal mortality (NOIS, 2007) which means that there are always risk factors associated with the perinatal maternal mortality rate.

### **1.2.1 Childbirth in Malta**

When a woman becomes aware that she may be pregnant, she makes an appointment with her general practitioner/physician, or if she is already familiar and happy with

her obstetrician/gynaecologist because of her previous births, she may refer herself directly to confirm pregnancy. Antenatal care may be then continued privately (on a fee basis) with the general practitioner or obstetrician. Women are referred for booking in hospital at around ten weeks gestation, if low risk, that is with no present or probability of any complications. They are referred to continue antenatal care with their general practitioner or obstetrician until the 38<sup>th</sup> week of pregnancy when they return for antenatal care in hospital. Ultrasound and Doppler scans for fetal monitoring are routinely used during pregnancy (for example at around the 18<sup>th</sup> and 38<sup>th</sup> week gestation). In normal pregnancy, if labour does not start spontaneously by the 40<sup>th</sup> week of pregnancy, the woman is given an appointment for induction of labour. No pregnancy is left overdue after 41 weeks gestation. There are other forms of antenatal care which is given by an obstetrician and a midwife in the primary health care in the community at the Health Centres which are found not far from the woman's home and which are offered free of charge.

Childbirth classes in the general maternity hospital prepare women and their spouses/partners for the experience of a hospital birth, introducing them to the delivery suites and technology which are designed to give them a better and safer birth. Home births are rare and are organized privately and on payment by the obstetrician, midwives and the couple. The majority of normal deliveries (60%) are conducted by licensed midwives (NOIS, 2007) who abide by hospital policies in the management of care. A medicalised approach dominates, with the use of routine continuous electronic fetal monitoring, induction of labour, epidurals and other analgesia, delivering of babies on delivery beds, and active management of labour. Medicalisation of care has long existed and is on the increase with the continuous admission of technology in the maternity care. An intact perineum or a first degree perineal tear that does not need suturing is, however, the pride of every midwife.

The rate of caesarean section is increasing year by year (32.3%, NOIS, 2007). Maltese women today are requesting caesarean section, particularly those who have already gone through the experience of a caesarean birth. Others, who request normal delivery after the first caesarean section, are given a trial of labour for at least six hours. Fifty percent manage to deliver spontaneously while some others (10%) deliver with assistance (NOIS, 2007) by forceps delivery or ventouse extraction. Episiotomy rate is high among such deliveries.

The hospital stay after delivery in a normal birth is approximately 48 hours. Following a caesarean section or an assisted vaginal birth, hospital stay is around five to seven days. Postnatal community midwifery care is offered in the first fortnight (or as required). Such care is delivered on a private contract between a private association (Malta Memorial District Nursing Association) and the government, and it is offered free of charge to all postnatal women delivered in hospital. The community midwife visits the mothers three or four times and referral to hospital or general practitioner is practised in case of problems with the mothers or babies.

The question arises whether midwifery practice still has a place within Maltese maternity care and the answer is that all pregnancies are medically managed and all of them are viewed as inherently pathological or risky with normality only defined in retrospect (Johanson et al., 2002). This compares with the Western model of maternity care where women receive significant input during both the antenatal period and labour (Jomeen, 2007) but less so during the postnatal period (Bick et al., 2002).

### **1.2.2 Motherhood in Malta**

The birthing experience and transition to motherhood form major issues that influence the Maltese female population. It is only recently that birthing experience has become to be regarded as less traumatic because women now rarely die from it (NOIS, 2007). Research in UK, however, has demonstrated that birthing may be mentally traumatic and possibly injurious (Ayers and Pickering, 2001) both to the transition to motherhood and to women's mental health. In Malta, women's own postnatal mental health is valued less than caring for the baby (NOIS, 2007).

The average age at which women are having children is increasing: 33% within the age group of 25 to 29 years and 31% within the age group of 30 to 34 years of age, making transition to motherhood perhaps much easier (NOIS, 2007) because of increased maturity and preparation for motherhood through antenatal education. However, what is expected of women in Maltese society, the influence of the media on women, and the control exerted on them by society are important issues that bear on a woman's transition to motherhood (Press Release, 2004).

While previously it was common for the young mother to be cared for by her own mother or other relatives or neighbours, there is now a trend towards more nuclear families and the associated pressure to cope with the transition to parenthood on their own. In addition, the father's role has changed completely (Gatrell, 2005). While previously childbearing, childbirth and childrearing were considered to be solely a woman's job, now the father is being taught together with his spouse/partner in antenatal classes on his role during childbirth and after. He is also invited to share the birthing experience with his spouse/partner, and be prepared for postnatal experiences both at hospital and at home.

What is still little understood by mothers and fathers alike is the debate on breastfeeding which, more than just the physical survival of the infant, involves the enhancement in motherhood and mothering. Rates in breastfeeding are very low in Malta (64% on discharge from hospital) (NOIS, 2007). Women are working outside the home since loans on the newly acquired house have to be paid back. As a consequence, breastfeeding has lost its priority among new parents, and this is reflected in the small national breastfeeding rates at six weeks postnatal.

Transition to motherhood is a process of personal and interpersonal change that occurs as the woman assumes her maternal role. While the rate of depression (8.7%) among postnatal women is comparable with other western countries (Felice et al., 2004), research indicates that doctors tend to diagnose depression more easily in women than in men (Press Release, 2004, Woollett and Marshall, 2000, Brown and Lumley, 2000). New mothers are expected to continue with everyday life as usual, besides coping with the newborn baby. In Malta, as in other western cultures, it is not always recognized that motherhood can be one of the most stressful occupations that generates depression, which taken by itself could be interpreted as an abnormal response to childbirth. The intensity of motherhood over which women may have little control is not well appreciated or even studied (Wilkins et al., 2009).

In order to counteract the presence of postnatal depression which the changes in a woman's life may bring about, birth rituals may be of benefit. Family gatherings for the baptism of the child in church around six weeks after the birth are still looked forward to with great enthusiasm along with the preparations for parties celebrating the occasion. These celebrations may help to control the isolation of being a new mother (Wilkins et al., 2009). Communication with other women with similar



experience is highly valued in Malta especially by those who set aside their profession and opt to stay at home for the first few years of the baby's life to enjoy the infant growing into childhood. The following section introduces the presentation of the chapters of the thesis.

### **1.3.0 Presentation of the thesis**

The thesis incorporates eight chapters. The introduction is extended with a descriptive account of the Maltese cultural perspectives of mothers. This gives a general view of the Maltese culture in which the respondents in this study lived.

The literature review is based on the two main variables of perineal trauma and general health of postnatal women. Section one discusses perineal trauma including its prevalence and incidence, management, position and pushing in labour and suturing of the perineum. In section two, postpartum women's general health is divided into several items of urinary and faecal incontinence, postpartum psychological well-being and emotional needs, post-traumatic stress disorder, social adjustment to motherhood, postnatal quality of life and postnatal resumption of sexual intercourse and dyspareunia. The chapter concludes with a discussion of the theoretical framework of post-traumatic growth (Tedeschi, Park and Calhoun, 1998).

The methodology comprises two chapters which discuss the outline of the plan and the design of the study, the use of the General Health Questionnaire (Goldberg and Williams, 1988), the testing of data collection tools, ethical considerations and conduct of the research study.

The findings of the study are divided into quantitative and qualitative. The latter is discussed in themes and categories of the main variables of perineal trauma, resumption of sexual intercourse and general health of postnatal mothers. Examples of data excerpts are given with each theme and category.

The discussion chapters discuss the quantitative and qualitative findings in relation to published research. The qualitative chapter draws on the themes and categories in the light of the theoretical framework of PTG (Tedeschi, Park and Calhoun, 1998).

The concluding chapter summarises the combination of the quantitative and the qualitative findings, identifies the study's limitations and makes recommendations for further research, clinical practice and midwifery education.

The next chapter seeks to provide a critical analysis of the published literature on postnatal perineal trauma and general health in women in various countries worldwide.

## **Chapter 2**

### **Literature Review**

#### **2.0 Introduction**

The aim of this study is to explore the relationship between perineal trauma and general health in Maltese women during their postnatal recovery in the first thirteen weeks after normal childbirth.

This literature review seeks to critically analyze midwifery, obstetric, and women's general health research on perineal trauma, perineal pain, continence, resumption of sexual intercourse and general health. The introductory discussion of the research strategy is followed by two main sections of research. The first section discusses perineal trauma, prevalence, incidence, assessment and perineal management. The second examines postpartum general health and perineal trauma including prevalence and persistence of postnatal symptoms of health, postpartum physical health, postpartum psychological well-being and emotional health, social adjustment to motherhood and postnatal quality of life. This literature review is supported by a rationale for the use of the theory of post-traumatic growth (Calhoun and Tedeschi, 1998, Tedeschi and Calhoun, 1995), which is fully discussed towards the end of the chapter.

#### **2.1 Literature search strategy**

A review of the literature relating to the care of the perineum in childbirth and postnatal general health was undertaken using the following databases: Cochrane database, Medline (U.S. National Library of Medicine), CINAHL (Cumulative Index to Nursing and Allied Health) and Zetoc database for periodicals in the British Library.

Keywords included perineal trauma, postnatal perineal pain, incontinence of urine and faeces, perineal suturing, normal birth, dyspareunia, episiotomy, sexuality, women's health and recovery. Manual searches were also carried out and included the use of the Miriad and bibliographic references from journal articles. Whilst there appears to be a significant body of literature on the topic of perineal care during and after childbirth, some of this is anecdotal and was therefore excluded from the literature review. There was a total of 350 papers on perineal trauma and women's

health after childbirth, but only the research based articles were selected and used in this literature review. The studies date from 1980 to 2009 allowing inclusion of seminal studies, such as Sleep et al., (1984), Tulman et al., (1990), Klein et al., (1994) and Wilson et al., (1996) and others.

## **Section 1**

### **2.2 Definition, prevalence, incidence and assessment of perineal trauma**

Perineal trauma is defined as any damage to the female genitalia occurring during childbirth either spontaneously (tear) or by surgical incision (episiotomy) or both (Johanson, 2000). It is a recognised factor causing enduring postnatal perineal morbidity such as incontinence (Webb et al., 2008, Williams et al., 2007a), perineal pain (Declercq et al., 2008, Macarthur and Macarthur, 2005) and dyspareunia (Radestad et al., 2008, Kettle et al., 2002; Arya et al., 2001; MacArthur et al., 2001; Signorello et al., 2001; van Kessel et al., 2001; Barrett et al., 2000; Sultan et al., 1998; Glazener, 1997; MacArthur et al., 1997; Wilson et al., 1996; Johanson et al., 1993; Glazener et al., 1993; MacArthur et al., 1991).

In a large Randomised Controlled Trial (RCT) of care of the perineum during the second stage of normal labour in the UK, Glazener (1998) found that 85% of women sustained some form of perineal trauma. Over two-thirds of such women required suturing. Perineal trauma may affect women's physical, psychological and social wellbeing in the immediate postnatal period (Johanson, 2000) as well as in the longer term (Declercq et al., 2008, Williams et al., 2007a). The intensity of perineal pain can vary from mild to severe (Steen, 2007, Kettle, 2001) and can appear to be related to the extent of injury (Kenyon and Ford, 2004). Some women with intact perineum can experience new-onset perineal morbidity such as pain and soreness, highlighting that enduring perineal morbidity can occur irrespective of perineal trauma (Williams et al., 2007a).

Major themes in the literature include discussion of the assessment of perineal trauma (Ullman et al., 2004), indications for episiotomy (Sleep, 1991), suturing methods and materials (Kettle, 2005) and recovery of the perineum in the postpartum period (Williams et al., 2007a). There are however limitations in the literature and evidence based underpinning care and support to women (Calvert and Fleming, 2000). For example, to date no research has been carried out to explore the

relationship between perineal trauma and general health in postnatal women, including resumption of sexual intercourse and wellbeing. The first section of this literature review will set the context and explore prevalence, incidence of perineal trauma and morbidity, classification and assessment of perineal wounds within several descriptive and explorative studies. Understanding the outcomes of postnatal recovery has implications for facilitating recovery and psychological growth in women who have experienced perineal trauma.

#### *Prevalence and incidence of perineal trauma and morbidity*

Traditionally, the postnatal period has been considered to be a time of rest and rapid return to normal function for mothers following childbirth (Glazener, 2005a). Prior to the 1990's, maternal morbidity had been unrecognised (Glazener et al., 1995) and so the medical and behavioural aspects of postnatal health including perineal pain and dyspareunia (Macarthur and Macarthur, 2005, Glazener, 1997, Glazener et al., 1995) were under-researched. More recently, this aspect of maternal health has been recognised and research in this area has increased (Webb et al., 2008, Williams et al., 2007a).

A large longitudinal survey, Glazener, Abdalla, Stroud, Naji, Templeton and Russell (1995) investigated the prevalence and causes of postnatal morbidity on a 20% random sample of deliveries (n=1249) in Scotland. The aim of the sampling was to collect valid and reliable data from a representative subset of the population of postnatal mothers. Maternal morbidity was measured by the mothers' responses to a list of possible health problems, expressed in lay terms.

Findings showed high response rates to the three successive questionnaires. The mean number of health problems per woman was 2.3 (n=1249) while in hospital, 2.5 (n=1116) in the first 8 weeks at home and 1.8 (n=438) thereafter. It implies that women suffer the most in the early weeks of postnatal recovery. A painful perineum, constipation, piles and stitches breaking down after assisted vaginal delivery were common. Faecal incontinence, though statistically insignificant, was cited by women as a problem that occurred at home in the first eight weeks after a normal delivery. This finding was irrespective of whether an episiotomy was conducted. The incidence of urinary incontinence increased significantly over the time period, 8% reported urinary incontinence more than 8 weeks after the birth of the baby. These study findings illustrate that women report a very high incidence of health problems

after delivery. Only 13% of responders were free of complaints, while a painful perineum was reported to persist beyond 8 weeks in 10% of women. Hence, these study findings appear to highlight postnatal morbidity as both extensive and underestimated.

Glazener et al.'s study (1995) supports a previous comparative study by Johanson et al., (1993) who, in a reasonably sized study of postnatal women (n=413) found that 69% (n=44/64) complained of long-term problems, mainly caused by injuries in the perineum. Another comparative, stratified survey by McGuinness et al., (1991) followed up perineal healing assessments (morbidity) at one to two weeks postnatal in order to study the incidence of lacerations, delayed perineal healing, and the difference in healing between episiotomy and non-episiotomy groups in 367 postpartum women. Findings indicated 4.9% (n=18) of women experienced delayed healing following third degree lacerations. Fourteen women (7.7%, n=14) with episiotomies had delayed healing, while only 2.2% (n=4) in the non-episiotomy group had delayed healing ( $p < 0.05$ ). Episiotomies and lacerations were correlated with long second stages of labour ( $p < 0.05$ ). Although small numbers dominated the results, findings suggest a higher morbidity with perineal healing in the episiotomy group than in the laceration group. It seems that such problems with or without episiotomies can adversely affect women's postnatal general health and recovery.

It appears that the prevalence of genital tract trauma is high (Confidential Enquiries into Maternal Deaths Secretariat, 2001) with spontaneous vaginal birth. For example, Albers, Garcia, Renfrew, McCandlish and Elbourne (1999) documented the range and extent of genital tract trauma following birth and related pain at 2 days, 10 days and 3 months in a low-risk population (n=5,471) from a large randomised clinical trial of perineal management techniques (McCandlish et al., 1998). Findings showed high response rates of 98.3% at 2 days, 97.2% at 10 days and 91.5% at 3 months. Such high response rates show a methodological strength in the study, even though the responses may be regarded to have been provoked by the importance women give to their postnatal experience. Perineal pain levels were reported as high on the second postnatal day and declined over time. The gradient in pain was observed according to the site and complexity of perineal trauma. It was also observed as worthy of note that women with no apparent perineal trauma

reported pain at all time points. Though the proportion of those without trauma was lower than those with trauma, results indicated that pain and discomfort followed vaginal birth even when no visible trauma to the genital tract was involved. What seems clear from the findings of Albers et al.'s study (1999) is that perineal pain in the postnatal period is a problem for women across-the-board calling for midwifery practice to extend comfort measures in perineal health and coping strategies to all new mothers and not to limit such to women with identified trauma.

Further support for this claim has been highlighted in another similar prospective study. Andrews, Thakar, Sultan and Jones (2007) demonstrated that the majority of women (92%, n=173) experienced perineal pain on the first day postpartum regardless of whether a perineal tear had occurred or not. In addition, women who sustained obstetric anal sphincter injuries had significantly ( $p < 0.001$ ) more pain seven weeks after delivery than those with lesser degrees of perineal trauma when at rest, sitting or moving. An interesting element of Andrews et al.'s study is that despite high levels of reported pain, 40% of all women had resumed coitus at seven weeks, which was not influenced by the degree of perineal trauma. As in Albers et al.'s study (1999), women with an intact perineum experienced as much pain on resumption of sexual intercourse as those who sustained severe perineal injuries. The greater amount of perineal pain after delivery, however, resolved in the majority of women within two months of delivery, earlier than that in Albers et al.'s study (1999). It is of note that this time factor may be influenced by the time at which questionnaires (prospectively or retrospectively) are administered and so clinically not significant.

The issues of prevalence and incidence of perineal trauma and morbidity are further explored in other large studies. Macarthur and Macarthur (2005) carried out a prospective cohort study in Canada to determine the frequency of perineal pain in the first six weeks after vaginal delivery and to assess the association between perineal trauma and perineal pain at one day, seven days, and six weeks postpartum. Four hundred and forty four (n=444) postpartum women were followed up, including 84 women with intact perineum, 220 women with first or second degree perineal trauma, 97 with episiotomies and 46 with third or fourth degree perineal tears. Women with an intact perineum after vaginal delivery were the reference group for comparison with the three remaining groups (first- or second-degree tear,

episiotomy, third- or fourth-degree tear). Standardized questionnaires on perineal pain were used at the three-time points and if perineal pain was present it was further quantified with validated pain assessment tools.

Findings showed good response rates of 100% on day one, 95% (n=423) on day seven and 95% (n=424) at 6 weeks postpartum. The frequency of perineal pain varied at all time points being 92% (n=413) on day one, 61% (n=259) on day seven, and 7% (n=30) at six weeks. Data showed a declining rate of pain within the six week postpartum period, but by the sixth week perineal pain was still commonly reported together with other pain, implying that at each time-point increased perineal trauma was associated with an increased frequency of perineal pain. Moreover, the Melzack McGill Pain Questionnaire (Melzack, 1987) confirmed that women with extended perineal trauma (episiotomy extended to third or fourth degree laceration) had increased perineal pain. On day one, only 13% of women with an intact perineum described pain as 'distressing', or they were 'worse for their perineal pain', while 24% in the minimal trauma group, 36% in the episiotomy group and 48% in the third or fourth degree group selected these terms. On day seven, the proportion of women who chose more severe intensity terms diminished to 6% (intact perineum), 14% (first and second-degree), 6% (episiotomy) and 20% (third and fourth-degree), respectively. The multiparous group were less likely than primiparous women to complain of perineal pain after adjusting for the degree of perineal pain on day one, seven, and at six weeks postpartum. The time for cessation of perineal pain was significantly longer for all perineal trauma groups compared to women with no perineal trauma ( $p < 0.01$ ).

Findings suggested that postpartum perineal pain is common to all groups of trauma in all time-periods at day one and seven and at six weeks after delivery regardless of the presence or the type of perineal trauma. However, results demonstrate that the level of perineal trauma is clinically significant insofar as increased perineal trauma was associated with greater pain scores and the selection of more severe pain descriptors, such as 'horrible' and 'excruciating', when compared with the control group of intact perineum (Macarthur and Macarthur, 2005). As with many studies, it can be argued that in spite of all the objective scale measurements for pain used, perineal pain was still considered subjective and personal (such as self-perceived perineal pain) and therefore results of this study should be interpreted with caution.



Although caution is important in the interpretation of the results the coherence with other studies is striking and creates a confidence in accepting the accruing evidence base.

These findings of prevalence and perineal morbidity parallel those of Abraham et al., (1990) who carried out a prospective study in Australia to determine the length of time after childbirth for women to cease experiencing perineal pain. The median time to reach perineal comfort was found to be one month with a range of 0 to 6 months. In another prospective clinical study in Sweden using visual analogue scales (Larsson et al., 1991), the time of cessation of perineal pain was found to be 8 to 12 weeks postpartum. Despite the use of differing measures to assess self-perceived perineal pain, it appears that time is the crucial factor in the cessation of such pain. These studies (Larsson et al., 1991 and Abraham et al., 1990) appear to indicate that even though measurement tools might be different, cessation of perineal pain is influenced by the extent of the trauma and the time it took to heal. It could be argued however, that differences in the measuring tools might have influenced the results, so replication of the studies with larger numbers of participants might or might not reveal agreement in the findings.

In another large prospective observational study on tears and episiotomies during vaginal deliveries in Sweden, Samuelsson, Ladfors, Gareberg, Lindblom, and Hagberg, (2002) studied the occurrence and distribution of various types of first to fourth degree perineal tears during childbirth. The study also analyzed risk factors for perineal second degree tears on a total of 2,883 consecutive vaginal deliveries during 1995-1997.

Findings showed that the frequency of lacerations was higher among primiparous (93.5%) than multiparous women (66.2%). A second degree tear occurred in 34.8% of primiparous women and in 39.6% in multiparous women indicating that second degree tears were slightly more common but not significant in multiparous women. Episiotomy occurred three times more often among primiparous (18.1%) than multiparous women (5.6%). However, this rate is low compared to previous rates of episiotomies because of the changed policy in Sweden with a relatively low rate of episiotomy. Extensive tears with or without episiotomies occurred in 37.3% of primiparous and only 16% of multiparous women. These frequent occurrences of perineal trauma carry the risk of anal sphincter tears in primiparous women who

seem to be more at risk of experiencing higher perineal damage (61.7%) than multiparous women (47.1%).

Additionally, Samuelsson et al., (2002) reported that perineal pain appears to be more common in primiparous women than multiparous women. Moreover, these findings suggest that while primiparous women were subjected to episiotomy three times as often as multiparous women (18.1% versus 5.6%), episiotomy itself increased the risk of serious perineal lacerations as third and fourth degree tears. Another finding was that the laceration rate was high in both groups of women, especially the number of extensive second degree tears, which may cause long lasting complications in the general postnatal health, including perineal health, continence and sexual health.

Therefore, while episiotomy has been regarded to be of benefit in specific situations such as fetal indications (Samuelsson et al., 2002), the risk of extended episiotomy with a third degree tear is increased. However, possible reasons for such risks might vary from mechanical reasons, such as partial or no visualization of the perineum or an occipito posterior presentation to the use of interventions, such as the use of oxytocin or epidural anaesthesia (Samuelsson et al., 2002).

Samuelsson et al.'s (2002) findings are congruent with another large retrospective study (Peon et al., 1997) in the Netherlands which aimed to determine risk factors for third degree obstetric perineal tears in a population of 6,683 women with vaginal deliveries. The major findings indicated 1.8% (n=120) of the population experienced third degree perineal lacerations. Forceps delivery, parity, birth weight >4000 g., duration of second stage of labour beyond one hour, induced labour and the use of epidural anaesthesia were all significantly associated with the occurrence of anal sphincter tears. Primiparous women were at higher risk than multiparous women. The authors recommended the mediolateral episiotomy mainly in primiparous women because they argued that such an episiotomy may be sphincter-saving and therefore may prevent chronic faecal incontinence which is of an enduring postnatal perineal morbidity.

In a recent, retrospective, cross-sectional, community survey of postnatal women, Williams, Herron-Marx and Hicks (2007a) investigated the prevalence of enduring postnatal perineal morbidity and its relationship to perineal trauma. A total

population sample of 2,100 women was surveyed from two maternity units within Birmingham, using a self-administered postnatal questionnaire twelve months after birth. The questionnaire included self-assessment of perineal pain, perineal healing, urinary, flatus and faecal incontinence, sexual morbidity and dyspareunia. Findings showed a response rate of only 23.3% (n=482), which suggests that results need to be treated with some caution. It is possible that those women who took part did so because they had trauma and morbidity to report, a fact which leads to bias within the results. Indeed, the overall level of morbidity within the sample was high at 12 months, with 53.8% reporting urinary stress incontinence, 54.5% sexual morbidity and 30.3% dyspareunia. Rectal morbidity seemed to be less common, but still high with 9.9% reporting some degree of liquid faecal incontinence and 5% having some degree of solid faecal incontinence. Also, at one year after birth, 32.6% of women who had had an episiotomy or tear still experienced some degree of perineal pain. Women with perineal trauma reported significantly more morbidity than women with an intact perineum. Women who experienced a perineal tear or an episiotomy resumed sexual intercourse significantly later than women with intact perineum. More women with a first or second degree perineal tear reported urinary stress incontinence and sexual morbidity than women with intact perineum. The findings also identified a high number of women with intact perineum reporting new-onset of postnatal perineal morbidity (for example, 34.8% urinary stress incontinence). This again reinforces the message that enduring perineal morbidity occurs in women with and without perineal trauma. As indicated above, this mentioned study had a relatively small sample size (n=482) and did not always reach a level of significance in comparison with other cohort groups, so results should be treated with reserve. However, it appears that women across all grades and types of perineal trauma can still experience perineal morbidity in spite of the changes over time in the management of perineal trauma. This highlights the need for further research into the prevalence of postnatal morbidity and the relationship between perineal trauma and general health.

In addition to the above study, Herron-Marx, Williams and Hicks (2007) explored 20 women's experiences of enduring postnatal perineal and pelvic floor morbidity in a retrospective Q methodology study between 12 and 18 months postpartum. In this method of data collection the participants sort their statements into a number of piles according to specified criteria (Polit and Hungler, 1999). The findings identified five

factors, each of which represented a 'story' of women's experience of enduring postnatal perineal morbidity: perineal morbidity of minor inconvenience, insufficient support and services, the 'taboo' subject of enduring perineal and pelvic floor morbidity, normalising morbidity and the isolation of perineal morbidity. Women's experiences of enduring postnatal perineal and pelvic floor morbidity varied from minor problems with little affect on daily living to significant ones which affected women's general health. Women identified a lack of service and a persistent lack of recognition among health-care professionals and society at large, which dismissed or trivialised their experiences of enduring postnatal perineal morbidity. Such findings enhance the importance that both midwives and women alike come to know of the prevalence and incidence of perineal trauma and morbidity. In addition, findings highlight the possibility that the postnatal recovery period is longer than the estimated six weeks and that the effects of postnatal perineal trauma and morbidity may vary between women. Findings also identified the need for longer term postnatal health support which addresses the women-centred outcomes and quality of postnatal life. Social support plays a significant role in the development of the well-being women feel when receiving care. While prevalence and incidence of perineal trauma following childbirth assumes a high priority and is fairly consistently documented, there appears to be very little information in midwifery literature with regards to classification and assessment of perineal wounds.

#### *Classification and assessment of perineal wounds*

Perineal trauma is currently classified according to the severity of the wound and the number of tissue layers involved (Royal College of Obstetricians and Gynaecologists, 2004). Perineal wounds and tears are most common in first-time mothers (primiparae) because the perineum is more likely to be rigid (Gould, 2007) and they can re-occur with later births. In a literature search of randomised trials and large studies, Byrd, Hobbiss and Tasker (2005) found that a previous third degree tear increases the risk of a subsequent one, even though the overall risk remains low. The incidence of third and fourth degree tears is estimated to be less than 1% (Davis et al., 2003). Although the numbers seemed to be low, these cases are clinically significant because of the distress they can cause women in the longer term (Steen, 2007). The majority of spontaneously occurring perineal tears are classified as second degree tears (Steen, 2007).

Ullman, Yiannouzis and Gomme (2004) argue that in practice, classification of first, third and fourth degree perineal tears may not be difficult to classify but classification of second-degree perineal trauma is much more varied. Second degree tears often extend up both sides of the vagina and can be quite long and deep. However, by definition, a small tear involving only a small section of the perineal muscles would also be classified as second degree tear. Thus, the current definitions of perineal trauma, especially second degree trauma, are too broad and give little information about the extent of tissue damage (Ullman et al., 2004).

Metcalf (2004) developed and tested a measuring device, called the Peri-Rule, which quantifies the size of a perineal tear. It would not be relevant to discuss here the midwives' mixed views in the utility of this tool, but it is argued that the ability to measure a tear can provide more accurate information in making decisions about subsequent care, advising women, and managing whether the perineal tear should be sutured or not. Prior to Metcalf (2004), Gomme et al., (2001) had argued that no tool had yet been devised which takes into account the tear complexity, such as branched tears or the degree of bleeding. The perineal assessment tools then in use in midwifery practice could only assess the measurement of healing, but not the trauma itself (Steen and Cooper 1997, Davidson, 1974). Since then, Gomme et al., (2001) developed and evaluated a perineal assessment tool, but despite midwives reporting ease of use, its reliability and validity require further testing before its adoption in clinical practice.

The assessment and classification of the genital tract injury is an important aspect of care in the immediate postpartum period (Steen and Cooper, 1997). The purpose of this assessment is to identify trauma requiring intervention, stop bleeding, take measures to promote healing and to restore function to the traumatised perineal tissues and avoid long-term perineal morbidity which can have a negative effect on the woman's general quality of life, including sexual health. The National Institute for Health and Clinical Excellence (NICE, 2006) in the UK recommends that every postnatal woman should be asked about perineal pain at each professional contact. In Malta, the same recommendation could be made. In the first six weeks postnatal, women in both countries receive care from a midwife. However, as previously highlighted, the length of time required for healing can vary according to the extent of trauma while perception of pain is highly individual (McCandlish, 2001). Thus,

women may continue to experience pain and discomfort beyond the early postpartum period at ten days, or later at six weeks postpartum. Although research has been carried out on the extent of trauma women experience (Declercq et al., 2008, Williams et al., 2007a, Macarthur and Macarthur, 2005, Samuelsson et al., 2002), there exists no research on how perineal trauma can affect the general health of women in the longer term following childbirth. The present literature review continues to explore the management of perineal trauma and its subsequent effects in the general health of women in the extended postpartum period.

### **2.2.1 Perineal management**

Postpartum delay in the resumption of sexual intercourse and dyspareunia defined as perineal pain around sexual intercourse (Barrett et al., 2000) were clearly identified as important outcome measures in early midwifery and obstetric perineal management trials (see for example Glazener, 1997, Glazener et al., 1995, Klein et al., 1994, Johanson et al., 1993, Sleep et al., 1984). These outcome measures have continued to be utilised within more contemporary studies (Declercq et al., 2008, Albers et al., 2006, E. M. Fleming et al., 2003, N. Fleming et al., 2003, Barrett et al., 2000, Brown and Lumley 1998a, Barrett et al., 1998, McCandlish et al., 1998).

The formative study by Sleep et al., (1984), which was the first midwifery-led research study, found that about 20% of women (n=1000) at 3 months postpartum were suffering from dyspareunia. Johanson et al., (1993) found a similar prevalence among women (n=413) with spontaneous deliveries who were followed up to 15 and 24 months postpartum. Barrett et al., (2000) in a cross sectional study reported that 62% of women (n=796) experienced dyspareunia at some time during the three months following birth, half of whom continued to experience this at six months. These perineal studies indicated that persistent dyspareunia seemed to be prevalent among women who had spontaneous vaginal deliveries at any time from 3 to 24 months postpartum, with a resultant delay in the resumption of postnatal sexual intercourse within the first six months after birth. It would therefore seem that during the period 1984 to 2000 women's experience of dyspareunia and the consequential delay in the resumption of sexual intercourse have remained fairly constant. This might indicate that, either the practice in perineal management has remained static or that new methods have not effectively addressed the problem. An

appropriate and effective perineal management during and after childbirth remains therefore an issue of concern (Kettle, 2005).

Prior to Sleep et al.'s earlier studies (Sleep et al., 1991, 1984), there was little scientific evidence on perineal management techniques, such as episiotomy versus perineal tears, their differential effects on dyspareunia and any subsequent delays in the resumption of sexual intercourse.

In a seminal randomised controlled trial (RCT) of a restricted versus a liberal episiotomy policy, Sleep (1991) assessed the effects of episiotomy use among women, who towards the end of the second stage of labour were expected to have a spontaneous vaginal delivery. Midwives were asked to avoid episiotomy for women randomly allocated in the restricted group (n=498), performing it only if fetal indications, such as bradycardia, tachycardia, or meconium stained liquor were present. In the liberal group (n=502) the midwife was asked to perform episiotomy if fetal indications were present but also to prevent perineal tears.

Whilst different policies resulted in a higher incidence of tears and intact perineia in the restricted group there were, however, no differences in perineal pain at 10 days or at 3 months, or in dyspareunia at 3 months postnatal in either group. Nevertheless, women in the restricted group were more likely to have resumed sexual intercourse within the first four weeks of delivery. The authors argued that delay in the resumption of sexual intercourse might have been due to the conscious relationship between perineal trauma and pain. For example, a key factor might be the use of stitches, irrespective of whether these were for an episiotomy or a tear. The researchers concluded that the reappraisal of the rationale that episiotomies were of benefit to women's perineal health in normal spontaneous deliveries was timely.

Further studies on perineal management aimed to expand Sleep's findings. Klein et al., (1994) similarly explored restricted versus liberal use of episiotomy outcomes. They concluded that there were no differences between the two groups at 1 and 10 days postpartum with respect to perineal pain or sexual problems such as dyspareunia and in the resumption of sexual intercourse at 3 months postpartum. Data analysis from another study (Glazener, 1997), intended to determine the independent predictors of pain and difficulty with sexual intercourse at 8 weeks postpartum using logistic regression, showed episiotomy to be an independent

predictor of dyspareunia and delay in the resumption of sexual intercourse. Thus, while Sleep's and Klein et al.'s studies found no difference between the groups, in contrast Glazener concluded that different perineal management had to be adopted, when considering episiotomy in relation to dyspareunia and delayed resumption of sexual intercourse. These findings suggest that the evidence linking episiotomy and dyspareunia is incongruous. This notwithstanding, findings do highlight the need for better management of perineal care during labour and further research into the relationship between perineal trauma and women's general health in order to promote postnatal quality of life.

Currently a range of clinical approaches to perineal care management during labour are in use. Few, however, have been evaluated resulting in a paucity of evidence regarding the impact on postnatal perineal morbidity (Macarthur and Macarthur, 2005; McCandlish et al., 1998). Yet a few studies have attempted to explore perineal management with an aim to reduce maternal postpartum perineal morbidity, and the review now goes on to examine these studies.

In a large UK RCT (n=5471) on the evaluation of perineal management, McCandlish, Bowler, van Asten, Berridge, Winter, Sames, Garcia, Renfrew, and Elbourn (1998) compared the effect of two methods of perineal management used by midwives at the end of the second stage. The main outcome measures were the prevalence of perineal pain reported by women at 10 days after birth and pain and dyspareunia at 3 months. The methods of perineal management were 'hands on' (the midwife placed pressure on the baby's head to 'guard' the perineum) and 'hands poised' (the midwife kept hands poised, not touching the baby's head or the perineum and allowing spontaneous delivery of the shoulders). This study is known as HOOP (Hands On Or Poised) study.

Questionnaires were completed by 97% of women at 10 days after birth. Nine hundred and ten women (n=910, 34.1%) in the 'hands poised' group reported perineal pain in the previous 24 hours compared with 823 women (31.1%) in the 'hands on' group (p=0.02). These findings imply that a statistically significant number of women could potentially benefit from a reduction in pain at 10 days postpartum if the 'hands on' method of guarding the perineum is used during the second stage of their delivery. This study does not however conclude whether the difference of 3% is clinically significant or not. The level of pain experienced by



both groups at 10 days following birth was largely in the 'mild' category ('hands on': 20.9% felt 'mild' pain, 'hands poised': 23.5% felt 'mild' pain) (McCandlish et al., 1998). By 3 months postpartum no significant difference in level of perineal pain was found in either group. Whilst this study can be accepted as a high quality randomised controlled trial, it is difficult to accept the findings as generalised evidence on which to inform practice. The instrument for measuring pain as 'mild', 'moderate' or 'severe' to accurately identify which of the methods was most effective in reducing postnatal perineal morbidity can be misleading because pain is known to be an experience unique to the individual woman. Indeed, the pain assessment analyzed and reported was not individual's pain but that of the group of women allocated to one method of perineal management compared with those who were allocated to the other (McCandlish, 2001).

Rigour was ascertained by the use of statistical methods which resolved the possibility that most midwives might have been more familiar with the 'hands on' method and less confident about the 'hands poised' method. In fact, self-reported compliance was higher in the 'hands on' group compared with the 'hands poised' group, signifying that a cross-over between the two groups could have occurred. This is understandable, considering that a light touch on the baby's head in case of rapid expulsion was sanctioned in the 'hands poised' method and that midwives deviated from the 'hands poised' policy when they felt the need to deliver the shoulders. 'Hands on' and 'hands poised' are some of the interventions in perineal management during a normal delivery, which together with the use of episiotomies may affect women's perineal health after childbirth in the short and long term.

The findings of McCandlish et al.'s (1998) study may be supported from a different stance by a previous quasi-randomised study in Denmark (Henriksen, Bek, Hedegaard, and Sedher, 1992) which evaluated the effect of mediolateral episiotomy following spontaneous singleton vaginal deliveries with 2,188 consecutive women. The study had a two-way approach design. Firstly, women were quasi-randomized to one of three equally sized groups of midwives with different attitudes towards episiotomy (according to the frequency with which midwives performed episiotomy). Secondly, the study analyzed the effect of episiotomy on the state of the anal sphincter after controlling for birth weight, parity and duration of the second stage of labour.

Findings showed that the total number of episiotomies was 37.3% (n=815) distributed among the 3 categories of midwives with low, medium and high episiotomy rate. There were 37.5% of women (n=303) with intact perineum delivered by midwives with low episiotomy rates compared with 25.5% (n=152) intact perineum delivered by midwives with high episiotomy rates ( $p < 0.005$ ). However, there was a greater incidence of tears in the group of midwives with the lowest proportion of episiotomies (51.8%; n=325 versus 45.5%; n=166 in the two groups with higher rates of episiotomy). Moreover, lesions of anal sphincter occurred in the three groups but the difference between occurrences was not significant.

Lesions of the anal sphincter were found 3 times more often in women with episiotomies than in those without episiotomies and this persisted risk remained significant (OR=2.3) after controlling for parity and baby's birth weight. Overall frequencies of episiotomies were higher in primiparous than multiparous women.

The findings of Henriksen et al.'s (1992) study indicated that women delivered by midwives with a low frequency of episiotomy were more likely to have intact perineum than women delivered by midwives with high frequency of episiotomies. The slight tendency towards more perineal tears in this group of midwives with low rate of episiotomies compared to the group with higher rates might give rise to concern if complications related to tears were more severe than those related to episiotomy. However this was not the case, as the frequency of long-term complications, such as urinary incontinence and dyspareunia after delivery, has been shown to be independent of whether the use of episiotomy was restricted or liberalised (Albers et al., 1999, Klein et al., 1994, Sleep, 1991, Sleep et al., 1984). Compared with episiotomy, spontaneous lacerations have later been known to give decreased severity of dyspareunia three months after delivery (Barrett et al., 2000, Eason and Feldman, 2000).

Henriksen et al. (1992) demonstrated that damage to the anal sphincter may give rise to the most serious long term postpartum complications along with urinary incontinence and dyspareunia. After controlling for birth weight, parity and duration of second stage of labour, results showed that the risk of a tear of the anal sphincter was more than doubled following the delivery with mediolateral episiotomy compared with delivery without episiotomy. Nonetheless, Henriksen et al. (1992)

continued to show that there was no relationship between episiotomy and lesions of the anal sphincter once the impact of episiotomy on lesions of the anal sphincter in the low frequency midwives' group was analyzed and the variables mentioned above controlled. These results appear to suggest therefore, a conservative approach to the use of episiotomy with perineal management and midwifery clinical skills well utilised.

Recently in the UK, medical professionals have been concerned that mediolateral episiotomies are not truly mediolateral but rather midline (Andrews, Sultan, Thakar, Jones 2006). Although midline episiotomy is a recognised risk factor for anal sphincter injuries, the effect of mediolateral episiotomy is controversial (Poen et al., 1997, Sultan et al., 1994). Andrews et al., (2006) carried out a prospective, explorative study to identify risk factors associated with the development of sphincter injuries in a cohort of 254 primiparous women. An experienced researcher performed a perineal and rectal examination and classified tears according to the international classification of perineal tears (RCOG, 2004). In addition, dimensions of episiotomies were measured and correlated with sphincter injuries and confirmed by a specialist registrar.

In this study there was a response rate of 95% (n=241) of mothers. Anal sphincter injuries occurred in 25% (n=59) of deliveries. Of these injuries, 30 occurred in women whose deliveries were conducted by midwives who missed 26 (87%) injuries and 29 were in women delivered by doctors who failed to identify 7 (24%). Mediolateral episiotomies were performed in 41 women (69%), who sustained such injuries. Episiotomies that were angled more acutely than 40° from the midline were associated with a significant increase in the risk of sphincter injuries ( $p < 0.001$ ).

This is the first prospective study to assess risk factors for sphincter injuries. It demonstrated that when an experienced researcher re-examined primiparous women, identification of sphincter injuries doubled, with the main risk factor being the delivery by midwives. Thirty eight percent of women (n=30) delivered by midwives with an episiotomy sustained sphincter injuries when the mediolateral episiotomy was believed to prevent sphincter injuries (Sartore et al., 2004, Poen et al., 1997). Meanwhile, a systematic review of randomised trials (Carroli and Belizan, 2004) contradicted this belief of safe episiotomy and advocated a policy of restrictive use of mediolateral episiotomy which they argued is associated with less perineal

trauma. Andrews et al., (2006) also demonstrated that most intended mediolateral episiotomies were not actually mediolateral but rather midline episiotomies. In this study it is not clear whether midwives were performing effective checks post delivery, or whether they were assuming that because they have done a mediolateral episiotomy there would be no sphincter damage. It was assumed that it was possible to identify the missed injuries during the repair of the perineum. Lack of training in classification of perineal trauma by practitioners has previously been highlighted (Tincello et al., 2003, Sultan et al., 1995). Therefore, the use, type and technique of episiotomy would seem to require further examination in order to identify a better safeguard to maternal perineal health.

The importance of a conservative approach to the use of episiotomy is thus evidenced by most of the studies reviewed so far (Andrews et al., 2007, Andrews et al., 2006, Albers et al., 1999, Henriksen et al., 1992, McGuinness et al., 1991, Sleep, 1991, Sleep et al., 1984). Such evidence is also explored in a further prospective quantitative study. Fleming, Newton and Roberts (2003) examined the relationship between perineal management at birth and postpartum perineal muscle function (n=102 women). Findings showed that the degree to which women improved or did not improve perineal muscle function after birth was related to the extent of perineal trauma at delivery. Women with an episiotomy had more net loss of perineal muscle performance after birth, an observation which clearly does not support the use of episiotomy (N. Fleming et al., 2003). These findings appear to suggest that for an optimum perineal management at delivery, midwives should endeavour to promote sound perineal muscle function in order to prevent long-term complications, such as urinary stress incontinence, faecal incontinence, postpartum pain and dyspareunia and delayed resumption of sexual intercourse.

Findings from the above studies on perineal management suggest that it is imperative that women receive high quality evidence-based care that helps them make informed choices. Furthermore, practitioners should receive appropriate structured training in safe management of the perineum in order to minimise both the short and long-term maternal morbidity. Implementation of evidence-based practices that reduce postpartum perineal trauma and make vaginal birth more desirable should be encouraged (Kettle, 2005). In this way, women and midwives can together ask and answer questions about routine care, for example, whether

active intervention or non-intervention is likely to provide women with better experiences of birth and lifelong postnatal health. The state of the perineum is clearly affected by decisions around perineal management. Other stances of improving or hindering optimum perineal management are the utility of different maternal positions and pushing during birth, and suturing of the perineum.

### *Positions during birth*

Lithotomy and squatting positions in labour have been demonstrated to increase perineal trauma and to be the cause of considerable pain and reduced quality of life in the affected women (Gottvall et al., 2007, Soong and Barnes, 2005, Shorten et al., 2002). These two positions are the major cause of anal and faecal incontinence in previously healthy women (Zetterstrom, 2003, Zetterstrom, 1999). The degree of postnatal morbidity for such women is directly related to the degree of genital tract trauma (Albers et al., 1999). In practice, positions during birth are applied as management techniques to reduce perineal trauma, but these are often based on anecdotal or practical experience rather than research-based evidence.

Gottvall, Allebeck and Ekeus (2007) assessed the role of maternal position in the second stage of labour as a risk factor for anal sphincter tears in an observational cohort study carried out in Sweden with a population of 12,782 women. They analysed each birth position separately. The main findings showed that anal sphincter tears occurred in 449 women (3.5%). Consistent with other studies, trauma was more frequent in primiparous (5.8%) than in multiparous women (1.7%). The highest occurrence of anal sphincter tears was found among women who gave birth in the lithotomy position (6.9%), followed by the squatting position (6.4%). Furthermore, logistic regression analysis adjusting for different types of risk factors (such as maternal age, length of gestation and induction of labour) still indicated that lithotomy and squatting positions were associated with a significantly increased risk for anal sphincter tears. Supine, semi-recumbent, lateral recumbent and kneeling positions showed a tendency to decreased risk for anal sphincter tears, although this was not statistically significant. Other risk factors for anal sphincter tears were prolonged second stage of labour, infant birth weight more than 4000g and infant's head circumference more than 35cm. Limitations with the study included no record of how long the women adopted the position for giving birth. Other aspects of perineal management were not recorded and data were based on routine recordings

by the midwife with an inherent risk of underreporting or misreporting. In spite of any limitation in this observational study, its results are part of growing evidence that birth positions may affect perineal trauma, although the current evidence on the overall effects of various delivery positions is inconclusive.

The growing evidence that birth positions may affect perineal outcome remains tentative, with most recommendations focusing on women making informed choices based largely on positions they find most comfortable at the time of birth (Gupta and Nikodem 2002). Shorten, Donsante and Shorten's (2002) descriptive study aimed to address the effect of maternal birth position on perineal outcome in a retrospective analysis of 2,891 consecutive normal vaginal births in Australia. Multiple regression analysis showed a statistically significant association between birth position and perineal outcome. The lateral position was associated with the most favourable perineal outcome achieving a high intact perineal rate of 66.6%, while the squatting position had the highest tear-requiring-suture rate, with the highest rate of the most severe trauma and the lowest rate of intact perineum. Thus, the evidence from this study in association with Gottvall et al., (2007) appears to highlight the potential benefit of using the lateral position in promoting an intact perineum.

These findings are further supported by another observational prospective study in Australia (Soong and Barnes, 2005) that aimed to examine the association between maternal position at birth and perineal outcome in spontaneous vaginal births. While the semi-recumbent position, once again, was associated with the need for suturing, the lateral position was associated with reduced need. Additionally, Soong and Barnes (2005) found that other alternative positions were no better than the semi-recumbent position. The small numbers in several of the birth positions rendered a lack of statistical significance. Hence, Soong and Barnes (2005) concluded that women should be given the choice to give birth in whatever position they find comfortable.

Whilst it seems that birth position may well have some impact on the incidence of perineal trauma and anal sphincter damage, the evidence remains largely inconclusive. Carroli and Belizan (2004) hold that maternity practitioners have the responsibility to keep women informed about birth position and the possible perineal trauma so that women are enabled to make their informed choice.

### *Pushing in labour*

A further method of perineal management used by midwives that may affect maternal perineal morbidity is the type of pushing used in the second stage of labour. Sampselles and Hines (1999) carried out a retrospective survey in the USA where women were asked to describe the type of pushing they used in the second stage of labour and the level of perineal pain (using a visual analogue scale) during the first week postpartum. Questionnaires were sent to 47 participants of a larger study of pelvic floor changes in primigravid women followed through pregnancy and the postpartum period.

There was an 83% (n=39) response rate. Responders were classified into two groups: the directed pushing group and the spontaneous pushing group. Twenty eight percent (n=11) reported using spontaneous bearing down efforts, while 72% (n=28) were directed in their pushing effort. No one in the sample sustained greater than a third degree laceration. Statistically significant different perineal outcomes, such as intact perineum, first, second or episiotomy and third degree lacerations were shown between the spontaneous and the directed pushing groups (p=0.043), while the level of perineal pain during the first week postpartum (as reported on the visual analogue scale) ranged from 2.33 to 7.50 points (p=0.086), with a possible range of zero (no pain) to 10 (greatest pain). Women in the spontaneous pushing group showed a trend towards reporting lower levels of pain in the first week postpartum as compared to women in the directed pushing group. This would seem clinically relevant when even those women without perineal trauma report postnatal morbidity as discussed above (Williams et al., 2007a, Mason et al., 1999a).

Furthermore, the amount of perineal disruption (categorized as either intact perineum, first degree laceration, second degree or episiotomy, or third degree laceration) predicted the postpartum pain score (p=0.005). The results imply that spontaneous pushing safeguards perineal integrity which then is likely to lead to lower levels of postpartum pain. Therefore, Sampselles and Hines's (1999) study demonstrated that the type of pushing accounted for a significant difference in perineal outcome in this group of primiparous women. Other variables such as maternal age, length of second stage of labour and epidural analgesia did not differ between groups. Moreover, pain in the first week postpartum was associated with the extent of damage of injured perineal tissue. Despite problems with study

numbers and a possible recall bias on the type of pushing effort in the second stage of labour, spontaneous pushing appears to have a protective effect. These findings are congruent with other claims. Results from a randomised controlled trial of perineal management techniques (Albers et al., 2006) showed that for all mothers, delivery of the infant's head between contractions was associated with reduced trauma to the genital tract. Albers et al., (2006) concluded that delivery technique which is unrushed and controlled may help reduce obstetric perineal trauma in normal, spontaneous vaginal birth.

There has been no formal evaluation of whether, or how, such results from perineal management studies (including studies on pushing in labour) have been used in practice, but there has been some debate about the worth of the studies and the conclusions drawn in the primary articles. For example, the HOOP study was criticized for researching aspects of care that were themselves iatrogenic, since in directing the midwife what to do with her hands could result in the women being obliged to adopt positions for birth that rather suited the midwife (Wickham, 2000). The same interference in the process of labour occurred in the directed pushing in labour with the resultant extent of damaged perineal tissue and its associated pain. Midwives may or may not use either of these techniques. The issues raised by these critiques are important. No matter how well conducted a clinical research study is, it is of little relevance if the results are not meaningful and useful to women accessing care and to practitioners offering that care. Another key issue in this debate around perineal management and care is the suturing of the perineum and the benefits and efficacy of repair or non repair to women.

#### *Suturing the perineum*

In clinical practice, trauma in the perineum is usually sutured, a process which is associated with tissue handling usually via toothed forceps, hence bruising and inflammatory changes are more likely with resultant increase in pain (Oboro et al., 2003). Moreover, sensitive skin nerve endings may be traumatised during skin repair (Kettle, 2005). Evidence suggests that bruising and inflammatory changes are reduced with two layered perineal repair and could partly explain the reduced short-term experience of pain in those women who are sutured after delivery (Oboro et al., 2003, Gordon et al., 1998).



Significant research efforts have focused on the most effective materials and methods for perineal suturing (Kettle et al., 2002). Three systematic reviews have demonstrated that a subcuticular continuous suture of absorbable synthetic polyglycolic acid and polyglactin 910 heals better than by using other materials and techniques, with less oedema or bruising, and is associated with less short term pain than any other methods (Kettle and Johanson, 1998a, Kettle and Johanson, 1998b, Grant, 1989). Nevertheless, there is evidence that women whose perineae are sutured experience more or less pain than those who are not sutured (Macarthur and Macarthur, 2005). In their prevalence survey, Macarthur and Macarthur (2005) found that some women with intact perineum complained of pain as much as those others with episiotomies or sutured lacerations. In addition, there is some evidence that the non-sutured perineum does not heal as well as a sutured perineum, in women up to six weeks postpartum (E. M. Fleming, Hagen, Niven 2003), which would seem to indicate the benefits of suturing. E. M. Fleming et al., (2003) carried out a parallel group randomized trial in the UK to examine differences in the outcome between primiparous women who did and those who did not have suturing of first or second degree perineal lacerations sustained during spontaneous vaginal births after 37 weeks gestation. Different data collection tools were used in the study: the McGill pain questionnaire (Melzack, 1975) which assessed quality of perineal pain; the visual analogue scales (VAS) which measured the quantity of pain; the REEDA tool (Davidson 1974) which assessed the redness, oedema, ecchymosis, discharge and approximation associated with the perineal trauma, and the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) which assessed general health.

Findings showed that from a total of 1,314 antenatal women that were recruited, 1,240 were excluded (74% of women recruited to the study were ineligible through medical intervention or intact perineae and others were missed) and 74 were randomized after the delivery to the suturing (n=33) and non-suturing (n=41) groups. Only 70 remained at 6 weeks of the study. There were no significant differences in the total McGill Pain Questionnaire Scores, the VAS pain scores, the use of analgesia or other treatment for perineal pain and in the EPDS scores. However, the clinical experience of midwives involved in data collection and analysis found that the women with sutured perineae often experienced tightening of the sutures and an increase in pain at 10 days postpartum, possibly due to the

method of suturing. Additionally, midwives also noted that the breastfeeding rate was higher in women who could sit comfortably with an unsutured perineum. The REEDA score was significantly lower in the sutured group at 6 weeks ( $p < 0.001$ ) and there was a significantly higher proportion of women ( $p = 0.001$ ) with a closed tear in the sutured group (26/31) compared with the non sutured group (16/36). Hence, better healing is associated with sutured tears, although not without detrimental side effects, such as prolonged perineal pain and difficulties in breastfeeding.

The small sample size limited generalization of the findings. However, the tentative findings indicated that women whose perineae were sutured did not show more or less pain than those with unsutured perineae, and the unsutured perineum did not heal quite as well up to six weeks postpartum. These findings endorse the practice of continuing suturing perineal lacerations. These findings are further supported by a recent, larger, prospective cohort study in Birmingham where Metcalfe, Bick, Tohill, Williams and Haldon (2006) compared longer-term physical and psychological outcomes of repair with non-repair of second-degree tears at 24 hours, 10 days, 12 weeks and 12 months using validated assessment tools. The main outcome of interest was prevalence of perineal pain. Two hundred and eighty-two women (196 sutured and 86 unsutured) were recruited. There were no statistically significant differences in perineal pain although high levels of morbidity persisted in both groups. This study, similar to E. M. Fleming et al.'s (2003) findings, concluded that there was no evidence to show that women who had suturing of perineal tears experienced more or less pain than those who did not. It had also provided evidence to suggest that there was no long-term difference in the outcome of perineal pain. Thus, Metcalfe et al.'s (2006) study does not advocate a change in practice from suturing to non-suturing of second-degree perineal tears. A main limitation in the study was the lack of information on how midwives selected women to be sutured or not sutured prior to recruitment. This might have an influence on the findings. The authors suggested a randomised controlled trial of alternative approaches to the management of perineal trauma.

Metcalfe et al.'s (2006) findings are in contrast to a similar prior study conducted in Sweden. In a randomised controlled study, Lundquist, Olsson, Nissen and Norman (2000) compared the healing process and experiences of 80 participants where

lacerations were sutured (in the control group) or left to heal spontaneously (in the experimental group). The main findings showed no statistical difference in healing of the vagina and the perineum, whilst 78% of the sutured group and 76% of the non sutured group did not consider sexual intercourse to be affected by pain in the perineum. These findings concur with those of Metcalfe et al., (2006) and E. M. Fleming et al., (2003) with the difference in the healing process in E. M. Fleming et al.'s study with women who had not been sutured having poorer wound approximation at six weeks postnatal. In contrast to the standardised tools used by Metcalfe et al., (2006) and E. M. Fleming et al., (2003), Lundquist et al., (2000) utilised clinical experience to examine the perineum at three time points and also a questionnaire at each of the three time points. Such methods might have positively influenced the results because of the individual contact with an experienced midwife. In addition, women's perceptions will not be as informed in nature but based on their self-perception and not on physical examination. However, the small sample size in both studies (E. M. Fleming et al., 2003, Lundquist et al., 2000) might have limited their power to detect significant effects. Ultimately, such contrasting findings need further randomised studies with larger numbers of subjects.

Another earlier but larger study compared perineal repairs and their short- and long-term affects on women postpartum. Gordon, Mackrodt, Fern, Truesdale, Ayers, and Grant (1998) carried out a stratified randomized controlled trial in the UK using a 2x2 factorial design to evaluate a policy of two-stage postpartum perineal repair leaving the skin apposed but unsutured, compared with the standard three-stage repair which included interrupted or subcutaneous skin sutures. Face to face interviews at 24 to 48 hours and at 10 days after birth were followed by an examination of the women's perinea. At three months postpartum a self completed questionnaire was undertaken.

There was a response rate of 93% (n=1664) at the end of the three month questionnaire. There were no differences in perineal pain at 24 to 48 hours or at 10 days although women allocated to the two-stage repair were less likely to report pain on tight sutures ( $2P=0.06$ ). A highly significant difference in clinically assessed gaping in the two-stage group was found ( $\chi^2 = 125.9, 1 \text{ df}; 2P < 10^{-7}$ ) at 24 to 48 hours postpartum. The difference of gaping persisted at ten days postpartum but was less marked ( $2P < 10^{-5}$ ). At three months women with the two-stage repair reported

less pain in the preceding week ( $2P=0.07$ ). More women in the two-stage repair group had resumed pain-free intercourse ( $2P=0.12$ ) and significantly fewer reported dyspareunia ( $2P=0.04$ ) and significantly fewer women reported removal of sutures ( $2P=<0.01$ ).

The findings of this study indicated no adverse effects when using a two-stage repair method. Wound edges gaping would heal without presenting any problem. Data suggest a reduced risk of wound breakdown and a subsequent need for re-suturing and fewer women in the two-stage group reported that sutured material had been removed, particularly when compared with three-stage repair method using interrupted sutures. There were no differences detected in perineal pain or analgesia use at 24 to 48 hours and at 10 days. However at 3 months, differences did emerge as, in case of the two-stage repair method, there was less perineal pain and a tendency for more women to resume pain-free intercourse. There were fewer reports of dyspareunia in the two-stage group. Findings indicate a two-stage repair of perineal trauma, that of leaving the skin unsutured, which appears to reduce pain and dyspareunia at three months postpartum.

This study is supported by the findings of another similar randomised trial in Nigeria (Oboro et al., 2003) which suggested that, in addition, the two layered perineal repair might have the advantage of promoting a reduction in maternal sexual morbidity after childbirth and early resumption of sexual activity, thereby reducing HIV transmission and its consequences in extra-marital sexual practices (Oboro et al., 2003).

Recently, Langley, Thoburn, Shaw, and Barton (2006) carried out a randomised controlled trial in the UK to assess the relative rates of perineal healing, pain, return to normal urinary and sexual functions, subjective perception of healing and quality of life between women whose perineia had been sutured after second degree tears and those which had not. The trial population consisted of 200 women who had sustained a suitable second degree perineal tear. The project team designed an evaluation sheet to measure severity of oedema, bruising, healing and infection. All women responded to a questionnaire that included a general quality of life measure assessed by the standardised SF-36 (Ware and Sherbourne, 1992) at 5, 10, 28 days, 6 weeks, 6 months and 1 year postpartum, together with a midwife's visit at the first three time points.

The initial response rate was 27% (1,640 out of 6,142 deliveries) with only 200 women ultimately randomised. Refusals were very high, mainly because of the way in which women were initially approached, for example in the antenatal classes, where it was not possible to keep accurate figures of how many women were invited to participate.

Findings showed no differences between groups except on midwives' assessment of healing at 5 days ( $p=0.014$ ) with sutured women having more partial healing and less gaping. There were significant differences between groups on pain relief at day 1 ( $p=0.038$ ), days 2-5 ( $p=0.029$ ), and days 6-10 ( $p=0.025$ ) with the sutured group using more pain relief in each case. Perception of healing showed no significant difference between groups at any stage. However, reports of 'feeling back to normal' tended to be more likely in the non-sutured group at 6 weeks ( $p=0.045$ ). Ninety percent of all women reported the perineum back to normal at 6 months. There were no significant differences in the resumption of sexual intercourse or social activities. However, there was a tendency for sutured women to suffer more urine leakage ( $p=0.07$ ). Overall there was a significant improvement over time in quality of life ( $p\leq 0.001$ ) as reported on the questionnaire. Exceptions to this were the mental health and general health perception in the sutured group for which there were significant deteriorations. This might have been because the act of suturing gave an impression of a more severe perineal trauma.

These findings demonstrated no difference in the two groups after 6 weeks. Prior to this time suturing appeared to require more pain relief despite the midwife's perception that the wound was healing better at 5 days. The main limitation in this study was the level of subjectivity used by the midwives in their assessments and the preference of one treatment over another because of their unwillingness not to leave certain tears unsutured and to abide with the study protocol. However, although there were problems with recruitment procedure, randomisation as per protocol to suture or not to suture gave strength to the ultimate results of the study.

In the UK, Clement and Reed (1999) examined retrospectively the views, experiences and long-term perineal health of 107 women with unsutured perineal tears. Findings revealed that the majority of women (70%) felt they were given a choice about whether to suture or not and that they felt they made the right decision as the healing period had been less painful. While Clement and Reed (1999) used an

open-ended questionnaire and Langley et al., (2006) used the standardised SF-36 (Ware and Sherbourne, 1992), the findings in both studies were similar, indicating less reported pain in unsutured perinea.

Another large study examined suture techniques and suture materials to repair the traumatized perineum and mothers' experience of both short and long term pain (Kettle, Hills, Jones, Darby, Gray, Johanson, 2002). Using a 2x2 factorial study design, this UK-based RCT compared continuous and interrupted methods of perineal repair and a more rapidly absorbed suture material with the standard polyglactin 910 material. Questionnaires were completed independently by both the mother and the midwife at 2 and 10 days after birth. Other postal questionnaires at 3 and 12 months were completed by the women only. The specified primary outcomes of the study were perineal pain at day 10 and dyspareunia at 3 months postpartum.

In the study, 68% (n=1,542) of 2,273 eligible women were randomly allocated to either the continuous (n=771) or interrupted (n=771) suturing method, and to either the more rapidly absorbed polyglactin 910 suturing material (n=772) or standard polyglactin 910 material (n=770). The response rates were high at each time-point throughout the study. Findings showed that the continuous repair technique was associated with less pain at 10 days than the interrupted method ( $p < 0.0001$ ), irrespective of variables such as material used.

The level of perineal pain reported by women was slightly lower when midwives had undertaken more than 5 previous continuous repairs, but seemed similar among midwifery grades. Significantly fewer women reported pain at 2 days in the continuous group than in the interrupted group ( $p < 0.0001$ ). For women who had resumed intercourse between 3 and 12 months after delivery, findings showed the lack of effect of suture method on the primary outcome of dyspareunia ( $p = 0.88$ ). Therefore, there was no significant difference in dyspareunia at 3 months between the two techniques. There was a lower rate of suture removal and less wound gaping at 10 days in the continuous technique group than the interrupted method group. In fact 59% (n=414) of women in the continuous repair group compared with 48% (n=332) in the interrupted method group felt 'back to normal' within 3 months after delivery. When materials were compared, pain at day 10 was not significantly different.

Findings imply that the continuous technique seems to be more beneficial than the interrupted technique with respect to pain associated with daily activities, suture material or skill of the operator. The increasing suture tension caused by oedema may have made the difference in pain between the two suturing methods, in that in the continuous repair method, the tension is transferred throughout the whole length of the single suture rather than on individual sutures (Kettle et al., 2002). Additionally, in the continuous repair method skin sutures are inserted into the subcutaneous tissues, thus avoiding nerve endings in the skin surface. Consequently, fewer women in the continuous repair group reported the need for suture removal up to 3 months after delivery. The decreased rate of suture removal is important for women's recovery from pain and discomfort in the perineum, described by women themselves as a distressing experience.

This study benefits from a large sample size and good response rates and is therefore more likely to be representative of the population (Parahoo, 2006, Polit and Hungler, 1999). Therefore, this study appears to provide robust evidence and valid suggestions for implementation into practice.

Another RCT was carried out in Australia (n=391) by Upton et al., (2002) who used polyglycolic acid suture material versus catgut with subcuticular perineal skin closure. The trial revealed that women sutured with polyglycolic acid suture material were more likely to experience perineal pain and dyspareunia and to require removal of a suture at long term. This finding was not statistically significant but warrants further investigation in relation to its effects on women's general health.

**Summary:** Whilst most of the studies described so far used prospective clinical observational designs, others explored the issue of perineal pain with quasi- or stratified randomised controlled designs (Upton et al., 2002). Their findings were similar to those of previous clinical observational studies. Some studies replicate others' findings (Langley et al., 2006, Lundquist et al., 2000). However, the small numbers in some of the groups may have seriously limited the power to detect significant effects.

This section has discussed how perineal trauma is a recognised factor causing enduring postnatal perineal morbidity, such as perineal pain, incontinence and dyspareunia (Williams et al., 2007a), irrespective of differences in culture across the

continents. The experiences of women enduring postnatal perineal and pelvic floor morbidity varied from a minor problem with little effect on daily living to significant ones which affected women's general health. The evidence reviewed here continues to suggest that:

- a) The rate of perineal healing of pain, bruising, and oedema appears to be higher in women following episiotomy rather than those with lacerations at day 1, week 2 and 3 postpartum (Langley et al., 2006, Kettle et al., 2002, Steen and Cooper, 1997). Therefore, research has identified episiotomy as being associated with greater perineal pain, difficulty in women's abilities to feel comfortable with their bodies and to take full care of their babies (Metcalf et al., 2006, Macarthur and Macarthur, 2005, E. M. Fleming et al., 2003).
- b) In respect to the management of the perineum, the two layered perineal repair technique has shown many benefits that seem to influence favourably the degree of perineal healing, leading to less perineal pain, less use of analgesia or the need for suture removal and less sexual morbidity (Gordon et al., 1998, Oboro et al. 2003). However, both Metcalfe et al.'s (2006) and E. M. Fleming et al.'s (2003) studies showed that the unsutured perineum did not heal quite as well up to six weeks postpartum, which may indicate a case for continued suturing of perineal lacerations. More research in this area is needed with large samples and longitudinal designs.
- c) There was a difference in pain between the continuous and the interrupted suturing methods. Less pain was associated with the continuous suture technique where tension is transferred throughout the whole length of the single suture (Kettle et al., 2002).
- d) Findings of explorative, perineal studies contribute to the growing evidence that birth position may affect perineal outcome (Soong and Barnes, 2005, Shorten et al., 2002). Lithotomy and squatting positions at birth were associated with increased risk of anal sphincter tears after control for other risk factors (Gottvall et al., 2007), while the lateral position was associated with the highest rate of the most favourable perineal outcome profile.
- e) Levels of perineal pain in the first week postpartum were associated most strongly with the extent of tissue disruption. The trend that was demonstrated toward lower levels of pain associated with spontaneous pushing during birth



most likely reflects the perineal protective effect of spontaneous pushing (Sampselle and Hines, 1999).

The findings of all the studies reviewed above predominantly concentrate on localised pain in the perineum and its healing without reference to the input of perineal trauma on the general health of the woman in the postnatal period. The consistent use of quantitative approach also limited the investigation of psychological recovery as a means for understanding how women experience perineal trauma in terms of recovery, adaptation, and personal growth. The literature review now continues to explore the postpartum general health of women and perineal trauma, and personal growth in longer term.

## **Section 2**

### **2.3 Postpartum general health and perineal trauma**

This section discusses various elements related to postpartum general health and perineal trauma, as well as, postnatal physical health of mothers, their psychological well-being, their emotional health and psychological growth, their social adjustment to motherhood and postnatal quality of life. In the first place, a brief discussion of the influence of perineal trauma on postpartum general health is presented followed by definitions of general health, the implications for women, and finally the prevalence and persistence of postnatal symptoms.

#### *Perineal trauma and women's health*

Perineal trauma and subsequent pain are common symptoms that may influence the general health of women after giving birth (Webb et al., 2008, Thompson et al., 2002, Lydon-Rochelle et al., 2001, Saurel-Cubizolles et al., 2000). Three population-based studies published in the 1990's were the first to document the high prevalence of general health problems and perineal trauma reported by women after childbirth (Brown and Lumley 1998a, Glazener, 1997, MacArthur et al., 1991). Brown and Lumley (1998a) reported 21% of new mothers at 6-7 months after vaginal birth and Glazener (1997) reported 10% at 12-18 months postpartum as having their general health affected physically, socially and emotionally after childbirth. Furthermore, MacArthur et al., (1991) reported a total of 423 women (3.6%) who confirmed at least one symptom of postnatal ill-health which had first

occurred within three months of the index delivery and had persisted for more than six weeks.

These studies continue to suggest that postpartum women may have their general health affected by various factors of ill-health, amongst them, protracted perineal pain which can have a negative impact on their daily activities, such as walking or sitting, on family functioning and breastfeeding (Webb et al., 2008, Williams et al., 2007a). Such pain may also lead to bowel and urinary dysfunction (MacArthur et al., 2001), interference with sexual activity (Barrett et al., 2000), fatigue, and even depression (Brown and Lumley, 2000). Thus, postnatal perineal pain has been found to be related not only to the extent of trauma to the genital tract at birth and physical recovery, but also to the enduring frailty of postpartum women (Albers, 2003, Eason and Feldman, 2000, Albers et al., 1999, Klein et al., 1994, Hordness and Bergsjø, 1993). The pain that was reported to influence women's general health was associated with the degree and complexity of the perineal trauma sustained (Brown and Lumley, 1998a). The highest reports of perineal pain followed third and fourth degree lacerations (Eason and Feldman, 2000), which are extended tears that may extend to the anal sphincter and rectal canal, some of which may occur after an administration of episiotomy (Williams et al., 2005). The reports of mothers, following constructive thinking of their poor general health associated with pain after first and second degree perineal lacerations including episiotomies, varied according to the depth and extent of the injury they endured and the amount of perineal suturing they had (Eason et al., 2000). Therefore, all the above studies seem to imply that the greater the trauma and degree of suturing, the greater is the perineal pain likely to have a negative effect on women's optimum state of postpartum general health and personal growth.

#### *Definition of general health and its implications for women*

The optimum state of health in postpartum women is well articulated in the World Health Organisation's (WHO) definition of general health. Here it is interesting to note that whilst the WHO defines health as the physical, mental and social well-being of a person (WHO and UNICEF, 1978), Lucey (2007:103) defines the optimum state of health as 'being equivalent to the state of set conditions which fulfil or enable a person to work or fulfil her realistic chosen and biological potentials'. It is worth noting that both definitions include as an essential factor the

concept of social health, thus substantiating a theory which claims that personal and psychological growth is mainly influenced by social support networks that provide sources of comfort and relief (Tedeschi and Calhoun, 2004). Therefore, the individual potential of postpartum women to regain their health may be placed within the context of their family and the nursing of their newborn babies, which in the Maltese cultural context is particularly significant.

Consequently, perineal trauma is not limited to a physical injury. It also comprises a deviation of an emotional, spiritual, mental, social and sexual dimension from a state of good general health (Lucey, 2007). In fact, in newly delivered women who experience unexpected protracted perineal pain there arises an inability to achieve potential good health. The consequences of deleterious general health in new mothers are feelings of discontentment and unhappiness, often rendering them unfulfilled (Alexander and Bouvier-Colle, 2001). Alternatively, where they cognitively process their experience of trauma into something meaningful, they are less likely to suffer ill-health (Tedeschi and Calhoun, 2004).

With respect to social health, becoming a parent can be described as a major life transition and a time of crucial psychological adjustment as the parents alter their lifestyles and relationship to accommodate a new family member (Magill-Cuerden, 2006). The weeks and months after giving birth have been identified as a time of considerable pleasure for the mother, but also as a time of considerable stress (Glazener, 2005a, Glazener, 2005b). The transition to motherhood seems to be aggravated by perineal discomfort. Therefore, it is important to assess the postnatal general health by measuring it and thus obtain a better perspective on the impact that childbirth and medical interventions have on a woman's perceived postnatal quality of life and have a valuable insight of the sense of well-being at a crucial time of transition in a woman's life (Kiehl and White, 2003). The following sub-section will review studies that have addressed postnatal general health, including prevalence and persistence of symptoms of health detriment in mothers.

#### *Prevalence and persistence of postnatal symptoms of health*

There has been an increasing awareness on the extent of maternal physical and emotional health problems after childbirth (MacArthur et al., 2005, MacArthur et al., 2002, Bick et al., 2002, Thompson et al., 2002) but few longitudinal and population-based studies have examined their duration. Thompson, Roberts, Currie and

Ellwood, (2002) carried out a prospective longitudinal study in Australia to describe changes in the prevalence of maternal health problems in the six months after birth and their associations with parity and method of birth.

The 70% (n=1,295) response rate of which 92% (n=1,193) was retained in the cohort to 6 months postnatal contributed towards reliability of the findings. There were statistically significant declines between 8 and 24 weeks postpartum in the reported prevalence of perineal pain ( $p<0.001$ ), bowel problems ( $p<0.001$ ), urinary incontinence ( $p<0.001$ ) and 'other' urinary problems ( $p<0.001$ ) but there were no statistical changes in the proportion of women reporting sexual problems over the six month follow-up period. As reported in other studies and discussed earlier in this chapter, primiparous women were significantly more likely to experience perineal trauma ( $p<0.001$ ), such as episiotomy or tear requiring stitches or both, and to report perineal pain and sexual problems at 8, 16 and 24 weeks. After adjustment for method of birth, a significant negative relationship remained between parity and perineal pain at 8, 16 and 24 weeks postpartum and between parity and sexual problems at 8 and 16 weeks but not at 24 weeks. Overall, both primiparous and multiparous women showed similar trends in the resolution of health problems over time. However, multiparous women did not report significant decline in urinary problems. The women who had assisted vaginal deliveries were more likely to report sexual problems and perineal pain at all three time periods than those who had spontaneous vaginal deliveries. Such associations remained significant for variables such as parity, length of labour and perineal trauma. These results imply a persistence of postnatal symptoms of ill-health in women who had assisted vaginal deliveries. They also indicate sexual problems which affect a significant number of postnatal women and are consistent and enduring regardless of parity, length of labour and level or type of trauma.

Thompson et al.'s study (2002) was large and showed that a high prevalence of morbidity in women after childbirth occurred with some resolution over time as in the case of bowel problems, urinary incontinence and perineal pain. Other morbidities, such as sexual problems, were still common after 6 months, indicating the importance of identifying such problems with the aim of seeking ways to reduce or alleviate them within the expected time taken to recover from childbirth. This is supported by Saurel-Cubizolles et al., (2000) who found that prevalence of sexual

symptoms amongst primiparae in both France and Italy is very much pronounced and unresolved at five months and twelve months after childbirth. Such evidence is also supported by Webb et al., (2008) whose findings in a cross sectional study suggested that postpartum physical health problems were common, salient and cumulative, and negatively influenced the quality of life of postnatal women.

To describe the prevalence of physical and emotional health problems in mothers, six to seven months after childbirth, Brown and Lumley (1998b) carried out a population-based survey in Australia through a questionnaire directed to 2,138 postnatal women. A response rate of 62.5% (n=1336) was obtained. Findings showed that 94% (n=1254/1336) reported one or more health problems and only 5.7% (n=76/1336) reported having no health problems after six months postpartum. Sexual problems and a painful perineum were among the common problems, amongst them, tiredness, backache and depression experienced by mothers, in particular primiparous. Births of babies weighing over 4000g, births following labour extending over six hours, and births involving a great degree of perineal trauma including episiotomies were associated with higher rates of morbidities such as perineal pain and sexual problems. A common finding was that mothers who had an assisted vaginal birth were significantly more likely to experience perineal pain, incontinence and sexual problems than those who had a vaginal birth, even after adjusting for birth weight, length of labour and extent of perineal trauma. Moreover, 1% (n= 6) of women with intact perineum reported perineal pain as a problem compared with 21% (n=14) of women who had a tear with no stitches and 44.6% (n= 144) who had an episiotomy. Women who had an episiotomy had nearly a twofold increase in the likelihood of reporting perineal pain compared with those having a tear requiring sutures.

Therefore, Brown and Lumley's study (1998b) highlighted the prevalence and persistence of perineal pain and sexual problems common in postnatal women along with other physical and emotional health morbidities. However, the questionnaire asked women to indicate from a list of health issues which issue had been a problem for them since childbirth. Higher prevalence rates might have been found, had women been asked to report any occurrence of each-listed morbidity. It can even be argued that a response rate of 62.5% might represent the population with maternal morbidities in Australia. While the low response rate from younger women, those

without a partner, and women of non-English speaking background limited the generalization of the findings for these subgroups, the sample was large enough to adjust for important covariates in analysis.

In addition to the prevalence of physical symptoms after childbirth, other studies investigated the association between specific symptoms and women's self-rated health. From a large longitudinal cohort study of a national sample of Swedish childbearing women, Schytt, Lindmark and Waldenstrom (2005) described the prevalence of a number of physical symptoms as retrospectively described by the women themselves (n=2,413), two months and one year after childbirth. Self-rated health was measured by one single item question.

Findings showed that physical health problems such as tiredness, headaches, neck, shoulder and low back pain were common at two months as well as one year after childbirth. Most symptoms did not differ by parity. Moreover, at 8 weeks after birth, multiparous women had more problems with colds and stress incontinence and primiparous women had more problems with perineal pain and dyspareunia. Whilst it is noteworthy that for a proportion of all women, regardless of parity, problems were enduring, overall symptoms were less common one year after delivery. Such findings correspond with Barrett et al., (2000) who indicate that women may have recovered from dyspareunia six months after childbirth. In Schytt et al.'s (2005) study, 91% of women reported their self-rated health as 'very good' or 'good' at two months after childbirth and 86% at one year. This decline in low self-rated health was associated with symptoms that affected mothers' general physical functioning and wellbeing, such as tiredness, headache, musculoskeletal problems, mastitis, perineal pain, dysuria, stomach-ache and nausea. Complaints related to more specific situation such as dyspareunia, constipation and stress incontinence were not associated with self-rated health. Perineal trauma and dyspareunia are significant in terms of women's general health, both immediately after childbirth and also in the long term. In this regard the evidence to date is still somewhat limited. Another limitation in this prevalence study is the different time intervals during which symptoms were assessed, at two months and one year after childbirth, which might have affected the conclusions about changes of maternal morbidity over time. Only the effects of physical symptoms were included in this study. Psychosocial health

behaviour and mental health factors would have given better understanding of self-rated health within the context of childbirth.

In another recent prevalence survey concentrating on perineal health problems following childbirth, Williams, Herron-Marx and Knibb (2007b) investigated the prevalence of postnatal perineal morbidity and its relationship to type of birth and birth risk factors in a retrospective cross-sectional community survey of 2,100 postnatal women in Birmingham. A self-administered questionnaire included self-assessment of perineal pain, perineal healing, urinary, flatus and faecal incontinence, sexual morbidity and dyspareunia. Findings showed a low response rate of 23.3% (n=482), 87% of which complained of at least one index of morbidity, rendering a high level of enduring morbidity especially with regards to perineal health. Certain birth factors such as age, infant's birth weight and length of birth increased the risk for perineal morbidity. This survey suggested that vaginal births and in particular assisted vaginal births produced higher levels of postnatal perineal morbidity especially enduring urinary incontinence. A relatively low response rate, partly due to the high ethnic minority and non-English speaking population within the local community, was the main limitation of the study. This limitation did not facilitate statistical analysis of the data. However, the high level of postnatal perineal morbidity in this study concurs with more recent studies undertaken in this field (Declercq et al., 2008, Webb et al., 2008), highlighting the need for further investigations on women's general health following childbirth.

Methodological limitations have to be acknowledged among these studies. These include the self-selected samples, non-address of population subgroups, the method applied to measure the prevalence of postnatal morbidities, unknown existence of morbidities before birth, recall bias, use of general terms and relatively low response rate. However, the large sample sizes and the consistence of findings seem to suggest an unequivocal impact of perineal trauma on women's postpartum general health. It is also apparent from these prevalence studies that high levels of enduring postnatal morbidities including perineal morbidity occur following childbirth, and while there are possible birth risk factors associated with morbidity, the causes for these are multi-factorial. This coupled with the fact that a high proportion of women do not seek help for these conditions (Mason et al., 2001), raises a number of challenges for public health and healthcare professionals. The next subsection

continues to discuss postnatal physical morbidities with particular regard to urinary and faecal incontinence.

### **2.3.1 Postpartum physical health**

Postpartum physical health is of utmost importance in a healthy society and in the family (National Collaborating Centre for Women's Health, 2002). Postnatal morbidities such as urinary stress incontinence and faecal incontinence hinder maternal health recovery (MacArthur et al., 2005, MacArthur et al., 2002, Bick et al., 2002, Mason et al., 2000, Jones, 2000).

#### *Urinary stress incontinence after delivery of the baby*

Urinary incontinence can be defined as any uncontrolled leakage of urine regardless of the amount or frequency (Mason et al., 2000; 1999a; 1999b). The most common form of urinary incontinence is stress incontinence, defined by the International Continence Society as 'the involuntary loss of urine occurring when, in the absence of a detrusor contraction, the intravesical pressure exceeds the maximal urethral pressure' (Abrams et al., 1988:5). Loss of urine occurs when the urethra is unable to maintain closure against the force of pressure transmitted from the bladder (Mason et al., 2000). An incompetent urethral sphincter mechanism (Ulmsten, 1997) may bring about involuntary leakage of small amounts of urine from the bladder on coughing, sneezing, laughing, running, or when lifting heavy objects. The problem may be so serious that it may lead to social isolation and may impair the sufferer's quality of life (Jones, 2000).

Urinary stress incontinence during pregnancy may be due to hormonal changes which lessen the ability of the urethral sphincter to withstand stress. During labour the soft tissues in the pelvis including the urinary bladder become displaced as the fetal head descends into the pelvic cavity. Nerve damage to the perineal muscles, ligaments or fascia may occur at this time (Mason et al., 2000, Allen et al., 1990, Snooks et al., 1984) affecting the ability of the urethral sphincter mechanism to withstand additional force. Epidemiological surveys of the prevalence of the symptoms of urinary stress incontinence illustrate that incontinence affects many women during pregnancy and after the delivery of the baby (MacArthur et al., 2005, MacArthur et al., 2002, Bick et al., 2002).



Mason, Glenn, Walton and Appleton (1999a) conducted an explorative, prospective, pre- and post-delivery survey on the prevalence of urinary stress incontinence at 34 weeks pregnancy and 8 weeks postpartum. A postal questionnaire was sent to 1008 mothers who attended antenatal clinics at two hospitals in the north-west of England. There was a good response rate at both time points (78%/64%), which promotes confidence in the findings.

Two percent of postnatal women reported daily stress incontinence. Mothers with higher parity were found to experience more stress incontinence than others of low parity. The vaginal delivery mode (normal or instrumental) with or without perineal trauma was not significant. Findings revealed that urinary incontinence after spontaneous vaginal deliveries was of a higher incidence than that experienced after caesarean section.

These findings demonstrate that postnatal mothers experience a high incidence of stress incontinence. Mason et al.'s findings are substantiated by an early influential longitudinal study (Dimpfl et al., 1992) which found that 5.6% (n=221) of women who had an episiotomy during the second stage of labour suffered from urinary incontinence in comparison to 9.4% (n=69) of women who had no episiotomies. The difference in findings was not significant. In contrast, another longitudinal seminal study (Viktrup et al., 1992) found that women who had an episiotomy developed significant urinary stress incontinence more frequently after delivery than those who had no episiotomy (p=0.05). This study which had a high response rate of 96.1% (n=293) used the criteria of the International Continence Society (Abrams et al., 1988). Findings indicated that frequency of 'true' stress incontinence, defined as involuntary loss of urine, was low after delivery and the psychosocial impact of this symptom was modest. Farrell et al., (2001) in another longitudinal survey demonstrated that spontaneous vaginal deliveries were associated with an increased risk of urinary incontinence at 6 weeks and 6 months postpartum. It can therefore be said that various factors, such as spontaneous vaginal delivery, perineal trauma, and episiotomies, may lead to postpartum urinary stress incontinence, with or without statistic significance. Even though there is no consistent evidence that urinary stress incontinence is the direct result of perineal trauma, its incidence may influence postpartum general health.

Other large population-based surveys indicate that prevalence of urinary stress incontinence increases with increasing parity (Dolan et al., 1999; Hagglund et al., 1999) and that urinary stress incontinence may occur as a natural consequence of pregnancy and delivery but generally resolves at different times in the puerperium (Farrell et al., 2001), although it may potentially extend up to one year (Mason et al., 2000). However, the findings of these surveys are limited due to their self-report nature. RCTs, such as Glazener et al., (2001) may provide stronger evidence.

Glazener, Herbison, Wilson, MacArthur, Lang, Gee, and Grant (2001) carried out a large RCT (n=10,985) to assess the persistence of urinary incontinence as a primary outcome measure, 3 and 12 months after childbirth. The secondary outcome included 'severe' urinary incontinence defined as at least once a week. The study was conducted in three units in New Zealand, Birmingham and Aberdeen during a 12 month recruitment period.

The initial response rate to a questionnaire about urinary and faecal incontinence and other health issues, was 71.7% (n=7,879). Among the responders, 33.4% (n=2,632) had urinary incontinence in the previous month but only 28% (n=747) consented to participate in the trial at three months postnatal. The control (those with standard management of incontinence) and the intervention (those with nurse assessment and conservative treatment) groups were comparable on the baseline factors relating to maternal age, parity, incontinence before pregnancy, method of delivery, state of the perineum, mean birth weight, type of urinary incontinence, faecal incontinence, and mean anxiety and depression scores. Non-responders (n=1,885) who had incontinence showed some differences to responders such as being younger, had fewer spontaneous vaginal deliveries, more intact perinea, lighter babies and were less likely to have severe urine incontinence. It may imply that these women were less likely to be severely incontinent than those who responded.

Women in the intervention group reported performing pelvic floor exercises and contractions more than the control group (p=0.001). They were also significantly less likely to have any severe incontinence (p=0.002). Additionally, overall ratings of severity (p=0.007), use of pads (p=0,034), number of pads changes (p=0.008) were lower in the intervention group which also reported less faecal incontinence to motions (p=0.012) and less severe faecal incontinence (p=0.075). Although there

were no significant differences in general wellbeing, women in the intervention group were found to be less anxious than those in the control group.

Findings suggest that nurse assessment and conservative treatment, aimed at women with incontinence three months postnatal, reduces the risk of incontinence a year later. There was a higher response rate to the 12-month questionnaire in the intervention group, which needs to be taken into account in the interpretation. This would introduce bias if non-responders in the control group were less likely to be incontinent than those who responded. However, further analysis showed that non-responders had more, rather than less, severe incontinence initially, suggesting that severity of incontinence was not the factor contributing to their differential response rate. Moreover, those lost from the intervention group had more severe incontinence at baseline and yet it was the women in this group who seemed to benefit most.

It may be further argued that at three months after childbirth a percentage of women (20-30%) still experienced urinary incontinence and some experienced persistent incontinence. Women with postnatal incontinence used conservative treatments, such as pelvic floor exercises or bladder training, which prevented persisting urinary incontinence in about 1 in 10. Moreover, severe incontinence, defined as at least once a week, was not in concordance with the urinary incontinence definition illustrated by the International Continence Society (Abrams et al., 1988), which weighs severity against the amount of protection used by the affected person. Nevertheless, this was a study which indicated that specific training, namely postpartum pelvic floor exercises, may have some success in reducing severe incontinence as defined in the study itself and preserved the general health of postnatal women.

Another study, Jones (2000) followed the same trends. Jones (2000) carried out a comparative controlled trial study with the primary aim of assessing the incidence of urinary stress incontinence after delivery and with a secondary aim of analyzing the postpartum effect of teaching pelvic floor exercises in the antenatal period. Three hundred and twenty three women (n=323) were recruited in two groups. Group 1 attended a programme of antenatal classes and received training in pelvic floor exercises. Group 2 declined the invitation to attend classes. There were no differences between the groups. The recruited subjects were asked to assess their own continence by answering a continence self-assessment form, three months after

childbirth. This time period was chosen because at this stage pudendal nerve damage would have recovered from the damage caused by pregnancy and birth (Jones, 2000).

The response rate of 55.7% (n=180) consisted of 62.2% (n=107) in group 1 and 48.3% (n=73) in group 2. The overall prevalence rate of stress incontinence was 27.8% (n=50). Findings highlighted significantly lower prevalence of incontinence in the intervention group (p=0.023). Further, there were differences between the two groups with respect to parity, mode of delivery, length of second stage of labour, perineal trauma, birth weight and infant-feeding in relation to the reported prevalence of stress incontinence, but differences were not significant. However, a significant relationship between mode of delivery (normal, instrumental or operative) and stress incontinence was found in group 1 (p=0.045). Other frequencies, such as babies' birth weights were significant in group 2 (p=0.033) where 30% of women with babies weighing less than 4kg compared to 59% of women with babies weighing more than 4kg experienced stress incontinence. A significant relationship was also found between frequency of pelvic floor exercises and the prevalence of stress incontinence (p=0.030) with a highly significant association found between those who performed exercises daily and those who performed less often (p=0.006).

The findings from this study (Jones, 2000) identify the benefit of doing daily pelvic floor exercises to prevent stress incontinence and thus decrease postnatal morbidity. However, interpretation should be very cautious, since while a response rate of 55.7% may be considered good, the overall compliance with the suggested pelvic floor exercises was low, as only 23.4% (n=24) of the women in group 1 said they had exercised daily, while 13% (n=14) said that they had never exercised. Moreover, the account of the responders' own perceptions to report stress incontinence was subjective, and may influence positively the findings. It was of concern to note that urinary stress incontinence at three months postpartum prevailed, indicating that for some women full postnatal recovery, as against an optimum state of general health, had not been attained. Another similar study explored the time-limit for postnatal recovery from urinary stress incontinence.

MacArthur, Lewis, and Bick (1993) conducted a follow-up investigative cross-sectional study. Postal questionnaires were sent out 6 to 8 months after childbirth, a

time calculated long enough to detect symptoms that become persistent and early enough for recalling details (MacArthur et al., 1993). Women who reported any of the symptoms including urinary stress incontinence occurring within 3 months of childbirth and lasting more than six weeks were interviewed at home by midwives.

The response rate was 82% (n=422) of which 28% (n=119) reported stress incontinence lasting over 6 weeks, with 21% severity of at least once a day and 6% had it all the time. Of 119 symptomatic women, 24% (n=29) described their stress incontinence as being severe on visual analogue scales. Five percent of these affected women were also often involved in sporting activities in which they participated and 3% of them said that they always needed to wear protective clothing.

In this study, postpartum urinary stress incontinence appeared to be common, in some cases becoming persistent and chronic. Discriminate analysis showed that the main predictors of first-time postpartum stress incontinence lasting more than 6 weeks were high maternal age, long second stage labour and large birth weight babies. Whilst such predictors of stress incontinence were almost all intrapartum, it was difficult to show that obstetric interventions such as forceps delivery might carry a risk. Therefore, implications for midwifery practice would be the instruction on effective pelvic floor exercises especially to postnatal women with the high risk predictors.

The literature continues to suggest that childbirth is believed to be a predisposing factor for urinary incontinence given that it commonly develops during pregnancy or following vaginal delivery. Yet, there seems to be no agreement as to whether it is pregnancy alone, vaginal delivery, or trauma in the perineum which may predispose to this condition (Glazener et al., 2001, Jones 2000, Wilson et al., 1996). A number of studies have explored the role of mode of delivery with subsequent urinary stress incontinence.

Wilson, Herbison and Herbison (1996) conducted a descriptive research study examining the relationship between mode of delivery and other obstetric factors, such as parity, and the prevalence of urinary incontinence at three months postpartum. Two thousand, one hundred and thirty four (n=2,134) postal questionnaires were sent to all postpartum women who delivered in one teaching

hospital in Dunedin, New Zealand. The response rate was 70.5% (n=1,505) with 34.3% of the responders complaining of some degree of urinary incontinence and 3.3% of having daily or more frequent leakage. A significant reduction was found in the prevalence of incontinence in women who had a caesarean section and in particular among primiparous women with no previous incontinence. The prevalence of incontinence was 24.5% (n = 49/200) in women following a vaginal delivery compared with 5.2% (n = 3/58) following a caesarean section (p = 0.002). The prevalence of incontinence (23.3%) was also significantly lower in 11/47 women who had experienced two caesarean sections compared with 158/405 women (39%) who had experienced a similar number of vaginal deliveries (p=0.053). However, there were no significant differences in the prevalence of incontinence for 7/18 women (38.9%) who had undergone three or more caesarean sections compared with 113/300 women who delivered vaginally (37.7%).

In this study, findings indicate that urinary incontinence was found to be a problem in mothers with vaginal deliveries. It affected over 34% of the women and it increased by parity. However, findings are limited to the group being investigated. The non-response rate of 29.5% could have changed the overall prevalence rate as the non-responders were younger, had lower gestational age and smaller babies, and their onset of labour was less spontaneous. The authors argued that vaginal delivery is a risk factor for urinary incontinence at 3 months postpartum whilst caesarean section has a protective affect. But these differences were based on small cohorts of subjects and larger cohorts may make a difference. Although this retrospective study could include some recall bias, it managed to relate symptoms to events, a factor which previous studies (Skoner et al., 1994; Rockner, 1990) failed to achieve because of smaller cohort numbers (Wilson et al., 1996).

In a further attempt to associate relationship between key variables, urodynamic investigations have been used to study the relationship between delivery variables, such as vaginal delivery with or without trauma, and urinary stress incontinence. For example, in a comparative study, Sartore et al., (2004) used questionnaires and clinical assessments of the pelvic floor function and strength, and King and Freeman (1998) and Toozs-Hobson et al., (1997) used prospective investigational designs, whose samples were primiparous women at three months after vaginal delivery. These studies suggested that no significant changes were demonstrated in the

bladder neck mobility and descent (of the bladder) and the development of symptoms of urinary stress incontinence after childbirth. It was the loss of urethral sphincter volume rather than the hyper-mobility of the bladder neck that might have been the cause of urinary incontinence. This suggestion is in agreement with the definition of urinary stress incontinence as proposed by the International Continence Society (Abrams et al., 1988). It is apparent from these studies that relatively high levels of urinary stress incontinence occur following childbirth, which raises the need for further research in women's general health.

Few qualitative studies have examined how urinary incontinence affects women's general health from the physical, psychological and social aspects. Where qualitative studies have been undertaken these have been in association with a quantitative study. For example, Mason et al., (2000; 1999b) explored the physical, emotional and practical impact of urinary stress incontinence on 42 mothers who were experiencing the condition at 8 weeks postpartum and 15 women who reported symptoms one year after delivery. Questionnaires and semi-structured interviews were used.

At eight weeks postpartum 894 questionnaires were sent out of which 64% (n=572) were returned completed. Of these 31% (n = 180) reported symptoms of urinary incontinence. All of the symptomatic women were contacted again and invited to take part in an interview. Only 23% (n = 42) consented. A comparison between the women who were interviewed and the sample of stress-incontinent women showed similarities with respect to age range, parity, and severity of symptoms which means that there were similarities between the responders and non-responders. The severity of their condition ranged from 'less than one episode of incontinence per week' to 'daily incontinence'. The interviews explored how stress incontinence affected mothers' lives and in particular their general health.

The findings from interviews identified three major themes on the effects of urinary incontinence at 8 weeks postpartum. The first theme concerned perspectives regarding the consequences on motherhood, acceptance and non-acceptance, other people's reactions, support and self-blaming. The second theme addressed the day-to-day activities that involved restrictions placed on mothers. The third theme concerned feelings and emotions which influenced mothers' whole lives, such as worry, constant awareness of the condition and feelings of embarrassment associated

with stress incontinence. There appeared to be changes over time with a varying impact on mothers' lives both physically and psychologically. The person-centred perspective theory proposed by Joseph (2003) proposes that human beings are active, growth-oriented organisms. They are motivated to cognitively accommodate their psychological experiences under the right social environmental conditions, and thus they accept that change is necessary and inevitable.

Some mothers (n=23) reported being influenced in a highly negative way and yet only a small number (n=7) of the 42 sought medical advice. These findings were only applicable to the participating population under review. Although only a small number of mothers agreed to be interviewed, the study highlighted the need for further research and subsequent action to improve the understanding of urinary incontinence after childbirth and its influence on mothers' general health.

In conclusion, the literature appears to suggest that no one single factor for the occurrence of urinary stress incontinence can be said to influence women's general health. The wide variation in the prevalence rate of urinary incontinence may be due to different factors, such as the operational definitions used (Mason et al., 1999a), the age groups studied (Mason et al., 2000), the different data collection methods (Glazener et al., 2001), the under-reporting caused by shame and embarrassment (Mason et al., 2000), and the belief that urinary incontinence is a natural consequence of childbearing (Farrell et al., 2001) and childbirth and that treatment will not be helpful (Hagglund et al., 1999). Thus, further quantitative and qualitative research with useful methodological approaches is needed to augment the present knowledge on urinary stress incontinence on the childbearing women's general health.

#### *Faecal incontinence after delivery of the baby*

Urinary incontinence has also been associated with faecal incontinence (Bick et al., 2002, Glazener et al., 2001), another reported complication of perineal trauma that influences women's general health (Glazener et al., 2001; MacArthur et al., 2001). There is an acknowledged association between faecal incontinence and childbirth (MacArthur et al., 2001; Swash, 1993), together with other bowel problems such as constipation, haemorrhoids and anal fissures. Third degree tears are a recognised high risk factor of subsequent bowel dysfunction (Bick et al., 2002) but increasing evidence suggest that spontaneous deliveries as well as instrumental deliveries can



also pose a risk for bowel problems (MacArthur et al., 2001). Such an outcome may have a major impact on the woman's health and quality of life. Research studies have investigated the role of vaginal deliveries where anal incontinence may occur. Most of these studies used investigations, such as endosonography, as their main tool (Chaliha et al., 2001; Faltin et al., 2001; Abramowitz et al., 2000; Varma et al., 1999; Rieger et al., 1998; Donnelly et al., 1998; Sultan et al., 1994; Sultan et al., 1993; Allen et al., 1990). Some of the women with symptoms of anal incontinence, in these studies, had a diagnosis of an injured anal sphincter mechanism resulting in mixed incontinence, which is flatus together with solid incontinence. Such symptoms clearly result in a considerable burden of ill-health and occur more than the practitioners or the women themselves expect (Chaliha et al., 2001).

MacArthur, Bick and Keighley (1997) carried out a population based survey in Birmingham, UK, to measure the prevalence of new faecal incontinence following childbirth, obstetric risk factors and medical consultations about symptoms, in a representative sample of 1,156 deliveries at a mean of 10 months after delivery. There was a response rate of 78% (n=906).

Findings showed that, following the birth of the child, 6.1% (n=55) reported one or more of the symptoms of poor bowel control: frank incontinence, urgency, and soiling, with 4% (n=36) of women experiencing such symptoms for the first time. Of the 36 new cases of faecal incontinence 23 reported one symptom, ten had two, and three had all three symptoms. Faecal urgency was reported by 89% (n=34) with symptom onset immediate for 15 women, and within the first and second week of the birth for six women. Most incontinence symptoms were unresolved when subjects were interviewed at home. The frequency and severity of symptoms varied among the cohort but it seems clinically and socially significant that 22% (n=8) reported that symptoms affected their health and their lifestyle and yet only 14% (n=5) had consulted a doctor about faecal incontinence. However, the numbers of affected women were small and thus findings were interpreted with caution.

The study findings indicate that faecal incontinence as an immediate consequence of childbirth is potentially more common than previously realized (MacArthur et al., 1997). Non consultation may account for the previous lack of recognition by the medical profession of its occurrence immediately after birth. Women who had vacuum or forceps deliveries were more likely to have symptoms (p=0.0002 and

p=0.027 respectively), suggesting that these women are at a greater risk. However, five primiparous women and thirteen multiparous women had experienced spontaneous deliveries. It is noteworthy that if incontinence of flatus had been included, prevalence of faecal incontinence after childbirth would have been much higher. The issue of faecal incontinence is rather subjective and consequently generalization is limited. Above all, this is a useful study which highlights the incidence of isolated subjects affected with faecal incontinence that otherwise would have remained concealed from professional awareness and significant health problems for mothers would have been unrecognised (Glazener, 2005b).

Perineal trauma with median episiotomies could be the cause of anal sphincter injuries and associated faecal incontinence of both stools and flatus. Eason, Labrecque, Marcoux and Mondor (2002) carried out a survey to explore the prevalence and severity of postpartum anal incontinence and to identify maternal and obstetric risk factors for incontinence of stool and flatus, in a large cohort of 1,198 postnatal women (response rate of 79.2%: n=949) in 5 hospitals in Canada, three months after giving birth.

At three months after delivery incontinence of stool occurred in 3.1% (n=29) of women, at least once daily in 0.3% (n=3) of these women. Incontinence of stool was present in 2.9% (n=23) out of those who gave birth vaginally without recognized anal sphincter damage (n=783); and 7.8% (n=4) of those who gave birth vaginally with recognized anal sphincter damage (n=51).

Babies of a birth weight of 4000g or more, median episiotomy, sphincter tears, pre-pregnancy urinary incontinence were all predictive of incontinence of stool. Faecal incontinence was more common among women with a median episiotomy (4.4%; 8/183) than among those with a first or second degree laceration (2.3%; 9/386). The latter had a risk of faecal incontinence similar to that of women with an intact perineum. Involuntary escape of flatus was reported by 25.5% (242/948) of women; in 2.6% (25/948) this occurred at least once daily.

On univariate analysis, operative vaginal delivery compared with spontaneous delivery, anal sphincter tears and urinary incontinence before becoming pregnant were the only factors associated with incontinence of flatus. Therefore, it was found that women with incontinence of stool were more likely to have also involuntary

escape of flatus (65%, 19/29). Overall, 252 (26.5%) women had incontinence of either flatus or stool. Although faecal incontinence has a more devastating affect on the quality of life than flatus incontinence, the problem is nevertheless embarrassing.

Eason et al.'s finding that anal sphincter injury was associated with increased rate of incontinence of faeces and flatus is consistent with the findings of Zetterstrom et al., (1999) in Sweden who also found that at 5 months postpartum 12% (n=33) of women had symptoms of involuntary flatus more than once a week, while at 9 months this frequency decreased to 7% (n=19). The authors suggested that clinical detection of sphincter tears might have positive links with anal incontinence of faeces and flatus at five and nine months postpartum. It can be argued that though involuntary flatus occurring infrequently does not constitute a severe problem for the majority of affected women, midwives and obstetricians should specifically ask about anal incontinence at the routine postnatal examination. It is still unclear if some women with mild incontinence might deteriorate and develop more severe symptoms later in life. Women with mild symptoms can be encouraged to continue pelvic floor exercises under the guidance of a physiotherapist (Eason et al., 2002).

Midline episiotomies are persistently highlighted as a risk factor for faecal incontinence (Eason et al., 2002, Sultan, 1999). Signorello, Harlow, Chekos and Repke (2000) evaluated the relationship between midline episiotomy and postpartum anal incontinence on 921 primiparous American women. The three cohorts for the study were defined by the state of the perineum after delivery and were the episiotomy group, the tear group and the intact perineum group. A self-administered questionnaire was administered at six months after the delivery to report on the current occurrence of faecal incontinence and that experienced at three months postpartum. The response rate was 70% (n=626) overall and the groups were well balanced in terms of numbers: the episiotomy group (n=209), the tear group (n=206) and the intact perineum group (n=211).

Findings showed that 10% (n=20) of women with an episiotomy experienced faecal incontinence three months after giving birth. Women in the tear group and intact group had less than half that risk. Within the tear group the risk of faecal incontinence was similar for second degree (3.3%) versus third and fourth degree laceration (4.0%) at three months postpartum. The prevalence of faecal incontinence at 6 months postpartum was about half that reported at 3 months postpartum in all

three groups, suggesting that faecal incontinence is associated with trauma but improves with perineal healing. This finding of diminished reporting of symptoms of incontinence over time is suggested by other studies (Eason et al., 2002, Chaliha et al., 2001, Zetterstrom et al., 1999).

One third of the episiotomy group (n=70) reported experience of flatus incontinence at three months, and a quarter of the group (n=52) at six months. The reported prevalence of flatus incontinence among women without episiotomies was much higher than faecal incontinence at both 3 and 6 months. However, the reporting of flatus incontinence is subject to the judgement of each individual as to whether it truly constitutes incontinence. In contrast faecal incontinence is perhaps more easily reported with greater accuracy. It is suggested that women with appreciable spontaneous perineal tearing are at lower risk of postpartum anal incontinence than women who have midline episiotomies.

Other studies have also sought to explore associations between perineal trauma and faecal incontinence. MacArthur, Glazener, Wilson, Herbison, Gee, Lang and Lancashire (2001) carried out a large comparative study to determine the relationship between faecal incontinence and maternal and obstetric characteristics among a population of 10,989 women at 3 months postpartum in three maternity units: Aberdeen (Scotland), Birmingham (England) and Dunedin (New Zealand). A questionnaire assessed the prevalence of urinary and faecal incontinence, and also included questions on general and psychological health.

There was a response rate of 71.7% (n=7879). The incidence of incontinence of flatus was reported by 45.3% (n=3527) of women and this was experienced more than 'rarely'. The whole population incontinent of stool was found to be 9.9% (n=699) and 'more often than rarely' was found to be 4.2% (n=307). Moreover, most of those who had faecal incontinence, 86.4% (n=604), had also flatus incontinence.

Of the 512 responders who did not answer the questionnaire about stool incontinence, 65.1% (n=333) were incontinent to flatus which suggests that incontinence of flatus is common after childbirth. Of those who responded, 474 (9.6%) spontaneous vaginal deliveries were found to be symptomatic, with 8.8% (n=164) that were primiparae and 10% (n=310) that were multiparae. Findings

suggest that multiparae are at a greater risk, irrespective of the level of perineal trauma experienced. For example, other findings showed that those with intact perineum, 9.3% (n=172) were also symptomatic, with 8.6% (n=44) that were primiparae and 9.6% (n=128) that were multiparae. Also with laceration 9.4% (n=235) were symptomatic, with 9.0% (n=90) that were primiparae and 9.7% (n=145) that were multiparae. Moreover, with the duration of the second stage of labour in vaginal deliveries up to 59 minutes, 9.7% (n=318) were symptomatic and of these 8.6% (n=83) were primiparae while 10.2% (n=235) were multiparae. In longer duration of more than 60 minutes, 10.9% (n=204) became symptomatic, where 10.8% (n=157) were primiparae and 11.2% (n=47) were multiparae. For 9.7% (n=84) duration of the second stage of labour was not known. Despite multiparity emerging as a significant risk, it is suggested that 9% (n=294 out of 3261) were primiparae with symptoms. Such results on primiparae and faecal incontinence ensure that symptoms could not have started in a previous delivery which demonstrates a clear link between childbirth and continence. In contrast to other studies (Signorello et al., 2000, Samuelsson et al., 2000), there was no association between perineal laceration or episiotomy and faecal incontinence, in that there was no differentiation in symptoms of faecal incontinence between those women with perineal laceration and those with episiotomy.

A limitation in this study was the lack of a standard definition for post-obstetric faecal incontinence which may have affected the reporting of the incidence and prevalence rates. Also, a substantial number of responders (n=604) did not answer the questions on the prevalence of flatus and faecal incontinence. However, an important strength in this study was the large numbers from the three study centres, which were able to detect a high overall prevalence of faecal incontinence of 9.6%, a percentage which indicates this problem as a significant risk to women's physical and psychological health.

All the above quantitative studies explored the prevalence of faecal incontinence after the delivery of the baby. A few qualitative studies address the experiences of women themselves who sustain lacerations or extended episiotomies during childbirth and who experience faecal incontinence to the detriment of their general health. In the UK, Williams, Lavender, Richmond and Tincello (2005) explored the experiences of women who sustained a third-degree obstetric anal sphincter tear

during childbirth, using two focus groups with a purposive sample of 10 women. One group (n=6) had a tear in the index pregnancy and the second group (n=4) had a subsequent pregnancy after the tear.

The main themes identified included: a) an apprehension about the consequences of the injury in terms of continence, body image and sexual functioning; b) anxiety about and lack of involvement in planning for future pregnancies; c) poor information exchange and communication including both the timing and content of information received; d) poor emotional support from professionals and family members; e) physical and emotional impact; and f) unresolved anxieties in partners. Both focus groups showed similarities in their experiences. The strength in this study is the use of focus groups that gained an insight into the experiences of women after an obstetric anal sphincter injury and its consequences. Such experience generated a significant emotional and psychological distress which the professionals did not fully identify. These findings, such as loss of control, physical pain, emotional and sexual difficulties, and lack of information were similar in other explorative studies (Waterstone et al., 2003, Brown and Lumely 2000, Barrett et al., 2000, Glazener, 1997).

A fairly robust body of evidence on the postpartum physical and psychological health of women shows that urinary and faecal incontinence after childbirth is widespread and persistent and may have an effect on women's lifestyle and personal growth which may lead to a permanent change in their lives (Joseph and Linley, 2006). That incontinence may cause a significant physical, emotional and psychological impact on women's general health still requires further study and intensive research including studies on women's experiences in different cultures. The next subsection discusses postpartum psychological well-being and emotional health, and elaborates on assessments of maternal emotional needs, post-traumatic stress disorder and postpartum depression.

### **2.3.2 Postpartum psychological well-being and emotional health**

There is a positive association between postpartum recovery and maternal emotional well-being (Brown and Lumley, 2000). During their recovery after childbirth, new mothers undergo the process of attaining their maternal identity that consists of developing an attachment with their baby, developing competence in mothering

behaviours, and experiencing pleasure when interacting with their baby (Olsson et al., 2005). This process of personal growth in becoming a mother is described as a process of appreciation, discovery, learning and acceptance of the women's new role which results in a positive and worthwhile experience (Martell, 2001). However, because of the lack of baby-care skills, new mothers may feel a loss of control in their lives. Lack of time and space for themselves becomes a source of frustration and fatigue (Aston, 2002). In addition to adapting to maternal role changes, new mothers may experience a variety of emotional changes and cognitive thinking on the traumatic events. These ruminative activities are consistent with transient postpartum blues, post-traumatic stress disorder and postpartum depression that are directed at rebuilding women's lives (Tedeschi and Calhoun, 2004). Whilst mothers try to make sense of what has happened and try to deal with their emotional reactions to the birth trauma, midwives in practice use various methods to assess maternal emotions in order to identify and manage women at risk of postnatal depression and other mental health problems (Clinical Negligence Scheme for Trusts, 2002; National Collaborating Centre for Women's Health, 2002).

#### *Assessment of maternal emotional needs*

Bick et al. (2002) suggest that one of the aims of postnatal care is to promote the health of new mothers. Thus, it is important to consider the issue of how physical and emotional health is assessed and managed. In Australia, Yelland, McLachlan, Forster, Rayner and Lumley (2007) surveyed how women's maternal health, particularly at the psychosocial level, is assessed and promoted during the postnatal hospital stay in a total of 66 hospitals. Findings identified a wide variety of practices relating to routine maternal observations after childbirth. The area of psychosocial assessment and support was diverse with care plans or clinical pathways being the main tools to guide assessment. Most staff-participants reported that psychosocial assessment had been undertaken during pregnancy. It was reported that emotional wellbeing was assessed postnatally through observation and conversation with women and the utilisation of midwives' skills in assessing and dealing with complex psychosocial issues. A small number of hospitals (n=3) administered a formal assessment measure, in this case the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) and another three hospitals provided routine sessions of structured debriefing. Participants also reported that the busy and at times chaotic nature of postnatal wards affected the provision of care and the level of psychosocial support

offered to women. Hence social support, which may play a role in the development of postnatal recovery, was not consistent.

Although one of the stated aims of early postnatal care in Yelland et al.'s study was the promotion of maternal well-being, the diversity and the nature of practices used often reduced individualised or women-centred care. Yelland et al.'s reliance on the antenatal period in which to detect and manage women with particular psychosocial issues results in having in this aspect of care less priority given postnatally than may be ideal. A study by Gibb and Hundley (2007) effectively highlights support strategies in connection with individualised or women-centred care, by allotting time to postnatal care, enhancing communication (with active listening and effectively picking up on non-verbal cues) and by having a holistic approach to the identification and care of women with particular psychosocial needs. These support strategies enhance the importance of early postnatal care, promote women's health in the first days after giving birth and continuously develop an evidence base to inform midwifery practice (Gibb and Hundley, 2007). Gibb and Hundley (2007) used focus groups to explore midwives' views of psychological well-being in the postnatal period. Three main categories emerged from the findings: the meaning of psychosocial well-being, assessment of wellbeing, and worrying behaviours. From the first category emerged the themes of coping and expectations of mothers after giving birth. Observation and communication skills, labour debriefing and previous contact with women emerged from the second category. The third category revealed the themes of postnatal extreme or obsessive behaviours.

Midwives assessed coping and unmet expectations through a range of communication and observational skills including the use of a form of labour debriefing. Unlike Yelland et al., (2007), midwives participating in Gibb and Hundley's study (2007) thought that they were able to assess coping and expectations better in the postnatal period having known the women during their pregnancy. The importance midwives give to knowing women in pregnancy has implications for the ongoing debate about the provision of continuity of carer and the promotion of realistic expectations of childbirth (Hauck, Fenwick, Downie, Butt 2007). The strength in Gibb and Hundley's (2007) study is that midwives themselves were the key participants in the study, whilst in Yelland et al., (2007) the participants were maternity unit staff managers and medical practitioners who might



not represent the full range of care providers' views on postnatal care. Midwives in Gibb and Hundley's (2007) study used a range of techniques to elicit accurate information and support to confirm problems or to be reassured that all was well with the women under their care. Thus, this study adds to what is already known about midwives' views in assessing psychological well-being during the postnatal period in the short and long term. Aspects of psychological well-being, such as post-traumatic stress disorder and postpartum depression, may be identified to affect a far greater proportion of women than expected (Gibb and Hundley, 2007). Narrative accounts of trauma and survival may perhaps be important in postnatal recovery because the development of these narratives encourages mothers to confront the emotional aspects of events, but such an experience should not be forced on women (NICE, 2006).

#### *Post-traumatic stress disorder and postpartum depression*

Prior to the year 2000, little was known about the relationship between women's birth experiences and the development of post-traumatic stress disorder (Creedy, Shochet and Horsfall 2000). This disorder is a complex set of symptoms, mainly anxiety related, that result from and persist after the exposure to extreme stress. In Australia, Creedy et al., (2000) used a prospective, longitudinal design with 499 women and determined the incidence of acute trauma symptoms and post-traumatic stress disorder in women as a result of their labour and birth experiences, and identified factors that contributed to their psychological distress.

Findings showed that one in three women (33%, n=164) reported a stressful birth event with three or more trauma symptoms. These events included extreme pain, fear for life, the baby's life or both and a perceived lack of care. The post-traumatic stress symptoms interview revealed that 28 women (5.6%) met the DSM-IV diagnostic criteria (American Psychiatric Association, 1994) for acute post-traumatic stress disorder. Antenatal variables did not contribute to the development of acute or chronic trauma symptoms. The level of obstetric interventions experienced during childbirth and the perception of inadequate intrapartum care during labour were consistently associated with the development of acute trauma symptoms. Women who experienced both a high level of obstetric interventions and perceived their intrapartum care as poor were more likely to develop trauma symptoms than women

who received a high level of obstetric intervention or women who perceived their care to be inadequate.

The length of time during which a woman required analgesia after delivery was also identified in Creedy et al., (2000) as a significant contributing factor in the development of acute trauma symptoms. Even though postpartum pain may be temporary, it can be overwhelming, and lead to a sense of helplessness, low energy, disturbed sleep and worry.

A further quantitative research study also addressed the idea that some women develop post-traumatic stress disorder as a result of childbirth (Ayers and Pickering, 2001). In order to provide a robust estimate of the incidence, Ayers and Pickering (2001) carried out a longitudinal prospective study in UK in order to identify the proportion of women who had post-traumatic stress disorder before giving birth and after childbirth following normal delivery. This study assessed 289 women at three time points: at 36 weeks gestation and at 6 weeks and 6 months postpartum. Findings showed that after removing women who had severe symptoms of post-traumatic stress disorder or clinical depression in pregnancy, 2.8% of women fulfilled criteria for the disorder at 6 weeks postpartum and this decreased to 1.5% at 6 months postpartum. These results augment those of Creedy et al., (2000) and further suggest that at least 1.5% of women may develop chronic postpartum stress disorder as a result of childbirth.

Beck (2004) continues to assert that acute trauma symptoms during and following childbirth are synonymous to post-traumatic stress disorder because childbirth may qualify as an extreme stressor that may result in post-traumatic stress. In a phenomenological study, Beck (2004) described the meaning of mothers' experiences of post-traumatic stress disorder (PTSD) after childbirth. The purposive sample was composed of 38 mothers from different countries, such as, New Zealand, United States of America, Australia and the United Kingdom.

Thematic analysis brought out five themes: theme one being that of mothers experiencing PTSD, who were constantly bombarded with flashbacks during the day and terrifying nightmares during the night, where they seemed to be reliving their traumatic births in a film of themselves sharply imprinted in their brains. Theme two: other mothers considered themselves only a shadow of their former selves with

their real self or soul floating away from them. Theme three: others lived through an intense need to know the details of their traumatic experience of birth and they urged themselves to get answers to their questions and to fill in the missing gaps of their experience of giving birth. Theme four: others passed through the distressing emotions of anger, anxiety, and depression which on a heightened level proved to be dangerous to the healthcare providers, family members and to themselves as mothers, when depression pulled them downwards to being suicidal. Theme five: others became isolated from the world of motherhood by dissociating themselves from their infants, the supporting circle of other mothers, and from having other children.

Findings suggest that mothers experiencing PTSD have their dreams of motherhood shattered as they become isolated from the normality of postnatal psychosocial functioning, such as, being a mother to an infant, a partner to a husband, a member of a society of friends and relatives or even a client to professionals. PTSD may adversely affect maternal social health at short or long term. It is often misdiagnosed as postnatal depression (PND), but while people who have PTSD are often also depressed, this depression (PND) may be either pre-existing (and may intensify a post-traumatic stress response) or connected with the traumatic event, or be a consequence of the symptoms of PTSD (Lyons, 1998). There are no barriers, irrespective of different countries, cultures or also periods of time for this condition to subsist. Time itself is not the healer. What produces healing are certain experiences and coping mechanisms used during the period of dealing with the aftermath of the trauma, which makes possible psychological growth.

Motherhood and the transition to mothering can therefore be critical and often stressful in the lives of women. For ten per cent of all deliveries who then develop the well recognised condition of postnatal depression (Cox et al., 1987) the birth of the baby can be the beginning of a nightmare. It can be a time of unfulfilled expectations and personal loss. It can be accompanied by physical exhaustion and isolation.

An Australian study used in-depth interviews with ten women (Buultjens and Liamputtong, 2007). The interviews included questions that asked them about their expectations of birth and birth experiences, their perceived social support after the birth, what they believed to be the contributing factors of their onset of depression

and whether they felt a sense of attachment to their baby. Thematic analysis revealed that women had mixed feelings about the expectation of becoming mothers.

The interviewed women believed that having a baby was an exciting time, but many were unprepared for the extent to which their lives would change. Some of them discovered how motherhood made them feel somewhat less significant with a lack of self-esteem and confidence and the loss of control over their lives. They remarked on their dissatisfaction of their hospital stay after birth: they felt unsupported, distressed and impersonal. Thus, findings identified a range of predisposing risk factors for postnatal depression, such as personality characteristics, lack of social support and the presence of life stressors. Depression after childbirth is a real and debilitating condition that disrupts a woman's general health, both emotional and physical (Buultjens and Liamputtong, 2007). Although becoming a mother can be a time of much satisfaction, it can also be a time of unfulfilled expectations and personal loss. However, other authors argue that depression after childbirth can be viewed as a natural response to image of the perfect mother created by society (Gale and Harlow, 2003).

Nicolson (1990:689) suggested that the concept 'postnatal depression' needs to be re-examined in that 'rather than being an individual illness or vulnerability, it is more akin to a normal grief reaction and part of a normal postnatal profile'. Such qualitative studies listen to the woman, who often suffers in silence, as she tries to overcome her morbid transition to motherhood, a key point in understanding the postnatal quality of life in mothering (Buultjens and Liamputtong, 2007). The next sub-section continues to elaborate on social adjustment to motherhood and postnatal quality of life.

### **2.3.3 Social adjustment to motherhood and postnatal quality of life**

The recognition of the extent that maternal health bears on postnatal quality of life has been on the increase in recent years, although the recognition of significant morbidity is often missed (Symon et al., 2002). Even though the 'traditional' 6-week postnatal check-up identifies complications, such as, anaemia, depression and infections, professional awareness is less pronounced when it comes to other areas, such as, resumption of sexual intercourse, incontinence of urine and faeces or painful perineum. In the UK, Symon, MacDonald and Ruta (2002) carried out a

pilot study to introduce a subjective tool, namely, the Mother-Generated Index (MGI), in order to assess the mother's postnatal quality of life and to identify those aspects that were of concern to her. A standard interview was set up on a convenience sample of 103 mothers, where 60 mothers were at 6 to 8 weeks and 43 at 8 months postpartum. Validation of the tool was sought from concurrent use of other validated questionnaires, such as, The Edinburgh Postnatal Depression Scale (EPDS) (Cox's et al., 1987), The Short Form-12 (SF-12) (The Health Institute, 1994), and two postnatal indices (Glazener et al., 1995) that related to maternal and neonatal physical morbidity, including the 'baby descriptor score' whereby the mother's perception of her baby is measured.

The Mother-Generated Index gives a primary index score which identifies the quality of life and a secondary index score which identifies areas considered most important by the mother (Symon et al.'s 2002). For the primary index score, findings showed that mothers identified physical concerns, such as a painful perineum; psychological concerns, such as their low self-esteem; and social and economic concerns, namely, family relationship and financial worries. Areas that scored lowest in the MGI included tiredness, sexual issues, problems with shopping and travelling and unsolved family issues. Primary index scores at 6 to 8 weeks postnatal showed better health, but statistical significance was only reached for the baby descriptor ( $p < 0.01$ ) and the Edinburgh Postnatal Depression Scale ( $p < 0.05$ ).

Findings also showed the comparison of the highest and the lowest index scores. Mothers in the lowest index groups cited more negative than positive comments including painful perineum, low self-esteem, poor family relationship; those in a higher scoring group cited a mixture of positive and negative comments, such as, high self esteem, pleasure from the baby, a happier family, and tiredness. At 8 months postnatal, such differences were even more marked with less maternal morbidity and better mental scores and a more positive perception of their babies. Those women whose babies were seriously ill were excluded from the study. This may help to explain the more positive feelings about babies.

The MGI did not rely on a predefined checklist of problems by health professionals. It allowed mothers to comment on any aspect of their own lives after childbirth, their sexual health, their concerns on their social life and their financial problems. The tool looked at the mother holistically in a way that it might identify the problem of

individual postnatal morbidity in the individual mother. This starkly contrasts with other tools (Thompson et al., 2002, Saurel-Cubizolles et al., 2000), designed to screen for problems in a way that can only suggest well-being by default.

An earlier qualitative study by Morgan et al., (1997) had evaluated a programme for distress in a group of postnatal mothers, taking in consideration their quality of life while also involving their partners. Their main findings suggested a decrease in maternal distress over time and an increase in the mothers' level of self-esteem, whilst about half of the partners showed elevated levels of distress. The outstanding difference between Symon et al.'s study (2002) and Morgan et al.'s study (1997) lies in the fact that, whilst both studies tackled quality of life in its complexity, that is different aspects of health, well-being, and social aspects, Symon et al.'s (2002) study concentrated on identifying which areas in a mother's life were most important to her, and allowed her to indicate where she would like to see improvements. Consequently, the Mother-Generated Index appears well suited for assessing individual mother's quality of life. It can be involved in the response to trauma and throughout the process of responding to trauma and growing out of it, but still needs further testing in terms of its reliability and validity (Martin and Jomeen, 2008).

A very recent USA based study validated a tool that measured the new mother's perception of her postpartum experience and her 'quality of life'. Hill, Aldag, Hekel, Riner and Bloomfield (2006) developed and tested a 40-item measure that could be used to assess a mother's quality of life during the early postpartum period with a convenience sample of 184 mothers at week 1 and 3 postpartum.

The questionnaire tested five domains: psychological/baby; socio-economic; relational/spouse-partner; relational/family-friends, and health and functioning. The alpha-coefficients for the five domains/subscales ranged from 0.82 to 0.96, while the stability reliability ranged from 0.66 to 0.76. One possible reason for low reliability (0.66) was that the domain *Health and Functioning* changed from week 1 to week 3 postpartum, being significant higher in week 3 than week 1 ( $p=0.001$ ). The mother's perception of her pain, physical appearance, sex life, energy for every-day-activities, ability to care for self, and episiotomy or surgical incision improved over time. This finding was expected following childbirth and could be of encouragement to the mothers during the early postnatal recovery period.

Whilst Hill et al.'s (2006) and Symon et al.'s studies (2002) made an impact on understanding women's postnatal quality of life, the postpartum alterations in their usual activities associated with roles other than that of motherhood have seemingly been little considered in more recent times. Tulman, Fawcett, Groblewski and Silverman (1990) defined the mother's functional status postpartum as the readiness to resume her usual activities and to assume infant care responsibilities.

Tulman et al.'s findings demonstrated significant increases in the total functional status of postnatal women between 3 and 6 weeks ( $p < 0.0005$ ) and 6 weeks and 3 months ( $p = 0.0005$ ) postpartum, but no significant increase between 3 and 6 months ( $p = 0.148$ ), though the functional status in the activities improved during the 3 and 6 months postpartum. The functional status for women reporting full assumption of usual household care, social and community life, and self care activities increased at each time interval, whilst the infant care responsibility was fully assumed more rapidly than any other activity. None of the women had resumed self care (social) activities by 3 weeks postpartum. Therefore, the process of psychosocial function in women at 6 weeks or even at 3 months postnatal was only partially achieved (Tulman et al., 1990).

Tulman et al.'s (1990) findings continued to reveal positive significant relationship between the mothers' functional status and other variables, namely, individual psychosocial (such as confidence in motherhood) and family and demographic variables ( $p < 0.05$ ). Higher levels of physical energy, increasing parity, greater confidence in the ability to cope with motherhood and having an infant who is more predictable in temperament were associated with higher levels of functional status in household, social, community and self care activities. Also, an increased quality of relationship between the mothers and their husbands (the couples were all married) was associated with higher levels of functional status. Tedeschi and Calhoun (1995:88) argue that in taking up again their functional status mothers predispose themselves to personal growth "as they are able to reconstruct their situation, are able to bring order out of chaos, and have a tendency to act upon their environment".

As mothers take up again their maternal role in various aspects of life their functional status changes (Tulman et al., 1990). These changes reflect the adjustments required by the physical and psychological recovery and the addition of the newborn in the family. No woman in Tulman et al.'s study (1990) was at full

functional status at 6 weeks postpartum. By the end of the traditional 6-week-postpartum recovery period, less than 30% of women in Tulman et al.'s study had fully returned to their usual levels of household, social or community activities, whilst 25% had still not fully assimilated the required level of infant care responsibility, seemingly demonstrating that the traditional 6-week-postpartum recovery period is too short a time for postpartum women to fully resume their usual pre-pregnant activities.

Overall, the level of physical energy in the general health of postpartum women was the strongest correlate of functional status, irrespective of the type of delivery. Postnatal changes towards a total functional status continued to increase as mothers took on the maternal role over the six months period postpartum. The progressive increase reflected the maternal growth required by the new social identity and the arrival of a newborn in the family. However, the subjects' choice of sample in Tulman et al.'s study (1990) was restricted to certain selected inclusion criteria and so findings cannot be generalised.

Postnatal mothers struggle to make sense of their changed social identity and to draw an assessment of the degree to which they feel supported by their carers (Salmon, 1999). In another stance to social adjustment, Salmon (1999) carried out a qualitative study in South Wales intended to provide details of women's experiences of adapting to perineal trauma after birth. Unstructured interviews were employed with a group of six women, who were chosen through a snowball technique, and who were all white, British, had had access to further education, and who had experienced perineal trauma in the last five years, their age ranging from 25 to 40 years.

The emerging categories included the experiences of interpersonal relationship with the doctor during suturing of the perineum, experiences of social support and interpersonal relationship whilst healing, and feelings associated with coming to terms with perineal trauma. A persistent theme throughout the interviews was the participants' references to how they perceived the procedure of being sutured. The women did not regard the suturing procedure to be as professional as they expected and they perceived a strong feeling of not being cared for. They felt that their most urgent needs of communicating on their perineal pain with the doctor who was



performing the perineal suturing were consistently being ignored, and this gave them a sense of loneliness (Salmon, 1999).

Salmon (1999) concluded that health carers, whether doctors or midwives, perceived perineal pain as the women's inability to cope with what carers perceived to be the normal healing process, whilst for the women pain was an added burden to their other worries on how their perineum looked like after the suturing. Emotions, fears, and anxieties played an important part in keeping postnatal women from coming to terms with their new identities, such as, how their sexual and social identity postpartum would develop and what quality of life awaited them. Their fear further increased on their considering their sexual relationship or future pregnancies.

It is important to note that the participants in Salmon's (1999) study were at different stages of living with their perineal trauma. Some had given birth five years earlier. They were small in number, only six, and all of the same cultural and educational background. An important element in this study is the effect of time and recall of the participants, since some of them had experienced perineal trauma within 12 months, whilst others had experienced it up to 60 months earlier. However, this study infers that the healing process (both physical and psychosocial) of perineal trauma is different from woman to woman. For some it may persist for years. Constructive thinking (in theory known as rumination, Tedeschi and Calhoun, 2004) may lead to attempts to relieve emotional distress through coping mechanisms, but this process is affected by personality of the traumatized women.

The outcome of rumination characterised by postnatal anxiety, fears, and concern, on suturing of the perineum has been dealt with in both qualitative and quantitative studies. Sexuality appears to have normal fluctuations during different phases in life of a woman and the postpartum period is one such phase where psychosexual problems can occur (De Judicibus and McCabe, 2002, Thompson et al., 2002, Ahlborg et al., 2001, Barrett et al., 2000). This would include late or non-resumption of sexual intercourse and dyspareunia. The next sub-section continues to discuss social adjustment in the resumption of postnatal sexual intercourse and dyspareunia.

#### *Resumption of postnatal sexual intercourse and dyspareunia*

Women's sexual health after birth remains under-researched, in particular the experience of dyspareunia and non- or late resumption of postnatal intercourse

(Barrett et al., 2005). Postnatal maternal sexuality may be linked up to many variables, including hormonal changes, breastfeeding, and psychosocial variables, such as, the memory of a painful perineal trauma, personal growth, body image, well-being, adjustment to changes in social roles and mood changes (De Judicibus and McCabe, 2002). Sexual difficulties experienced postpartum can cause much distress on the maternal quality of life, the mother's physical and mental well-being and the relationship between the mother and her husband/partner. Postpartum sexual relationship can be problematic. Perhaps the root of the problem lies in the social and medical pressure placed on new mothers 'to get back to normal' as soon as possible. Hulme (1993) urged midwives to help mothers anticipate just how overwhelming early parenthood can be, and she continued to urge them not to talk about 'getting back to normal'. She concluded that mothers do not go back, they 'go forward' (Hulme, 1993) in a process of postpartum personal growth.

In midwifery practice, it is assumed, that sexual intercourse is resumed at an average of 6 to 8 weeks postpartum. For many couples the resumption of intercourse may be problematic at first (Barrett et al., 2000). In addition to cessation of lochial loss, resumption of sexual intercourse has been linked to age, with the mother under 30 years of age starting earlier. Other factors, such as marital status (having a sexual partner), multiparity, and the absence of severe vaginal laceration or episiotomy may help in the earlier resumption of sexual intercourse than being first time parents (LaMarre et al., 2003).

De Judicibus and McCabe (2002) found that dyspareunia is a significant predictor of diminished desire, frequency of sexual intercourse and sexual satisfaction at 3 and 6 months postpartum. Studies have documented postpartum dyspareunia; few however, have sought to determine the relative importance of associated risk factors (LaMarre et al., 2003) such as perineal trauma and incontinence. Signorello et al., (2001) in their large study of primiparous women who delivered vaginally found that perineal trauma and the use of obstetric instrumentation were significantly positively related to dyspareunia in both its frequency and severity at 6 months postpartum. Perineal trauma seems to decrease sexual postnatal interest and activity. Barrett, Pendry, Peacock, Victor, Thakar and Manyonda (2000) carried out a cross-sectional study in London to investigate the impact of childbirth on sexual health of

796 primiparous women and to identify factors associated with dyspareunia at six months postnatal.

From a response rate of 61% (n=484), 86% (n=415) had resumed sexual intercourse since the birth of the child. Results, however, showed that primiparous women experienced high levels of sexual morbidity within the first six months after childbirth. Such problems included dyspareunia, vaginal dryness and tightness or looseness, and loss of libido. At three months postpartum, dyspareunia was significantly associated with factors as type of delivery, perineal damage, and the experience of dyspareunia before pregnancy. At 6 months, dyspareunia was associated only with breastfeeding and pre-pregnancy dyspareunia. Only 62% (n=108/174) of the women with vaginal unassisted deliveries experienced dyspareunia at three months postnatal. This total fell to 30% (n=59/198) at six months postnatal but it did not return to pre-pregnancy levels of 12% (n=48/403). This study showed that primiparous women experienced high and various levels of sexual morbidity after childbirth with dyspareunia and loss of libido being very common in the first three months after delivery. Libido returned at 6 months postpartum but not to the pre-pregnancy levels. These findings are consistent with the findings of a comparative study (Buhling et al., 2005) in Germany, which evaluated the influence of mode of delivery on sexual function and dyspareunia and found that persistence of dyspareunia took more or less longer than six months postnatal, and it added that dyspareunia fluctuated among all groups of deliveries: between 3.5% (4/115) in the spontaneous vaginal deliveries without injuries and up to 11% (34/316) in the episiotomy or laceration group.

Research highlights that postnatal women experience problems immediately after childbirth but less widely recognized is that problems may persist long after postnatal care conventionally ends (Signorello et al., 2001, Barrett et al., 2000). Glazener (1997) conducted an analysis of a longitudinal survey of 1,391 randomly selected women who received postnatal care in the Grampian region of Scotland, to describe the sexual behaviour of postnatal women including the time of restarting sexual intercourse and problems encountered in 8 weeks and subsequently at 12 to 18 months postnatal.

Glazener's (1997) findings imply that, although the majority of women (71%) had achieved sexual intercourse, 49% reported problems with intercourse (tiredness and

soreness in the perineum) after the first two months, indicating that the physical effects of pregnancy and delivery, including the stress in rearing a newborn baby, might have longer lasting effects. Moreover, women who had intercourse were more often too tired and still lacked interest in sex after two months from birth, although the reports of pain and difficulty were less. Some women who did not have intercourse were worried about the risk of another pregnancy. For few women, such anxieties remained even for months afterwards.

Furthermore, Glazener's (1997) findings showed a positive relationship between pain in the perineum and problems with sexual intercourse ( $p < 0.001$ ). However, this finding represented a sexual morbidity perceived by women to be of a minor nature, or only to be expected, or too embarrassing to report to a medical doctor because of its sensitive nature, amongst other reasons. It does, however demonstrate that women might have mixed feelings about resuming sexual intercourse. The high response rate of 90%, whilst indicating the representative nature of the study, goes to highlight the interest women had in contributing to the research in such a sensitive area as sexual function after childbirth and the importance the research held in terms of women's postnatal recovery.

The experience of pain or discomfort in connection with sexual intercourse is likely to discourage women from desiring intercourse or is likely to reduce their sexual satisfaction. A longitudinal study in Australia intended to examine the influence of role quality, relationship satisfaction, fatigue, and depression, on women's sexuality during pregnancy and after childbirth at 12 weeks and 6 months postpartum was undertaken by De Judicibus and McCabe (2002). One hundred and thirty-eight ( $n=138$ ) primigravidae were recruited antenatally with response rates of 75% ( $n=104$ ) at 12 weeks postpartum and 74% ( $n=70/95$ ) at 6 months postpartum.

Once the data from women who had not resumed sexual intercourse following childbirth were excluded from the analysis, findings at 12 weeks postpartum revealed an overall effect of time, significant at  $p < 0.001$ . Moreover, univariate planned contrasts, such as sexual desire, revealed that at 12 weeks postpartum compared with pre-pregnancy, women reported decreased sexual desire ( $p < 0.001$ ), frequency of sexual intercourse ( $p < 0.001$ ), sexual satisfaction ( $p < 0.001$ ) and relationship satisfaction ( $p < 0.01$ ). At 12 weeks postpartum, sexual desire

( $p < 0.05$ ) and relationship satisfaction ( $p < 0.001$ ) were reduced compared with pregnancy, but frequency ( $p < 0.001$ ) and sexual satisfaction ( $p < 0.01$ ) increased.

Women who reported more depression symptoms also reported less frequent sexual intercourse. Regarding frequency, the major factors were depression and fatigue. Dyspareunia, breastfeeding, and fatigue were the major factors of women's decreased sexual satisfaction at 12 weeks postpartum. It seems that although the majority of women had resumed sexual intercourse, many experienced sexual difficulties particularly dyspareunia and lowered sexual desire. Relationship satisfaction was at a low point at 12 weeks postpartum and more than half of the women reported lower relationship satisfaction at this time than during pre-pregnancy. In addition, fatigue negatively affected women's sexual functioning at 12 weeks postpartum.

Women with higher levels of dyspareunia and those who were breastfeeding also reported a greater decrease in sexual desire, frequency of intercourse and sexual satisfaction compared with the pre-pregnancy period. It seems that depression, fatigue, dyspareunia, and breastfeeding are factors that have a negative impact on the resumption of sexual relationship at 12 weeks postpartum. Perineal pain, tears or episiotomies, particularly those that are extended to a third or fourth degree tears, continue to aggravate the situation. However, the inclusion of pre-pregnancy measures which require retrospective recall and the fact that both pre-pregnancy and pregnancy measures were collected at one time may be looked at as limitations in De Judicibus and McCabe's study (2002). Recall bias could have affected that method of measurement. Moreover, the attrition rate resulted in a decline in response rate over the course of the study. The fact that the prime carers of infants were their mothers may explain the substantial level of this attrition rate. De Judicibus and McCabe's study (2002) made it clear that a range of factors influence sexual responses postpartum and that depression and fatigue vary at different stages of the process of adjusting to childbirth.

Another study explored the best perineal outcome among women with varying degrees of trauma. In a retrospective cohort study in the USA, Signorello, Harlow, Chekos and Repke (2001) examined the relationship between obstetric perineal trauma and postpartum sexual functioning in three groups of primiparous women after vaginal birth: group 1 ( $n=211$ ) had an intact perineum or first degree perineal

tear; group 2 (n=336) had second degree perineal trauma; and group 3 (n=68) had a third or fourth perineal trauma.

Findings showed a response rate of 70.2% (n=615). The degree of perineal trauma was positively related with age. Nearly 30% of women with intact perineum were younger in age than 25, compared with 8% and 6% of women with second-degree and high-degree tears respectively. By six months postpartum nearly all women had resumed sexual intercourse. The mean time to resume intercourse was earliest in the 'intact' group by 7.1 weeks and the latest in the 'high-degree laceration' group by 9.3 weeks ( $p < 0.001$ ). The proportion of women who reported pain during the first resumption of sexual intercourse after childbirth was significantly greater among women with perineal laceration than among women without laceration ( $p < 0.001$ ). Those in the 'intact' group described pain as mild, and the 'second-degree' and 'high-degree' groups were less likely to describe this pain as severe. Moreover, at 3 months postpartum the probability of reporting dyspareunia was related to the degree of perineal trauma. While 22% of the study population still reported perineal pain at 6 months postpartum, women in the 'intact' group were significantly more likely to report enhanced sexual functioning. This is congruent with another previous study (Klein et al., 1994) which demonstrated that a significantly higher proportion of women with an intact perineum resumed sexual intercourse earlier than women who experienced perineal trauma resulting from a spontaneous large laceration or an episiotomy.

In Signorello et al.'s study (2001) a history of painful sexual intercourse was among other significant factors of pain during the first postpartum sexual intercourse. The degree of perineal trauma was strongly related to dyspareunia at 3 months postpartum even after the control of other related labour and delivery factors. Findings further indicated that the degree of perineal trauma had an effect on the waiting time for postpartum sexual intercourse, that is, the degree of perineal tissue damage is predictive of the extent of postpartum perineal pain, and primiparous women experience higher rates of dyspareunia after childbirth than multiparous women. Postpartum sexual functioning is essentially associated with perineal trauma strengthening the argument that episiotomy in primiparous women is to be avoided (Signorello et al., 2001).

The impact of obstetric morbidity on normal pregnancy and birth has been further explored in UK by Waterstone, Wolfe, Hooper and Bewley (2003). These authors used different questionnaires to find and assess whether there were differences in outcome during the first six to twelve months postpartum between women who had severe obstetric morbidity and others who did not. Cases were identified as women who experienced a severe obstetric event during pregnancy, labour or the postpartum period. Controls were women who did not have severe morbidity during pregnancy, delivery or in the postnatal period.

Findings showed a response rate of 56.5% (n=331) in cases and 57.0% (n=1,339) in the control group. Non-responders were likely to be younger, unsupported, smokers, unemployed, or manual workers. EPDS scores (Cox et al., 1987) were typically higher in the cases than in the controls, while there were differences between the two groups on all subscales of the SF 36 (Ware and Sherbourne, 1992) with cases having poorer outcomes than the controls.

Findings also showed that 34.1% (n=77) of the cases reported having problems with sexual function compared with 18.7% (n=240) of controls ( $p < 0.001$ ). Women with high EPDS scores (27.1%, n=95) and women with moderate EPDS scores (28.5%, n=74) admitted to having problems with sexual function, while 17.3% (n=182) of those with low EPDS scores also reported sexual problems ( $p < 0.001$ ). Therefore, the research shows that sexual problems were found across both groups of cases and controls. Reasons for not resuming sexual intercourse were similar for both groups. 'Tiredness' emerged as a reason for not resuming sexual relations and was common in controls rather than in cases ( $p = 0.034$ ). The largest difference registered was on the proportion who listed 'fear of falling pregnant again' (50% of cases and 28.6% of controls,  $p < 0.001$ ).

Overall, Waterstone et al.'s study (2003) shows that postnatal morbidity is highly prevalent, and also that the severity of obstetric events in pregnancy or in labour may increase the probability of a poor sexual outcome. It may be argued that women's experiences during childbirth contribute to their failure of resuming sexual intercourse up to 6 months postpartum. However, a highly relevant feature in Waterstone et al.'s study (2003) was that half of the cases who had not resumed sexual relations quoted the 'fear of falling pregnant again' as a reason, compared with just over a quarter of the controls.

Women's concern for sexual life diminishes in favour of other basic needs such as sleep and pre-occupation with the new baby (Olsson et al., 2005). This postpartum change can bring about many physical, emotional and social effects that may alter women's sexual needs and may have an impact on the relationship with their partners. In a qualitative study, in Sweden, Olsson, Lundqvist, Faxelid, and Nissen (2005) explored women's experiences of their sexual life after childbirth in order to elucidate a better understanding of women's thoughts about this issue and the need of counselling. Twenty-seven women participated in six focus groups discussions which took place at 3 to 24 months postpartum.

Four themes were identified. The first theme was body image after childbirth. Though some women accepted the changes in their bodies and regarded them as being true life conditions, others felt very uncomfortable with their body image and wondered what would happen to their social life. Theme two was how sexual patterns were altered following new stresses of family life. Women experienced different priorities after childbirth. They preferred sleep and some time for themselves rather than having sex, and this altered their sex pattern. Theme three was the discordance of sexual desire with the partner. It proved to be a problem for some women but others were confident that their sexual desire would return shortly. Theme four was the necessity for reassurance where some women wished to be reassured by their partners and by a professional that they were physically and emotionally satisfactory.

Physical and emotional segmentation of the women's bodies was a new finding in Olssen et al.'s (2005) study. The breasts were for the time being restricted to the babies' needs, not to be associated with sexual activities. This finding supports the previous finding by Avery et al., (2000) that approximately one third of the women in their study reported some degree of difficulty with their breasts having dual purpose. The perception of the changes in the vagina was of great concern to some women and it was difficult to accept its normality. The same findings have been reported in another study (von Sydow, 1999) where the authors found in the meta-content analysis that women generally perceived the vaginal tension as unchanged or tighter on resumption of intercourse, but at 3-4 months postpartum tension remained mostly unchanged and was described as being 'slacker' in about 20% of the cases. The strength in this study (Olsson et al., 2005) is the use of focus group discussions



which raised a willingness among the participants to openly discuss sexual and family life experiences but the large spread in time interval of 3-24 months postnatal might have changed the perception of sexual life among any of the participants.

**Summary:** The evidence reviewed above seems to suggest that postnatal general health measurements can provide a view on the impact of childbirth on the mother's perception of her well-being. Health problems, including perineal pain, problems with bowel, urinary and sexual activities, occurred at three months after childbirth, with some resolution over six months postpartum. Low self-rated health was associated with symptoms that affected the mother's general physical functioning and wellbeing. Faecal incontinence following childbirth is more common than was previously realised. Though this issue is rather subjective, it is useful to discover its incidence within a population because such an experience can generate significant emotional and psychological distress in the affected women.

In adapting to maternal role changes, new mothers may continue to experience emotional changes which are assessed through a diversity of postnatal practices and midwives' skills. Women who experience both a high level of obstetric interventions and perceived their intrapartum care as poor were likely to develop acute trauma symptoms and post-traumatic stress disorder. Mothers become isolated from the normality of postnatal psychosocial functioning, rendering mothering to be critical and stressful, while they suffer from unfulfilled expectations and personal loss.

For mothers, who then develop postnatal distress and depression, the experience is a real and debilitating condition that disrupts much of their general health. The postnatal quality of life scores identified different aspects of health and well-being, and social aspects, revealing a decrease in maternal distress and an increase in the mothers' level of personal growth over time with improved functional status as the maternal role is taken up. Primiparous women experienced various levels of sexual morbidity, at times high, with dyspareunia and loss of libido being very common in the first three months after childbirth. At three months postpartum the probability of reporting dyspareunia was related to the degree of perineal trauma, but the fear of falling pregnant again was a common reason for not resuming sexual intercourse. Libido returned at six months postpartum but not to the pre-pregnancy level. Women' own views on resuming sexual intercourse revealed the physical and emotional segmentation of their bodies, their maternal pre-occupation with the baby

and their own basic need for sleep. The partner and professionals may offer support which allows the mothers to find ways to successful emotional coping.

## **2.4 Conclusions**

The findings on perineal trauma with or without episiotomy predominantly show that high levels of enduring morbidity (perineal pain, incontinence, sexual morbidity and dyspareunia) persist even at 6 to 12 months after the delivery of the baby. The effect of perineal morbidity may vary between one woman and another. Regardless of the discussed limitations in the above studies, it is clear that the prevalence of morbidity remains high and this greatly influences women's general health and personal growth. Further large-scale prospective research is recommended to explore the relationship between perineal trauma and general health of postnatal women in the short and long term. The general health of new mothers, which includes physical and mental health, growth in maternal role, adaptation and quality of life are other important areas for further holistic research. Assessments which midwives, working on the postnatal wards and community areas, use to measure mothers' general health should address complications, discomfort and maternal mental health throughout the postnatal period. The results of various studies on the resumption of sexual intercourse in the postnatal period have also shown that the new mothers' concern for sexual activity diminish, regardless of the severity of perineal trauma. It did so, in favour of other basic needs, such as sleep, having their own time and maternal pre-occupation with the new baby, including breastfeeding. It is clear that new mothers desire sensitive professional counselling and reassurance about their body image and its change in function in the postpartum period. The development in the personality of mothers taking place in the aftermath of trauma can lead to personal growth which is evidenced by the decrease of emotional distress and an acute appreciation for life. The next section of this chapter enunciates a theory, namely, the Post-Traumatic Growth Theory (Calhoun and Tedeschi, 1998) which can help midwives give a meaning to the experiences of new mothers with perineal trauma after childbirth and to apply this knowledge to counselling in clinical practice.

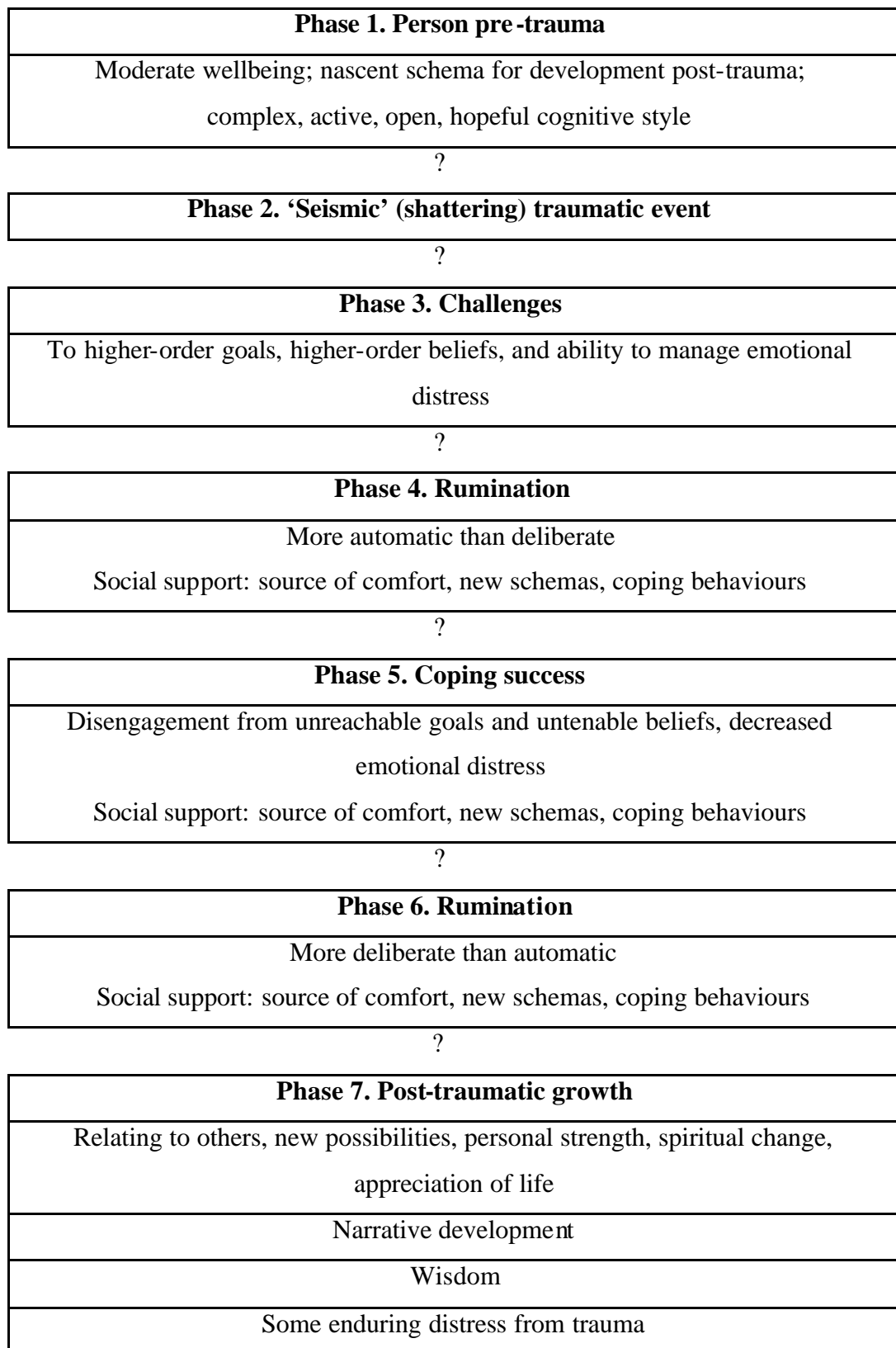
## 2.5 The Post-traumatic Growth Theory

This theory argues that stressful and traumatic life events may give rise to positive changes and personal growth (Tedeschi and Calhoun, 2004). These theorists recognized the possibility that positive psychological change could occur in the context of highly stressful circumstances. For example, there is supportive evidence that personal growth occurs in people following breast cancer or other life-threatening diseases (Bellizzi and Blank, 2006). The transition to motherhood following childbirth with the ensuing postpartum perineal pain, discomfort, sleep deprivation and emotional distress may similarly be considered as traumatic and may over time lead to personal growth and psychological development of the individual mother. Consequently, such a growth is identified in the mother's increased sense of worthiness in motherhood and in her personal strength in mothering (Wilkins et al., 2009).

The positive changes observed following trauma were described by Tedeschi and Calhoun (1995, 1996) as post-traumatic growth (PTG). These authors define post-traumatic growth as the subjective experience of positive psychological changes reported by an individual person as a result of that person's struggle with trauma. The positive psychological changes are manifested by an increased appreciation of life, setting new life priorities, a sense of increased personal strength, identification of new possibilities, improved intimate relationship or positive spiritual change (Tedeschi, Park and Calhoun, 1998). Therefore, apart from returning back to the pre-trauma functioning after a period of emotional distress, post-traumatic growth includes the use of that traumatic experience as an opportunity for further individual life development. Such individuals, besides overcoming trauma, improve their psychological functioning which may lead to a more fulfilling and meaningful life (Tedeschi and Calhoun, 2004). Joseph and Linley (2006) include that social support is important too. Wilkins et al., (2009) argue that motherhood can be one of life's biggest challenges and can provide a common example of growth through adversity (McGowan, 2006). Tiredness, postnatal pain, and the full-time responsibility of understanding the various needs and cues presented by the newborn induce mothers into setting new coping priorities (Wilkins et al., 2009). In turn, priorities can set up a profound shift of growth in mothering and motherhood.

For Calhoun and Tedeschi (1998), the 'growth' process arises from the aftermath of a traumatic event. The main theme of the life challenges that are the focus in post-traumatic growth (Tedeschi and Calhoun, 2004) is their 'seismic nature' (Figure 2.1, phase 1 and 2). In other words, the traumatic event threatens the individual's important life goals and world views. It presents challenges to higher-order goals and beliefs and the ability to manage emotional distress (phase 3). The resulting emotional distress initiates a process of effortless 'ruminative activity' (phase 4) in which the individual tries to make sense of what has happened and to deal with the negative and positive emotional reactions to the trauma. Calhoun and Tedeschi (1998) argue that such behaviour reduces distress and leads the individual who has experienced trauma to think repeatedly about the circumstances. It is a form of cognitive processing that is characterised by problem solving (Tedeschi and Calhoun, 1995) (phase 5), where the individual may realise that certain previous life goals are no longer attainable. Therefore, it is possible that this individual begins to experience a movement towards the achievement of new life goals and increased life satisfaction (phase 7).

Figure 2.1: The process of post-traumatic growth (Calhoun and Tedeschi, 1998)



Calhoun and Tedeschi (1998) argue that the rumination process plays a key role in the development of personal growth. This ruminative process is influenced by social support networks that provide sources of comfort and relief. It can also be influenced by new coping behaviours and the options that are available for the construction of new circumstances, such as, changes in beliefs, goals and behaviour. Such goals and beliefs are identified through cognitive processing and support. The narratives of the traumatized individual in the immediate social environment describe ways how his struggles with the aftermath of trauma have brought about change and enhanced the likelihood of post-traumatic growth. As successful coping helps adaptation, the initial effortless ruminative activity shifts towards a more deliberate and effortful rumination.

Tedeschi and Calhoun (2004) argue that this shift towards more effortful ruminative activity brings forth wisdom (understanding life). Yet, the increase in wisdom and adaptation to the new situation do not necessarily exclude the possibility that some distress from trauma may persist, but if it does, it will do so at a lower level than that experienced in the immediate period following the trauma.

A main limitation of the theory is that it is quite complex. It includes distal and proximal predictors of post-traumatic growth (Tedeschi and Calhoun, 1995). The distal factors in PTG are predicted by “person pre-trauma” characteristics, such as, personality, self disclosure, and fundamental schemas, which are flexible attitudes and determination, beliefs and goals. Proximal factors are rumination, more deliberate change of mental view of the world, narrative development and enduring distress. These proposed concepts, except for enduring distress, are quite general and allow more operational and theoretical specifications in explorative research (Zoellner and Maercker, 2006). Another limitation is that this theory of growth has tended to be descriptive rather than explanatory. It does not justify growth processes, though the phases may provide a sense of sequence of events. It is not necessary for the person to follow each phase one after the other. Still, the theory seems to be able to explain positive changes regarding self, others and the world.

### **2.5.1 Applying the theory to the current study**

The post-traumatic growth theory (Calhoun and Tedeschi, 1998) suggests that it is the ‘seismic nature’ or the emotional intensity of the event that produces a strong

challenge to higher life goals and has the potential to put into action a rebuilding of one's life. Further to this, it could be argued that what seems to be crucial is not necessarily the traumatic event itself, but rather how it is appraised and what is gained in living through it.

Women often perceive the moment of labour and delivery as a transition to a healthy motherhood and rarely consider that they may have to experience negative consequences (Barrett et al., 2000), such consequences being perineal trauma, incontinence of urine and faeces, sexual dysfunction, and poor general health, that may follow birth and which have been reported as stressful events in midwifery and obstetric literature (MacArthur and MacArthur, 2005, Thompson et al., 2002, Lydon Rochelle et al., 2001, Saurel-Cubizolles et al., 2000, Barrett et al., 2000, Mason et al., 2000). Mothers can experience a diversity of bio-psycho-social trauma for weeks and even months or years after childbirth (Thompson et al., 2002).

Wilkins et al. (2009) argue that mothers try to make sense of what has happened to them after childbirth and deal with their emotional reactions to the trauma, which are often distressing. This may be considered as the early ruminative phase (phase 4 in the PTG theory) where rumination is automatic or effortless. Through support strategies and professional assistance mothers slowly rebuild their pre-trauma functioning selves and move into coping success (phase 5). New mothers are influenced by social support networks that provide sources of comfort and relief and by their new coping behaviours, such as child rearing, which in turn aids adaptation and growth in mothering and motherhood. Their emotional distress decreases as they gradually thrive to gain personal strength. They do not only survive but experience psychological changes that are viewed as important for personal growth, such as accepting and valuing all aspects of themselves (phase 7). It is possible for some mothers that the attempt at adapting to trauma takes longer than expected and it could happen that the psychological outcome would never be fully satisfactory.

Research evidence illustrates the difficulty to determine a postnatal time period when women recover from the effects of childbirth. This difficulty may be due to various methodological factors and lack of consistency in the operational definitions of terms. Terms may differ from one study to another, as the term intercourse after delivery may or may not include sustained intercourse. The difference in the size

and the quality of the sample, and the time periods chosen for a research study differ from one study to another.

Most of the studies on postnatal perineal trauma and mothers' general health are of quantitative nature, with considerably few studies using a qualitative design. This may hinder exploration of the rationale derived from qualitative data. Consequently, the following two chapters will explain the methodology used for this longitudinal study which adopted a mixed method approach of both quantitative and qualitative data.



## **Chapter 3**

### **Research Design and Sampling Technique**

#### **3.0 Introduction**

This chapter outlines the design and sampling techniques of the study. Whilst, some of the recent published research are randomized trials (see for example, Langley et al., 2006, Albers et al., 2005, E. M. Fleming et al., 2003, Oboro et al., 2003, Kettle et al., 2002, Glazener et al., 2001, Lundquist et al., 2000, McCandlish et al., 1998, Gordon et al., 1998, Mackrodt et al., 1998 and Sleep, 1991), the majority are cross sectional and quantitative in nature (see for example, Andrews et al., 2007, Gottvall et al., 2007, Williams et al., 2007a, Williams et al., 2007b, Albers et al., 2006, Andrews et al., 2006, Metcalfe et al., 2006, Glazener 2005b, Macarthur and Macarthur, 2005, Schytt et al., 2005, Bick et al., 2002; Barrett et al., 2000, Brown and Lumley, 1998b and MacArthur et al., 1991). In order to investigate the relationship between perineal trauma and maternal general health across time, a descriptive, correlational and longitudinal design appears appropriate. It is also proposed to collect both quantitative and qualitative data as this will enhance the interpretation of the women's experiences. This chapter identifies the research question, the research aim and objectives, operational definitions and the research design. It also describes the target population, sampling technique and the development of the quantitative and the qualitative data collection instruments.

#### **3.1 Research question**

This study seeks to answer the following research question: What is the relationship between perineal trauma, resumption of sexual intercourse, general health and obstetric characteristics in Maltese women from the first 48 hours after a hospital delivery and the next thirteen weeks following normal childbirth?

To answer the research question, this study aims to explore the relationship between perineal trauma, resumption of sexual intercourse, general health, and obstetric characteristics of Maltese postnatal women following normal vaginal deliveries across the first 48 hours after delivery in hospital and the thirteenth week postpartum.

### 3.2 Objectives

In order to achieve this aim, the objectives of this study are to:

1. assess the contribution of demographic and obstetric characteristics to perineal wounds: tears and/or episiotomies;
2. identify any statistical differences in total perineal trauma between the subgroups of obstetric characteristics across time;
3. identify any statistical differences in general health between the subgroups of obstetric characteristics across time;
4. determine any patterns of fluctuations in total perineal trauma across time;
5. determine any patterns of fluctuations in general health across time;
6. explore any statistical relationship between total perineal trauma, the resumption of sexual intercourse and general health across time;
7. explore women's accounts of their experience of total perineal trauma and general health.

### 3.3 Operational definitions

Operational definitions specify how the variable or concept under investigation is observed and measured in the actual research setting (Polit and Hungler, 1999). Precision in defining the terms has the advantage of communicating exactly what the terms mean (Polit et al., 2001). However, some of the variables are not operationalized as easily and directly as others. For example, perineal trauma following childbirth involves physical, psychological, emotional and social disruptions, and so a total recovery from such a trauma is very difficult to define. However, below the researcher has attempted to define the key concepts used in this study.

A **longitudinal study** is one in which data are collected at intervals in order to capture any change which may take place over time (Parahoo, 2006). In the current study data are collected on the same sample at 48 hours (time 1), 10 days (time 2), 6 weeks (time 3) and at 13 weeks (time 4) after the delivery of the baby.

**Perineal trauma** in childbirth may be surgically induced with an episiotomy, which is a deliberate cut in the perineum to widen the passage for the birth of the fetus. It may also occur spontaneously (a perineal tear). At times, an episiotomy may extend to a third or fourth degree tear. In this study, total perineal trauma is defined in terms of reported perineal pain on a range of activities and reported incidence of incontinence of urine and faeces.

The **general health** of the women in the sample is assessed through The General Health Questionnaire-12 (Goldberg and Williams, 1988) which is an English scaled-version intended for use in general practice settings to assess the presence of psychosocial symptoms that affect the subject's general health.

**Resumption of sexual intercourse** is conceptualised as the return of sexual desire and activity after normal childbirth and perineal recovery from trauma. Some women may attempt resuming sexual intercourse but are unsuccessful, whilst others succeed by six and thirteen weeks postnatal.

**Maltese women** are Maltese speaking inhabitants who delivered, with an uneventful vaginal delivery, a healthy baby at one general hospital in Malta, recruited postnatally within a specified length of time.

**Obstetric and demographic characteristics** are distinctive qualities that identify groups of people, and include age, marital status, level of education, occupation and parity. Other obstetric characteristics utilized in the study are the position of the baby's head at birth, maternal position during birth and the person suturing the perineum. These characteristics are selected in literature as they may influence postnatal perineal trauma and pain physically and psychosocially (Webb et al., 2008, Andrews et al., 2007, Gottvall et al., 2007, Williams et al., 2007a and Kettle, 2005).

### **3.4 Choosing the appropriate research design**

During the early planning of the study design, the possibility of investigating the research question using qualitative approaches, particularly phenomenology, was considered. However, it is important to be aware of alternatives in order to judge whether an appropriate approach has been taken (Rees, 2003). The section below describes the rationale for the final choice of study design.

Haber and LoBiondo-Wood (2001) state that qualitative research involves broadly stated questions about human experiences and realities studied through sustained contact with people in their natural environments generating rich, descriptive data that help the researcher to understand the subjects' experiences. The aim is to find out people's feelings and experiences from their own point of view rather than from that of the researcher. For example, in asking individual postnatal women how they feel about the healing of their perineum, the terms of reference should be to explore postnatal women's experiences and their feelings about episiotomies and/or perineal tears. The method to reach the aim would be mainly by interviews and observations.

Alternatively, an important feature of quantitative research is the measurement of the phenomena, such as, perineal trauma or general health among the chosen population of subjects. It is the objective reality that the quantitative approach seeks to study and therefore numerical values are central to their understanding.

However, rather than using *either* qualitative *or* quantitative approach, a mixed-method (multiple) design was preferred for this research study in order to make use of the complementarity underlying the two approaches. Polit and Hungler (1999) state that combined judiciously in a single study, qualitative and quantitative data can supplement each other's lack. In other words, by using the multiple methods, the researcher can allow each method to do its best, with the possibility of avoiding the limitations of a single approach. Traditionally, qualitative and quantitative methods belong to different paradigms. While qualitative approaches seek understanding and interpretation aimed at generating theory and research questions, quantitative methods seek explanation aimed at generalisation (Polit and Hungler, 1999). Recently, researchers are taking a moderate view that the quantitative and qualitative methods can act as partial correctives to each other (Foss and Ellefsen, 2002), each reinforcing the other. This is not as easy as it sounds. In the present study quantitative approach takes precedence over the qualitative one, without violating basic paradigmatic assumptions (Field and Morse, 1991, Noerager-Stern, 1991).

The quantitative data from an explorative study gives the researcher a more contextual picture when combined with qualitative data, where subjects are given the opportunity to use their own words. Analysis of findings may then detect how changes in the society and social interaction affect subjects' needs and expectations and thus provide influences that can hinder or facilitate the interaction between

providers and receivers in healthcare. As a result, qualitative data provide the context for quantitative findings.

Furthermore, the choice of the research design should match the research question. Oppenheim (1999:35) suggests two issues for consideration:

- 1) How much is already known about the main causal variables and the processes in the chosen area of enquiry?
- 2) How much control will there be over events?

By assessing each of these issues, for the purposes of this study, it was concluded that little is known about postnatal perineal trauma in the Maltese female population. In these circumstances, Oppenheim (1999) recommends a relational survey design that would explore associations between variables. Thus, the choice ultimately fell on an exploratory, correlational and longitudinal design. In addition, a qualitative component was added to this quantitative design to create a mixed-method approach and increase the meaning of the obtained data (Rees, 2003, Polit and Hungler, 1999, Burns and Grove, 1997).

### **3.4.1 Explorative, descriptive and correlational design**

The present study is non-experimental, exploratory, descriptive and correlational. Polit and Hungler (1999) define the purpose of descriptive research as two-fold: firstly, it is to observe, describe, and document aspects of a situation as it naturally occurs. Secondly, it is to serve as a starting point for research question generation or theory development.

Thus, the researcher can observe perineal trauma but can do little more than describe the existing relationships without fully comprehending the complex causal pathways that exist (Polit and Hungler, 1999). In other words, there is no control of the independent variable, which is perineal trauma, because it has already occurred. However, the study is exploratory aimed at investigating the full nature of perineal trauma, the manner in which it is manifested and other factors with which it is related including resumption of sexual intercourse and general health.

There are other variables which can be selected and these may be the confounding variables, such as, the demographic and obstetric characteristics, but the primary

purpose of a descriptive design is to describe the status of each variable. The intent of the study is merely descriptive of relationships, also known as correlational or *ex post facto* research, as it takes place after the fact (Parahoo, 2006, Cormack, 2000). The research is being conducted after the variations in the independent variable have occurred in the natural course of events. The data in this study are collected retrospectively in four questionnaires (following the event of perineal trauma), and introspectively, where the subjects' own thoughts and feelings regarding perineal trauma are explored. The meaning of any correlational relationship will become clearer with statistical analysis, supported by qualitative data.

### **3.4.2 Advantages and disadvantages of a correlational design**

Hicks (1990) described the correlational design as an approach that is concerned with the interrelationships between variables in the research question. In using this design, a whole range of scores on one variable is usually selected and the corresponding scores on the other variable collected and then statistical tests applied to investigate if there is some link or relationship between the two sets of data. Polit and Hungler (1999) identified the design's weakness in comparison with either experimental or quasi-experimental designs. These designs adopt random sampling and a possibility of comparison with the pre-existing difference before the occurrence of the independent variable. Interpretation of results in correlational studies should therefore be considered as tentative.

One of the major advantages of correlational designs in nursing and the social sciences concerns ethical issues. Since correlational designs do not involve any manipulation they are considered less problematic ethically (Hicks, 1990). This means that a correlational design may be much more acceptable in many situations which involve nursing research. The design is also an efficient and effective means of collecting large amounts of data on a large number of subjects. Thus, in the present study a large number of interrelationships between perineal trauma and other variables, such as obstetric characteristics, can be explored over a relatively short time. This is in contrast with an experimental design, which tends to manipulate one variable and look at only a few variables at one point in time.

However, when correlational designs yield strong or negative relationships between variables, it does not necessarily mean that these are causal relationships. The

resulting relationships may generate other research questions and predictions, as for example in health evaluation, a negative correlation may predict high scores on one variable from knowledge of low scores on the other. Correlational studies are useful to understand relationships among variables, and can be used to explore problems not appropriate for experimental designs (Cormack, 2000).

In the process of designing the questionnaires, it was important to continually refer to the research question, aim and objectives in order to ensure collection of data relevant to the study. Visual analogue scales are useful for mothers to express their feelings, beliefs and thoughts on perineal trauma and their general health. However, these can be limiting, in such a way that open-ended questions allowing for comments at the end of every section in the questionnaire seemed useful. Such qualitative questions asked mothers to comment on their own experience and their recovery of the perineum. One predictable problem regarding answers to open-ended questions may be that respondents do not focus on the area of the research interest. Ultimately, the subjects' voice and choice should take priority (Foss and Ellefsen, 2002) independently of the expectations of the researcher.

### **3.4.3 Longitudinal designs**

Most of the published research on postnatal health is cross-sectional in design with quantitative analysis of obstetric and survey data (Barrett et al., 2000, Brown and Lumley, 1998b, Bick and MacArthur, 1995 and MacArthur et al., 1991). Therefore, the choice of a longitudinal design may be justified on the basis that the postpartum period is a crucial time for recovery and a time of transition in the life of a woman.

Parahoo (2006), Cormack (2000) and Polit and Hungler (1999) consider longitudinal designs appropriate for studying the dynamics of a variable or phenomenon over time, such as the event of childbirth. In the present study, the variables of perineal trauma such as perineal pain, continence of urine and faeces, resumption of sexual intercourse and general health are studied at four data collection times. Following recruitment of the sample in the first 48 hours after vaginal birth in hospital (time one), the study includes three other postnatal data collection times: at ten days (time two), six weeks (time three) and at thirteen weeks (time four). These intervals were informed following review of the literature and also from the traditional belief that these intervals are times when physical and psychological changes in the female

body occur after childbirth (Creedy et al., 2000, Brown and Lumley, 1998a, Gunn et al., 1998, Glazener, 1997, Glazener et al., 1995, MacArthur et al., 1991).

One disadvantage of longitudinal designs is a potential for high attrition rates across the different points in the study. It is a problem that may create bias mainly in relation to the loss of the representativeness of the sample (Polit and Beck, 2004). Subjects who drop out may differ in important respects from individuals who continue to participate. To overcome the problem of non-response, in the small pilot study some mothers were visited by the researcher by appointment in their own homes. These personal visits were beneficial for both parties. The mothers had the chance to continue to communicate with the researcher and the researcher had the chance to encourage continued participation in the study.

As in survey studies, another problem of longitudinal design relates to validity or what is actually being measured. The problem is that of the ‘words/deeds dilemma’ (Rees, 2003), that is, what people say may not necessarily be what they do. In research studies there has to be an element of trust in what subjects say, since the researcher cannot always test what is true or not. Social desirability can be a further problem (Rees, 2003). Participants may respond in ways that they think are either socially acceptable or are based on what they think the researcher wants to hear. Also, the study’s prolonged design may alert the respondents’ awareness and give them time to change their views, so that accuracy of results in terms of exploring their experiences may be compromised. The only action the researcher can take is to try and reduce any potential misinterpretation in the data collection tool and thereby enhance validity. A pilot study is one method by which this can be achieved. The next section discusses the research setting.

### **3.5 Research setting**

The main data were collected between June and December 2003, in the maternity unit in one government general hospital in Malta where the majority of births in the country occur. Another general hospital with the same maternity facilities exists in the other sister-island of Gozo, a few kilometres away by sea from the main island of Malta. Between the two public facilities the recorded rate of deliveries for the year 2003 was 90% (NOIS, 2004) with the greatest percentage occurring in Malta. The remaining 10% occurred in private facilities including home births. The birth



rate among a population of approximately one third of a million was in decline (Central Office of Statistics, 2006), with 5117 total births in 1995 and 3955 in 2001 (NOIS, 2002). At that time, the rate of vaginal deliveries in Malta was 72.5%, with 3.3% assisted vaginal deliveries and a caesarean section rate of 24.2%.

Although midwives conduct the majority of normal vaginal deliveries, the dominant model of care is based on the medical perspective of active management of labour. The majority of women have induced or accelerated labour, continuous fetal monitoring, regular vaginal examinations, and are not allowed to eat during labour. The use of continuous fetal monitoring restricts the variety of positions that can be adopted by women. The two most common positions taken by the women in labour, generally assisted by their partners, are the recumbent and lateral positions.

In Malta mothers and babies who are discharged from the government general hospital are routinely referred to a community midwifery service which is a private institution of nursing and midwifery community care, called the Malta Memorial District Nursing Association (MMDNA), appointed by the Health Department to provide free of charge nursing and midwifery care in the homes. Fully qualified midwives with an experience of community midwifery care visit the mothers at home at least three times within the first two weeks after their discharge from hospital. Other visits are offered if there is the need for services to continue. The midwives may also refer mothers or babies to their general practitioner or to the hospital emergency care if necessary.

### **3.5.1 Gaining institutional access**

Permission for the present study was gained from the Research Ethical Committee for Medical Services in Malta (University of Malta, 2001) in June 2002 (Appendices 1.1 & 1.1.1). The role of this committee is to assess biomedical research and the extent to which a researcher has addressed the standards of ethical conduct in the intended research project (Rees, 2003, de Raeye, 1996). Application forms together with a covering letter containing the purpose and the aims of the study were duly completed. The researcher agreed to adhere to the ethical issues, such as gaining informed consent, protecting the participants' personal data, and keeping their anonymity and confidentiality. A full research proposal was also submitted. Ethical permission was granted in September 2002, after presentation of the drafts of the

preliminary questionnaires that would be subsequently used in the research. Other permissions were then requested from the Director of the Obstetrics and Gynaecology at the general hospital, the Nursing and Midwifery Director at the Department of Health, the Midwifery Manager for Hospital Services and the Midwifery Officers at the postnatal wards in the general hospital (Appendices 1.2 to 1.6). All requests were granted.

Before embarking on the pilot study on January 2003, letters of information were sent to the six consultants in Obstetrics and Gynaecology in the hospital and the community (Appendices 1.8 & 1.9). The midwives working with the community postnatal midwifery services (Malta Memorial District Nursing Association) were visited and presented with the necessary information about the study, and their full support in the conduct of the study in the community was requested (Appendix 1.7). The Association was also presented with the recent edition of the practical handbook with evidence based guidelines in postnatal care (Bick et al., 2002).

Permissions from the Director of the Institute of Health Care and the co-ordinator of Nursing and Midwifery Studies were requested to recruit the nursing and midwifery students for test-retest of research instruments (Appendix 2.3). Both permissions were granted in January 2003.

### **3.6 Ethical considerations: informed consent, privacy and confidentiality**

Ethical issues in research relate to the protection of basic human rights of the participant and the corresponding obligations and responsibilities of the researcher in carrying out the research (Burns and Grove, 2003, Rees, 2003). The main issues include informed consent, privacy and confidentiality.

Informed consent relates to the extent to which the individual agrees to take part in a study on the basis of a clear understanding of the purpose of the research and the implications of agreeing to take part (Rees, 2003, Cormack, 2000). On recruitment, every mother who participated in the research was provided with information on the identity of the researcher, the purpose and nature of the study, the implications of participating, and was assured of confidentiality and of her right to withdraw at any time (Appendices 6.1, 6.2, 6.3 & 6.4). Mothers were visited on the postnatal wards on the second day after the delivery of the baby and after they had rested from

labour. Once they gave their verbal consent, they were asked to sign an informed consent form and a copy was given to them to keep. A covering letter in Maltese with information on the purpose and process of the longitudinal study was also given to every participant. The same procedure was undertaken for the pilot studies with students and mothers (Appendices 2.4 & 4.1).

In addition to consent formally acknowledged in writing, the completed and returned questionnaires were also considered as an implied consent. It is the participants' right that data provided during a research study will be treated in the strictest confidence (Polit and Beck, 2004). Confidentiality was maintained by asking participants not to write their names on the questionnaire. Participants were also assured that information will be used solely for research purposes. Anonymity was not possible since the researcher visited the mothers at home on their tenth day postnatal (time 2) for perineal assessment. However, information was kept confidential by not revealing any names or pin-pointing the person who wrote the comments or statements. Although every participant's contribution was important to the study, each participant was given the right to refuse and withdraw at any time for any reason without compromising her status in care or education.

Although the ethical considerations are integral to the project planning phase, researchers must remain aware of any ethical problems which may arise throughout the whole study (Burns and Groove, 2003). Additionally, all form of potential harm should be prevented through all the stages of the study (Polit and Beck, 2004).

### **3.7 The researcher: multiple roles as midwife, researcher and data collector**

In practice-based research where the researcher is a midwife, there is the potential for the role of the researcher and that of the midwife to be confused. Morse (1991) comments that in doing studies within one's own settings difficulties can arise. The midwife-researcher's main objective is to get the data in an independent manner within the professional code of conduct, known as The Code, which affirms the Standards of conduct, performance and ethics for nurses and midwives (Nursing and Midwifery Council, 2008). In acting within this code of conduct she has an obligation to protect the rights and welfare of those involved in the research. It means that she should make the care of participants her first concern, treating them as individuals and respecting their dignity. The participants should not experience

any harm as a result of the research. Rees (2003) confirms that where the safety of the woman is concerned the first responsibility is to her welfare and the demands of research must come second. This section continues to be reflexive in nature to acknowledge the role and influence of the researcher on the research project (Rice and Ezzy, 1999). The following section will be written in the first person as is convention when writing in a reflexive manner.

As a researcher, my concern was mainly to get informed consent from participants, give out and collect the questionnaires duly filled in and to assess perineal recovery with an objective approach, using a validated scoring scale (Steen and Cooper, 1997). As a midwife, I was concerned with the holistic wellbeing of the mother and baby during the postnatal period. I felt responsible for the physical, emotional and psychological care of each participant including assessing the individual mother's needs and if necessary advising her to seek medical advice or counselling. Thus, during the research process my role of midwife never came in conflict with my role of researcher, rather both roles intermingled in such a way that they complemented each other.

The data collection process allowed me to converse with mothers during the short visits, gaining thereby access to their accounts of mothering. I found out that mothers asked many questions and sought reassurance on issues as diverse as crying babies, babies' weight gain and sexuality after childbirth, which in a way extended the scope of my visit. I listened to their talk, thereby gaining their confidence. As data collection progressed I became aware that a relationship of trust had developed between me and the participants and I felt I was viewed more as a sympathetic listener than a researcher. In literature, reciprocity is considered as the key to data collection, so I was sincere in answering the mothers' questions (Atkinson and Coffey, 2002). I also realised that providing advice when requested greatly increased the mothers' receptiveness of my questionnaires and eased their response.

Rice and Ezzy (1999) assert that the individual researcher is subject to the same critical analysis and scrutiny as the research itself. In an attempt to safeguard validity and reliability or rather accuracy and credibility of the research process, I adopted a reflective stance (Atkinson and Coffey, 2002). Thus, in assessing the responses to my questionnaires, I continually reflected on my personal and professional influence on the research project and on the behaviour of the

respondents by visualizing the way they perceived me and interacted with me when I conversed with them all along the data collection.

### **3.8 Target population and sampling techniques**

The outcome of any research project is dependent on both the reliability of the method used and the type and quality of the sample selected (Rees, 2003, Polit and Hungler, 1999). The method of sample selection is also influenced by how far the researcher wishes to generalize the findings to a wide population (Polit et al., 2001).

Research projects rarely collect data from a total population. The research is usually conducted on a sample which is, as far as possible, representative of the larger group of whom they form a part (Polit and Beck, 2004). Haber and LoBiondo-Wood (2001) and LoBiondo-Wood and Haber (1994) suggest that when sampling is properly carried out it allows the researcher to draw inferences and make generalisations about the population, without examining each unit in the population. Therefore, it is clear that the method of sampling has to be planned in such a way as to recognise and minimize potential bias.

The total (or the target) population in the present study consisted of all postnatal women who delivered spontaneously with a vaginal delivery at term in the general hospital in Malta. The target population in this study included the Maltese mothers aged between 20 and 40 years (mean age of 27.8 years) with their first, second or third baby. The accessible population, that is part of the population to which the researcher had reasonable access, excluded those mothers who were delivered in private hospitals or clinics and in the general hospital in Gozo. Although the possibility of a difference in culture between this excluded section of the population and the total population of postnatal mothers might have influenced the overall study findings, the researcher had to resort to this exclusion to save on time which otherwise would have been consumed in much more travelling and crossings between Malta and Gozo. Still, the researcher's aim was to recruit a sample which was representative of the population at large. The researcher consulted a statistician to help her calculate the largest sample which would allow an adequate statistical analysis and which would be within the researcher's capacity to reach for data collection in a longitudinal design.

### 3.8.1 Sample

The most appropriate method of sampling would have been random sampling. Random sampling will ensure that the sample is representative of the whole population under study (Polit and Beck, 2004). Such a design tends to require larger sample numbers and therefore is generally more time consuming. Due to a temporary problem in the lack of air conditioning in the postnatal wards during the recruitment period, mothers and babies were being discharged to the community maternity services within the first twenty-four hours after delivery, as long as they were medically assessed to be healthy for discharge. Therefore, a convenience sample of mothers was considered the most preferred method for selecting subjects in the first forty-eight hours after birth. In order to be able to conduct the home visits at the stipulated times, the researcher progressively recruited not more than two new mothers every day. There were days when there were no new subjects to recruit and other days when there seemed to be more than enough. In the latter case, the researcher opted to choose the alternate mother who gave her consent to participate in the study.

Convenience samples are less expensive and easier to conduct than probability samples, but convenience samples may not represent the population from which they are drawn (Polit et al., 2001). An important point however, is the extent to which there is variation of the variable in the population being studied. Polit and Hungler (1999) identify that where there is not much variation in a certain variable in the population, the risk of bias may be low, and where it is a very mixed population, the risk of bias is greater. Therefore, to control the number of confounding variables and to reduce variability in the mothers' characteristics that may influence interpretation of results, mothers were selected according to the eligible criteria stated hereunder.

The inclusion criteria consisted of:

- mothers with Maltese citizenship
- mothers delivering their 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> babies
- mothers after spontaneous vaginal deliveries
- delivery at term (> 38 week gestation)
- mothers with alive and healthy babies
- mothers at 36 hours of their delivery

The exclusion criteria consisted of:

- mothers with caesarean section
- mothers with medical complications
- mothers with psychological disorders
- mothers from private hospitals and from Gozo
- mothers with pre-term or sick babies.

### **3.8.2 Sample size estimation and sampling method**

Although the non-probability sampling was used, sample size estimations such as effect size and significance level were still considered. Sample size estimation is complex (Polit and Beck, 2004). However, following statistical advice, subject-to-item ratio was used. This is the choice for surveys based on questionnaires favoured by factor analysts (Cohen, 1992). It is also an effort to make sure that any variance in the data is being caused by individual differences and not just by differences between the items in the questionnaire. If a questionnaire has 10 items then 50-100 subjects are needed; for 20 items then 100-200 subjects are needed. According to Cohen (1992) if 100 subjects are recruited then there is enough power ( $\beta=0.8$ ) to see statistical differences at  $p<0.05$  with medium effect sizes. Since attrition rates are common in longitudinal studies, the calculation was based on a 50% drop-out rate between phases, including drop-out at time 1 after recruitment. Thus, the target sample size for time one was to have 150 to 200 subjects, and 100 remaining at the end of the study. As a matter of fact in the present study, 124 participants were still involved at the end of time 4.

### **3.8.3 Recruitment of the sample**

Recruitment of the sample began in June 2003, within the first 48 hours of the mothers' admission into the postnatal wards and ended in December 2003. Every morning the researcher visited the postnatal wards to check the admission book of mothers with normal vaginal deliveries. Every mother admitted on the ward was selected if there were only two to three admissions. In cases of a bigger number, every second mother was selected in accord with the logistical reasons already outlined. Since it was midsummer (July to September) during the recruitment phase and the ward temperature was high, mothers preferred to be discharged home earlier than the usual 48 hours. This resulted in a loss of participants between recruitment

and time one and it took longer to recruit the sample. A sample of 144 mothers who satisfied the inclusion and exclusion criteria was finally recruited by September 2003.

### 3.8.4 Attrition rate across time

Table 3.1 Recruitment of the sample

Time	Number of lost recruits	%	Remained
1	Nil		144
2	4	2.8	140
3	8	5.7	132
4	8	6.1	124
Total	20	13.9	

As mentioned earlier (section 3.4.3: longitudinal designs), loss of participants is a risk associated with longitudinal designs. Table 3.1 shows attrition rates over the course of the study. Reasons for not continuing to participate in the study included admission of the baby to the Special Care Baby Unit, moving house or going abroad and postnatal depression. One respondent returned one of the questionnaires blank, and on another occasion, the time 3 questionnaire was returned instead of the time 4 questionnaire. Both women were then excluded from analysis.

The questionnaires were sent by post together with a self addressed envelope with pre-paid postage. Participants were asked to return by post the duly filled in questionnaires. In the first phase of the study returns were very slow. Therefore, in an attempt to retain the sample and to remain in contact with the mothers across time, the researcher visited the mothers personally to collect the questionnaire. This overcame the disadvantage of low attrition rate of the sample associated with longitudinal studies (Oppenheim, 1999).

## 3.9 The research instruments

Questionnaires were chosen as the most suitable data collection method for this research because of the sensitive issues explored (Rees, 2003), and also as they enabled mothers to provide data within the shortest time possible. (Collecting sensitive information is discussed later in the next section). The use of visual analogue scales (VAS) also increases the speed with which the questionnaires were



completed (Waltz et al., 2005). The questions expressed in statement forms were informed by literature review which identified problems encountered in the immediate postnatal period, such as perineal pain on bodily activities, incontinence of urine and faeces, and the resumption of sexual intercourse at a later stage in the puerperium.

The instruments used in the study consisted of seven parts: a tool used for the recruitment of the sample (Appendix 6.1.2), a supplement that asked about pre-pregnancy information (Appendix 6.1.3), the perineal evaluation score (Appendix 6.1.4) and four questionnaires for times 1, 2, 3 and 4 (Appendices 6.1.5, 6.2.1, 6.3.1 & 6.4.1).

### **3.9.1 The recruitment questionnaire**

This questionnaire was designed to collect bio-socio-demographic data such as age, status in society and education level. It also included past obstetric history regarding the perineum, social data on this index pregnancy regarding attendance at antenatal classes, cigarette and alcohol use during pregnancy, data on the present delivery such as gravity, parity, date of delivery, gestation, baby's head presentation at the delivery (vertex occipito anterior or vertex occipito posterior), the most senior attendant at the delivery, analgesics given during labour, the state of the perineum, whether with an episiotomy, tears, or both, maternal position of the mother during birth, weight of the baby at the delivery, duration of the second stage of labour, interval of time between delivery and suturing, perineal suturing method, person suturing the perineum and hospital stay after delivery. This questionnaire was developed on the information obtained from the mothers' obstetric and midwifery histories.

### **3.9.2 Supplement on pre-pregnancy information**

The supplement on pre-pregnancy information was a complement to the four questionnaires and sought information about the state of continence regarding passing of urine and opening of bowels. It also asked about pain on sexual intercourse. The purpose of this supplement was to seek whether any of these bodily activities occurred before this pregnancy. Such information would help in decreasing confounding variables.

The researcher completed the recruitment questionnaire from data on the mothers' obstetric and midwifery history sheets, and the mothers completed the supplement within the first 24 hours of delivery after they had rested and given their consent to participate.

### **3.9.3 Perineal evaluation score**

The perineal evaluation score is a method for measuring the extent of perineal oedema and bruising after childbirth (Steen and Cooper, 1997) based on a categorical scale of none, mild, moderate and severe. Together with this categorical scoring scale, Steen and Cooper (1997) used a set of standard photographs as visual aids to demonstrate the severity of oedema and bruising. The use of the combined tool reduced the risk of individual interpretation and promoted a more structured method of assessing perineal healing. The visual tool, which was tested and validated in a clinical trial involving 77 women, recorded the changes in the extent of perineal oedema and bruising during the first 48 hours following suturing of an episiotomy. The results demonstrated statistically significant changes in relation to recovery for both oedema ( $p < 0.05$ ) and bruising ( $p < 0.001$ ) (Steen, 1998).

In the present study, only the categorical scale was used alongside clinical experience in midwifery practice, in judging the rate of bruising and oedema at time 1 (48 hours) and at time 2 (10 days) post delivery. As the assessment of perineal healing was carried out by only one person, the researcher, any risk of multiple interpretations was avoided. For this reason, it was considered unnecessary to use the set of standard photographs. Copyright permission was sought from Dr. M. Steen, in order to be able to use the tool (Appendix 2.2).

### **3.9.4 The four questionnaires**

The four questionnaires were the key data collection instruments distributed throughout the thirteen week postnatal period. At 48 hours (time 1) and 10 days (time 2) the questionnaires were identical and sought information about pain in the perineum on 17 activities. All questions used visual analogue scales. The section on perineal trauma was informed by the literature on perineal health, incontinence of urine and faeces following childbirth (Kettle, 2005, Kettle et al., 2002, Kettle, 2001, Carroli et al., 2000, Kettle and Johanson, 2000a, Kettle and Johanson, 2000b, Bo et

al., 1999, Mason et al., 1999a, Brown and Lumley, 1998a, Gordon et al., 1998, McCandlish et al., 1998, Steen, 1998, Berghmans et al., 1998, Kamm, 1998, Cardozo and Gleeson, 1997, MacArthur et al., 1997, Sultan et al., 1996, Wilson et al., 1996, Glazener et al., 1995, Sleep, 1995, Bick and MacArthur, 1995, Klien et al., 1994, MacArthur et al., 1993, Dimpfl et al., 1992, Cardozo, 1991, MacArthur et al., 1991, Abrams et al., 1990, Allen et al., 1990).

The third and the fourth questionnaire (6 weeks - time 3 and 13 weeks - time 4) asked the same questions as the first two but included a further section on the resumption of sexual intercourse. This section was informed by the sexual health literature (Barrett et al., 2000, Hay-Smith, 2000, Glazener, 1998, Barrett et al., 1998, Glazener, 1997). All questions were translated into Maltese for better comprehension by the participants. The questionnaires were translated back into English by the researcher and verified by a certified translator. The potential impact of translation on reliability and validity is discussed later in chapter 4.

### **3.9.5 The General Health Questionnaire**

All four questionnaires included a section on women's general health. The postnatal literature suggests several measures of maternal general health, including psychological health, such as:

World Health Organisation – 5: Wellbeing Index (WHO, 1998)

Short Form (SF) – 36 Health Survey Questionnaire (Ware et al., 1993)

The Edinburgh Postnatal Depression Scale – EPDS (Cox et al., 1987)

Crown and Crisp (Watson et al., 1984)

On examining the suitability of each of these tools it was decided to use the General Health Questionnaire-12 (Goldberg and Williams, 1988), which appeared to be the most user-friendly and easy to complete in a short time.

The General Health Questionnaire (GHQ) was developed by Goldberg and Williams in London in the United Kingdom (UK) during the 1960's and 1970's and was intended for use in general practice settings. It has numerous world-wide applications (Lo 2002; Tait et al., 2002; Ayers and Pickering, 2001; Snelgrove, 1998; Farrell, 1998; Mead et al., 1997). It is a sensitive measure, assessing the present state of health in relation to the usual state (Goldberg and Williams, 1988).

The advantage of the GHQ is that it concentrates on mental health particularly anxiety and depression.

There are several versions of GHQ (Farrell, 1998), but the most often used version is the shortest one with 12 questions (GHQ-12) and respondents are offered four different choices for their answer. For instance, the first question 'Have you recently been able to concentrate on whatever you are doing?' asks the respondent to circle one of the following four categories: better than usual; same as usual; less than usual; much less than usual. There are several methods of scoring the questionnaire; the more usual is the GHQ method of 0-0-1-1.

The questionnaire can be divided into items detecting 'caseness' (for example, feeling constantly under strain = negative) and those indicating health (for example, enjoying day-to-day activities = positive). Factor analysis of the GHQ-12 has yielded two- and three-factor solutions (domains). The identified factors sample the domains of anxiety and depression, social dysfunction and loss of confidence and self-esteem (Werneke et al., 2000). Farrell (1998) measured the mental health of 270 hospital nurses in Tasmania by the 12-item General Health Questionnaire and a third had scores to indicate 'caseness'. Using principle component-analysis three dimensions emerged: anxiety, depression and social dysfunction, which accounted for 64% of the variance.

Several studies have demonstrated validity of the GHQ-12 (van Hemert et al., 1995, Politi et al., 1994, Abiodun, 1994, Abiodun, 1993, Picinelli et al., 1993, Araya et al., 1992, Pan and Goldberg 1990, Gureje and Obikoya, 1990, Wilkinson and Markus, 1989, Bandyopadhyay et al., 1988, Bellantuono et al., 1987, Shamasundar et al., 1986, Mari and Williams, 1985, Radanovic and Eric, 1983, Banks, 1983, Tennant, 1977, Goldberg, 1972). Most recently, in a World Health Organisation study of psychological disorders in general health care, the validity of the GHQ-12 was compared with the GHQ-28 for 5438 patients, who were interviewed in 15 centres in 11 different countries (Goldberg et al., 1997). Validity coefficients were generally high with an overall sensitivity of 83.4% and specificity of 76.3%. Though the GHQ has been translated into 10 other languages, the validity coefficients were almost as high as in the original language (Goldberg and Williams, 1988). Gender, age and educational level were shown to have no significant effect on the validity of the

questionnaire. Split-half and test-retest correlations have been carried out on the GHQ with good results (Goldberg and Williams, 1988).

For the present study copyright permission was sought from Nelson in the UK to adapt and use the tool (Appendices 2.1 to 2.1.4). Calculation of reliability and validity of the questionnaires are discussed later in chapter 4.

### **3.10 Collecting sensitive information**

Issues such as continence and the resumption of sexual intercourse following childbirth may seem very personal and sensitive for mothers who face questions on these topics. This is especially so in the Maltese culture where both issues are considered taboo if questions come from a stranger or the responder is taken unawares. For example, a mother may be willing to reveal information about her sexual health and behaviour to a nurse, midwife or doctor in a one-to-one interview in a therapeutic context, but unwilling to answer the same questions on a survey research questionnaire. Therefore, in designing the questionnaire it was necessary to make every effort to consider the social and cultural values of the would-be subjects and to refrain from making assumptions that a given measurement of activity will be universally acceptable (Waltz et al., 2005).

Each mother has the right to know in advance what information is to be gathered and how it will be used. Additionally, the mother should be able to negotiate in advance which audiences have the right to know the information. Above all, she has the right to refuse to answer any questions or otherwise reveal information which she deems private. These were the researcher's main concerns in collecting the sensitive data required for the study. However, the use of visual analogue scales, the type of measurement method employed in the present study, appeared to reduce in mothers the feeling of intrusion into their personal lives while keeping their anxiety at bay regarding their continued participation in the longitudinal study (Waltz et al., 2005). Similarly, the researcher must keep for herself her own preconceived attitudes towards such sensitive topics which she is to handle with care all through the data collection. Maintaining confidentiality, avoiding over-identification with the mothers and determining which information might be sought were important challenges from the planning and designing of this research study.

### 3.11 Visual analogue scales

One approach of scaling the intensity of the mothers' sensations and feelings associated with continence and sexual health is the use of the visual analogue scales (VAS). Such measurements are quickly and easily administered in a clinical setting or even at home where mothers are very busy with their domestic responsibilities. VAS employ a printed straight line of specific length (usually 100 millimetres) with verbal anchors at each end to represent a subjective state such as pain (Waltz et al., 2005). All questions in the four questionnaires were statements presented in VAS format. The anchors depicted extreme states such as *very uncomfortable* at low end of the scale and *very comfortable* at the high end. Mothers were instructed to place a mark on the line to self-report their perceived comfort.

The first step in constructing the scale is to decide which dimension of sensation is to be measured. Statements were phrased positively, for example, the degree of comfort rather than the degree of *pain* was requested. Hence, through excluding the degree of *comfort* what remained was the degree of *discomfort*. The degree of *discomfort* was interpreted as being actual pain, fear of pain, or any other physiological or psychological discomfort. For the sake of clarity, all these forms of discomfort were termed as *pain*. Therefore, the scales (in sections A to D) (Appendices 6.1.5, 6.2.1, 6.3.1 & 6.4.1) were scored by measuring the distance in millimetres from the high end of the scale to the specified place on the mother's mark. The purpose was to avoid leading questions on perineal pain and the possible assumption that every mother was in pain.

Sections E and F in the questionnaires comprise sexual health (resumption of sexual intercourse) and general health (Appendices 6.3.1 & 6.4.1). These scales were on a positive trend and were scored by measuring the distance from the low end (zero point) to the specified place on the mother's mark. These rules were set before scoring began to ensure consistency of scoring and to decide which border of the mother's mark would be used as the basis for scoring in each section of the questionnaire.

An advantage of VAS over other scales is that VAS do not limit subjects to a number of possible responses, but allow them to place their response at any point on a continuum. However, a limitation of the VAS is that they measure only one

dimension of perineal trauma or general health, for example the strength or intensity of one variable at one time. But the substantial number of different questions asked provided a multi-dimensional view to track the progress of mothers' recovery in the postnatal period.

The data are at least interval level and some researchers argue that they are ratio level (Polit and Beck, 2004; Burns and Groves, 1997). Visual analogue scores tend to correlate positively with scores on 10 point verbal scales (Waltz et al., 2005). It means that VAS can compare with other verbal scales. Additionally, compared with measures that require subjects to rate the intensity of their sensations on a categorical scale or checklist, VAS do not limit subjects to a limited number of possible responses (Waltz et al., 2005). This feature of the study allows VAS to be more sensitive than categorical scales because potentially finer distinctions can be made.

### **3.12 Qualitative methods**

The qualitative data were collected using open-ended statements in each section of the questionnaires across time. Mothers were asked to comment on their experience of the state of their perineum, resumption of sexual intercourse and their general health. The main advantage of such open statements is the freedom it affords participants (Polit and Beck, 2004). Once the mothers had understood the intent of the statement they could let their thoughts roam freely, unencumbered by a prepared set of replies (Polit and Beck, 2004). Qualitative data analysis was carried out using conventional approaches to qualitative data analysis including coding and the identification of themes, categories and subcategories (Burnard, 1991).

## **Chapter 4**

### **Reliability, Validity, Data Collection and Analysis Techniques**

#### **4.0 Introduction**

This chapter describes the calculation of the reliability and validity of the instruments used in the present study. It continues to discuss the different stages of the pilot study and the questionnaire as a whole, followed by the main study data collection and analysis techniques.

#### **4.1 Theoretical background of reliability**

Reliability can be defined as the consistency with which an instrument measures the variable under investigation (Polit and Beck, 2004; Polit and Hungler, 1999). Therefore, the less variation an instrument produces in repeated measurements of a variable, the higher is its reliability. Consequently, the essence of reliability is in the consistency and accuracy of the tool to measure the variable (Polit et al., 2001). These authors suggest three major ways of assessing the reliability of a tool: stability, internal consistency and equivalence.

##### **4.1.1 Stability**

The stability of a measure is when the same results are obtained on repeated administration of the instrument. Test and retest reliability is one of the assessments of stability where the researcher administers the same test to a sample of individuals on two separate occasions and then compares the scores obtained. This is then described as a correlation coefficient that summarizes how perfect the relationship is. While the test-retest method is a relatively easy and straightforward approach to estimating reliability, it has some disadvantages. For example, traits such as attitudes, behaviour, moods, knowledge or physical condition can be modified by intervening experiences between the two tests. Subjects' responses on the second administration may be influenced by the memory of the responses in the first administration. Subjects may actually change as a result of the first administration and people may not be careful using the same instrument a second time or they may find the procedure boring and responses could be haphazard, resulting in a spuriously low estimate of stability (Polit and Hungler, 1999).



This study used a test-retest method. The administration of the versions of the instruments was repeated after a period of three weeks. This was neither too short a term nor a too longer term of time for actual changes in the variable being measured to occur. The tools were given to the sample and collected after their completion. This approach may have minimised the disadvantages associated with establishing stability.

#### **4.1.2 The use of the sample of nursing students for Test-retest reliability of the General Health Questionnaire-12**

Although previously gathered reliability and validity data have been secure for the General Health Questionnaire-12, its reliability and validity for a different sample are essentially unknown (Waltz et al., 2005). Thus, it is necessary to assess the psychometric properties of the GHQ-12 with any new sample. Since in this instance the sample and the setting differed considerably from previous applications, it was considered important to pre-test the tool and calculate reliability and validity using the test retest method.

Ideally, the test-retest of the GHQ-12 should have been carried out on mothers during their first thirteen weeks postpartum. However, this would have required a large number of mothers and it was impossible to find such a sample in a fairly limited time period. Additionally, the return of the questionnaires may have been poor and the attrition rate during the test-retest of various versions of the instrument may also have been high. Therefore, for practical reasons, it was decided to select a group of students to participate in the study, an approach previously used. Lo (2002), for example, investigated stress, coping and self-esteem of undergraduate nursing students, while Tait et al., (2002) reviewed the validity of the GHQ-12 in adolescent populations. Both studies demonstrated the tool is appropriate to use with young and adult people.

The results of the test-retest demonstrated that 97% of the statements were given similar answers (for example not significantly different with  $p \geq 0.05$ ) while the other 3% were answered significantly in a different way ( $p < 0.05$ ). These results were anticipated as the questionnaire accentuates probable changes and irregularity. The implications of translation on reliability are discussed in section 4.2.

### 4.1.3 Internal consistency

Internal consistency or homogeneity is the degree to which the subparts of an instrument are all measuring the same attribute or dimension as a measure of the instrument's reliability (Black, 2003; Cormack, 2000). The most widely used method is the co-efficient alpha known as Cronbach's alpha with the normal range of values between .00 and +1.00. The higher values reflect a higher degree of internal consistency. Cronbach alpha coefficients were computed for all the questionnaires in this study including the General Health Questionnaire-12 (Goldberg and Williams, 1988).

Table 4.1 Values for Cronbach's alpha – derived from VAS scoring of the questionnaire

Test & time	Number of subjects	Number of items	Reliability coefficient alpha
Total Perineal Trauma			
T1	144	28	0.8375
T2	140	28	0.9179
T3	132	28	0.9157
T4	124	28	0.9322

Table 4.1 demonstrates that the reliability studies in VAS on total perineal trauma with 28 items yielded moderate to high measurements.

Table 4.2 Values for Cronbach's alpha – derived from VAS scoring of the questionnaire

Test & time	Number of subjects	Number of items	Reliability coefficient alpha
General Health Questionnaire			
T1	144	12	0.8483
T2	140	12	0.9063
T3	132	12	0.9172
T4	124	12	0.9520

Table 4.2 shows that the reliability studies in VAS on the general health questionnaire with 12 items yielded high measurements.

Table 4.3 Values for Cronbach's alpha – derived from VAS scoring of the questionnaire

Test & time	Number of subjects	Number of items	Reliability coefficient alpha
Resumption of sexual intercourse			
T3	132	9	0.9148
T4	124	9	0.9314

Table 4.3 shows that the reliability studies in VAS on the resumption of sexual intercourse with 9 items yielded high measurements.

Overall, reliability studies on total perineal trauma, resumption of sexual intercourse and general health proved to be moderate to high. The high coefficient may be attributable to the stable state in the three variables (total perineal trauma, general health and resumption of sexual intercourse). According to Pallant (2001) the three scales have good internal consistency (that all parts of the scales are measuring the same characteristic).

#### 4.1.4 Equivalence

Equivalence is the degree of similarity between alternate forms of a measuring instrument (Pallant, 2001). Inter-rater reliability is the degree to which two raters or observers operating independently assign the same ratings or values for a variable being measured or observed, according to a pre-determined plan or coding system (Black 2003). The resulting records can then be used to compute an index of equivalence of agreement. A '1.00' indicates total agreement and therefore excellent reliability, while a score of below 0.60 (an agreement of 6 instances out of 10) is of doubtful reliability (Bowling, 1997).

For the use of this study, the Perineal Evaluating Score Tool (Steen and Cooper, 1997) was validated in the clinical postnatal area with ten mothers, who consented to the tests, during their first forty-eight hours following suturing of an episiotomy or perineal laceration. The researcher and another experienced midwife observed the same mother's perineum simultaneously and recorded independently the extent of oedema and bruising using the categorical scoring scale of none (0), mild (1), moderate (2) and severe (3) for both variables. The findings were then separately recoded and statistically computed. The results showed a high level of agreement between the two observers with nine agreements out of ten for oedema (0.91) and

total agreement for bruising (1.00). It can be concluded therefore that the two observers consistently recognised and recorded the same evaluations in the same way, using their midwifery skills as a means of evaluating the healing perineal process. When mothers were asked about their perineal pain, they evaluated their pain as moderate to severe which also coincided with the level of oedema and bruising recoded by both observers.

#### 4.2 The translation process of the General Health Questionnaire-12

Chetcuti (1988) in his seminal text for students undertaking examinations in the Maltese language ‘*Tahrig għall-ezamijiet tal-Malti*’ (Exercises for Examinations in the Maltese Language), suggests several guidelines to be followed by students who are undertaking translations from one language to another. He asserts the understanding of the whole original text before any attempt of the translation in Maltese. Secondly, the translation should reflect the meaning of the text, not just word for word or phrase by phrase, as every language has its own morphology, syntheses and idioms. Sechrest et al., (1972: 45-46) support Chetcuti in saying:

«that idioms never translate properly and that the best way that can be done is to attempt to ensure that when idioms are used in translation, they are equivalent in meaning to the idioms used in the original, and that the general level of the idiomatic speech in the two languages is approximately equivalent so that one does not seem more scholarly or in some way different from the other» Sechrest et al., (1972: 45-46).

This was a principle that the researcher upheld when embarking on the translation process and can be illustrated in questions 3 and 5 of the General Health Questionnaire-12 (Table 4.4).

Table 4.4 Maltese and Back Translation of Questions 3 and 5 of the GHQ-12

Original version in English	Maltese Translation	Back Translation
Have you recently felt that you are playing a useful part in things?	<i>Dan l-ahhar inti kont thossok li qieghda tiehu sehem mehtieg fl-affarijiet?</i>	Have you recently been feeling that you are taking useful part in things?
Have you recently felt constantly under strain?	<i>Dan l-ahhar inti kont thossok il-hin kollu b'tensjoni?</i>	Have you recently been feeling tense all the time?

With respect to question 3, there is no idiom in Maltese to translate 'playing a useful part in things'. Back translation therefore reads as follows 'Have you recently been feeling that you are taking useful part in things' (Appendix 4.2).

Another example is question 5. The idiom 'felt constantly under strain' is then back translated as 'been feeling tense all the time'. Therefore, precautions were taken while translating the idiomatic construction of the original (Appendix 4.2).

Finally, it is also important to be simple in expression and to use everyday language that can be understood by everybody. Chetcuti (1988) recommends that the translation should be written in the appropriate Maltese language in the way it is spoken by the Maltese population at the time. Therefore, to abide with the above guidelines, the translation of the General Health Questionnaire-12 was developed in three phases.

#### **4.2.1 Translation into Maltese**

The general aim throughout these phases was to create a translation that remained as faithful as possible to the underlying meaning, grouping and intensity of the word descriptors in the original English version and yet at the same time was acceptable to and easily understood by the average Maltese. In the first phase the GHQ-12 was translated into Maltese by a highly experienced professional translator of English. During the second phase, a preliminary validation of the translation was conducted by back translation, a standard method used for translating a research instrument from English to non-English languages (European Commission, 2005). The translation of the GHQ-12 back into English was performed by a Maltese teacher fluent in English with over 30 years teaching experience in secondary schools in Malta. In the third phase, the English translation derived from the Maltese translation was compared with the original English version of the GHQ-12 and a consensus was reached on the final Maltese version. This last phase was completed by a group of three bilingual Maltese nurse educators. Once finalised, the GHQ-12 was administered to a sample of five postnatal mothers to test its readability. Statistical analysis for reliability and validity was then undertaken.

#### **4.2.2 Test-retest reliability of research instrument (GHQ-12) in English, Maltese, and back-translation versions**

As already described, the GHQ-12 is a well-validated and reliable measure of health originating in the UK (Goldberg and Williams, 1988). Four different groups of nursing students participated in the reliability testing procedure. First, the groups of students were sent a letter of invitation to participate in the study (Appendix 4.1). A letter of information was given for both the first and the second test of the tool. To safeguard confidentiality, two other teachers were involved to maintain secret coding of the students and to supervise the students to prevent them from influencing each other.

The GHQ-12 in English (Likert scales and VAS), Maltese (VAS) and back translation (VAS) versions were administered separately to the following four different groups.

1. The original of the GHQ-12 (Likert Scale in English) was tested and retested in December 2002 on a cohort group of 44 first year female students undertaking Bachelor of Science (BSc) in Nursing and Midwifery courses. Their ages ranged between 18 and 35 years. The first test was completed on the ninth week of Semester 1 whilst the retest was conducted three weeks later, just before Christmas recess.
2. The original of the GHQ-12 (VAS in English) was administered at the same time to a cohort of 43 final year nursing students undertaking a Diploma in Nursing course. The group was all female aged between 20 and 30 years. The test-retest was carried out in December 2002 with an interval of three weeks between the two.
3. The Maltese version of the GHQ-12 (VAS) was completed by a cohort of 41 second year female students reading a BSc in Nursing. The test and retest were carried out in the second trimester of 2003, with an interval of three weeks between the two.
4. The back translation of the GHQ-12 (VAS) was carried out by a cohort of 45 final year students who were following the Certificate in Nursing course. They were again all females aged between 20 and 40 years. The test and retest were carried out in the second trimester in 2003, with an interval of three weeks between the two.

If a participant completed the questionnaire without giving a score to some items, the missing values were recorded as zeroes. Moreover, if a participant was not present for the test or retest of a given version she was excluded from the analysis. Out of a total of 173 students available, the number included in the analysis varied between 40 and 38 participants for each of the four versions. It is important to note that had a sample of newly delivered mothers been used, the consistency would have been more applicable to the sample used in the main study. The statistical analyses of the four scales were performed using SPSS Release for windows 13 and 14.

### 4.3 Statistical analysis of the GHQ-12 translation

Reliability testing of the GHQ-12 was performed on the English version (Likert scale and VAS), the Maltese version and back translation. The stability of the scales was performed by test-retest reliability for each question of the four versions, using paired samples test (paired t-test), all of which gave a p-value less than 0.05 (Appendices 4.3, 4.3.1, 4.3.2 & 4.3.3). These test and retest results can be considered similar, with no significant differences. This shows an agreement between the test and retest. Therefore, this analysis showed that the test-retest reliability of the Maltese version of the GHQ-12 is satisfactory and compares well with the original and with the back translation.

The internal consistency of the GHQ-12 in the four versions was examined statistically using Cronbach's alpha for health status (Table 4.5).

Table 4.5 Summary of the Cronbach's alpha for the GHQ-12 in the four versions

Variables	Parameter	Original in Likert scales	Original VAS	Maltese VAS	Back translation VAS
GHQ-12	Cronbach's alpha	0.8678	0.8598	0.9228	0.9278

In all cases, it appears that all versions of the GHQ-12 are very close to 1 (Pallant, 2001) confirming that the Maltese version of the GHQ-12 was shown to be a reliable tool to measure general health in Maltese postnatal mothers.

### 4.4 Validity of the instruments

Validity is defined as "the degree to which an instrument measures what it is intended to measure" (Polit and Beck, 2004:422). These authors emphasize that the

validity and reliability of a measuring tool are dependent on each other. Therefore, a measuring device that is unreliable cannot possibly be valid. Moreover, they also argue that a reliable tool cannot be a valid tool if its structure does not consist of valid indicators of the variable studied.

Having established the reliability and validity of the translation into Maltese of the General Health Questionnaire-12, the discussion now continues to focus on the perineal trauma and sexual health questionnaires which were developed purposely for this study and on the Perineal Evaluation Score (PES) (Steen and Cooper, 1997). It is not known whether PES has been previously validated.

#### **4.4.1 Face validity**

Face validity refers to whether the instrument looks as though it is measuring the appropriate construct (Polit and Hungler, 1999). In the present study the tool appeared to reflect the research question and the aim and objectives of the study. Furthermore, consultation with the supervisors helped in increasing the face validity of the questionnaires. Prior to conducting the study, the tool was also reviewed by the local University Research Ethics Committee, and face validity was confirmed.

#### **4.4.2 Content validity**

Content validity is concerned with the sampling adequacy of items for the construct that is being measured (Polit and Hungler, 1999). Thus, the items being tested should be the sample of the variables in which the researcher is interested. To enhance content validity of the questionnaires on perineal trauma and sexual health, the experiences of two postnatal mothers were explored, in hospital and at home six weeks following childbirth. One mother was experiencing childbirth for the first time while the other was having her third baby. Both gave their consent to be interviewed in hospital and at home. The experiences of these two women combined with the literature review informed the development of the perineal trauma and the sexual health questionnaires. The visits to these mothers also facilitated the rehearsal of assessing the relevance of the items of the Perineal Evaluation Score tool (Steen and Cooper, 1997).

To further test the content validity of the tools, a strategy was also planned: the drafts of these new instruments, including those translated in Maltese where applicable, were given to a panel of 4 experts in the content area for their evaluation



and documentation. The experts were asked to evaluate individual items on the new measure as well as the entire instruments (Appendix 3). The two key issues in such an evaluation are, whether individual items are relevant and appropriate in terms of the constructs, and whether the items adequately measure all dimensions of the constructs (Polit and Hungler, 1999:419).

The panel consisted of the following:

- A midwife researcher in emotional wellbeing in Maltese families from Malta
- A nurse researcher in the spiritual dimension of care from Malta
- A consultant researcher and lecturer in maternity care from the UK
- A consultant obstetrician and gynaecologist from Malta

The process started by sending a letter of invitation to the panel of experts (Appendix 3). Following consent, a package was sent to the members of the panel consisting of the following:

- A letter of information
- The aims and objectives of the study
- Recruitment data form
- Supplement: The perineum before Pregnancy
- Perineal evaluation score
- The four questionnaires: time 1 (48 hours), time 2 (10 days), time 3 (6 weeks) and time 4 (13 weeks)
- Feedback sheets for comments and suggestions for amendments.

The panel of experts sent feedback on the structure of the questionnaires recommending:

- to have a set of core of questions that were repeated in every questionnaire
- to deal with all sexual activity related questions in one section
- to carefully include the section on sexual activity at 6 and 13 weeks after delivery without obliging the respondent to assume that by then she should have resumed sexual intercourse.

Additionally, one of the panel experts commented on the use of the VAS: whilst their benefits were understood and acknowledged, she personally found them hard to work with, and highlighted some implications for statistical analysis. She also

observed that, though the VAS were perfectly valid to use, they implied a spuriously specific response leading to a recommendation of caution on the practicalities on data entry and analysis. This recommendation was taken up and the questionnaires were amended accordingly.

Apart from the above recommendation, the panel of experts was in full agreement on the content of the tools, and this contributed towards the validity of the questionnaires. The tools were then ready for piloting.

#### 4.4.3 Criterion-related validity

Another way to establish the validity of a questionnaire is criterion-related validity. The aim is to establish a relationship between the perineal trauma scores and some other criterion, such as, in this case, the scores obtained from the perineal oedema and bruising (Steen and Cooper, 1997). Parahoo (2006) points out that the criterion-related validity of a tool is concerned with comparing its findings with data collected on the same phenomenon by other methods. Therefore, the data from the clinical observations of the perineal oedema and bruising was taken on as the criterion with which perineal trauma was compared.

Table 4.6 Pearson's correlations between Total Perineal Oedema & Bruising and Total Perineal Trauma at times 1 and 2

Variable	Time	n	Pearson r	2-tailed p value
Total Perineal Trauma and Total Perineal Oedema & Bruising	1	144	0.301**	<0.0005
	2	140	0.252**	0.003

\*\*significant at 0.01 level (2-tailed)

Table 4.6 demonstrates that Total Perineal Trauma and Total Perineal Oedema and Bruising were correlated with a p value of <0.0005 at time 1 and 0.003 at time 2. A positive relationship was revealed between the two scores. Both scales of perineal trauma and perineal oedema and bruising were oriented towards perineal pain and its recovery. These correlations are between two sets of results obtained by two different tools. It can therefore be concluded that these positive significant correlations support the validity of the newly developed tool on perineal trauma.

#### **4.4.4 Construct validity**

Construct validity refers to how well a scale measures a particular construct (in this case, perineal trauma) that is deliberately invented by a researcher for scientific purposes (Polit and Hungler, 1999). Perineal trauma is difficult to define, let alone measure. Additionally, it is difficult for a newly constructed questionnaire to achieve construct validity as it has to be tested in a multitude of settings and with different populations over a number of years. However, the variety of validity tests that are discussed in this chapter are the ones most frequently reported in literature.

#### **4.5 Rigour of qualitative data**

The previous section has described the methods used for assessing the rigour of the quantitative data collection tools. The rigour of qualitative data also needs to be assessed. This is done using the concept of trustworthiness in its collection, analysis and interpretation (Parahoo, 2006, Polit and Beck, 2004). Thus, in order to have rigour of qualitative data the findings must reflect the truth, and the meaning of the data must, as far as possible, be accurately interpreted. Polit and Beck (2004) suggest certain criteria for establishing the trustworthiness of qualitative data, one of which being credibility together with prolonged engagement.

Credibility is a criterion for evaluating the data quality of qualitative data with reference to the confidence of the researcher in the truth of the data (Polit and Beck, 2004). It may be enhanced by prolonged engagement, which allows the researcher sufficient time in the collection of data to have an in-depth understanding of the group under study. The present researcher's significant clinical expertise as a practising midwife over a number of years in both hospital and community settings and the longitudinal design of the study afforded her this prolonged engagement. Cutcliffe and McKenna (1999) argue that the main researcher's in-depth familiarity with the data and the subjects' world will undoubtedly affect the subsequent interpretation. McBrien (2008) suggests member checking. Member checks are one of the most robust mechanisms of assuring credibility in qualitative inquiry. It involves seeking the participants' views on the honesty and consistency of the research findings. Researchers do this, by summarizing, repeating or paraphrasing the participants' words. Subsequently, the subjects are asked if the interpretation is a true and fair account of their experiences.

#### **4.6 Combination of the quantitative and qualitative approaches**

Whilst qualitative research is more appropriate when studying the experiences of participants (for example the experiences of postnatal women with perineal trauma), quantitative research seems to be the approach of choice when a fairly large amounts of data are required (for example on the characteristics of postnatal mothers experiencing physical and psychological recovery of perineal trauma). However, the same aspect of a phenomenon, such as perineal trauma, can benefit from both approaches. Researchers call this approach data triangulation (Parahoo, 2006, Polit and Beck, 2004). Polit and Beck (2004) defined triangulation as the combination of two or more theories, data sources, methods or investigators in the study of a single phenomenon. The present study utilised theory and data combination.

Theory combination makes use of more than one theory to interpret the data (Parahoo, 2006, Polit and Beck, 2004). The Post-traumatic Growth theory helped the researcher to prevent premature conceptualisations of results in perineal trauma. Post-traumatic growth is defined as the subjective experience of positive psychological change reported by an individual person as a result of the struggle with trauma (Tedeschi and Calhoun, 1996, 1995). Following childbirth, the transition to motherhood and mothering the new baby in the midst of postpartum pain, discomforts, sleep deprivation and emotional distress may lead to personal growth for the individual mother. This theory enhanced the use of the General Health Questionnaire-12 and the interpretation of qualitative data from the open ended questions. The next section discusses the pilot studies.

#### **4.7 The pilot study**

A pilot study is a small-scale version or a trial run of the major study (Rees, 2003, Polit and Hungler, 1999). Cluett (2000) suggests that the principal aims of a pilot study are to:

- ◆ test the research process in the practice setting
- ◆ test any measurement instruments
- ◆ assess the feasibility of the research process, including its acceptability to the study population
- ◆ identify any impact on the clinical environment
- ◆ finalize costs, including time involved, administration and organizational issues.

Oppenheim (1999) recommends that a questionnaire has to be composed, improved and tried out, often several times, and eventually there will be the need to pilot the questionnaire as a whole together with the questions that have been translated from other languages. Thus, since this study consisted of a quantitative and qualitative data collection tool as one questionnaire, it was important to assess its feasibility.

The pilot study included the setting of the Maltese translation of the GHQ-12 to the postnatal mothers. The pre-testing of Maltese GHQ-12 was carried out with a convenience sample of 10 postnatal mothers with a mean age of 24. Feedback revealed some modifications in re-phrasing some sentences. Re-piloting of the tool then followed on a larger convenience sample of another 39 postnatal mothers who satisfied the inclusion and exclusion criteria.

The pre-testing of the perineal trauma and the sexual health sections of the questionnaire was also carried out with a convenience sample of another 5 postnatal mothers with a mean age of 24. The use of a teaching model of a perineum with episiotomy proved to be a very useful visual aid for mothers to understand the proximity of the body orifices. In fact one mother, who participated in the pilot study, was consequently able to attribute her pain to haemorrhoids rather than perineal trauma. Another mother who had experienced breakdown of skin sutures was more able to visualize her perineal condition. This reinforced the benefits of using this teaching model in the main study.

The next stage in the pilot process was to pilot the whole questionnaire including the Gantt chart to project dates for appointments (Appendix 6.5), recruitment data form, the supplement of the perineum before pregnancy and the perineal evaluation score, with a sample of mothers having the same characteristics as in the main study (Rees, 2003, Cluett and Bluff, 2000, Polit and Hungler, 1999, Oppenheim, 1999). Polit and Beck (2004) suggest that a sample size of one tenth of the prospective sample would give some indication of the major problems that might arise in the research study. Therefore, since the planned study sample aimed to be 115 postnatal mothers, a convenience sample of 15 mothers was planned to be recruited in the first forty-eight hours after childbirth (time 1) and followed to time 2 at ten days after delivery.

Following institutional permissions, confirmed informed consent from the women and Local Research Ethics Committee approval, access to the mothers in the

postnatal wards in one main hospital in Malta was obtained for the pilot study. The questionnaires were to be distributed by the researcher and collected after the first forty-eight hours of the delivery of the baby and just before the discharge of the mothers from hospital. It was at this point that it became apparent that mothers were leaving before forty-eight hours post delivery for reasons specified above, whilst others were staying longer. Thus, to maintain recruitment and a homogenous group, an adjustment to one of the inclusion criteria was made, whereby mothers with perineal trauma completed the questionnaires within 36 to 48 hours of the delivery. No other changes were required.

Within the first twenty-four hours of the delivery potential recruits were informed in privacy about the aims of the study and of having a perineal assessment. They were provided with a consent form and appointments for distribution of the questionnaires were made. The use of the Gantt chart proved to be very useful in projecting the dates of the appointments and the pre-advice for such appointments.

## **Feedback from pre-pilot study with the fifteen mothers**

### **4.7.1 The time for the pilot study**

There seemed to be no ideal time to distribute the questionnaires during daytime. A random choice of time for the researcher was in the morning between 8am and 10am. The times after 10am up to 12 MD and between 4pm and 6pm were visiting hours for relatives. The researcher would have liked the mother to answer the questionnaire on her own so as to minimize any external influence (Rees, 2003). At other times of the day the mothers were very busy with their babies' or their own needs. The doctors and the paediatricians visited the mothers and their babies at various times between visiting hours. Thus, the researcher stood on watch for most of the days during the pilot study in order to find suitable times to introduce the questionnaire to the mothers and for perineal assessment.

### **4.8 Feedback from time 1 questionnaire**

All mothers reported that they understood the Maltese version of the questionnaire and were able to follow without any difficulties the instructions given in the questionnaires. Five short sections with statements were measured by the VAS. The researcher created space specifically to talk to the mothers about their experience of

the questionnaire. It became evident that the VAS scale was clear and facilitated the answers.

An open-ended question followed each section in the questionnaire, inviting respondents to relate their experience of both perineal trauma and general health. Feedback from the open-ended questions showed very short answers, such as 'normal', 'good', or 'well'. At times, the space for the answer was left blank. Therefore, the researcher felt the need to revisit the responses with the women without compromising the study. Some of the questionnaires were still not completed by the appointed time for their collection and the researcher waited until the mothers were free to fill them in.

Each encounter with the mother took about 20 to 30 minutes. It included perineal assessment and feedback to mothers on their perineal wound healing. In this instance the researcher performed her combined role as a midwife-researcher and respected mothers' rights and welfare (Nursing and Midwifery Council, 2008). The mothers regarded their participation as a means of knowing more about their general health and perineal recovery after childbirth.

Feedback from the Recruitment Data Form revealed certain details were not recorded in the respondents' history sheets, for example indications for episiotomies. Data from the forms indicated that there was no choice in the suturing material: Vicryl was used in all cases. Suturing methods were not documented and doctors did the majority of the perineal suturing. There were two mothers whose episiotomies were repaired by senior registrars. Feedback was uneventful from the perineal evaluation score that assessed healing (Steen and Cooper, 1997).

#### **4.8.1 Measuring with the visual analogue scales**

One specific objective of the study was to measure recovery from perineal trauma in the first 48 hours postnatal. To ensure consistency of scoring, some rules were established to be tried before the pilot's scoring and analysis.

- Only the researcher scores the measurements of variables of perineal pain and general health. This would avoid systematic bias.
- The same ruler is used for all measurements. The ruler (Helix©) is clear and calibrated.

- The border of the respondents' mark to be used as the basis for scoring is also defined. Generally the low end is used as the zero point on the scale.

The scale-score is the number of millimetres the respondents rate away from zero measurement. For example: to assess perineal *comfort* the highest score is allocated to “very comfortable” or the “strongly agree” anchor. The scores run from left to right, from negative to positive.

#### **4.8.2 Analysis of the responses**

The main objective in the study was to measure perineal pain or discomfort on a number of activities. However, the statements in sections A to D in the questionnaires (Appendix 6.1.5) measured *comfort* with the low end at zero point on the left side and the high end at 100 millimetres on the right side of the scale. Therefore, pain or discomfort could be measured by measuring the distance from the high end of the scale to the specified place of the mother's mark.

The statements were a mix of those expressed positively and those expressed negatively to prevent respondents from simply putting a mark on the same side of the scale each time (Waltz et al., 2005). For example, the statement “I am comfortable with my perineum during breast feeding” was positive. “Very comfortable” implied that the respondents were not in pain and they would score high with their *comfort* in the perineum. “Very uncomfortable” implies that they were in great pain and they would score low with their *comfort* and high with their *pain* in the perineum.

From the pilot study there arose the need for certain important changes in the questionnaires. The former statement, “I find it easy to relax during breastfeeding” seemed to be an open statement since it might refer to the concept of a general feeling or to reluctance to breast-feeding or to any pain on breastfeeding. This statement needed re-focusing to address the issue of the state of the perineum, and therefore it was changed to “I am comfortable with my perineum during breastfeeding”. Another statement, “My ability to enjoy breast feeding depends upon the pain in my perineum” seemed to be difficult for mothers to answer on a VAS. Therefore, this statement was left out for the main study and the section on “Feeding the Baby” was reduced to two statements which addressed the perineal pain of the mother while feeding her baby. Some statements required a ‘yes’ or ‘no’ answer.



Other statements regarding “opening of the bowels” were not answered for no apparent reason. These questions were therefore removed from the questionnaires for the main study.

### **4.8.3 The tenth day (time 2) questionnaire**

The tenth day questionnaire had additional questions to that of the first one with the inclusion of a section on sexual health. The questionnaire was given to each of the same fifteen mothers before their discharge from hospital. The mothers were advised to complete it by the tenth day (of the birth of their babies) and to post it back in the pre-paid envelope provided. By the tenth day, a telephone reminder was given to each one of mothers. After 25 days only 2 partially completed questionnaires had been returned. It was decided to visit the mothers by appointment to collect the remaining questionnaires. It seems that completing and posting the questionnaires appeared to be too much trouble for mothers. In contrast, visiting them at home was welcomed and appreciated. Then the researcher took the opportunity to identify their reactions to the questions and to see whether they had difficulties in any of the parts of the questionnaire.

The mothers talked a lot about the baby’s method of feeding. One of the respondents was reluctant to continue breast-feeding due to pain in her breasts and she resolved her distress by changing to bottle-feeding. Pain in the perineum did not seem to be a significant issue to any of the mothers. One of the mothers suffered from a vaginal infection and was already under medical supervision. Whereas this mother seemed to need debriefing, the researcher had to be sensitive, as a midwife. Since the mother was likely to be emotionally distressed, the researcher counselled her and referred her back to medical consultation. In this case, the researcher’s responsibility as a midwife took precedence and she chose to abide with her professional code of conduct (Nursing and Midwifery Council, 2008) and respect the mother’s rights for care and welfare, while putting aside for the moment the rules of research.

Sexual health following childbirth seemed to be a point of discussion between mothers and their partners. It seemed that the tenth day postpartum was considered too early to resume sexual activity as none of the questions were answered by any of the fifteen mothers. Full recovery from childbirth before resumption of sexual relationship was a common goal among mothers. However, the comments following

the questions on sexual health were very interesting. One mother commented that she would not risk sexual intercourse before her six-week visit to her doctor. Another wrote that she could not comment because she had not tried and she continued to say that her libido was low. A third mother reported that fear of pain in her perineum made her disinterested in sex. Another mother referred to her previous experience when she abstained from sexual activity for more than three months after childbirth because of dyspareunia.

Such answers clearly suggested that it was too early to put questions to mothers on their sexual activity on the tenth day after childbirth. Therefore, for the main study, it was decided to have the sexual health questions moved to the sixth and the thirteenth week questionnaires.

#### **4.8.4 Longitudinal design**

The longitudinal design seemed appropriate for data collection at specified time-intervals. The main advantage for a longitudinal component was to capture any change that might take place over time (Waltz et al., 2005). Mothers coming to terms with their physical and psychological adaptation after childbirth may go through different phases. Collection of data at 6 and 13 weeks postpartum would probably provide results that may be compared with earlier results at 2 and 10 days after childbirth. In the pilot study, the researcher's home visit at day 10 of data collection coincided with visits by the community midwife. However, the role of the researcher and her aims for home visiting were clearly defined to mothers.

Studies that have used the General Health Questionnaire (GHQ) report mixed results of any possible retest effects depending on the time between completions (Lo, 2002, Tait et al., 2002). In the present study, it seemed clear that the relative time periods between applications were enough.

One of the study objectives was to measure perineal wound healing in the first 48 hours and 10 days after delivery. In the pilot study, perineal recovery seemed to be uneventful and scores on the perineal evaluation score were negligible. This does not mean that the assessment is unnecessary. It may give clearer results with greater numbers. Again, the assessment was a duplication of work performed within a very short time period between two assessors: the midwife researcher and the community

midwife. Therefore, the researcher had to repeat to mothers the purpose of her assessment of their perineum.

#### **4.8.5 Results from the quantitative and qualitative data from pilot study**

The analysis of the quantitative data derived from the perineal trauma questionnaire and the General Health Questionnaire-12 (Goldberg and Williams, 1988) seemed to be feasible for a pilot study in yielding some results. However, the sample of fifteen mothers proved to be small and statistical analysis by SPSS only attempted to satisfy the aim of the pilot study and to verify the choice and application of quantitative statistical methods for the main study.

The researcher tried to interpret the qualitative data derived from the comments of each section in the questionnaires using thematic analysis for the perineal trauma and the general health questionnaires. In the thematic analysis “the position of the idea in the narrative” is important (Rice and Ezzy, 1999:106) and sheds light on data analysis. Results from the quantitative and qualitative data of the pilot study are presented and discussed in detail in Appendix 5. The following section continues to discuss some main points in the main study, such as, the data collection process and data analysis.

### **Main Study**

#### **4.9 Data collection process**

Figure 4.1 illustrates the time points and tools of data collection. The majority of data collection at time 1 occurred during the second day after delivery of the baby and the admission of the mother and the baby to the Postnatal Ward. At time 2 most of the data were collected during the tenth day, in the mothers’ own homes. At times 3 and 4, the majority of data were collected on the 6<sup>th</sup> and 13<sup>th</sup> week after delivery respectively. During data collection communication with the mothers was maintained in an attempt to minimize attrition rate.

Data were collected four times within the stipulated time (Figure 4.1) as follows:

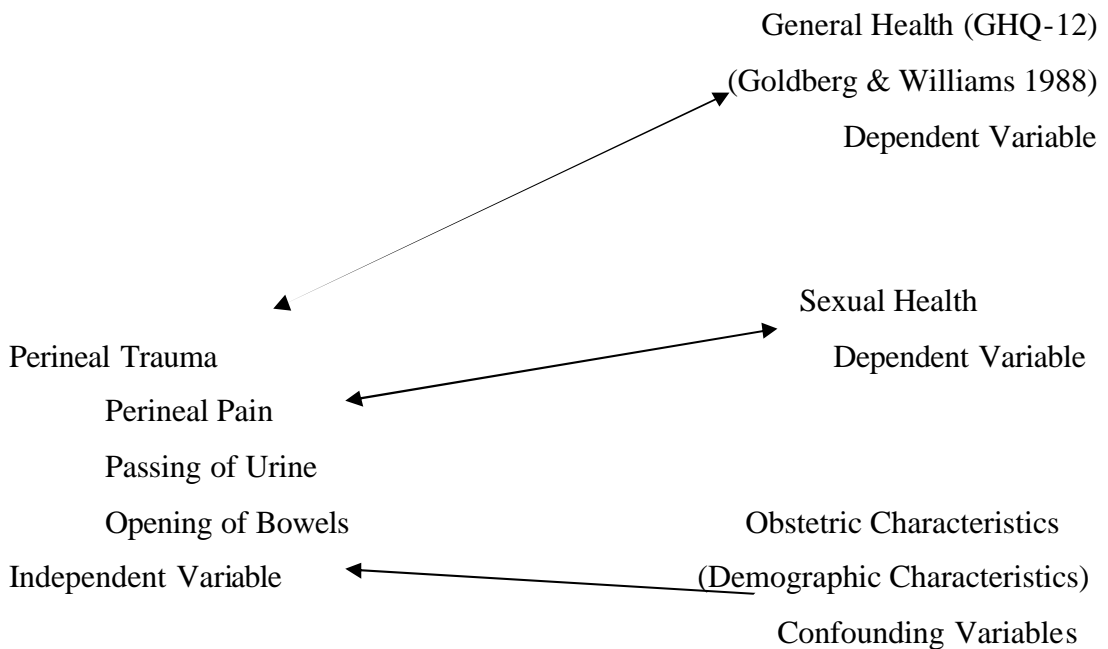
Figure 4.1 Data collection process across time

<p>Recruitment within the first 36 hours after admission into the Postnatal Ward</p> <ul style="list-style-type: none"><li>• Introduction of self to mothers</li><li>• Verbal explanation of research aims and objectives<ol style="list-style-type: none"><li>1. Inclusion criteria checklist</li><li>2. Consent Form in Maltese</li><li>3. The recruitment questionnaire (Demographic data) + Handing of the supplement on the pre-pregnancy information</li></ol></li></ul>
<p><b>Time 1</b> (within the first 48 hours after admission into the Postnatal Ward)</p> <ol style="list-style-type: none"><li>1. Perineal Examination followed by Perineal Evaluation Score</li><li>2. Handing the first questionnaire pack: Pain in Perineum (Sections A to D) + The Perineum and your Wellbeing (GHQ-12)<ul style="list-style-type: none"><li>• Collection of the supplement on pre-pregnancy information</li><li>• Collection of the first questionnaire</li><li>• Checking of the completed questionnaires</li><li>• Making an appointment for time 2 questionnaire</li></ul></li></ol>
<p>Pre-time 2</p> <p>Mailing of research pack a week before due date of questionnaire Making an appointment on the phone a week before the home visit Re-confirmation of the appointment on phone the day before</p> <p><b>Time 2</b> (on the 10<sup>th</sup> day after the birth of the baby)</p> <ol style="list-style-type: none"><li>1. Perineal Examination followed by Perineal Evaluation Score</li><li>2. Collection of the 2<sup>nd</sup> questionnaire at 10 days: Pain in Perineum (Sections A to D) + The Perineum and your Wellbeing (GHQ-12)<ul style="list-style-type: none"><li>• Checking of the completed questionnaire</li></ul></li></ol>
<p>Pre-time 3</p> <p>Mailing of the research pack a week before due date of questionnaire Making an appointment on phone a week before the home visit Re-confirmation of the appointment on phone the day before</p> <p><b>Time 3</b> (on the 6<sup>th</sup> week after the birth of baby)</p> <ol style="list-style-type: none"><li>1. Collection of the 3<sup>rd</sup> questionnaire at 6 weeks: Pain in Perineum (Sections A to D) + The Perineum and Your Sexual Health + The Perineum and your Wellbeing (GHQ-12)<ul style="list-style-type: none"><li>• Checking of the completed questionnaire</li></ul></li></ol>
<p>Pre-time 4</p> <p>Mailing of the research pack a week before due date of questionnaire Making an appointment on phone a week before the home visit Re-confirmation of the appointment on phone the day before</p> <p><b>Time 4</b> (on the 13<sup>th</sup> week after the delivery of the baby)</p> <ol style="list-style-type: none"><li>1. Collection of the 4<sup>th</sup> questionnaire at 13 weeks: Pain in Perineum (Sections A to D) + The Perineum and Your Sexual Health + The Perineum and your Wellbeing (GHQ-12)<ul style="list-style-type: none"><li>• Checking of the completed questionnaire</li></ul></li></ol>

#### 4.9.1 Data analysis

Quantitative data were processed by using the Statistical Package for Social Sciences (SPSS for Windows 13 and 14). First, data were managed by coding the original data and transforming it into numerical form. Secondly, the numerical codes were inserted into the database package of SPSS. During statistical analysis the variables of general health and sexual health were considered as dependent variables, whilst perineal trauma was considered as the independent variable. Figure 4.2 shows the analytical model developed for this study to explore the relationships between the independent variable and the dependent variables.

Figure 4.2 Analytic Model of relationships between variables



It was assumed that general health and sexual health would change over time as a result of levels of perineal trauma changing over time (Figure 4.2). The demographic and obstetric characteristics included age, educational level, occupation, attendance to antenatal classes, smoking, alcohol consumption, length of stay in hospital, marital status, parity, position of the baby's head at birth, maternal position during birth, and the agent performing suturing.

Two-way arrows indicate two-way relationships between the variables of perineal trauma and general health and between the variables of perineal trauma and sexual

health. The one-way arrow indicates a one-way direction in the relationship with perineal trauma.

#### **4.9.2 Statistical analysis of data**

Statistical testing of data may be done by parametric or non-parametric tests (Bryman and Cramer, 2001). The perineal trauma, sexual health and General Health Questionnaire-12 were VAS tests which put a rank order to the ordinal data (Hicks, 1990). The demographic data questionnaire contained nominal data which classify the mothers into groups. Therefore, the level of the data in this study suggested the use of non-parametric tests.

Hicks (1990) states that parametric tests are used when the data fulfil the following three criteria:

- the questionnaires are of interval or ratio scaling
- the distribution of the scores is normal
- the variances of both variables are equal

Hicks (1990) asserts that the first of these criteria is critical and can never be violated. Thus, since VAS produce ordinal data, parametric tests, such as Pearson's correlation test cannot be used. However, Bryman and Cramer (2001) investigated several other studies that were artificially set up to violate these conditions and found that results did not differ greatly from those observing the conditions. They concluded, therefore, that parametric tests may be applied. However, Bryman and Cramer (2001) recommended the use of non-parametric tests when the size of the sample is small. The sample size of the present study ( $n=144$  across time) is large enough to warrant the use of Pearson's parametric tests. Therefore, the main study made use of chi-square, paired samples' t-test, mixed between-within subjects analysis of variance (ANOVA) and Pearson's correlation ( $r$ ).

#### **4.9.3 Statistical analysis tests**

Chi-square test is a non-parametric test of statistical significance used to assess whether a relationship exists between two nominal level variables (Pallant, 2001; Polit and Hungler, 1999). Chi-square can be applied to two variables which have three or more categories (Pallant, 2001). Thus, in the present study, Pearson chi-

square was used to find out differences in Perineal Wound between subgroups of demographic and obstetric characteristics.

Paired samples'  $t$ -test is also referred to as repeated measures. It is used when data of only one group of people (or objects) are collected on two different occasions, or under different conditions (Polit and Beck, 2004). In the present study, paired samples'  $t$ -test compared perineal oedema and bruising mean scores between time 1 and time 2. It was also used to compare resuming sexual intercourse mean scores between time 3 and time 4. Moreover, paired samples'  $t$ -tests identified where the difference lay in Total Perineal Trauma and General Health mean scores in pairs of time periods.

Mixed between-within subjects analysis of variance is a mixed design which includes both *between-subjects designs* (comparing two or more different groups) and *within-subjects or repeated measures designs* (one group of subjects exposed to two or more conditions) (Pallant, 2001). There may be situations however, where the two approaches may be combined in one study, with one independent variable being between-subjects and the other a within-subjects variable (Pallant, 2001). This method was adopted in the present study which explored the relationships between the obstetric characteristics of the sample and total perineal trauma, sexual health and general health at times 1, 2, 3 and 4. In each case, there were two independent variables, one was a between-subjects variable (for example, person performing sutures: senior hospital officer, registrar and senior registrar) and the other was a within-subjects variable (for example, time). In this case, the intervention of each of the three persons performing sutures was measured against the mothers' perineal trauma levels, measured at times 1, 2, 3 and 4.

Pearson's  $r$ , also known as product-moment correlation coefficient, is a parametric test which explores the strength of the relationship between two continuous variables (variables that can take on a wide range of different values such as age) (Polit et al., 2001). It gives an indication of both the direction (positive or negative) and the strength of the relationship (Polit and Hungler, 1999). A positive correlation indicates that as one variable increases, so does the other. A negative correlation indicates that as one variable increases, the other decreases. In the present study, Pearson's  $r$  was used in the correlation between total perineal trauma and general

health, total perineal trauma and resuming sexual intercourse and also in the correlation of total perineal trauma and general health between times 1, 2, 3 and 4.

One-way analysis of variance (ANOVA) compares the means of three or more unrelated means. However, ANOVA F test tells only whether there is a significant difference between related means, but it does not reveal where this difference lies. Thus, this test is supported by Post Hoc Multiple Comparisons test of Bonferroni inequality test. The significance level of 0.05 is divided by the number of categories in the group to produce the appropriate significance level of the specific group. For example, if the education-group has four categories, the significance level results as 0.0125 (0.05/4). This test was used to estimate differences in perineal trauma, general health and resumption of sexual intercourse with the groups of demographic and obstetric characteristics, such as education, attendance to antenatal classes, length of hospital stay after the birth of the baby, parity, maternal position during childbirth and person suturing the perineum.

#### **4.9.4 Qualitative data analysis**

In qualitative research, the process of data analysis is ongoing. It starts with data collection and continues after data have been collected and any field notes or tapes have been transcribed (Polit and Beck, 2004). In the present study, qualitative data were taken from comments the respondents wrote after each section in the four questionnaires at times 1, 2, 3 and 4. These comments were copied onto a personal computer, providing an opportunity for identifying themes as data were transferred. Following transfer, a print out was obtained and the data were re-read. Notes, put down on a separate script, included comments about the experiences of the participants, recurrent themes and the nature and significance of the data. This process helped supported immersion in the data. Willingness to be open to what was there was facilitated by an attempt to suspend preconceived ideas, beliefs and experiences in relation to perineal trauma or other phenomenon such as general health or sexual health. This is called bracketing within phenomenology where the researcher brackets out the world and any presuppositions in an effort to confront the data in pure form (Polit and Hungler, 1999). Bracketing contributes to trustworthiness by helping researchers ensure that their beliefs do not influence the collection of data and its analysis. In this way, biased results can be avoided and a reliable description of perineal trauma provided.



Burnard (1991) illustrated a stage-by-stage process of thematic analysis in 14 steps (Figure 4.3) which the researcher in the present study adapted in the analysis of both the pilot and the main study. Burnard (1991) suggested, in one of the stages, that the transcripts are to be analysed by two other independent colleagues and then compared with those of the researcher in an attempt to reduce the researcher's bias and enhance rigour of the analysis. Since the data obtained from the respondents' comments in the present study were not as comprehensive as they would have been in a purely qualitative study using, for example, unstructured interviews, confirmation of the themes was achieved by referring back to the original statements and subcategory/category descriptions. The transcripts were read again several times and matched with the final lists of categories. The word processor was used to list the themes and categories accompanied by the whole quotation from texts.

Figure 4.3 Systematic stages of Thematic Analysis Framework (Burnard, 1991)

<b>Stages of Thematic Analysis Framework (Burnard, 1991)</b>
1) notes and 'memos' are made after each interview
2) transcripts are read and notes made, to become immersed in the data
3) headings or category system known as 'open coding' are written down to describe all aspects of content
4) categories are grouped together under higher-order headings
5) repetitions are removed to produce a final list
6) two other colleagues generate category systems independently to enhance validity of categorising method
7) transcripts are re-read alongside the agreed list of categories
8) categories are identified and a coding system scheme is devised
9) each coded section of interviews is cut out of transcript and all items of each code are collected together
10) cut out sections are headed up with the appropriate headings and subheadings
11) selected respondents check the appropriateness of the category system; checking on the validity of the process
12) sections are filed together for direct reference when writing up the findings
13) writing up process begins in view to the need to refer back to the original complete transcript
14) decide whether or not to link data examples and commentary to literature

#### **4.9.5 Data presentation of quantitative and qualitative data**

The qualitative data were presented as themes, categories and subcategories, together with direct quotations. The quantitative data were displayed in frequency tables, line graphs, bar charts and lists. The following chapter presents the quantitative and the qualitative findings of the present study.

## Chapter 5

### Findings

#### 5.0 Introduction

The following chapter presents the quantitative and qualitative findings of the study. The quantitative section is subdivided into the following eight sections which are intended to:

1. assess the contribution of demographic and obstetric characteristics to perineal wounds: tears and/or episiotomies;
2. identify statistical differences in total perineal trauma between the subgroups of obstetric characteristics across time;
3. identify statistical differences in resumption of sexual intercourse between the subgroups of obstetric characteristics across time;
4. identify statistical differences in general health between the subgroups of obstetric characteristics across time;
5. determine patterns of fluctuations in total perineal trauma across time;
6. determine patterns of fluctuations in resumption of sexual intercourse across time;
7. determine patterns of fluctuations in general health across time;
8. explore statistical relationship between total perineal trauma, resumption of sexual intercourse and general health across time.

#### 5.1 Assessing the contribution of demographic and obstetric characteristics to perineal wounds: episiotomies and/or tears

Table 5.1 illustrates the demographic characteristics of 144 mothers, including the rates of episiotomies, tears and extended episiotomies. Significant differences between the subgroups of characteristics were found with respect to occupation ( $\chi^2 = 8.483$ ,  $p = 0.014$ ,  $df = 2$ ), attending antenatal classes ( $\chi^2 = 23.450$ ,  $p = <0.0005$ ,  $df = 4$ ), smoking ( $\chi^2 = 6.217$ ,  $p = 0.045$ ,  $df = 2$ ), and length of stay in hospital after the birth of the baby ( $\chi^2 = 11.687$ ,  $p = 0.020$ ,  $df = 4$ ). This means that the highest proportions of mothers worked outside home, attended antenatal classes, did not smoke, and stayed for 2 days in hospital after the birth of the baby.

**Table 5.1 Differences in Perineal Wound between subgroups of demographic characteristics<sup>o</sup>**

<b>Perineal Wound</b>						
<b>Demographic Characteristics</b>	<b>Episiotomies (n = 72)</b>	<b>Tears (n = 53)</b>	<b>Extended Episiotomies<sup>?</sup> (n = 19)</b>	<b>Total (n = 144)</b>	<b>df</b>	<b>Pearson Chi-square &amp; p value</b>
<b>Age</b>						
20 to 30 years	59 (81.9%)	37 (69.8%)	16 (84.2%)	112 (77.8%)	2	3.124
31 to 40 years	13 (18.1%)	16 (30.2%)	3 (15.8%)	32 (22.2%)		0.210
<b>Educational Level</b>						
Primary	6 (8.3%)	4 (7.5%)	1 (5.3%)	11 (7.6%)	8	8.114 0.422
Secondary	34 (47.2%)	26 (49.1%)	9 (47.4%)	69 (47.9%)		
Post Secondary	15 (20.8%)	16 (30.2%)	7 (36.8%)	38 (26.4%)		
University	16 (22.2%)	7 (13.2%)	1 (5.3%)	24 (16.7%)		
Post University	1 (1.4%)	0 (0%)	1 (5.3%)	2 (1.4%)		
<b>Occupation</b>						
At home	32 (44.2%)	25 (47.2%)	2 (10.5%)	59 (41.0%)	2	8.483
Outside home	40 (55.6%)	28 (52.8%)	17 (89.5%)	85 (59.0%)		0.014*
<b>Attending ANC</b>						
Yes	48 (66.7%)	18 (34.0%)	17 (89.5%)	83 (57.6%)	4	23.450
No	22 (30.6%)	34 (64.2%)	2 (10.5%)	58 (40.3%)		<0.0005*
Sometimes	2 (2.8%)	1 (1.9%)	0 (0%)	3 (2.1%)		
<b>Smoking</b>						
No smoking	63 (87.5%)	44 (83.0%)	12 (63.2%)	119 (82.6%)	2	6.217
Social smoking	9 (12.5%)	9 (17.0%)	7 (36.8%)	25 (17.4%)		0.045*
<b>Alcohol</b>						
No alcohol	59 (81.9%)	45 (84.9%)	12 (63.2%)	116 (80.6%)	2	4.400
Social drink	13 (18.1%)	8 (15.1%)	7 (36.8%)	28 (19.4%)		0.111
<b>Length of stay in Hospital</b>						
2days	52 (72.2%)	44 (83.0%)	9 (47.4%)	105 (72.9%)	4	11.687
3 days	18 (25.0%)	9 (17.0%)	8 (42.1%)	35 (24.3%)		0.020*
5 days	2 (2.8%)	0 (0%)	2 (10.5%)	4 (2.8%)		

\* significant at  $p < 0.05$

<sup>o</sup>The percentages in the table represent the proportions of the samples with perineal wound (episiotomies, perineal tears, and extended episiotomies) and the proportion of the sample as a whole (n=144) in relation to each of the demographic variables.

<sup>?</sup> An extended episiotomy is an episiotomy that extends to a third or fourth degree tear.

**Table 5.2 Differences in Perineal Wound between subgroups of obstetric characteristics<sup>o</sup>**

<b>Perineal Wound</b>						
<b>Obstetric Characteristics</b>	<b>Episiotomies (n = 72)</b>	<b>Tears (n = 53)</b>	<b>Extended Episiotomies (n = 19)</b>	<b>Total (n = 144)</b>	<b>df</b>	<b>Pearson Chi-square &amp; p value</b>
<b>Marital Status</b>						
Married	67 (93.1%)	48 (90.6%)	17 (89.5%)	132 (91.7%)	2	0.385
Single	5 (6.9%)	5 (9.4%)	2 (10.5%)	12 (8.3%)		0.825
<b>Parity</b>						
1 <sup>st</sup> baby	58 (80.6%)	22 (41.5%)	16 (84.2%)	96 (66.7%)		26.010
2 <sup>nd</sup> baby	14 (19.4%)	28 (52.8%)	2 (10.5%)	44 (30.6%)	4	<0.0005*
3 <sup>rd</sup> baby	0 (%)	3 (5.7%)	1 (5.3%)	4 (2.8%)		
<b>Position of Baby's Head at Birth</b>						
Vertex OA	57 (79.2%)	44 (83.0%)	13 (68.4%)	114 (79.2%)	2	1.807
Vertex OP	15 (20.8%)	9 (17.0%)	6 (31.6%)	30 (20.8%)		0.405
<b>Maternal position during birth</b>						
Semi-recumbent	60 (83.3%)	49 (92.5%)	16 (84.2%)	125 (86.8%)		
Sideways	1 (1.4%)	2 (3.8%)	0 (0%)	3 (2.1%)		10.520
Lithotomy	10 (13.9%)	0 (0%)	3 (15.8%)	13 (9%)	6	0.104
Sitting down	1 (1.4%)	2 (3.8%)	0 (%)	3 (2.1%)		
<b>Person performing Suturing</b>						
Senior Hospital Officer	43 (59.7%)	45 (84.9%)	3 (15.8%)	91 (63.2%)		
Registrar	10 (13.9%)	5 (9.4%)	5 (26.3%)	20 (13.9%)		31.126
Senior Registrar	19 (26.4%)	3 (5.7%)	11(57.9%)	33 (22.9%)	4	<0.0005*

\* significant at  $p < 0.05$

<sup>o</sup>The percentages represent the proportion of the samples with perineal trauma (i.e. episiotomies, perineal tears and extended episiotomies) and the proportion of the sample as a whole (n=144) in the relation to each of the obstetric characteristics.

Table 5.2 shows significant differences between the subgroups of parity ( $\chi^2 = 26.010$ ,  $p = <0.0005$ ,  $df = 4$ ) and the person performing the perineal suturing ( $\chi^2 = 31.126$ ,  $p = <0.0005$ ,  $df = 4$ ). This means that the highest proportion of mothers had their first baby (parity one). Also, the highest proportion of the person performing the perineal suturing was the senior hospital officer.

## Differences in Perineal Oedema and Bruising between Time 1 and Time 2

**Table 5.3 Paired sample t-test comparing Perineal Oedema and Bruising between Time 1 and Time 2**

Variable	n	Mean	SD	t	df	p
T1 Total of Oedema & Bruising	140	4.9	1.79	22.594	139	<0.0001*
T2 Total of Oedema & Bruising	140	2.6	0.81			

\* significant at  $p < 0.05$

Table 5.3 shows a statistically significant decrease in the mean scores in participants' perineal oedema and bruising between Time 1, at 48 hours following the birth of the baby, and Time 2 at 10 days postnatal ( $p < 0.0001$ ). This finding implies that oedema and bruising subsided in participants within the first ten days after birth.

The differences in Total Perineal Trauma (pain in perineum, incontinence of urine and faeces) scores by the demographic characteristics, such as age, education, occupation, attending antenatal classes, smoking, alcohol consumption and length of hospital stay after the birth of the baby are found in Appendix 7, Tables 7.1.1 to 7.1.7. Student t-tests or ANOVA are utilised where needed.

**5.2 Identifying statistical differences in Total Perineal Trauma between the subgroups of obstetric characteristics across time**

**Table 5.4 Differences in Total Perineal Trauma between subgroups of mothers by Marital Status**

<b>Time</b>	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>t</b>	<b>df</b>	<b>p 2 tailed</b>
T1	1	12	1692.75	2.283	142	0.024*
	2	132	1493.98			
T2	1	12	968.50	0.225	138	0.822
	2	128	941.25			
T3	1	11	529.45	1.328	130	0.186
	2	121	406.38			
T4	1	8	265.38	-0.226	122	0.821
	2	116	285.45			

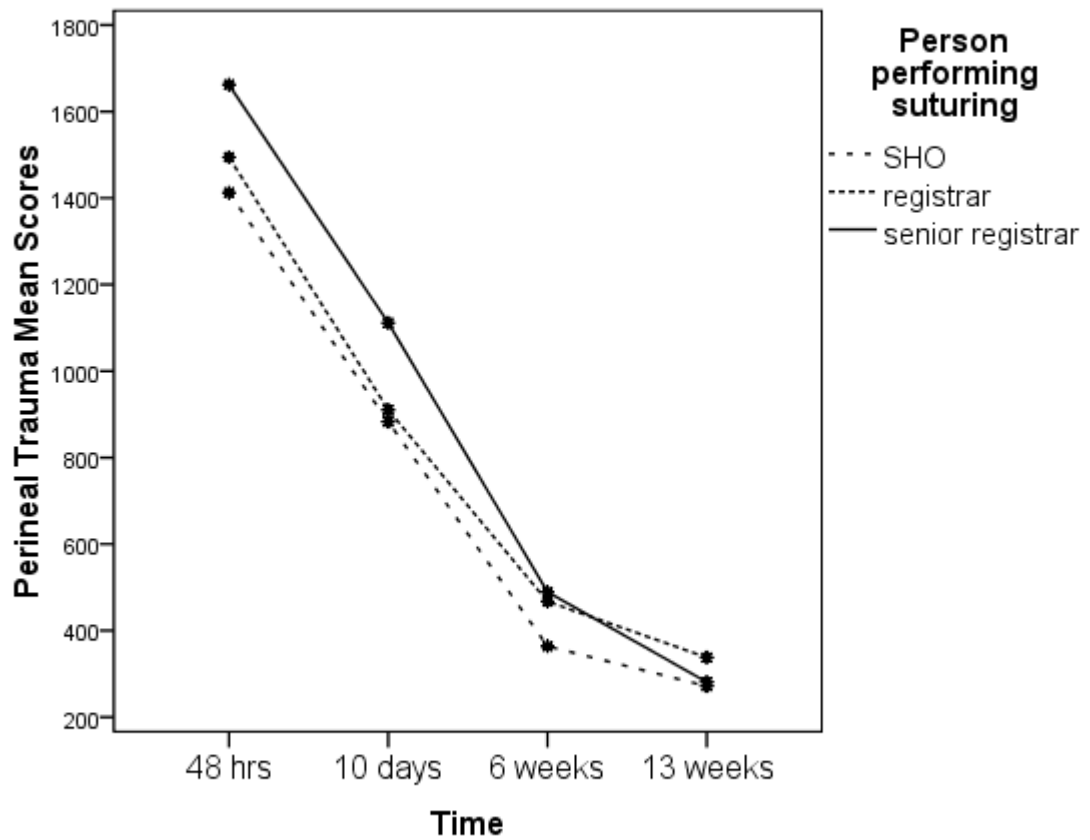
\* p is significant at  $p < 0.05$

Group Number:        1 = single mothers,  
                                  2 = married mothers

Table 5.4 demonstrates a significant difference in perineal trauma between mothers who were married and those who were single in T1. This is shown in the high mean scores for single mothers in T1. However, by T4 the mean difference (MD = -20.07) between the two groups is very small.

Figure 5.1

Relationships between Perineal Trauma and Time categorised by Person performing sutures



Mixed between-within ANOVA  $df = 2; F = 4.757, p = 0.010$

The highest total perineal trauma scores are at Time 1 (mean values of 1412.52; 1494.47; 1662.23); they drop down at Time 2 (mean values of 882.65; 910.21; 1111.70), and at Time 3 (mean values of 364.00; 467.26; 489.40) and they drop further at Time 4 (mean values of 271.75; 338.00; 281.07). They vary by person performing sutures. Complete descriptive statistics are presented in Table 5.5. The estimated total perineal trauma scores elicited by senior registrars are higher than those elicited by registrars and senior hospital officers.



**Table 5.5 Descriptive Statistics for Person performing sutures with Total Perineal Trauma scores for Time 1, Time 2, Time 3 and Time 4**

Time	Person	Mean	Standard Deviation	n
T1 Total Perineal Trauma	SHO	1412.52	261.191	75
	Registrar	1494.47	266.422	19
	Senior registrar	1662.23	294.001	30
	Total	1485.49	287.556	124
T2 Total Perineal Trauma	SHO	882.65	421.461	75
	Registrar	910.21	395.142	19
	Senior registrar	1111.70	321.300	30
	Total	942.29	404.207	124
T3 Total Perineal Trauma	SHO	364.00	262.977	75
	Registrar	467.26	372.117	19
	Senior registrar	489.40	318.873	30
	Total	410.16	298.628	124
T4 Total Perineal Trauma	SHO	271.75	221.930	75
	Registrar	338.00	293.831	19
	Senior registrar	281.07	256.852	30
	Total	284.15	241.588	124

To determine whether the differences in the estimated total perineal trauma scores are significant, a number of multivariate tests are conducted. For example, the value for Wilks' Lambda is 0.072, ( $F=511.3$ ,  $df_1=3$ ,  $df_2=119$ ,  $p\text{-value} < 0.0005$ ). It can be said that there is a statistically significant effect for time. This suggests that there was a significant decrease in the total perineal trauma scores across the four different time periods. The main effect for time was a significant predictor of total perineal trauma.

The interaction effect, that is, the change in total perineal trauma scores over time for the three groups of person performing sutures, is statistically significant ( $F=281.1$ ,  $df_1=6$ ,  $df_2=238$ ,  $p\text{-value}=0.012$ ). There is a change in scores over time for the three different persons performing sutures (Line graphs are non parallel).

The main effect for person performing sutures in repairing perineal trauma is also significant ( $F=4.757$ ,  $df_1=2$ ,  $df_2=121$ ,  $p\text{-value} = 0.010$ ). There is a significant difference in the total perineal trauma scores for the three persons who performed sutures (Figure 5.1). The following table (Table 5.6) continues to demonstrate such differences.

**Table 5.6 Differences in Total Perineal Trauma scores by person suturing the perineum**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (group)	F	df	p	Group number	Mean difference	p
1	144	3	6.653	2	0.002	1 – 2	-35.19	1.000
						1 – 3	-208.36*	0.001
						2 – 3	-173.17	0.096
2	140	3	3.714	2	0.027	1 – 2	-19.02	1.000
						1 – 3	-217.93*	0.024
						2 – 3	-198.91	0.246
3	132	3	1.852	2	0.161	1 – 2	-89.39	0.702
						1 – 3	-106.81	0.250
						2 – 3	-17.42	1.000
4	124	3	.569	2	0.567	1 – 2	-66.25	0.868
						1 – 3	-9.32	1.000
						2 – 3	56.93	1.000

Results for mean differences between groups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < .01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type I error.

Group N° in Person suturing the Perineum:

- 1 = Senior Hospital Officer (SHO)
- 2 = Registrar
- 3 = Senior Registrar

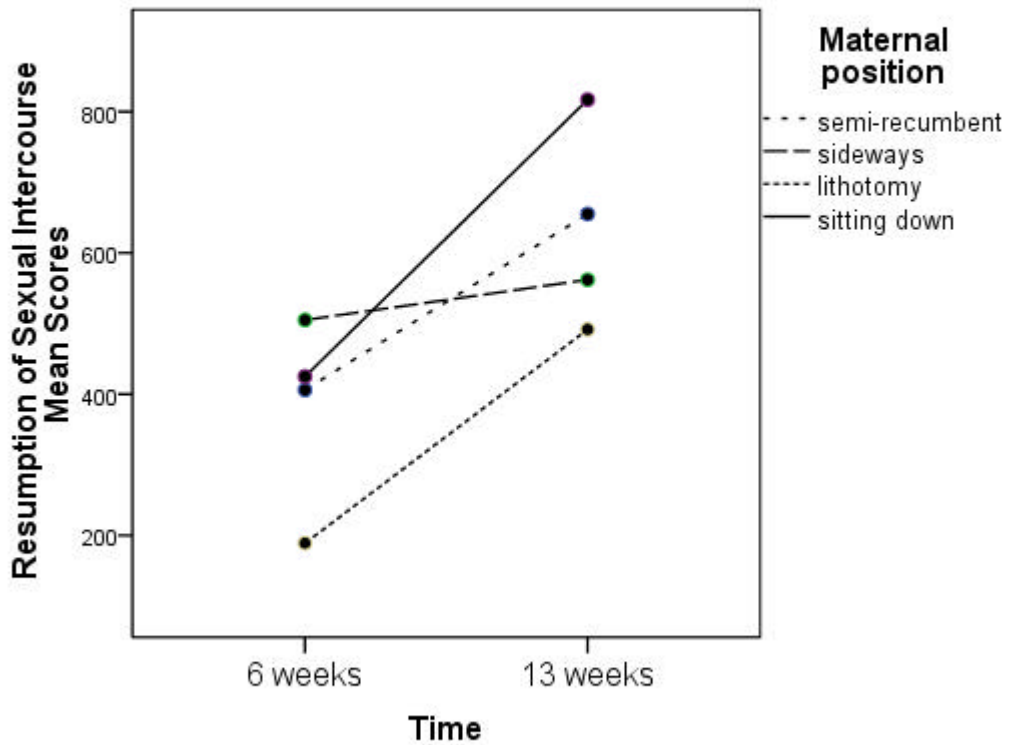
Furthermore, ANOVA (Table 5.6) shows a significant difference in perineal trauma at time 1 between mothers who were sutured by senior hospital officer and senior registrar (total number=144;  $F=6.653$ ;  $df=2$ ;  $p=0.002$ ). No other significant differences were found in perineal trauma by person suturing the perineum in T2, T3 and T4.

There were no significant differences in perineal trauma between the other subgroups of the obstetric characteristics of parity, position of the baby's head at birth, and maternal position during birth (Appendix 7, Tables 7.2.1 to 7.2.3). ANOVA or Student t-tests are utilised where needed.

**5.3 Identifying statistical differences in the resumption of sexual intercourse between the subgroups of obstetric characteristics across time**

**Figure 5.2**

**Relationships between Resumption of Sexual Intercourse and Time categorised by Maternal Position during Birth**



Mixed between-within ANOVA  $df=3$ ;  $F=3.686$ ;  $p=0.014$

The lowest resumption of sexual intercourse scores are at Time 3 (mean values of 406.06; 505.00; 189.08; 425.00). They increase at Time 4 (mean values of 655.20; 562.00; 491.67, 817.00). They vary by maternal position during birth. Complete descriptive statistics are presented in Table 5.7. The lithotomy position has the lowest scores in both times 3 and 4.

**Table 5.7 Descriptive Statistics for Maternal Position during birth with Resumption of Sexual Intercourse scores for Time 3 and Time 4**

<b>Time</b>	<b>Maternal Position</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>n</b>
T3 Resumption of Sexual Intercourse	semi-recumbent	406.06	243.358	107
	sideways	505.00	357.796	2
	lithotomy	189.08	199.765	12
	sitting down	425.00	280.079	3
	Total	387.11	247.633	124
T4 Resumption of Sexual Intercourse	semi-recumbent	655.20	213.425	107
	sideways	562.00	412.950	2
	lithotomy	491.67	305.946	12
	sitting down	817.00	49.122	3
	Total	641.78	228.601	124

To determine whether the differences in the estimated resumption of sexual intercourse scores are significant a number of multivariate tests are conducted. For example, the value for Wilks' Lambda is 0.875, ( $F=1716.4$ ,  $df_1=1$ ,  $df_2=120$ ,  $p\text{-value}<0.0005$ ). It can be said that there is a statistically significant effect for time. This suggests that there was a significant increase in the resumption of sexual intercourse scores across the two different time periods. The main effect for time was a significant predictor of resumption of sexual intercourse.

The interaction effect, that is the change in resumption of sexual intercourse scores over time for the four groups of maternal positions, is not statistically significant ( $F=87.6$ ,  $df_1=3$ ,  $df_2=120$ ,  $p\text{-value} = 0.456$ ). There is a change in scores over time for the four different maternal positions during birth.

The main effect for maternal positions during birth is significant ( $F=3.686$ ,  $df_1=3$ ,  $df_2=120$ ,  $p\text{-value}=0.014$ ). There was a significant difference in the resumption of sexual intercourse for the four maternal positions during birth (Figure 5.2). The following table (Table 5.8) continues to demonstrate such differences.

**Table 5.8 Differences in the resumption of sexual intercourse scores by maternal position during childbirth**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (group)	F	df	p	Group number	Mean difference	p
3	132	4	3.755	3	0.013	1 – 2	-140.66	1.000
						1 – 3	226.62*	0.012
						1 – 4	-15.99	1.000
						2 – 3	367.28	0.128
						2 – 4	124.67	1.000
						3 – 4	-242.62	0.756
4	124	4	2.616	3	0.054	1 – 2	93.20	1.000
						1 – 3	163.53	0.109
						1 – 4	-161.80	1.000
						2 – 3	70.33	1.000
						2 – 4	-255.00	1.000
						3 – 4	-325.33	0.159

Results for mean differences between groups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < .01$  following a Bonferroni correction of  $0.05/4 = 0.0125$  to decrease the likelihood of Type I error.

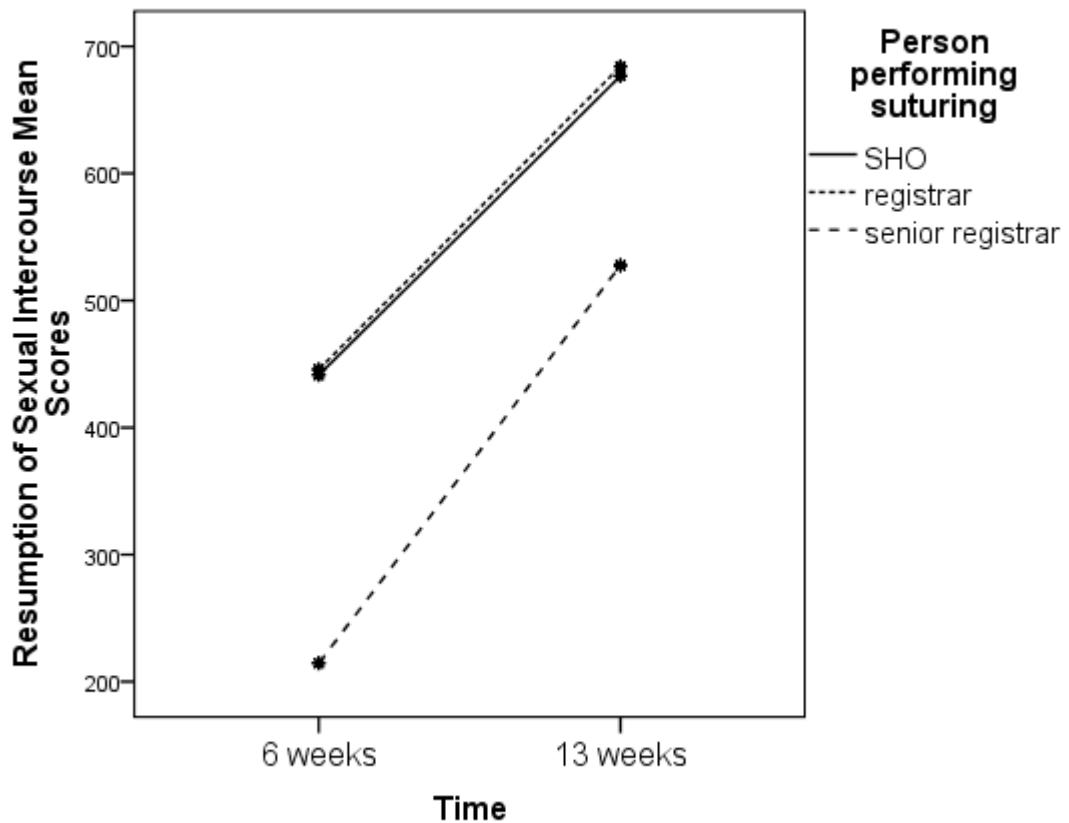
Group N° in Maternal Position during Childbirth:

- 1= semi-recumbent
- 2= sideways
- 3= lithotomy
- 4= sitting down

Furthermore, ANOVA (Table 5.8) also identified a significant difference in the scores in T3 of the resumption of sexual intercourse between subgroups of maternal position during childbirth ( $n=132$ ;  $F = 3.755$ ,  $df = 3$ ,  $p = 0.013$ ). This difference was found between the groups of semi-recumbent and lithotomy positions.

Figure 5.3

Relationships between Resumption of Sexual Intercourse and Time categorised by Person performing suturing



Mixed between-within ANOVA df=2; F=11.612; p < 0.0005

The lowest resumption of sexual intercourse scores are at Time 3 (mean values of 441.28; 445.79; 214.53). They increase at Time 4 (mean values of 676.69; 684.16; 527.67). The senior hospital officer and the registrar have similar mean values for both times 3 and 4. The scores of estimated resumption of sexual intercourse elicited by senior registrars are lower than those elicited by registrars and senior hospital officers. Complete descriptive statistics are presented in Table 5.9.

**Table 5.9 Descriptive Statistics for Person performing sutures with Resumption of Sexual Intercourse scores for Time 3 and Time 4**

Time	Person	Mean	Standard Deviation	n
T3 Resumption of Sexual Intercourse	SHO	441.28	242.390	75
	Registrar	445.79	267.959	19
	Senior registrar	214.53	157.947	30
	Total	387.11	247.633	124
T4 Resumption of Sexual Intercourse	SHO	676.69	193.237	75
	Registrar	684.16	220.911	19
	Senior registrar	527.67	279.777	30
	Total	641.78	228.601	124

To determine whether the differences in scores of the estimated resumption of sexual intercourse are significant, a number of multivariate tests are conducted. For example, the value for Wilks' Lambda value is 0.549, ( $F=9940.1$ ,  $df_1=1$ ,  $df_2=121$ ,  $p\text{-value} < 0.0005$ ). It can be said that there is a statistically significant effect for time. This suggests that there was a significant increase in the scores of resumption of sexual intercourse across the two different time periods. The main effect for time was a significant predictor of resumption of sexual intercourse.

The interaction effect, that is the change in resumption of sexual intercourse scores over time for the three groups of person performing sutures, is not statistically significant ( $F=107.9$ ,  $df_1=2$ ,  $df_2=121$ ,  $p\text{-value} = 0.343$ ). There is a change in scores over time for the three different persons performing sutures (Line graphs are non parallel).

The main effect for person performing sutures in increasing resumption of sexual intercourse is significant ( $F=11.612$ ,  $df_1=2$ ,  $df_2=121$ ,  $p\text{-value} < 0.0005$ ). There was a significant difference in the resumption of sexual intercourse scores for the three persons who performed sutures (Figure 5.3). The following table (Table 5.9) continues to demonstrate such differences.

**Table 5.10 Differences in the resumption of sexual intercourse scores by person suturing the perineum**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (group)	F	df	p	Group number	Mean difference	p
3	132	3	9.650	2	0.000	1 – 2	-4.94	1.000
						1 – 3	211.66*	0.000
						2 – 3	216.60*	0.006
4	124	3	5.283	2	0.006	1 – 2	-7.46	1.000
						1 – 3	149.03*	0.007
						2 – 3	156.49	0.052

Results for mean differences between groups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < .01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type I error.

Group N<sup>o</sup> in Person suturing the Perineum:

- 1 = Senior Hospital Officer (SHO)
- 2 = Registrar
- 3 = Senior Registrar

In Table 5.10, ANOVA identified significant differences in the scores of T3 of the Resumption of Sexual Intercourse between subgroups by person suturing the perineum ( $n=132$ ;  $F = 9.650$ ,  $df = 2$ ,  $p < 0.0001$ ). These differences were found between senior hospital officer (SHO) and senior registrar, and between registrar and senior registrar. The difference between SHO and senior registrar persisted in T4 where ANOVA identified the significant difference in the scores ( $n=124$ ;  $F = 5.283$ ,  $df = 2$ ,  $p = 0.006$ ).

There were no significant differences in the resumption of sexual intercourse between the other subgroups of the obstetric characteristics of marital status, parity and position of the baby's head at birth (Appendix 7, Tables 7.3.1 to 7.3.3). ANOVA or Student t-tests are utilised where needed.

#### **5.4 Identifying statistical differences in mothers' general health between the subgroups of obstetric characteristics across time**

There were no significant differences in the general health between the subgroups of the obstetric characteristics of marital status, parity, position of the baby's head at birth, maternal position during birth and person suturing the perineum (Appendix 7, Tables 7.4.1 to 7.4.5). ANOVA or Student t-tests are utilised where needed.



## 5.5 Determining patterns of fluctuations in total perineal trauma across time

Distribution of the scores for Total Perineal Trauma (pain in perineum, incontinence of urine or faeces) across time

**Table 5.11 Distribution of the mean scores for Total Perineal Trauma**

Time	n	Mean	S D	Min	Max
T1	144	1510.55	292.99	976	2327
T2	140	943.59	399.73	143	2003
T3	132	416.64	295.14	59	1466
T4	124	284.15	241.59	16	1098

Table 5.11 shows a decrease in total perineal trauma scores across time (Mean of 1510.55 in T1 and 284.15 in T4). The degree of variability within the set of scores varies in the four instances of time with the largest standard deviation of 399.73 at time 2. However, fluctuations of the mean scores of total perineal trauma will indicate where the difference lies across time.

### Fluctuations of total perineal trauma across time

**Table 5.12 Paired sample t-test identifying where the difference lies in total perineal trauma mean scores in pairs of time periods**

Time		Mean	n	df	t	p (2-tailed test)
T1 – T2	T1	1505.51	140	139	18.593	<0.0001*
	T2	943.59				
T1 – T3	T1	1495.01	132	131	36.166	<0.0001*
	T3	416.64				
T1 – T4	T1	1485.49	124	123	42.793	<0.0001*
	T4	284.15				
T2 – T3	T2	942.48	132	131	17.750	<0.0001*
	T3	416.64				
T2 – T4	T2	942.29	124	123	19.140	<0.0001*
	T4	284.15				
T3 – T4	T3	410.16	124	123	5.669	<0.0001*
	T4	284.15				

\* significant at  $p < 0.05$

In Table 5.12, paired sample t-tests demonstrate consistent significant differences in total perineal trauma mean scores across the four times between the first 48 hours (T1) and the 13<sup>th</sup> week (T4) after delivery.

**5.6 Determining patterns of fluctuations in resumption of sexual intercourse across time**

**Figure 5.4 Mean scores of mothers who resumed postnatal sexual intercourse**

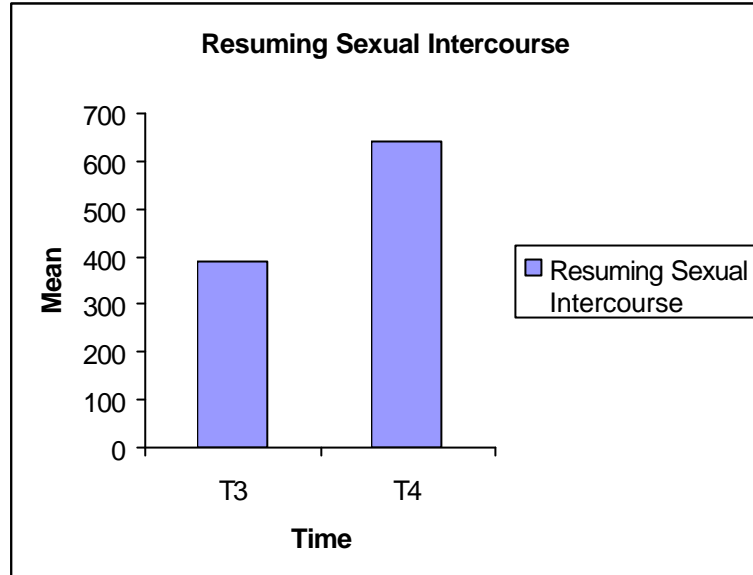


Figure 5.4 demonstrates the rise in scores of resumption of postnatal sexual intercourse at T4. There is a difference in resuming sexual intercourse in postnatal mothers between times 3 and 4 with mean scores of 387.11 at T3, and 641.78 at T4.

**Fluctuations in the resumption of sexual intercourse across time**

**Table 5.13 Paired sample t-test identifying where the difference lies in the Resumption of Sexual Intercourse mean scores between T3 and T4**

Time		Mean	n	df	t	p (2-tailed test)
T3 – T4	T3	387.11	124	123	-11.315	<0.0001*
	T4	641.78				

\* significant at  $p < 0.05$

Table 5.13 demonstrates significant differences ( $t = -11.315$ ;  $p = <0.0001$ ) in the mean scores of resumption of sexual intercourse that lie across the two time periods T3 and T4. The positive change between the two time periods highlights the benefit of time for recovery in sexual health.

## 5.7 Determining patterns of fluctuations in general health across time

**Figure 5.5 Mean scores of Mothers' General Health across time (T1 – T4)**

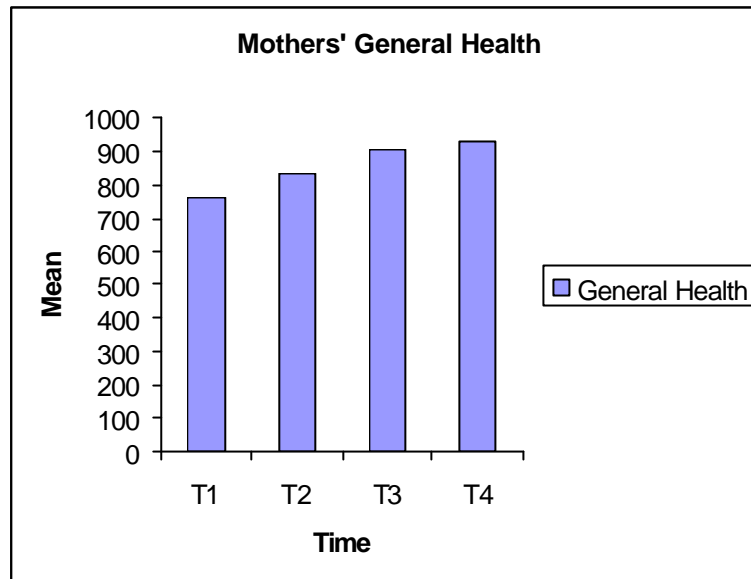


Figure 5.5 shows a consistent increase in the Total General Health with time (mean value of 760.28 at T1 and 934.88 at T4).

Figure 5.5 also indicates a better reported feeling of general health in the postnatal mothers across the four times (T1–T4). However, in no time did the group show homogeneous rise with regard to general health because the standard deviations varied across and within times (Table 5.14).

**Table 5.14 Distribution of the mean scores for the general health**

Time	n	Mean	S D	Min	Max
T1	144	760.28	165.12	290	1192
T2	140	833.10	200.64	354	1165
T3	132	906.23	185.71	460	1149
T4	124	934.88	204.05	153	1178

In addition, the mean scores value at time 3 (mean = 906.23) seemed to be similar to that at time 4 (mean = 934.88), in that, the rise in positive general health in both time 3 and time 4 is minimal.

## Fluctuations in the General Health across time

**Table 5.15 Paired sample t-test identifying where the difference lies in the general health mean scores in pairs of time periods**

Time		Mean	n	df	T	p (2-tailed test)
T1 – T2	T1	759.86	140	139	-4.327	<0.0001*
	T2	833.10				
T1 – T3	T1	764.45	132	131	-8.083	<0.0001*
	T3	906.23				
T1 – T4	T1	773.23	124	123	-8.197	<0.0001*
	T4	934.88				
T2 – T3	T2	836.62	132	131	-4.147	<0.0001*
	T3	906.23				
T2 – T4	T2	841.56	124	123	-4.960	<0.0001*
	T4	934.88				
T3 – T4	T3	909.80	124	123	-1.551	0.124
	T4	934.88				

\* significant at  $p < 0.05$

Table 5.15 demonstrates significant differences in the general health mean scores which lie across the four paired time periods between time 1 and time 4, except between time 3 and time 4 where  $p = 0.124$ . The mean scores of the general health between time 3 and time 4 vary with a small difference and both fall within the range of normal level.

### 5.8 Exploring statistical relationship between total perineal trauma, resumption of sexual intercourse and general health across time

**Table 5.16 Pearson's correlation between Total Perineal Trauma and Resumption of Sexual Intercourse across T3 and T4**

Variable	Time	n	Pearson's r	p value 2 tailed
Total Perineal Trauma and Resumption of Sexual Intercourse	T3	132	- 0.113	0.198
	T4	124	- 0.308	0.001

$p < 0.01$  significance

Table 5.16 demonstrates a negative significant correlation between Total Perineal Trauma and Resumption of Sexual Intercourse at Time 4, that is, at 13<sup>th</sup> week

postnatal ( $p = 0.001$ ). This infers that the lesser the perineal trauma (mean of 284.15), the greater the resumption of sexual intercourse (mean of 641.78). However, Pearson's correlation at time 3 is not significant.

**Table 5.17 Pearson's correlation between Total Perineal Trauma and General Health across Time**

Variable	Time	n	Pearson's r	2-tailed p value
Total Perineal Trauma and General Health	T1	144	- 0.428	<0.0001**
	T2	140	- 0.421	<0.0001**
	T3	132	- 0.301	<0.0001**
	T4	124	- 0.464	<0.0001**

\*\*  $p < 0.01$  significance

Table 5.17 demonstrates consistent negative significant correlations between Total Perineal Trauma and General Health across time (Pearson's  $r$  ranging from -0.301 to -0.464). It means the lesser perineal trauma the greater the reported general health.

**Table 5.18 Pearson's correlations of Total Perineal trauma between Times 1, 2, 3 and 4**

Variable	Time 1 - TPT	Time 2 - TPT	Time 3 - TPT	Time 4 TPT
T1 - TPT	1.000	0.500** $P < 0.0001$	0.317** $p < 0.0001$	0.312** $p < 0.0001$
T2 - TPT		1.000	0.544** $p < 0.0001$	0.385** $p < 0.0001$
T3 - TPT			1.000	0.598** $p < 0.0001$
T4 - TPT				1.000

\*\* Correlation is significant at the 0.01 level (2-tailed)  
T = Time; TPT = Total Perineal Trauma

Table 5.18 illustrates significant positive correlations between Total Perineal Trauma across time (Pearson's  $r$  ranging from 0.312 to 0.598).

**Table 5.19 Pearson’s correlations of General Health between Times 1, 2, 3 and 4**

Variable	Time 1 - GH	Time 2 - GH	Time 3 – GH	Time 4 GH
T1 GH	1.000	0.417** p<0.0001	0.356** p<0.0001	0.308** p<0.001
T2 GH		1.000	0.489** p<0.0001	0.457** p<0.0001
T3 GH			1.000	0.580** p<0.0001
T4 GH				1.000

\*\* Correlation is significant at the 0.01 level (2-tailed)  
T = Time; GH = General Health

Table 5.19 illustrates significant positive correlations in General Health across time (Pearson’s r ranging from 0.308 to 0.580).

## 5.9 Summary of the quantitative findings

What follows is intended to highlight the main quantitative findings in relation to perineal trauma, resumption of sexual intercourse and general health, and correlations explored between perineal trauma at times 1, 2, 3 and 4 and between perineal trauma and general health.

### 5.9.1 Demographic and Obstetric Characteristics

The majority of mothers were found to work outside the home (41%), attended antenatal classes (57.6%), did not smoke (82.6%), were of parity one (66.7%), with a hospital stay of 2 days after the birth of the baby (72.9%). The person who performed perineal suturing for the majority of mothers was the senior hospital officer (63.2%).

### 5.9.2 Perineal Trauma

Perineal oedema and bruising decreased significantly between time 1 and time 2 ( $p < 0.001$ ). There was a consistent significant decrease in total perineal trauma mean scores across the four times between time 1 and time 4. At time 1, there was a significant difference in perineal trauma between mothers who were married and those who were single resulting from high means scores for single mothers. Also, at time 1, there was a significant difference in total perineal trauma between subgroups

of mothers whose perineum was sutured by the senior hospital officer and those whose perineum was sutured by the senior registrar. The estimated total perineal trauma scores elicited by senior registrars were higher than those elicited by registrars and senior hospital officers.

### 5.9.3 Resumption of Sexual Intercourse

There was a significant difference in the resumption of sexual intercourse between time 3 and time 4. The lowest scores were at time 3. There was a significant difference in the resumption of sexual intercourse between the subgroups of semi-recumbent and lithotomy positions during labour ( $p=0.013$ ) with the lowest mean scores in the lithotomy position. There were significant differences in the resumption of sexual intercourse between subgroups of person suturing the perineum, that is, between senior hospital officer and senior registrar and between registrar and senior registrar. The lower mean scores persisted for the senior registrar in both times.

### 5.9.4 General Health

There were significant differences in the general health mean scores across the paired time periods, except between time 3 and time 4 due to the small difference in general health in these time periods (mean difference of  $-28.65$ ). The lower mean score was at time 3.

### 5.9.5 Correlations

There was a negative significant correlation between total perineal trauma and resumption of sexual intercourse at time 4 ( $p=0.001$ ). This inferred that the lesser the perineal trauma (mean score 284.15) the greater the resumption of sexual intercourse (mean score 641.48). There were consistent negative significant correlations between total perineal trauma and general health across time ( $p<0.0001$ ). This also inferred that the lesser the perineal trauma the greater was the reported general health.

Lists 5.1 to 5.4, which follow, give the main qualitative findings. Continuation of such qualitative findings in themes and categories with examples of excerpts are presented in Appendix 8. The two chapters that follow seek to provide a broader, deeper and critical analysis of the quantitative and qualitative findings.

## 5.10 Qualitative Findings: Themes and Categories

### List 5.1

Themes and Categories of Total Perineal Trauma, Resumption of Sexual Intercourse and General Health of Postnatal Mothers across time

<p>Theme1: Experiencing Total Perineal Trauma across Time</p> <p>1.1 Recovering from perineal trauma 1.2 Controlling incontinence of urine and faeces</p>
<p>Theme 2: Resuming Sexual Intercourse (SI) across Time</p> <p>2.1 Perceiving oneself regarding resumption of sexual intercourse 2.2 Postponing resumption of sexual intercourse 2.3 Feeling fit for resumption of sexual intercourse</p>
<p>Theme 3: Maintaining Postnatal General Health across Time</p> <p>3.1 Identifying self-worth 3.2 Regaining health after childbirth</p>

### List 5.2 Theme 1: Experiencing Total Perineal Trauma across Time

Theme	Categories	Subcategories
1.0 Experiencing Total Perineal Trauma	1.1 Recovering from perineal trauma	1.1.1 being afraid of helplessness and hurting 1.1.2 feeling tired 1.1.3 experiencing perineal pain
	1.2 Controlling incontinence of urine and faeces	1.2.1 leaking and holding urine 1.2.2 leaking bowels without knowing



**List 5.3** Theme 2: Resuming Sexual Intercourse across Time

Theme	Categories	Subcategories
2.0 Resuming Sexual Intercourse	2.1 Perceiving oneself regarding resumption of sexual intercourse	2.1.1 desiring more time and space 2.1.2 fearing another pregnancy 2.1.3 being tired
	2.2 Postponing resumption of sexual intercourse	2.2.1 caring for the baby and family first 2.2.2 seeing the doctor first
	2.3 Feeling fit for resumption of sexual intercourse	2.3.1 being ready in resuming sexual intercourse 2.3.2 feeling comfortable and normal in resuming sexual intercourse

**List 5.4** Theme 3: Maintaining Postnatal General Health across Time

Theme	Categories	Subcategories
3.0 Maintaining postnatal general health	3.1 Identifying self-worth	3.1.1 increasing self-worth 3.1.2 being unhappy and tired 3.1.3 perceiving mothering
	3.2 Regaining health after childbirth	3.2.1 perineal healing still in process 3.2.2 feeling of the perineum during sexual intercourse 3.2.3 going back to normal

## Chapter 6

### Discussion of the Quantitative Findings

#### 6.0 Introduction

Perineal morbidity, sexual morbidity and general health of postnatal mothers have not previously been explored in Malta. The present study had a high overall response rate and there was a high response to questions on the experience of postnatal perineal trauma and to questions on sensitive areas, such as loss of libido and the consequential effect on sexual life postpartum.

The following discussion assesses the contribution of demographic characteristics. It also identifies significant differences across time in total perineal trauma, the resumption of sexual intercourse and the general health between numbers of subgroups of obstetric characteristics. All the characteristics came from the collected data. While the obstetric characteristics, for example, the position of the baby's head at birth, describe the resulting perineal bruises and severe tears (Williams et al., 2005), the demographic characteristics, for example, attending antenatal classes, complement the two main issues of total postnatal perineal trauma and general health in a selected population of Maltese women. The discussion then continues to discuss patterns of fluctuations in total perineal trauma and general health. Finally, it explores the relationships between total perineal trauma, the resumption of sexual intercourse and general health across time.

#### 6.1 Demographic Characteristics

All the demographic characteristics which follow contributed to perineal wounds and total perineal trauma. In this study, perineal wounds were the tears and episiotomies and total perineal trauma included perineal pain and incontinence of urine and faeces.

##### *Maternal age*

The ages of mothers in the study sample at the time of hospital booking ranged from 20 to 40 (mean age 27.8 years) with the majority 77.8% (n=112) being between 20 and 30. This compares closely with the National Obstetric Information System (NOIS, 2004) for 2003 (the year the study data were collected), when the greatest number of deliveries (37%; n=1465) occurred in the age group of 25 to 29. No

significant difference was found in the perineal wound between the two subgroups of mothers' age (Pearson  $\chi^2=3.124$ ,  $p=0.210$ ,  $df=2$ ) (Table 5.1). This may be because all the mothers, irrespective of age, suffered from some sort of perineal wound, either an episiotomy or a sutured perineal tear. However, when the independent student's t test compared the two means of the two nominal groups of ages with total perineal trauma across time, a significant difference at time 1 was found ( $t=2.335$ ;  $p=0.021$ ) (Appendix 7:1, Table 7:1:1). This difference may be due to the finding which oriented towards total perineal trauma where perineal pain occurred together with incontinence of urine and faeces. But the reason may also be that the younger age group (group 1) perceived greater total perineal trauma (mean 1507.43) than the mature age group (group 2) (mean 1382.72). In contrast with the older group, the younger age group might have suffered more episiotomies and tightening of sutures (77.8%) which increased postpartum perineal pain and total perineal trauma. This is in accord with several studies which examined differences in perineal outcomes after vaginal deliveries, irrespective of age (E. M. Fleming et al., 2003, Sampsel and Hines, 1999, Larsson et al., 1991).

There was no significant difference between the groups at T2, T3 and T4, but the mean total perineal trauma values in group 1 (T2=931.99; T3=418.62; T4=162.54) were consistently greater than those in group 2 (T2=902.50; T3=362.80; T4=161.00) across time (Appendix 7:1, Table 7:1:1). Additionally, in T4 both groups showed similar values of perceived total perineal trauma. There was also a consistent decline in mean scores of total perineal trauma in the two groups of age across time (T1-T4). Such a decline and similarity of recovery in both age groups may further point out the time when healing of the perineum may take place: that is, around or after the thirteenth week postnatal. Therefore, the literature indicating the period of six weeks in the puerperium for maternal physiological changes to take place may be questioned and may need reassessment according to the mothers' postnatal functional needs (Webb et al., 2008, Mc Veigh, 2002, Tulman et al., 1990).

Advanced maternal age at the time of the delivery is closely related to total perineal trauma in multivariate analyses (Zetterstrom et al., 1999, MacArthur, Lewis and Knox, 1991). There is a significant correlation between age and the development of anal and faecal incontinence (Chiarelli et al., 2003, MacArthur et al., 2001). Though perineal trauma, defined as perineal pain and dyspareunia, may persist longer for a

number of subjects irrespective of age, its decline is a common feature in many randomized controlled studies (Barrett et al., 2000, Carroli et al., 2000, Kettle and Johanson, 2000, Signorello et al., 2000, McCandlish et al., 1998, Glazener, 1997, Sleep, 1995, Klein et al., 1994). While these studies considered perineal trauma in both spontaneous and traumatic childbirth, such as forceps deliveries, the present study dealt with total perineal trauma only in normal spontaneous deliveries. Recovery for both groups irrespective of age seemed to persist throughout the whole length of the study of thirteen weeks. Apart from the differences between the two age groups at T1, it appears that maternal age does not influence the recovery of postnatal perineal wounds.

### *Education*

In the present study, women finished their schooling at different levels of education with 7.6% (n=11) at primary level; 47.9% (n=69) at secondary level; 26.4% (n=38) at post-secondary level; 16.7% (n=24) at university level, and 1.4% (n=2) at post-university level (Table 5.1). All the women in the study had a perineal wound, the majority of them being those who had finished their schooling at secondary level, followed by those who had finished off at post-secondary. This picture reflects the National Obstetric Information System (NOIS, 2004) for the year 2003 where the greatest number of deliveries was among women aged 25 to 29 who had finished their schooling at secondary level (57%, n=835).

No significant differences were found among the five "education" subgroups, neither in the incidence of perineal wound (Pearson  $\chi^2=8.114$ ,  $p=0.422$ ,  $df=8$ ) (Table 5.1), nor in the incidence of total perineal trauma across time when trauma was analyzed by the use of One-way Analysis of Variance (ANOVA): (T1,  $F=0.899$ ,  $p=0.443$ ; T2,  $F=0.350$ ,  $p=0.789$ ; T3,  $F=1.164$ ,  $p=0.326$ ; T4,  $F=2.906$ ,  $p=0.038$ ) (Appendix 7:1, Table 7:1:2). Both statistical findings suggest that total perineal trauma was a common feature among all participants, irrespective of their level of education. This contrasts with the findings of De Judicibus and McCabe (2002) who reported that the sample in their study on dyspareunia appeared to be biased towards better educated women. Incidentally, another study (Signorello et al., 2001) found that women with intact perineae were more ethnically diverse and less educated. The findings in these studies may reflect a difference in lifestyle between the educated and non-educated women, an outcome not reflected in the current study, or else the

association may have a more biologic basis that is related to different healing times (Signorello et al., 2001).

In other studies, education was not an important co-variate in analysis. Researchers rather looked for social class, as in Waterstone et al. (2003), Barrett et al. (2000), and Glazener (1997), or ethnicity (Signorello et al., 2001, Barrett et al., 2000), or non-English speaking participants (Brown and Lumely, 1998a, Klein et al., 1994), or place of birth, as in Buhling et al. (2005). Therefore, it would be interesting for future studies to explore the cultural and educational influences on postpartum perineal trauma.

### *Occupation*

The classification of occupation of the participants was recorded in the maternity case-notes. At the time of booking, 41% of the mothers (n=59) were recorded to be engaged in work "at home" and 59% (n=85) were working "outside home" early in their pregnancy, with a significant difference (Pearson  $\chi^2=8.483$ ,  $p=0.014$ ,  $df=2$ ) (Table 5.1). However, there was no significant difference in mean total perineal trauma across time between these 2 groups (T1,  $t = -0.764$ ,  $df=142$ ,  $p=0.446$ ; T2,  $t = -1.394$ ,  $df=138$ ,  $p=0.166$ ; T3,  $t=0.794$ ,  $df=130$ ,  $p=0.428$ ; T4,  $t=0.161$ ,  $df=122$ ,  $p=0.872$ ) (Appendix 7:1, Table 7:1:3), and there was a consistent decline in the mean values of total perineal trauma in both "occupation" subgroups across times. Such a decline in values is consistent with other longitudinal studies (Barrett et al., 2000, Carroli et al., 2000, Kettle and Johanson 2000). Moreover, in the present study, the "at home" group showed lower scores than the "outside home" group in mean total perineal trauma (Appendix 7:1, Table 7:1:3) at times 1, 2, and 3. At T4, the mean scores in both groups were similar ("at home" 165.47; "outside home" 160.17).

In Malta, it is customary that a new mother having her first baby be supported by her partner and relatives (NOIS, 2004). Alternatively, the new mother may spend the first few postnatal weeks at her mother's house. Such a practice regarding support from close relatives reflects the findings in the present study where the participants who worked "at home" had less severe perineal trauma than those working "outside home" and who along with their new experience of being mothers had to put up with their work outside home.

Social support is an important issue in the postpartum experience of mothers and in their adaptation to motherhood. Pain, perineal discomfort, sleep deprivation while attending to the baby's needs in preference to their personal needs mean that mothers are more likely to be stressed and to report poor general health (McGowan, 2006). The issue of social support for newly delivered mothers returning to work outside home at an early stage (at around the sixth week) in the postpartum period needs further study and evaluation.

#### *Attending antenatal classes*

Although there was a significant difference in perineal wound between the subgroups of those attending antenatal classes regularly or sometimes and those others not attending at all (Pearson  $\chi^2=23.450$ ,  $p<0.0005$ ,  $df=4$ ) (Table 5.1), there were no significant differences in total perineal trauma between the three subgroups across time (T1,  $F=2.727$ ,  $df=2$ ,  $p=0.069$ ; T2,  $F=1.459$ ,  $df=2$ ,  $p=0.236$ ; T3,  $F=0.731$ ,  $df=2$ ,  $p=0.483$ ; T4,  $F=1.284$ ,  $df=2$ ,  $p=0.281$ ) (Appendix 7:1, Table 7:1:4). This study revealed a high percentage of episiotomies and perineal tears in 57.6% ( $n=83$ ) of those who attended antenatal classes. This is in agreement with Sturrock and Johnson (1990) who found that antenatal class attenders were more likely to have traumatic deliveries, such as long second stage of labour with episiotomy and perineal tears, than those who did not attend any. Their small and descriptive study questioned whether educating women in coping strategies for labour suppressed their natural ability to make labour effective and tolerable for themselves. In Malta, such educational interventions are very popular among new couples. Yet there are no published studies on their effectiveness, suggesting the need for further evaluating and auditing their outcomes.

#### *Smoking*

Notwithstanding undeniable evidence that smoking is hazardous to health (Boyle, 2006), the present study shows a substantial percentage of social smoking in mothers (17.4%,  $n=25$ ). This finding is also depicted by the NOIS (2004) where 3% ( $n=123$ ) of mothers smoked 1 to 3 cigarettes a day during pregnancy. In the current study, social smokers registered a significant difference in perineal wound from non-smokers (Pearson  $\chi^2=6.217$ ,  $p=0.045$ ,  $df=2$ ) (Table 5.1). The significant difference persisted across T1 and T3 (T1,  $t=-2.227$ ,  $df=142$ ,  $p=0.028$ ; T2,  $t=-0.936$ ,  $df=138$ ,  $p=0.351$ ; T3,  $t=-2.074$ ,  $df=130$ ,  $p=0.040$ ; T4,  $t=-1.156$ ,  $df=122$ ,  $p=0.250$ ) (Appendix

7:1, Table 7:1:5). Social smokers were found to have a higher mean total perineal trauma across time (T1, non-smokers 1485.97, smokers 1627.56; T2, non-smokers 929.19, smokers 1013.17; T3, non-smokers 393.10, smokers 534.32; T4, non-smokers 272.84, smokers 339.62). Due to lack of in-depth studies on the effect of smoking on the perineal wound, there is no evidence to support the link between smoking and total perineal trauma. It is a known fact that nicotine stimulates distal colonic motility that may exacerbate faecal urgency (Rausch et al., 1998). This fact interferes with the right diagnosis of faecal urgency following childbirth. It can be argued that it is difficult to say to what extent faecal urgency following childbirth in mothers who smoke can be attributed to smoking and to total perineal trauma. Research aimed at exploring smoking as a risk factor with regard to perineal healing would need to consider the dose and duration of nicotine exposure before causal links are established. In addition, the present study seems to indicate that mothers were aware of the potential problems of smoking and may have felt somewhat guilty and emotionally perturbed during pregnancy, which might in turn have kept them away from antenatal classes. This highlights the need of sustained antenatal counselling on the hazardous effects of smoking and alcohol on both maternal and fetal morbidity.

#### *Alcohol Consumption*

No significant difference was found in perineal wound between the subgroup of those who took no alcohol and the sub-group of those categorised as social drinkers. Social drinkers showed a percentage of 19.4% (n=28) (Table 5.1). There was no significant difference in total perineal trauma scores (T1,  $t=-1.964$ ,  $df=142$ ,  $p=0.052$ ; T2,  $t=-1.212$ ,  $df=138$ ,  $p=0.228$ ; T3,  $t=-0.236$ ,  $df=130$ ,  $p=0.814$ ; T4,  $t=1.024$ ,  $df=122$ ,  $p=0.308$ ) (Appendix 7:1, Table 7:1:6). However, social drinkers were found to have a high mean of total perineal trauma at T1, T2 and T3 (T1, non-drinkers 1487.22, social drinkers 1607.18; T2, non-drinkers 923.60, social drinkers 1027.22; T3, non-drinkers 413.77, social drinkers 429.54). The mean scores at T4 for social drinkers (mean=238.83) were less than those of non-drinkers (mean=295.03). While NOIS (2004) did not find any clinical association with regard to alcohol on their enquiry during pregnancy for the year 2003, it warned that figures must be read with caution as the data recorded might not reflect the real picture. It is perhaps worth considering that only small percentages of smokers and social drinkers are actually identified to

the health services. Therefore, the existing support services for pregnant women who have an alcohol and/or a smoking tendency need to be locally well utilised.

#### *Length of hospital stay*

A significant difference in perineal wound was found between subgroups of hospitalisation (the length of stay in hospital of 2 or 3 or 5 days respectively) (Pearson  $\chi^2=11.687$ ,  $p=0.020$ ,  $df=4$ ) (Table 5.1). But no significant difference was found in total perineal trauma between the three groups in T2 ( $F=0.800$ ,  $df=2$ ,  $p=0.451$ ); in T3 ( $F=0.395$ ,  $df=2$ ,  $p=0.674$ ); and in T4 ( $F=2.570$ ,  $df=2$ ,  $p=0.081$ ) (Appendix 7:1, Table 7:1:7). Also, at T1 ( $F=4.715$ ,  $df=2$ ,  $p=0.010$ ), results were not considered to be statistically significant following a Bonferroni correction test. Few women, who experienced perineal trauma after normal delivery, stayed for five days in hospital (2.8%,  $n=4$ ). The majority (72.9%,  $n=105$ ) returned home within the shortest length of stay, that is of 2 days, since there were no problems either with the mother or the baby. Other women (24.3%,  $n=35$ ) opted to stay for 3 days. These findings contrast with a larger study (Weiss et al., 2004) who compared the socio-demographic characteristics such as age, parity, marital status, maternal education and others, such as perineal pain, and the readiness for discharge of both mothers and their newborn at three discharge time intervals and to determine which variables were associated with postpartum length of stay. Findings in Weiss et al. (2004) showed that an early discharge was associated with young age, multiparity, public payer source (type of insurance that covers payment for hospital stay) and low socioeconomic status, lack of readiness for discharge, bottle feeding, and absence of a neonatal clinical problem. The longest length-of-stay group included older women, those of higher economic status and education, primiparæ, those breastfeeding, those who had a private payer source, those who had adequate home help and those with an initial readiness for discharge. Early discharge was developed for low risk families (Weiss et al., 2004). However, Weiss et al.'s study (2004) continued to show that even though newborns with clinical problems tended to stay longer, women and babies with low socio-demographic characteristics which suggested potential vulnerability were more likely to go home early. In the current study, perineal pain and trauma did not result in a longer stay in hospital. The reason for the majority of women who were chosen or themselves chose to go home early was not investigated. Further audit to explore factors influencing length of hospital stay after vaginal birth with perineal trauma is recommended.



## 6.2 Obstetric Characteristics

There are childbirth characteristics that may contribute to perineal wounds and total perineal trauma.

### *Marital Status*

The single status of the mother does not seem to be a factor in perineal trauma. However, Table 5.4 shows a significant difference at time 1 in total perineal trauma ( $t=2.283$ ,  $p=0.024$ ) between single (mean=1692.75; SD=251.191) and married mothers (mean=1493.98; SD= 291.699). This may be because all the single mothers ( $n=12$ ) were having their first baby, and were therefore likely to perceive more perineal trauma than married mothers ( $n=132$ ; para 1,  $n=84$ , para 2,  $n=44$ , para 3,  $n=4$ ). No significant differences were identified at T2, T3 and T4, suggesting comparable healing of the total perineal trauma. Additionally, Table 5.3 shows significant difference ( $t=22.594$ ;  $p<0.0001$ ) in perineal oedema and bruising across T1 and T2, denoting less oedema and bruising in T2 and healing between times.

Other studies have indicated that first time mothers seem to have somewhat different medical experiences of childbirth and postpartum, as they, compared with those having their second and subsequent child, are more likely to be induced and end up with a sutured perineum and a longer stay in hospital (Albers et al., 2006, Woollett et al., 1995). In Malta, the medicalised culture may render first time mothers more likely to experience prolonged postnatal recovery (NOIS, 2004) suggesting that mothers may need more rest and a longer time for recovery either in hospital or at home.

### *Parity*

No significant differences in total perineal trauma were found at T1, T3 and T4 between the subgroups of parity (first, second or third baby) (T1:  $F=2.600$ ,  $p=0.078$ ; T3:  $F=1.226$ ,  $p=0.297$ ; T4:  $F=0.596$ ,  $p=0.553$ ) (Appendix 7.2; Table 7:2:1). At T2 ( $F=3.140$ ,  $p=0.046$ ), results were not considered to be statistically significant following a Bonferroni correction test. However, a significant difference was found between the subgroups (Pearson  $\chi^2=26.010$ ,  $p<0.0005$ ,  $df=4$ ) (Table 5.2) in the perineal wound. It may imply that first time mothers (66.7%,  $n=96$ ) were more likely to have episiotomies (77.1%,  $n=74$ ) rather than perineal tears (22.9%,  $n=22$ ). They were also likely to report painful perineal postpartum as much as mothers

having their second and third baby with perineal tears. This lack of significant difference in total perineal trauma in relation to parity is in contrast with the findings of Mason et al., (2000), where from among 1008 mothers, first time mothers reported a more painful perineum than mothers having their second and subsequent child. Incidentally, in another recent randomised clinical trial, Albers et al., (2006) found that higher proportions of those with sutured painful lacerations had a high school education and were white. Why parity, education, or colour of the skin should play a role in perineal trauma is not yet clear. However, such factors may be linked with some other unmeasured factors in the dataset which indicate that there may be a group of women requiring special efforts to minimize their perineal trauma.

Additionally, another prospective longitudinal study which examined the individual impact of pregnancy and delivery on urinary continence found that women who had episiotomies and developed significant urinary stress incontinence ( $p=0.05$ ) were first time mothers (Viktrup et al., 1992), while another prospective study which evaluated the rate of anal incontinence after the first vaginal delivery discovered that anal sphincter disruption was significantly associated with episiotomy ( $p=0.001$ ) and perineal tears ( $p=0.02$ ) (Abramowitz et al., 2000). In Malta, the liberal use of episiotomy in first time mothers is due to the medicalised culture. In other foreign countries, the questioning of routine episiotomy has led to randomised controlled trials (RCT's) to determine the benefits of its routine use during the last thirty years (Dannecker et al., 2004, Eltorkey et al., 1994, Argentine Episiotomy Trial Collaborative Group, 1993, Klein et al., 1992, House et al., 1986, Harrison et al., 1984, Sleep et al., 1984). Results consistently indicate no difference in outcomes of perineal trauma including pain, dyspareunia or urinary incontinence between the restrictive and routine/liberal use of episiotomy (Carroli and Belizan, 2004). In their systematic review of RCT's, Carroli and Belizan (2004) concluded that there was evidence to support the restrictive use of episiotomy compared to routine episiotomy (irrespective of the type of episiotomy performed). It seems recommendable therefore, for Malta to evaluate what is normal in childbirth with regard to episiotomies, perineal tears and parity, and to consider the consistent results of reliable studies, many of which have been integrated into midwifery practice in other western countries.

### *Position of the baby's head at birth*

No significant differences in total perineal trauma were found between the two subgroups of the position of the baby's head at birth across time (T1:  $T=-0.102$ ,  $p=0.919$ ; T2:  $T=-0.877$ ,  $p=0.382$ ; T3:  $T=-0.384$ ,  $p=0.702$ ; T4:  $T=1.056$ ,  $p=0.293$ ) (Appendix 7.2; Table 7:2:2). It seemed that the vertex occipito anterior (VOA) and vertex occipito posterior (VOP) were both likely to contribute towards perineal trauma. However, the mean scores in total perineal trauma consistently decreased in both groups across time, indicating perineal healing (T1, VOA=1478.54, VOP=1484.20; T2, VOA=910.01, VOP=981.13; T3, VOA=400.68, VOP=423.80; T4, VOA=171.23, VOP=131.14) (Appendix 7.2; Table 7:2:2). Group 1 (VOA) reported less trauma at T1, T2 and T3. At T4, this was reversed with group 2 (VOP) reporting less trauma than group 1 (VOA). This may be because there was a greater percentage of extended episiotomies in group 1 (68.4%,  $n=13$ ) than in group 2 (31.6%,  $n=6$ ). It is not known whether these extended episiotomies were of grade three or four. However, third or fourth degree perineal tears are documented to occur in vertex occipito posterior due to the greater cephalic diameter presenting at the pelvic outlet on the perineum (Fitzpatrick et al., 2000) and are associated with an increased risk of developing faecal incontinence in addition to pain, dyspareunia and infection (Fernando et al., 2004; Fenner et al., 2003). The findings in these studies, including those in the present study, point out to midwives and obstetricians the need to identify correctly the position of the baby's head during labour and manage well the perineum during delivery of the baby in an effort to minimize perineal trauma.

### *Maternal position during childbirth*

None of the four maternal positions at birth (semi-recumbent, sideways, lithotomy and sitting down) showed significant differences in total perineal trauma across time (T1:  $F=2.372$ ,  $p=0.073$ ; T2:  $F=0.905$ ,  $p=0.441$ ; T3:  $F=0.307$ ,  $p=0.820$ ; T4:  $F=0.744$ ,  $p=0.528$ ) (Appendix 7.2; Table 7:2:3). There was also no significant difference in perineal wound between the subgroups on maternal positions (Pearson  $\chi^2=10.520$ ,  $p=0.104$ ,  $df 6$ ) (Table 5.2). It appears that no particular position increases the risk of perineal trauma. These findings are in contrast to Soong and Barnes' (2005) findings where the semi-recumbent position was significantly associated with more perineal trauma ( $p<0.05$ ) and the lateral position was associated with a reduced need for suturing. Soong and Barnes (2005) in their large, prospective and comparative study

examined the association between maternal position at birth and perineal outcome in women who had a midwife-attended, spontaneous vaginal birth at term. The authors concluded that the reasons given for a high percentage of women delivering in the semi-recumbent position included the use of electronic fetal monitoring and of regional anaesthesia and an easier access by midwives.

Although midwives in Malta, support women's right of choice to give birth in positions of their preference, it would appear that a proportion of women still deliver in the semi-recumbent position, which is in contrast with certain studies. For example, Shorten et al., (2002) in their explorative study suggested that the lateral position (sideways) appeared to have a protective influence on the perineum, whereas other 'alternative' positions were no better than the semi-recumbent position. Zetterstrom et al., (1999) in their prospective study with first time mothers found a decreased risk of anal sphincter tears with the upright position in 53% (n=147) of deliveries, while the lithotomy position was associated with a greater incidence of sphincter tears (7%; n=19). De Jung et al., (1997), in their randomised trial comparing the upright and supine positions for the second stage of labour, found that women who adopted the upright posture for delivery experienced less pain, less perineal trauma and fewer episiotomies than those who delivered in the supine position.

Overall, research to date has shown that the upright or the lying down position of the mother at delivery may influence the risk of perineal trauma (Gupta and Nikodem, 2004). But still the effectiveness of the various delivery positions remains inconclusive. Further evaluation is therefore required.

#### *Person performing suturing*

A significant difference was found in the perineal wound between the three subgroups of person (senior hospital officer, registrar and senior registrar) suturing the perineum (Pearson  $\chi^2=31.126$ ,  $p<0.0005$ ,  $df=4$ ) (Table 5.2). Also, mixed between-within ANOVA showed a significant difference in total perineal trauma scores across time between subgroups of mothers by person suturing the perineum ( $F=4.757$ ,  $df_1=2$ ,  $df_2=121$ ,  $p=0.010$ , Figure 5.1). This difference may be because mothers sutured by senior registrars (n=33, mean=1666.27, SD=293.085) had more trauma than those sutured by senior hospital officer (n=91, mean=1457.91, SD=282.639) or registrar (n=20, mean=1493.10, SD=259.389). However, on further

analysis by the use of One-Way Analysis of Variance, this significant difference was illustrated only at T1 between mothers who were sutured by senior hospital officer and senior registrar ( $F=6.653$ ,  $df=2$ ,  $p=0.002$ ) with a mean difference of  $-208.36$  (Table 5.6). There were no significant differences between the groups across T2, T3 and T4, (T2,  $F=3.714$ ,  $df=2$ ,  $p=0.027$ ; T3,  $F=1.852$ ,  $df=2$ ,  $p=0.161$ ; T4,  $F=0.569$ ,  $df=2$ ,  $p=0.567$ ) (Table 5.6). At time 2, results were not considered to be statistically significant at  $p<0.01$  following a Bonferroni correction test. This infers that total perineal trauma in the early time after delivery (T1) was reported by mothers as greater than that at later times (T2, T3 and T4), irrespective of the person who performed the suturing. It is evident that suturing of the perineum had been assessed and managed by different professionals with different levels of qualifications, experience and skills according to the severity of perineal wound.

It is the policy in Malta that, while midwives are permitted by the Obstetric and Gynaecology Department to perform episiotomies, they are not allowed to suture them or any other perineal laceration. Doctors, such as the senior hospital officers, are responsible for suturing the majority of perineal wounds following spontaneous vaginal deliveries. However, it is widely thought that midwives who are appropriately trained and assessed would be able to provide an equally reliable high standard of perineal repair, which may have a direct effect on short and long-term outcome in terms of reducing the extent of morbidity associated with the procedure (Kettle, 2005, RCOG, 2004).

In Malta, perineal wound repair is the traditional three-layered procedure, involving repair of the vagina, deeper perineal tissues and closure of the perineal skin. Findings from two large randomised controlled trials (Oboro et al., 2003, Gordon et al., 1998) show that there are no major problems linked with leaving the perineal skin unsutured but apposed. Results relating to perineal pain were conflicting between trials. Gordon et al., (1998) found no difference in short and long term pain between the sutured and the unsutured groups, while Oboro et al., (2003) found that leaving the skin unsutured was associated with a reduction in perineal pain for up to three months postpartum. Both trials reported lower rates of dyspareunia at three months postpartum in the group where perineal skin was left unsutured. However, leaving the skin unsutured but apposed compared with suturing was associated with a significant increase in wound gaping at two days (Gordon et al., 1998). These

authors found that significant increase in wound gaping persisted in the non-sutured skin group up to ten days. Oboro et al., (2003) found a non-significant increase at fourteen days postpartum. These suturing procedures vary from that usually adopted in Malta.

### **6.3 Determining patterns of fluctuations in total perineal trauma across time**

Total perineal trauma appears to heal by time. Table 5.11 demonstrates a stable pattern of healing with a continuous decrease in the mean scores of total perineal trauma across the recovery period of thirteen weeks following childbirth (T1=1510.55, T2=943.59, T3=416.64, and T4=284.15). A series of paired sample t-tests identify where the difference lies with respect to total perineal trauma mean scores in pairs of time periods (Table 5.12). This table demonstrates significant differences in the mean scores of total perineal trauma across time ( $p < 0.0001$  at all times). This result may be due to mothers with episiotomy and perineal lacerations experiencing healing at all times, but there seems to be no specific time where they experienced no discomfort at all. In fact, the discomfort arising from the injured and sutured perineum and incontinence of urine and faeces persisted throughout the study period for all women irrespective of episiotomies or tears. Whilst Macarthur and Macarthur, (2005) and Lundquist et al. (2000) found no significant differences in the healing process of the perineum across time after delivery between those who had sutured perineal lacerations and those whose perineum was left unsutured, E. M. Fleming et al. (2003) suggested statistically significant differences at 6 weeks between the group of primiparous women who had suturing and the group who had not. Additionally, whilst the present study suggests significant differences in total perineal trauma in T1 to T4, it fails to specify the cause of such differences. Other studies found out a high infection rate ( $p < 0.001$ ) and a longer healing period of eight to twelve weeks postpartum in the episiotomy group (Larsson et al., 1991). In evaluating perineal muscle function before and after childbirth, N. Fleming et al. (2003) found that, after controlling for parity, the order of best to worst postpartum perineal muscle performance was after caesarean birth, an intact perineum, first-degree laceration, second or third-degree laceration, and finally episiotomy. Thus, episiotomy appears to contribute to a decline in postnatal perineal muscle function more than lacerations sustained spontaneously. It may be suggested that the mothers' comfort increases and perineal healing progresses better if episiotomies were to be avoided.

In the present study, the mode of measuring the degree of total perineal trauma may have influenced the outcome. The study relied on self-reported data in the absence of sophisticated urodynamic and anal endosonographic evaluations in the postpartum period. In evaluating third and fourth degree perineal tears, previous studies have indicated that clinical examinations of the perineum underestimate the true incidence of anal sphincter injuries (Faltin et al., 2001, Chaliha et al., 2001, Abramowitz et al., 2000, Varma et al., 1999, Sultan et al., 1993). However, these studies were intended to improve the return to normal perineal function, whilst the purpose of the current study was to identify the burden of total perineal trauma.

All episiotomies in the present study were intended to be medio-lateral. Other studies show that medio-lateral episiotomies are intended to be protective against anal sphincter injuries (Poen et al., 1997, Dimpfl et al., 1992), but it can be argued that episiotomies are also the cause of increased postnatal perineal pain. In the current study, the significant differences in the mean scores of total perineal trauma across time may be due to the different stages of postnatal perineal healing. The participants were not asked on their analgesic requirements at any time in their postnatal period. Such information would have elaborated on the postnatal risks of episiotomies and obstetric lacerations. However, none of the participants mentioned the need to ask for professional help to relieve perineal pain at any time in the study period. Whilst the possible information was collected on all relevant confounders, including the demographic and obstetric characteristics, some omission might be possible.

Previous studies on postnatal perineal pain have focused on the technical aspects of perineal trauma such as the method and the material used in perineal repair (Oboro et al., 2003, Kettle et al., 2002, Gordon et al., 1998). Mothers participating in the current study had perineal repairs including all tears and episiotomies performed by doctors and the suturing material used was Vicryl Rapide with either a continuous or interrupted closure. Kettle et al., (2002) explored the advantages of the continuous technique method and found it to be consistently beneficial even when considering pain associated with daily activities, suture material or skill of operator. In a systematic review on preventing perineal trauma during childbirth, Eason et al., (2000) explored factors that reduced the degree of perineal trauma, including the use of antenatal perineal massage, use of pelvic floor exercises and the restricted use of

episiotomies. Whilst all of these studies aimed at reducing perineal trauma and make spontaneous vaginal delivery a more positive experience by exploring the best for perineal treatment and management, the present study aims at exploring the extent of postpartum total perineal trauma.

#### **6.4 Obstetric characteristics and general health**

The General Health Questionnaire-12 (GHQ-12) is a well-known self-administered screening test aimed at detecting psychiatric disorders in general practice (Goldberg and Williams 1988). It is concerned with two main classes of phenomena: the inability to carry out one's normal 'healthy' functions; and the appearance of new, distressing symptoms rather than giving a specific psychiatric diagnosis (Tait, Hulse and Robertson 2002, Farrell, 1998). In the present study, the GHQ-12 was used to assess the general health in postnatal mothers in relation to total perineal trauma. The higher a mother scores on the test the greater is the likelihood that she is enjoying good health.

Differences in reported general health across time are identified between subgroups of obstetric characteristics, which are marital status, parity, position of the baby's head at birth, maternal position during birth and person performing suturing.

##### *Marital Status*

Table 7:4:1 (Appendix 7:4) shows no significant differences in the mean scores of general health across time between single and married mothers (T1,  $t=-1.948$ ,  $p=0.053$ ; T2,  $t=-1.474$ ,  $p=0.143$ ; T3,  $t=-0.085$ ,  $p=0.932$ ; T4,  $t=-1.032$ ,  $p=0.304$ ). However, there was a consistent rise in these mean scores in both groups across time (Single, T1=672.25, T2=751.83, T3=895.27, T4=862.88; Married, T1=768.28, T2=840.72, T3=900.60, T4=939.84). The married mothers reported higher mean scores than the single ones although this difference was not significant. One possible explanation is that all single mothers happened to be also first time mothers. However, overall results indicated good reports of general health while mothers were recovering from pregnancy and childbirth. Postnatal literature identifies the presence of a number of health problems, such as, tiredness, painful perineum, anaemia, backache, constipation, piles, depression, headaches and incontinence, which persist for up to 6 weeks or more in about half the sample. It is interesting to note that these symptoms were regarded by mothers as only to be expected and a



normal consequence of childbirth (Thompson et al., 2002, Glazener et al., 1995, Johanson et al., 1993). In these studies no distinction in marital status was made. In contrast, Saurel-Cubizolles et al., (2000) reported that the mothers' wellbeing was strongly linked to their psychological relationship with their partners in each of the two samples, taken in France and Italy, which enjoy different cultures. In the current study the mean difference between the two groups of married and single mothers varied each time, being high in T1, T2 and T4, whilst in T3 (at 6 weeks postnatal) was low (MD=-5.33), possibly when mothers were expected to integrate themselves back into society and increasingly take part in other activities outside home.

Morgan et al.'s (1997) descriptive study with postnatal depressed women and their partners found that women's concerns centred on their anxieties and feelings towards their partners, their own mothers and their infants, while men's concerns centred on their attempts to provide emotional and practical support to their partner. With support given through a group programme, the study continued to identify an increase in tension between the partners but the programme helped men to understand why this happened. Comparatively, no studies have been carried out on the experiences of single mothers when they are not supported by their babies' fathers, relatives or friends. In Malta, the community at large expects the presence of both the mother and the father in the family unit, even though the role of the father in parenting is much less clearly defined than that of the mother. This societal reaction may be supportive, but it may also be hostile. Single parent families may suffer from an adverse reaction of society. However, with the increasing number of single mothers, Maltese society is providing a major source of support to enhance their general health. Further awareness that considers the role of the family in the community in the early postnatal weeks is needed.

### *Parity*

Table 7:4:2 (Appendix 7:4) shows no significant differences in the general health between the groups of parity across time (T1,  $F=0.419$ ,  $p=0.659$ ; T2,  $F=0.909$ ,  $p=0.405$ ; T3,  $F=0.482$ ,  $p=0.619$ ; T4,  $F=1.007$ ,  $p=0.368$ ). Mothers having their first baby (T1, mean=756.64, SD=165.826; T2, mean=817.42, SD=202.633; T3, mean=915.95, SD=182.582; T4, mean=948.78, SD=176.173) seemed to be as positive about their general health as those having their second baby (T1, mean=773.59, SD=151.216; T2, mean=867.33, SD=194.093; T3, mean=891.18,

SD=185.062; T4, mean=918.31, SD=246.763) or third baby (T1, mean=701.25, SD=305.630; T2, mean=829.75, SD=232.901; T3, mean=842.75, SD=287.814; T4, mean=815.00, SD=283.167). These findings are in contrast to Thompson et al., (2002) who found that primiparous women were significantly more likely than multiparæ to report general ill-health particularly with regard to perineal pain ( $p < 0.001$ ) and sexual problems at 8, 16 and 24 weeks, and they found also an association between parity and perineal pain and parity and sexual problems. Similarly, Saurel-Cubizolles et al., (2000) found primiparous women more likely to report painful intercourse than women who had given birth to their second baby. The difference in findings may be due to the method applied in both studies in order to measure the prevalence of morbidities. Women were asked to indicate which morbidities, from a list, had been a problem for them in each period of time, and not whether they had actually experienced the morbidity. Nevertheless, there was a consistent positive rise in the mean scores in general health for the two groups of parity.

The present study utilised visual analogue scales which did not limit subjects to a limited number of possible responses but allowed them to place their responses at any point on the continuum. This feature allowed visual analogue scales to be sensitive to subtle fluctuations in levels of the indicated morbidity. As in other studies (Thompson et al., 2002, Saurel-Cubizolles et al., 2000, Brown and Lumley, 1998a), many women claimed that they found participation in the study to be a positive experience. Simply providing women with an opportunity to express how they feel as well as showing an interest in them may in itself be beneficial to their health (Thompson et al., 2002).

#### *Position of the baby's head at birth*

Table 7:4:3 (Appendix 7:4) shows no significant differences across time in the mean scores of general health between the two groups of the position of the baby's head at birth (T1,  $t = -1.055$ ,  $df = 142$ ,  $p = 0.293$ ; T2,  $t = 0.163$ ,  $df = 138$ ,  $p = 0.871$ ; T3,  $t = -0.461$ ,  $df = 130$ ,  $p = 0.645$ ; T4,  $t = -0.480$ ,  $df = 122$ ,  $p = 0.632$ ) but there was a consistent rise in the mean general health scores in both groups across time (VOA, T1=752.83, T2=834.55, T3=895.87, T4=930.11; VOP, T1=788.57, T2=827.80, T3=914.87, T4=951.21). Lydon-Rochelle et al., (2001) found significant differences in general health by mode of delivery. Some women with assisted vaginal deliveries (including

those with malposition of the fetal head) had not resumed sexual intercourse by seven weeks postnatal and were more likely to report ill-health, such as bowel or urinary tract problems. The assisted mode of delivery, with or without malposition of the fetal head, has been identified as a risk factor for perineal trauma (Sultan et al., 1994). The sample in the present study consisted of mothers who were delivered by spontaneous vaginal deliveries and therefore general good health was to be expected. But it is worthwhile exploring the relationship of the position of the fetal head in spontaneous deliveries and maternal postnatal general health.

#### *Maternal position during childbirth*

Table 7:4:4 (Appendix 7:4) shows no significant differences across time in mean scores of general health between the four groups of maternal position during childbirth: semi recumbent, sideways, lithotomy and sitting down position (T1,  $F=2.522$ ,  $df=3$ ,  $p=0.060$ ; T2,  $F=0.640$ ,  $df=3$ ,  $p=0.591$ ; T3,  $F=0.797$ ,  $df=3$ ,  $p=0.498$ ; T4,  $F=0.256$ ,  $df=3$ ,  $p=0.857$ ). This is in contrast with a larger study (Shorten et al., 2002) whose aim was to explore the relationship between birth position and any perineal outcome that might have affected maternal general health. Shorten et al., (2002) found out that multiple regression analysis revealed a statistically significant association between birth position and perineal outcome, where the lateral (side-lying) position resulted in low rates of episiotomy and especially tear requiring sutures. What Shorten et al., (2002) also found, which is in common with the present study, was the association of the semi-recumbent position with higher episiotomy rates than other positions. Additionally, in both studies there was evidence that the 'alternative' birth position (sitting down) performed better than the semi-recumbent position, apparently resulting in a tear requiring sutures instead of episiotomy. However, the small numbers used in the current study did not provide enough information for a comparison of health outcomes with other studies where the benefits of birth positions were explored (Soong and Barnes, 2005, Shorten et al., 2002, Stamp et al., 2001, Murphy and Feinland, 1998, de Jong et al., 1997).

#### *Person suturing the perineum*

Table 7:4:5 (Appendix 7:4) shows no significant differences in general health between the three groups of mothers being sutured by either senior hospital officer, registrar or senior registrar (T1,  $F=0.913$ ,  $df=2$ ,  $p=0.404$ , T2,  $F=0.097$ ,  $df=2$ ,  $p=0.908$ , T3,  $F=1.185$ ,  $df=2$ ,  $p=0.309$ , T4,  $F=0.010$ ,  $df=2$ ,  $p=0.990$ ). The mean

scores increased over time for all the groups (SHO 773.10 to 935.23, registrar 755.20 to 929.16, senior registrar 728.00 to 937.63). In each group under consideration the number of sutures and the gravity of the perineal wound differed. Yet, the resultant general health remained constant and on the rise. This means that the more the gravity of the perineal wound the greater the seniority, and therefore ability, of the professional responsible for its repair has to be. It could be hypothesised that even were the best methods and materials be used to repair the perineal injury, if the operator is unskilled, or the procedure is not taught correctly, then the outcome in women's general health may be clearly affected (Kettle, 2005). Mandel et al., (2000) caution that there appears to be little research evidence relating to the importance of evaluating and acquiring surgical skills, especially in obstetrics and gynaecology.

### **6.5 Determining patterns of fluctuations in the general health across time**

General health may however fluctuate over time for postnatal mothers. Figure 5.5 and Table 5.14 demonstrate a pattern with a continuous rise in the mean scores of general health across time (T1=760.28, T2=833.10, T3=906.23, T4=934.88). This pattern may indicate a steady recovery in general health during the thirteen weeks following childbirth. However, at no specific time did the group of mothers show a consistent (homogeneous) rise in general health, and this is illustrated by the standard deviations which varied consistently across and within times (Table 5.14: SD in T1=165.12, T2=200.64, T3=185.71, T4=204.05). The reason may be that the mothers' general health varied within the group (being of different marital status, parity and with different perineal trauma experience) and from one time to the next during the whole stretch of the study. Mothers do appreciate a normal outcome in childbirth and welcome a healthy baby, but they may still have to recover from pregnancy and labour. The choice of a longitudinal design for this study is justified on the basis that the postpartum period is a time of considerable changes in the life of a woman (Tulman et al., 1990).

These changes are mainly depicted in the previous findings (Saurel-Cubizolles et al., 2000) where the prevalence of symptoms, such as tiredness, painful perineum, backache, has been pronounced in combination with financial problems. Another research reports feelings of distress due to postnatal psychological and psychosocial functioning, which change completely the mothers' lives (Morse et al., 2004). This

seems to be congruent with the findings of the current study where the rise in the mean general health score values at T3 and T4 seemed to be similar with a little apparent change to better health (mean values of 906.23 in T3 and 934.88 in T4, Figure 5.5 and Table 5.14). During this time mothers are expected to look not only after themselves but also look after the baby. In addition, they have to resume full household responsibility or to return to work outside home.

Table 5.15 further illustrates significant differences in mean general health scores between pairs of time periods (T1 and T2,  $p < 0.0001$ , T1 and T3,  $p < 0.0001$ , T1 and T4,  $p < 0.0001$ , T2 and T3,  $p < 0.0001$  and, T2 and T4,  $p < 0.0001$ ), except between T3 and T4 ( $p = 0.124$ ) where no significant differences were registered. During this time (between six and thirteen weeks) general health scores did improve, but not significantly. These findings are in line with Thompson et al., (2002) who explored the changes in the prevalence of postnatal health problems over a period of six months and found no significant changes in the proportion of women reporting frequent headaches or migraines, sexual problems, depression and other health problems. In that study the proportion of women with health problems slowly declined over time and symptoms did not decrease significantly between times.

Regarding postnatal functionability, another longitudinal and correlational study (Hung and Chung, 2001) found that maternal role attainment, social support and recovery of body changes were important predictive factors for postpartum general health. In a previous study, Tulman et al., (1990) explored the changes in women's ability to carry out their previous activities and found that a higher level of functional status was associated with a greater ability to cope with motherhood. Nowadays, few Maltese women follow the indigenous cultural beliefs and practices surrounding childbirth, which include a distinct postpartum period, social seclusion, mandated rest, and assistance in tasks from relatives.

## **6.6 Identifying significant differences in the resumption of sexual intercourse between some subgroups of obstetric characteristics across time**

Significant differences were found in the resumption of sexual intercourse across time between subgroups of particular obstetric characteristics, namely, maternal position during childbirth and person suturing the perineum. In the present study,

resumption of sexual intercourse refers to postnatal recommencement of sexual intercourse without pain or the fear of it all along its duration.

#### *Maternal position during childbirth*

A significant difference was found in the resumption of sexual intercourse across T3 and T4 between subgroups of mothers by maternal position during childbirth ( $F=3.686$ ,  $df_1=3$ ,  $df_2=120$ ,  $p=0.014$ ) (Figure 5.2). ANOVA identified the significant difference in the scores at T3, that is at 6 weeks postnatal ( $p=0.013$ , Table 5.8) between the groups of semi-recumbent and lithotomy positions. Both positions belong to one category of birth positions: the recumbent position (Coppens, 2005). The semi-recumbent position is achieved by the use of pillows or a wedge on a delivery bed with the back resting at an angle of less than or equal to  $30^\circ$ . The lithotomy position requires the mother to lie on her back with legs suspended, supported by attendants or stirrups. The significant difference between these two positions lies in the fact that mothers who used the lithotomy position ( $n=13$ ,  $mean=182.38$ ;  $SD=192.779$ ) scored low in resuming sexual intercourse than mothers who delivered in the semi-recumbent position ( $n=113$ ,  $mean=409.01$ ,  $SD=249.965$ ) suggesting that their perineal trauma might still be unhealed at 6 weeks postpartum. However, no significant differences were identified at time 4 ( $F=2.616$ ,  $df=3$ ,  $p=0.054$ ) (Table 5.8). Such findings suggest that resumption of sexual intercourse is too early at 6 weeks postpartum. Only 52/132 mothers (39.4%), who were living with their partner or husband (one mother was without partner), reported that they resumed sexual intercourse at 6 weeks, while the majority (79, 59.8%) abstained. At T4, those who resumed sexual intercourse increased to 100/124 (80.6%) whilst 23 (18.5%) still chose to refrain, signifying that, for a small proportion of mothers, postnatal resumption of sexual intercourse remained an enduring problem.

In local clinical practice the use of the semi-recumbent position seems to be the norm. It can be argued that this choice may be the result of women not being informed of alternative positions, or it could be that doctors and midwives are reluctant to recommend the use of other birthing positions, or they may lack the information, skills, confidence and knowledge in their regard. Moreover, the presence of the bed in the delivery room may lead the mother to use the recumbent position to give birth even though unknowingly this position may be detrimental to her perineum's integrity. This is in accord with Barrett et al.'s (2000) findings where

unifactorial analysis showed that dyspareunia (as defined by experience of painful penetration and/or pain during sexual intercourse and/or pain on orgasm) experienced during the first three months after birth, was significantly associated with type of delivery, assisted or unassisted, and perineal damage. Barrett et al.'s (2000) findings on the resumption of sexual intercourse supported other previous studies (Glazener, 1997, Klein et al., 1994, Abraham et al., 1990) which illustrated a high prevalence of postnatal sexual morbidity including dyspareunia and difficulty especially of primiparous women in resuming sexual intercourse. Further research is required in Malta to explore the midwives' views on the use of the various positions during birth and to determine whether women have any preference for a particular birth position. Such studies could inform the present midwifery practice and would also enhance a positive birth experience for women in labour.

#### *Person suturing the perineum*

A significant difference was found in the resumption of sexual intercourse scores across times (3 and 4) between subgroups of mothers by person suturing the perineum ( $F=11.612$ ,  $df_1=2$ ,  $df_2=121$ ,  $p<0.0005$ ) (Figure 5.3). ANOVA identified significant differences in the scores at T3 ( $n=132$ ;  $F=9.650$ ,  $df=2$ ,  $p<0.0001$ ) (Table 5.10). These differences were found between senior hospital officer (SHO) ( $n=81$ ,  $mean=440.85$ ,  $SD=249.156$ ) and senior registrar ( $n=32$ ,  $mean=229.19$ ,  $SD=185.556$ ), and between registrar ( $n=19$ ,  $mean=445.79$ ,  $SD=267.959$ ) and senior registrar. The difference between SHO and senior registrar persisted at T4, where ANOVA identified the significant difference in scores ( $n=124$ ,  $F=5.283$ ,  $df=2$ ,  $p=0.006$ : Table 5.10). These differences were found between SHO ( $n=75$ ,  $mean=676.79$ ,  $SD=193.237$ ) and senior registrar ( $n=30$ ,  $mean=527.67$ ,  $SD=279.777$ ). These findings showed that mothers sutured by SHO reported higher scores and thus more resumption of sexual intercourse than others sutured by registrar or senior registrar. In local practice the latter two operators deal with the most severe perineal wounds. Therefore, it demonstrated that mothers with severe perineal wounds reported more negatively regarding their sexual health at both times 3 and 4.

Senior registrars, registrars and senior hospital officers are locally recognised to be the skilled operators to provide a consistent high standard of perineal repair that may have a direct effect on postnatal health. A perineal wound skilfully sutured generally

heals very rapidly, usually within two weeks by primary intention, with minimal morbidity, scarring, infection or haematoma formation. Apart from the operators' skills and the method and materials used for repair, of considerable importance is the process of healing. Most episiotomies and perineal tears heal by primary intention with minimal scarring. In contrast, others have a substantial loss of tissue or infection. These heal by secondary intention which is a prolonged and complicated process, which may affect the woman physiologically and psychologically, especially where the cosmetic results are poor or problems, such as, dyspareunia or urinary or faecal incontinence persist. These effects may make up other reasons for delaying the resumption of sexual intercourse. There is a need for qualitative literature research that explores the mothers' perceptions on perineal suturing and resumption of sexual intercourse.

### **6.7 Determining patterns of fluctuations in the resumption of sexual intercourse across time**

Figure 5.4 and Table 5.13 determine a pattern of an increase in the mean scores of resumption of sexual intercourse in T3 and T4 (T3 mean=387.11, T4 mean=641.78). Table 5.13, furthermore, illustrates a significant difference in the mean scores between the pair of T3 and T4 ( $df=123$ ,  $t=-11.315$ ,  $p<0.0001$ ). This may be due to the resolution of perineal pain with time, which is the main predictor for the recovery in sexual health. These results are comparable with other studies which investigated the sexual function of postnatal women and found problems that interfered with their recovery in sexual health (Glazener, 2005a, Buhling et al., 2005, De Judicibus and McCabe, 2002, Waterstone et al., 2003, Signorello et al., 2001, Barrett et al., 2000, Avery et al., 2000, Byrd et al., 1998, Brown and Lumely, 1998b, Glazener, 1997, Klein et al., 1994, Sleep et al., 1987). In all these explorative studies, as well as in the current study, resumption of sexual intercourse increased during the recovery time period following childbirth. Physical and psychosocial discomfort during the healing process that follows birth, as well as hormonal changes can all complicate the recovery of a woman's sexuality (Avery et al., 2000). These include increased demands on the new mother resulting in less time for sleep, as well as a new focus (baby) and a shift in family roles (Glazener, 2005a). Similar to De Judicibus and McCabe, (2002), in the present study, the time period of thirteen weeks postnatal appears to be a stage of adjustment for many mothers where they



may or may not experience a fulfilling sexual relationship. The resumption of sexual intercourse may be delayed by dyspareunia, but it can also be delayed by psychological factors, such as, fear of becoming pregnant again, a relationship which could be explored in further research.

### **6.8 Exploring the relationship between total perineal trauma, resumption of sexual intercourse and general health across time**

The relationship between total perineal trauma and the resumption of sexual intercourse was explored across time. There was a negative significant correlation between total perineal trauma and the resumption of sexual intercourse at thirteen weeks postnatal ( $r=-0.308$ ,  $p=0.001$ ) (Table 5.16). These findings suggest that the lesser the perineal trauma (mean=284.15, SD=241.588) the greater is the resumption of sexual intercourse (mean=641.78, SD=228.601). This could be due to the resolution of perineal pain and incontinence of urine and faeces and the return to sexual health. However, Pearson's correlation at T3, (at 6 weeks postnatal) was not significant ( $r=-0.113$ ,  $p=0.198$ ). This means that six weeks seem to be too short a time for postnatal women to resume sexual intercourse, at least in the present study.

In most other research studies, about 90% of postpartum women resumed sexual intercourse by 3 to 6 months after childbirth (De Judicibus and McCabe, 2002, Signorello et al., 2001, Barrett et al., 2000, Byrd et al., 1998, Klein et al., 1994). Pandit et al. (1996) explored birth customs in eastern countries and concluded that a period of recovery during which intercourse is taboo may last up to two years. In Malta, there are no such birth customs, but some women may have mixed feelings about resuming sexual intercourse too soon after childbirth. Studies in UK, such as Glazener's (2005b) found that problems with sexual intercourse were strongly associated with perineal pain. Therefore, health professionals, including midwives, would be expected to engage with interventions which are proven to reduce morbidity. They should also be aware of potential sexual difficulties among postnatal mothers. Preparation of women at the antenatal clinics and classes may be a useful strategy, alongside a responsive attitude to sexual postnatal problems.

Also explored was the relationship between total perineal trauma and general health. There were consistent negative significant correlations between total perineal trauma and general health across time (T1,  $r=-0.428$ ,  $p<0.0001$ , T2,  $r=-0.421$ ,  $p<0.0001$ , T3,

r=-0.301,  $p<0.0001$ , T4,  $r=-0.464$ ,  $p<0.0001$ ) (Table 5.17). These findings suggest that the lesser the perineal trauma, the greater is the reported general health. Findings show that mothers started reporting positive health from T1, that is, within the first forty-eight hours from childbirth, and continued to report better health, both physical and psychological, throughout the whole time period of thirteen weeks. Therefore, this study reported constant correlations between total perineal trauma and general health. Mothers in the present study were not affected with other health problems that could otherwise have impaired the consistent recovery of their general health. However, the sample was small ( $n=144$ ) compared with those of other major explorative studies where the reported resolutions of health problems after childbirth, such as bowel problems, urinary incontinence, perineal pain and sexual dysfunctions extended up to six months and more (Thompson et al., 2002, Lydon-Rochelle et al., 2001, Brown and Lumely, 1998b).

The impact of a normal spontaneous vaginal delivery on women's general health in the present study was explored using the General Health Questionnaire-12 on four consecutive times. Findings showed that women's general health increased significantly ( $p<0.0001$ ). This result is comparable with a stratified study wherein Lydon-Rochelle et al. (2001) used another measuring tool, namely, the 36-Item, Short-Form Health Survey (SF36) (Ware et al., 1996) together with a self reported sexual, bowel, and urinary functioning questionnaire. In the latter study, findings at 7 weeks postpartum showed that women who had caesarean sections or assisted vaginal deliveries reported significantly lower postpartum general health scores than women with unassisted vaginal delivery. Additionally, women with assisted vaginal deliveries reported significantly worse sexual, bowel and urinary functioning. Therefore, both GHQ-12 (used in the present study) and SF36 (used in Lydon-Rochelle et al., 2001) proved to be sensitive in detecting significant results with regard to postpartum general health and sexual functioning of women in all types of deliveries.

Other studies (Thompson et al., 2002, Brown and Lumely, 1998a) have used the Edinburgh Postnatal Depression Scale (EPDS), a self-report measure of postnatal depression (Cox et al., 1987). While both the GHQ-12 and the EPDS can be used as measuring tools to screen for depressive symptoms, for the present study the GHQ-12 was preferred as more adequate to measure the mothers' normal health functions.

## 6.9 Conclusions

Total perineal trauma, defined in this study as perineal pain, incontinence of urine and faeces, affected in different measures most of the mothers who were recovering from normal spontaneous deliveries. There was a constant decline in the mean scores of total perineal trauma in all sub-groups of demographic and obstetric characteristics throughout the whole time period of thirteen weeks. The period of six weeks in the puerperium, which is conventionally believed to be the time of recovery after childbirth, was found to be relative to the women's postnatal functional needs. The group of mothers working at home reported lower scores of total perineal trauma than those working outside the home, indicating that support from close relatives might have influenced positively their postnatal recovery. The majority of those attending antenatal classes were first time mothers (66.7%, n=96). These were more likely to report total perineal trauma than others of greater parity. This finding needs further research. Social smokers and social drinkers also reported high mean scores of total perineal trauma and this might have reflected the lifestyle habits. The majority of mothers in the study returned home within the shortest length of stay in hospital. The criterion for early discharge was low risk for mother and child, but this study suggested further evaluation to explore factors influencing the length of stay in hospital after spontaneous vaginal birth.

All single mothers were more likely to sustain perineal trauma, such as episiotomy and/or a tear, than married mothers, but the healing process took the same time for both groups. It seemed to be first time mothers who sustained more perineal trauma, such as episiotomies and perineal tears. However, mothers having their second and third babies with perineal tears reported as much perineal pain as first time mothers with episiotomies. The liberal use of episiotomy in first time mothers is due to the medicalised culture in Malta. Thus, there is the need to evaluate what is normal in birth and put into practice that which is proved to be reliable. The position of the fetal head on the perineum contributed towards perineal trauma with extended episiotomies in both the *vertex occipito anterior* and the *vertex occipito posterior* groups. It is recommended that professionals identify the position of the fetal head on the perineum and manage the perineum well during the delivery of the baby. Maternal position during birth also influenced the risk of perineal trauma with the semi-recumbent position being the most convenient. Mothers sutured by senior registrars seemed to be those who had more trauma than others sutured by less

qualified personnel in obstetrics. It is a recognised policy that the most traumatised perineum is sutured by the most skilled professional.

With a continuous decrease in total postnatal perineal trauma scores across time, there occurred a steady recovery of the perineum. Findings in the literature suggest that episiotomy tends to contribute to a worse decline in postnatal perineal muscle function when compared to lacerations sustained spontaneously. Technical skills, such as the method and the material used for suturing the perineal wound and the skill of the operator, also contribute to the healing of perineal trauma. It may be suggested that the mothers' comfort increases and perineal healing progresses better if episiotomies were to be avoided.

There was a consistent rise in the general postnatal health in both groups of single and married mothers across time, with the married mothers reporting higher mean scores of general health than the single mothers. This finding might represent a further burden to the maternal well being of single mothers especially in a culture where single parent families are looked down upon by society at large. Mothers with their first baby appeared as positive in their general health as those with increased parity across time. A consistent rise in general health persisted in all subgroups characterizing the position of the baby's head at birth, maternal position during childbirth, and person suturing the perineum. This might indicate a positive maternal experience of birth and a steady recovery period. However, not all mothers showed the same rise in general health. Health fluctuated from time to time indicating the efforts and trials mothers have to experience to work through the change in their identity and in their family.

The majority of postnatal mothers delayed resumption of sexual intercourse for up to thirteen weeks. The person suturing the perineum was found to be significant in both times, that of six and of thirteen weeks after delivery. The mothers who suffered severe perineal trauma and were sutured by the most skilled professional might have been among those who refrained from sexual intercourse at both study times and gave low scores for their sexual health. Physical, psychological, and sexual discomfort during the healing process following birth can complicate the recovery of a woman's whole person.

At 13 weeks postpartum, there was significant negative correlation between total perineal trauma and the resumption of sexual intercourse, but not at 6 weeks postnatal. The postnatal mothers' personal feelings may indicate the time suitable for them to feel ready to resume sexual intercourse. Other significant negative correlations were found between total perineal trauma and general health across time. Perineal trauma appeared to heal by time, as mothers regained their general health after childbirth.

The low rate of attrition of 13.9% may be attributed to the fact that each woman in the study was followed by one and the same data collector. This fact helped to establish support and provided the women with an opportunity to confidently report their postpartum experiences or express themselves better in writing.

The chapter which follows discusses the qualitative findings, often in relation to the quantitative findings.

## Chapter 7

### Discussion of the qualitative findings

#### 7.0 Introduction

This discussion will draw on the three main themes generated from the qualitative data coming from answers to the open-ended questions (Figure 7.1) and will be supported with reference to Maltese culture and current midwifery practices. The qualitative findings are endorsed by the mothers' statements collected across thirteen weeks postpartum (Time 1-Time 4). All the mothers' names are fictitious. These findings are analysed in the framework of the Post-traumatic Growth (PTG) theory (Calhoun and Tedeschi, 1998).

Figure 7.1: Themes and categories generated from the qualitative data

Theme 1: Experiencing total perineal trauma 1.1 Recovery 1.2 Incontinence
Theme 2: Resuming sexual intercourse 2.1 Self perception 2.2 Postponing 2.3 Feeling fit
Theme 3: Maintaining postnatal general health 3.1 Self-worth 3.2 Regaining health

#### 7.1 Theme 1: Experiencing total perineal trauma

Theme 1 incorporates two categories of recovery and continence. The qualitative findings provided an illuminating description of women's experience of perineal trauma not immediately apparent from the quantitative data. The data indicated that perineal trauma following normal childbirth may contribute towards considerable maternal distress and discomfort and that a range of negative consequences may be experienced during the first thirteen weeks. For example, some mothers expressed their distress at being inhibited from full mobility by perineal pain which made it

difficult for them to carry out simple activities such as walking or sitting down comfortably particularly at times 1 and 2 (Appendix 9). Perineal soreness and tenderness prompted some mothers to develop coping behaviours that help them come to terms with their pain. For example, in her questionnaire forty-eight hours after delivery, Mary commented on how she tried to stay calm while she sat down slowly and uncomfortably because of perineal pain:

“One would like to keep the same position and keep stiff and immobile as possible. I did not succeed to stay sitting comfortably anywhere. I got panicked when I had to sit down. I had to calm myself and sit down slowly and very uncomfortably. I am feeling the stitches on the front and I am in great pain and distress.”

(Mary, T1:3)

At six weeks postnatal, Jessie describes how she kept herself busy with her baby to distract herself from thinking of pain:

“I tend to forget that I may be in pain in my perineum. It is the baby who is keeping me busy and it is my husband who is helping me to keep on going. When I am rested I feel I can cope with everything.”

(Jessie, T3:45)

Perineal pain and its healing therefore appear to present a challenge for the mothers who have to find a way of coping with the new situation of mothering and at the same time live through the experience of perineal pain. The accounts of these mothers indicate that they appear to find ways and means to manage their emotional distress and discomfort while resuming their daily activities and caring for their newborn baby. This can be perceived as a positive sign which promotes post-traumatic growth in mothers. Thus, mothers may be compelled to develop new priorities such as caring for the newborn baby whilst recovering physically and psychologically, although this may take time. The finding, in the present study, of a time period necessary for perineal healing and psychological adjustment is consistent with the findings of Abraham et al.’s (1990) prospective study where mothers reported a cessation of perineal discomfort and distress at three months postnatal.

Applying PTG theory (Tedeschi and Calhoun, 2004) to women’s accounts, perineal trauma could be viewed as a ‘seismic’ traumatic event (phase 2). The advent of motherhood and the demands of mothering generate challenges of healing (phase 3), whereby positive psychological changes may occur in mothers during the postnatal

period. During this time, mothers may develop a sense of adaptation, as a result of which they manage to cope with the challenges of early motherhood and adjust to their perineal pain. This is regarded as psychological growth following total perineal trauma. In turn, women may use the traumatic experience as an opportunity for further individual development (Tedeschi and Calhoun, 2004). In this theme of ‘experiencing total perineal trauma’ two main categories are explored, recovering from perineal trauma and controlling urine and faeces. The aim throughout is to reflect as accurately as possible the contents of the comments, and in doing so to document areas of maternal personal growth.

### **7.1.1 Category 1.1 Recovering from perineal trauma**

*One painful challenging experience: crying baby, sore breasts and painful perineum*  
Perineal pain following the experience of childbirth and in the early days of childcare had a seismic effect on some women in the present study. For example, Doreen commented on her painful birth which was followed by an unbearably painful perineum, but she considered her pain in a lesser degree than the happiness of having a baby, unlike Alexia and Joanne:

“At the moment I am not happy with pain in my perineum. I have gone through fourteen hours of pain in labour and I have suffered a lot and it seems I am now bearing this continuous sensation of pain in my perineum. But above all, I feel a sense of happiness that the baby has brought with it and I do not want to miss such happiness because of perineal pain.” (Doreen, T1:43)

Alexia and Joanne were both overwhelmed by perineal pain in consequence of which they were not enjoying their baby:

“There seems to be one painful experience: crying baby, sore breasts, and painful perineum. I can’t say I am enjoying my baby as yet. It is all ache and pain in all my body.” (Alexia, T2:132)

“Pain overwhelmed me during childbirth and now this pain in the perineum is too much to bear with a crying baby.” (Joanne, T1:88)

A painful perineum formed only one aspect of mothers’ experiences of total perineal trauma, which comprises painful perineum and incontinence of urine and faeces, yet for many of them pain alone already seemed to be an overwhelming experience. Findings in the current study show that some first-time mothers did not seem to be



aware, prior to giving birth, that postnatal perineal trauma might hinder them during the early postnatal period as they are developing a relationship with their baby. It was found that alongside the traumatic event of a painful perineum, new mothers had to face sore breasts and a crying baby, which with respect to the PTG theory might be equally challenging. Such an experience might test the new mothers' views and expectations of what constitutes a happy family, and potentially challenge their prior goals and beliefs of successful mothering (Tedeschi and Calhoun, 2004). In the present study, it was difficult to explore fully this interpretation as mothers were not investigated antenatally.

In the postnatal period, a painful perineum was found to be a common problem which decreased consistently over time with the healing of the tissues. Whilst perineal pain was not a permanent problem, it had adverse consequences on the mothers' daily activities precisely in the early days of motherhood. Some of the mothers described pain as 'intolerable' when it precluded them from good body posture. Others, like Sina and Josefa had to somehow find a position to avoid pain:

"I cannot keep my back straight in a good position due to the constant pain in my perineum."  
(Sina, T1 :97)

"I have to lie down most of the time. The sutures in my perineum are worse than giving birth."  
(Josefa, T1 :106)

Josefa's account suggests that a key cause of severe pain was perineal suturing, which brought about limitations in her life. Thus, for some women, rather than the actual episiotomy or a tear, it was the perineal suturing that appeared to be the underlying cause of perineal pain and distress. It appears that women with normal delivery need holistic care: understanding and empathy.

Furthermore, the physical aspect of suture pain and perineal trauma appeared to contribute to emotional pain, as Tessie affirmed:

"When I try to dry the perineum, I suddenly realise the reality of my experience. It's just a feeling of faintness in trying to dry the perineum. Trying to touch my area feels stiff and numb as if it is not a part of my body. It feels strange, especially on the back."  
(Tessie, T1 :125)

This new mother had the strange feeling that her injured perineum was for the time being no longer part of her body and felt concerned about this feeling of numbness.

Her statement echoes what the medical anthropologist Leslie Sharp (2000:290) referred to as 'emotional numbness': "whereas health and wellness may allow the body to disappear from our awareness and action, pain or disability awakens in us a heightened awareness of that part of the body which is in pain or disabled". Tessie became conscious of her disabled perineum. This notion further explains the mother's vicious cycle of pain, fear and anxiety (Sharp, 2000), factors which possibly set off the rumination processes through which mothers try to understand and make sense of their lives after giving birth.

*Rumination – more automatic than deliberate*

In other instances, some mothers described how they vividly and unconsciously relived their traumatic experience of suturing. For example, Sylvia commented:

"Many a time flash backs of the pain I endured at the time of suturing come to me unknowingly. I just feel afresh the pulling and stretching sensation rather than the physical pain in the perineum."  
(Sylvia, T4:134)

Sylvia was suffering from flash backs of perineal suturing, the intensity of which superseded the actual pain in her perineum. These flash backs are unusual and uncontrollable, and yet they could have induced Sylvia to try to make sense of her daily life. Sylvia was still psychologically experiencing the traumatic event of suturing. In their PTG theory, Tedeschi and Calhoun, (2004:409) emphasise that such events must be great enough to force individuals to reconsider the basic assumptions about themselves, the people around them and what the future may hold for them. In this reconsideration, there is the beginning for new perspectives on all of these matters and a sense that valuable, though painful, lessons have been learnt. From a narrative perspective, the story of Sylvia's life had been divided into before and after the traumatic event of perineal trauma (Calhoun and Tedeschi, 2004). Now she is quite different from what she has been before the event. It might be that perineal trauma has produced in her a strong challenge to revise her sexual life. At this stage rumination is considered as automatic rather than deliberate constructive (productive) thinking about the traumatic event, but still it is deemed to be an important step in the process (Tedeschi and Calhoun, 1995).

*Rumination – more deliberate than automatic with no time limit*

All through the recovery period, further rumination, this time more deliberate than automatic, may prompt the individual mothers to relive their experience of trauma. This may lead them to reflect on their traumatic experience through which they may grow psychologically by gaining a positive outlook of life, as Rowina wrote:

“Now it is all well again. Childbirth and after childbirth have been good but painful experiences. I think that if I have gone through all that pain, I may say that I can endure anything in life.”

(Rowina, T4:98)

Psychological growth, in Rowina’s instance, is experienced by a combination of the clear knowledge that pain is part of life and her discovery that if she had succeeded to endure it, then she could endure just about anything that challenges her in the future. The recognition of possessing personal strength is an important domain of post-traumatic growth. Similarly, another mother, Cynthia, argued positively that one cannot gain anything in life without first working hard to achieve it:

“My perineum has not totally healed yet, but I feel very good in health. I am on a full time job. Before pregnancy I was so much in control of my house, my marriage, my profession and myself. Now, thank God, we have the baby, a blessing to us and to the grandparents. They will help us with the care of the baby while I continue to recover in health and to go to work. I wish I will be in control as before. I have learnt though that nothing is gained in life without working hard to achieve it.”

(Cynthia, T4:104)

Thus, constructive rumination involves the process of coming to terms with the new reality in the aftermath of trauma. It is this challenge which is crucial in determining the extent to which post-traumatic growth occurs (Tedeschi, 1999). It means that mothers who engaged in active or constructive thinking about their experiences of perineal trauma appeared to be more likely to report positive shifts in their values or priorities in response to pain. Thus in an attitude of reconciliation, some mothers considered their perineal trauma and its aftermath as trivial or commonplace compared to the joyful experience of giving birth to a healthy new baby.

In another qualitative study, (Salmon, 1999), the process of rumination took on a different dimension both in respect to quality, that is, adaptive or maladaptive rumination, as well as in respect to time, in that it extended far beyond the postnatal period. Salmon’s study described the experiences of a particular group of six

women. A persistent theme in the women's statements was that they felt their fears during suturing were being ignored which gave them a sense of not being cared for, and as a result they did not consider the care during the suturing procedure as professional. The participants in Salmon's study (1999) were interviewed from one to five years after childbirth, and even at this late stage, it could be argued that they were still ruminating on their traumatic experience though it was not recognised as such. A similar negative experience of suturing was also reported by Macarthur and Macarthur (2005), who argued that in their case there was no frequent use of analgesic agents during the postpartum period despite complaints of considerable pain and dysfunction. It could be argued that the negative experience of the participants could have affected their ability to ruminate adaptively and find a meaning for their perineal pain. The differentiation between adaptive and maladaptive rumination is crucial (Tedeschi and Calhoun, 1995). In both Salmon's and Macarthur and Macarthur's studies, some participants appeared to engage in rumination without benefiting thereby and without finding any meaning for their emotions. Even in the present study, some of the mothers did not appear to find their way to adapt to the traumatic event and found themselves engaging in rumination without finding the right solution and without being able to draw any benefit. For example, Katrina commented:

“Were I to know beforehand of this painful experience in my perineum, I would have asked my obstetrician for a caesarean section. This would have allowed me a better chance to take care of my baby and my family.”  
(Katrina, T2:16)

Katrina's argument provides an example of how mothers can find it difficult to adapt themselves to the traumatic event and may eventually come to an inappropriate solution: in fact a caesarean section carries its own consequences of abdominal pain which much like perineal pain could equally interfere with a mother's daily activities and the care of her baby. One cannot safely conclude with certainty that Katrina's case is one of maladaptive coping (Tedeschi and Calhoun, 2004). One could possibly interpret it as supporting the view that, whilst active or deliberate thinking (rumination) is helpful, in itself it is not sufficient to foster the process of self-perceived post-traumatic growth (Tedeschi and Calhoun, 2004). These authors also argue that post-traumatic growth occurs concomitantly with the attempts to adapt to negative circumstances, which in turn can engender high levels of

psychological distress. Even though the postpartum period is considered as a complex emotional time in a woman's life, no studies appear to have explored the role the processing of those emotions may play in the maintenance of emotional well being (Wilkins et al., 2009).

*More challenges - breastfeeding, being tired and fatigued*

The 'seismic' impact of perineal pain and the challenges it presents can be seen by further exploring women's accounts of their desire to breastfeed and their expectation of success in breastfeeding despite the fear of perineal pain in the early postnatal period. For example, the following mothers expressed their desire to bond with their baby especially in breastfeeding whilst being challenged with pain or the fear of it:

"The problem is not breastfeeding the baby, but the fact that I am sitting down to breastfeed my baby. Pain in my perineum is depriving me from enjoying breastfeeding and holding my baby in my arms. I am stiff in pain and the baby feels me that I am not comfortable. I am stiff." (Christine, T1:101)

"I am comfortable breastfeeding once I am settled in a good position. It is all fear of being in pain in the perineum rather than being in actual pain. To seek a comfortable position and a strong desire to breastfeed help me to forget myself and to succeed in overcoming the difficulty of painful perineum." (Susanne, T1:133)

It appeared that mothers, notwithstanding their experience of perineal pain or fear of it, were willing to breastfeed their babies and were doing their best to find a comfortable position for themselves and for their babies to latch on to the breasts. E. M. Fleming et al., (2003) in a parallel group randomized trial in the UK regarding sutured and unsutured perineal outcomes found that the breastfeeding rate was higher in women who could sit comfortably with an unsutured perineum, although this did not achieve statistical significance. Poor attachment to the breast may have a number of consequences for both baby and mother including inefficient milk supply or inadequate emptying of the breasts, which in turn can lead to breast engorgement, nipple trauma and mastitis (Page, 2000). It is worthwhile noting that in the present study mothers, mainly first-time mothers, understood the benefits of good position of the infant and its attachment during breastfeeding. Mothers appeared to take on the challenge to breastfeed despite their fear of pain and their discomfort to breastfeed in a sitting position. In this context, post-traumatic growth

takes up another dimension: mothers see their traumatic experience of pain as a passing one which should not interfere with their opportunity for further maternal development with respect to breastfeeding.

The breastfeeding experiences most mothers reported as a result of perineal trauma were in stark contrast to the findings in other explorative studies (Steen and Marchant, 2001, Lundquist et al., 2000) where perineal pain was found to impair the mothers' ability and willingness to care for their newborn baby and which in turn led to irritability, resentment, emotional distress and accumulated maternal exhaustion and tiredness (Steen and Marchant, 2001). Mothers in the present study did not seem to distinguish between being tired through loss of sleep or fatigued through 'accumulated tiredness' (McQueen and Mander, 2003). In a selective review of literature on tiredness and fatigue in new mothers during the postnatal period, McQueen and Mander (2003) identified the two concepts to be related and that they could be viewed as points on a continuum. In a clinical research of grounded theory, Runquist (2007) defined postpartum fatigue as a health-related pattern. Troy (2003) and Bozoky and Corwin (2002) defined postpartum fatigue as an overwhelming sense of exhaustion and decreased capacity for physical and mental work following childbirth. In the current study, mothers reported that perineal discomfort coupled with tiredness rendered them unable to perform to the full their daily activities at home, an incapacity that for some of them extended even up to thirteen weeks following childbirth. For example, the following mothers stated that:

“In the evenings when I begin to feel very tired, the perineum hurts. I am feeling an increase of exhaustion day by day and I cannot carry on with the shopping during the day, but I have to keep going.”  
(Claire, T2:66)

“It depends on what kind of problems to overcome. It is not always possible to overcome problems. The present problem is this mental and physical fatigue together with the pain and ache in the muscle down there. I have not found a solution yet, but I am bearing it.”  
(Karina, T1:120)

“I am gradually gaining my health but I am not fit yet. I am too tired. I have not recovered from that fatigue after the birth of the baby.”  
(Catherine, T4:86)

The above quotations highlight fatigue and exhaustion that can challenge first-time mothers. Deemed widespread and persistent, fatigue appears to affect new mothers'

physical and mental health after excessive physical exertion or following prolonged wakefulness without adequate sleep (Bick et al., 2002, Brown and Lumley, 1998a, Glazener et al., 1995). Tiredness affects mothers' daily activities, their motivation, social interactions and their wellbeing (Bick et al., 2002).

Yet in the present study, the mothers' statements show that they were not defeated by tiredness or fatigue. On the contrary, they embraced the challenge and, aiming at higher order goals and beliefs, resisted fatigue, managed their emotional distress and persevered in mothering (phase 3 of PTG theory, Tedeschi and Calhoun, 2004) through successful breastfeeding.

#### *Post-traumatic growth and social support*

The majority of new mothers are assisted by their close relatives who help in caring for the baby and in household chores. The Maltese culture provides an insight into how postnatal challenges are overcome: the extended family provides the necessary social support to postpartum women by trying to protect new mothers from excessive fatigue and anxieties. The mothers in this study considered this support as crucial in lessening the burden of perineal pain and emotional distress. For example, both Tessa and Lydia were fully supported by their families in their early postpartum periods:

“When I have full support I don't feel that much pain. It is when I am on my own that I'm able to identify which activities cause the pain in my perineum.”  
(Tessa, T2:31)

“Thank God for the continuous help and support of my family because I do not know what I can do alone with this persistent perineal pain, a crying baby, housework and cooking for the family.”  
(Lydia, T2:25)

While living through the immediate period following perineal trauma, mothers appeared to discover who of their relatives or friends was the worst and who the best, that is who actually provided help, comfort and relief (Tedeschi and Calhoun, 2004). For example, whilst caring for a newborn baby, the following mothers became aware of the improved closeness of relatives and friends:

“In such moments of perineal pain and caring for a newborn baby, any help from relatives and friends will be highly appreciated. Also my husband, who previously did not understand the necessity to help in the house such as doing housework, followed the

example and he proved himself to be a great helper of the family.”  
(Karina, T4:120)

“I was surprised with my husband’s great sympathy and understanding during those moments of perineal pain and a crying baby especially during the night.”  
(Patricia, T3:115)

Mothers were pleasantly surprised at the help they got from friends with whom they were not particularly close and from whom they expected little or no support at all. New mothers also found themselves becoming more comfortable with the intimacy in their interpersonal relationship with their friends. They also appreciated talking with their spouses about painful perineal trauma and distress. This type of communication, therefore, appeared to nurture a greater understanding, better relationship, assertiveness, empathy and maturity between couples (Tedeschi and Calhoun, 2004, Page, 2000). Such close and meaningful communication can also form part of deliberate rumination which further enhances postnatal personal growth. In midwifery literature, McVeigh (2002, 1997) also reported similar findings and how husbands’ support in the postnatal period was considered particularly important. McVeigh (1997) recommended that pre-natal classes include the teaching of the necessary skills intended to enable mothers to actively enlist in advance the appropriate helpful support from their husband and others. Such support will help postnatal mothers get back to normal sooner.

#### *Post-traumatic growth and getting back to normal*

‘Getting back to normal’ was every mother’s main aspiration after the experience of perineal trauma. There were those who were confident that they would return to how they had felt before experiencing perineal trauma. However, Tedeschi and Calhoun (2004) argue that it is the identification of new possibilities in one’s life or of the possibility of taking a new path in life where post-traumatic growth really occurs. Motherhood and mothering provide new possibilities in the new mother’s life for personal growth. By time mothers may forget their postnatal trauma and feel physically normal again, but their ‘normality’ is different from the pre-pregnancy state because now they have a newborn baby to integrate in the family. Marion with her second baby commented:

“I feel I am back to normal. I know what to expect as this is my second baby and I feel much more confident and calm than I have



been with the previous baby. I shall soon return to work so I have to plan how to settle my family and how I will cope with the changes that a second child brings in the family.” (Marion, T3:76)

The experiences of first time mothers Joanne and Adriana helped them grow in their motherhood and challenged them in caring for their babies:

“My general health is back to normal and also the perineum has recovered as I do not feel discomfort any more. It is my way of life that has been changed as I feel I am on a strike on the usual chores of the house and I spend twenty-four hours service with the baby.” (Joanne, T3:88)

“Everything is back to normal. It is obvious that work increased and it is not always that I cope with everything but I try to be positive and I do not get discouraged.” (Adriana, T4:23)

The findings in the present study show that the mothers’ aspiration in attempting to regain normality involved not only a process of trying to regain their sense of well-being and perineal health, but also the re-establishment of their previous pattern of life within the family, including the resumption of sexual relationship. But for some mothers, postnatal recovery carried a sense of fear of pain, and at times the doubt as to whether they would ever get back to normal. Bernice felt she had not yet recovered from perineal trauma by time 4:

“I am afraid that I shall never come back to normal. It is still uncomfortable when I stand up for too long. Sometimes I feel it stretching when I stay in the sitting position for long. I am still afraid of sexual intercourse as I may be in pain in the perineum.” (Bernice, T4:87)

Fear of pain appeared to deprive mothers from regaining a normal pattern of activity, and kept them away from social gatherings because perineal pain made it uncomfortable for them to stand up or sit for long. Some reported abstaining from sexual intercourse for fear of perineal pain (discussed in more detail later). This implies that the concept of ‘normality’ is complex and that it has bio-psychosocial dimensions (Tedeschi and Calhoun, 2004). Returning to normality does not mean a turning back to the pre-pregnancy state of life; rather it is an adaptation to a different situation. For Laura, a single mother supported by her family, motherhood brought about a change in her life to which she adapted in a positive way as she herself explained:

“At first I was afraid that I would not do it – to come back to normal. After the birth of the baby I was relieved and somewhat calm but inside me I was terrified and unsure of what was next. I am feeling I am changing from day to day. It is true I am feeling proud and satisfied in being a mother. The first person is my baby and then me. I am no longer a free young girl to go out and have a break with friends, now I am a mother.” (Laura, T4:130)

In theory, Tedeschi and Calhoun (2004) argue, the affective quality of learning and change in post-traumatic growth may distinguish it from other normative developmental processes that lead people to report that they have been improving or maturing over time. Laura’s learning was achieved through the affection she had for her baby who brought about a complete change in her lifestyle.

### **7.1.2 Category 1.2 Controlling incontinence of urine and faeces**

#### *The challenge of incontinence and post-traumatic growth*

Personal growth does not occur as a direct result of trauma. It is the individual’s struggle with the new reality brought about by the trauma that is crucial in determining the extent to which post-traumatic growth occurs (Tedeschi and Calhoun, 2004). Incontinence of urine and faeces was found to be distressing, for some mothers extending over six weeks following childbirth. The findings in the present study show various types of urinary incontinence: daily incontinence (including urge and difficulty in holding urine) and stress incontinence. Very few mothers (2%) at time 1 and time 2 reported daily urinary incontinence, a figure comparable to Wilson et al.’s (1996) 3.3%.

Twenty-five per cent of the women complained of urinary stress incontinence at 6 weeks postpartum. They reported that their symptoms first began following delivery. Lydia’s first experience of urinary stress incontinence was after her delivery of the baby:

“It worries me quite a lot, when I cough or laugh I pass urine without wanting to, and this happens quite often now. I never experienced this before my pregnancy.” (Lydia, T3:25)

These findings of urinary stress incontinence are similar to those of Mason et al., (1999a) and Wilson et al., (1996) who found that in some of their cases, symptoms first began following the delivery of the baby. In contrast, very early observational and seminal studies suggested that stress incontinence rarely, if ever, began for the

first time following delivery (Stanton et al., 1980, Frances, 1960). But these findings provided no evidence to support their claim of timing because no standard measure of stress incontinence had been used. Recently, Mason et al., (2000) and Viktrup et al., (1992) found that quite the reverse was true. Both studies confirmed that the symptoms of urinary stress incontinence occurred as a natural consequence of pregnancy and delivery and generally resolved in the puerperium, while Wilson et al., (1996) and MacArthur et al., (1993) have shown that the aetiology of postpartum urinary incontinence appeared to be multi-factorial with predictors from pre-pregnancy, pregnancy and delivery phases.

In the present study, all types of urinary incontinence including urge incontinence and difficulty in holding urine decreased across the thirteen week study time. For example, the following mothers illustrated their postnatal experiences of urinary incontinence:

“In the past weeks, if I held urine for a fairly long time, I would leak a little, and if I sneezed, I leaked as well. Now it is better.”  
(Nancy, T4:113)

“After the delivery of the baby I spent the first four weeks unable to hold urine, and with pain in the perineum I leaked, and also without being able to control it. Now it is all right.”  
(Melinda, T3:58)

Mothers then went on to describe how their urinary incontinence influenced their daily lifestyle. For example, Linda and Ruth expressed their feelings of distress on incontinence especially when they were socialising:

“I pass urine with sneezing or coughing and I do not hold it much for long. It is unbearable, as I cannot dare to go out for a long time in case I may need the rest room.”  
(Linda, T3:42)

“In the past two weeks after the birth of the baby, I was passing urine without wanting to. It is too distressing to find yourself wet or with a big patch on your dress especially when I am outside and in places where I cannot find rest rooms!”  
(Ruth, T3:109)

Glazener et al., (2001) and Jones (2000) show that both physical factors, such as when the mother finds herself wet, and psychological factors, as when she feels distressed finding herself wet, may contribute towards her perception of the severity of incontinence. Alternatively, it could be argued that through adaptation and with

the support from family members the severity of urinary incontinence may change, as when the mother, through deliberate rumination, takes on a different perception of the inconvenience and adopts coping strategies that prove beneficial, such as voiding the urinary bladder before going out or choosing to attend at places where bathroom facilities are available. It can be speculated that the impact of controlled urinary incontinence after a successful birth may then mark the occasion out as life-changing and may present an opportunity for personal growth.

The quantitative findings suggest that mothers are less likely to have faecal incontinence, such as leaking bowels, than urinary stress incontinence (MacArthur et al., 2001). In the present study, a minority of mothers reported experiencing leaking faeces, frequently related to painful haemorrhoids, which seemed to have persisted by time 4. Samantha confirmed that leaking was due to painful haemorrhoids:

“Sometimes I do leak a bit from my back passage because of painful haemorrhoids. I wear light protective sanitary towels.”  
(Samantha, T4:8)

Saurel-Cubizolles et al., (2000) suggested that the prevalence of haemorrhoids among postnatal mothers increased with time, resulting in the increase of symptoms of health problems. These authors contended that this may be due to the effect of the increasing demands of the baby or a change in the women’s perception of their health. Nevertheless, it is well documented that clinically apparent third degree tears involving the anal sphincter incur a higher risk of faecal incontinence, though this was found to occur in only 0.5 to 1% of vaginal births (MacArthur et al., 2001).

Unlike the findings in MacArthur et al., (2001), in the present study none of the mothers with extended episiotomies reported faecal incontinence. Its absence may be due to the methodology adopted for data collection which consisted solely of the use of visual analogue scales rather than in depth face-to-face interviews. Clinical experience however suggests that childbirth-related faecal incontinence occurring immediately after birth is possibly due to episiotomy which, as Williams et al., (2005), Abramowitz et al., (2000), and MacArthur et al., (1997) argue, is a risk factor for external sphincter disruption.

In Williams et al.’s study (2005) urinary and faecal incontinence yielded emotional distress in mothers who experienced it. The disruption of a mother’s lifestyle which

incontinence brings about presents another challenge and deliberate rumination. It may prolong perineal trauma in all mothers, in those who do and in those who do not accept this reality as a consequence of childbirth. Such challenges may be accompanied by significant levels of psychological distress (Tedeschi and Calhoun, 2004).

## **7.2 Theme 2: Resuming sexual intercourse**

The second theme identified in the qualitative data was the resumption of sexual intercourse, comprising three categories: self-perception, postponing and feeling fit.

By six weeks and thirteen weeks respectively 54.9% (n=79) and 16% (n=23) of mothers had still not resumed sexual intercourse (Appendix 10.2). This might have been due to a range of factors, amongst them, whether they were physically and psychologically ready, or if they were concerned about the possibility of another pregnancy.

### **7.2.1 Category 2.1 Self-perception**

#### *Persistent challenges and coping success*

By six weeks after giving birth (time 3) mothers in the study were inwardly considering whether they were physically and psychologically ready to resume sexual intercourse. Fear related to their sutured vagina (either from an episiotomy or an obstetric laceration) appeared to make the mothers anxious about the future of their sexual health and perineal integrity. Such anxiety might have acted as physical and psychological deterrents to resuming sexual intercourse. For example, Lina wrote:

“I am still feeling tenderness in my vagina, and the internal pulling sensation. I am afraid of the wound in the perineum to burst open during sexual intercourse.”  
(Lina, T4:35)

In addition to fear about the wound, findings at time 3 also showed that perineal and vaginal suturing was associated with dyspareunia. Only 36.1% (n =52/132) resumed sexual intercourse at time 3. Sexual intercourse after childbirth might have been delayed because of other factors, such as fear of pain which reduced women’s libido, change in the structure of the perineum due to episiotomy, and individual negative perceptions of perineal trauma which influence sexual health. Jane confirmed:

“The fear of pain in the perineum is influencing my decision to resume sex. I feel I am not ready yet. Childbirth has been too traumatic for me.”  
(Jane, T3:13)

In the present study, tiredness and increased stress are other factors constantly identified by mothers as inhibiting their resumption of sexual intercourse. Ruth and Rebecca were too tired to resume sex:

“I feel I am too tired to think of sex and I am busy” (Ruth, T3:109)

“We have not resumed sex as I am too tired in the evenings.”  
(Rebecca, T3:144)

In adjusting priorities, mothers find themselves giving less importance to sexual intercourse, an approach that might subsequently impair their relationship with their spouses and ultimately lead to conflict (Olsson et al., 2005). This proved to be a common concern among the participants in the present study. In meeting the various needs of the newborn baby the mothers ruminate and set up fresh priorities to the extent of making their baby their full-time occupation. As Pamela confirmed:

“We are not having sex and we argue about it. We have the baby in our room and I do not want to wake him up once he is asleep.”  
(Pamela, T4:36)

Also, mothers limited their time for sleep and rest, an action they considered as an important coping strategy to give them time to bond with their newborn baby. In psychology, bonding between a mother and her newborn is put on the same level as adaptation to motherhood (Ahlborg and Strandmark, 2001, Barclay et al., 1997). However, while the closeness between the mother and the baby may satisfy the mother, this newly developed maternal preoccupation may diminish her sexual desire (Pastore et al., 2007, Ahlborg and Strandmark, 2001). Any discordance between the baby’s mother and father may be exacerbated if the father feels that he is being excluded from the intense mother-infant relationship.

A mother’s perception of herself as indispensable to her newborn inevitably leads to a prioritisation of the baby, at times to the exclusion of her husband (Pastore et al., 2007, Trutnovsky et al., 2006, Olsson et al., 2005), a situation that may lead to conflict. This lack of desire for sexual activity may prove very stressful on the relationship between the spouses, a concern expressed in the present study by Rina:

“I have no desire for sex and I am breastfeeding and I feel I am very dry. Where in the past I used to accept sexual intercourse, now I refuse. It is only because of him that I sometimes accept.”

(Rina, T4:110)

Previous prevalence surveys have related tiredness to additional stress on sexual relationships along with other factors that yield loss of sexual desire in the postpartum period (De Judicibus and McCabe, 2002, Thompson et al., 2002, Glazener, 1997). These studies suggested a broad range of factors: breastfeeding, fatigue, dyspareunia and pathology in the perineum, and distress, that may be detrimental to resuming sexual intercourse at 12 weeks postpartum.

Such factors present clear and persistent challenges for new mothers. However, it could be argued that those who are able to find a coping behaviour to promote adjustment are contributing to their post-traumatic growth (Tedeschi and Calhoun, 2004). This kind of personal growth is evident in the case of Jessie and Lynn who declared their sexual relationship with their husband to be strengthened despite the traumatic events:

“The perineum feels healthy after being injured with the birth of the birth of the baby and the fact that we resumed sexual intercourse our relationship improved.”

(Jessie, T3:117)

“I think that sexual intercourse after pregnancy becomes much better than it was before. It improves.”

(Lynn, T3:119)

In the above quoted studies (De Judicibus and McCabe, 2002, Thompson et al., 2002, Glazener, 1997) as well as in the present one, the fact that only mothers were surveyed to the exclusion of their partners may pose a limitation to a complete picture of whether the experience of sexual intercourse improved after the birth of the baby. Pastore et al., (2007) in a cross-sectional survey confirmed that male partners do have concerns regarding postpartum sexuality that need to be addressed by health providers.

In their studies on the experiences and intimate relationship of first-time parents, Olsson et al., (2005), Ahlborg and Strandmark (2001) and O’Hara and Swain (1996), all assert that psychosexual and marital problems can occur at any time, but are more prevalent following childbirth. Bitzer and Alder (2000) suggest that the time after childbirth is one of intensive biological, psychological and social changes.

These changes can have direct and indirect, conscious and unconscious effects on a woman's sexuality. The individual response to these effects, the integration of such changes in every aspect of life, and coping with such changes, may lead to a broadening and deepening of the individual's sexual life. When couples acknowledge and appreciate each other's needs, both as parents and as sexual partners, the intimacy and well-being of both partners is enhanced (Ahlborg and Strandmark, 2001, O'Hara and Swain, 1996). It is a growing up experience for both partners together (Calhoun and Tedeschi, 1998).

Motherhood coupled with tiredness, physical exhaustion from breast feeding, and changes in sexuality after childbirth are the common challenges that a new mother has to face after childbirth (Olsson et al., 2005; Tulman et al., 1990). Tedeschi and Calhoun (2004) suggest that the search for meaning through such challenges is considered central to the process of psychological adaptation. According to Calhoun et al., (2000) the challenges for a mother are associated with her ability to manage any emotional distress that may arise in becoming a new mother and her ability to strengthen her relationship with her husband.

#### *Further challenges in coping and maternal growth*

Some mothers (n=27; 20%) at time 3 and (n=20; 16%) at time 4 stated that although sexual intercourse was comfortable and healthy, they felt "*not ready yet*". This might suggest that after childbirth the new mother perceives her new identity as a mother first and reduces in importance her identity as sexual partner. The following mothers wanted time and space to assess their psychological readiness before resuming regular sexual activity:

"The act of sexual intercourse is comfortable. I am not in pain and the perineum feels healthy but I feel I am not ready yet."  
(Doreen, T4:43)

"Well, it is not that I have no desire to sex but I have no interest at all. I am not feeling well as usual. For now I want to take my time until I feel I am ready and it will be well past the six weeks."  
(Pauline, T3:69)

"I feel there is the need of more time and space before I resume sexual intercourse with my husband."  
(Norma, T3:64)



These accounts of the return to sexual intercourse are supported by the quantitative findings. In this study, a negative significant relationship was found between total perineal trauma and the resumption of sexual intercourse ( $r = -0.308$ ;  $p < 0.0001$ ) (Table 5:16). Additionally, a decrease in total perineal trauma scores across time 3 and time 4 was identified. This implies that the less the total perineal trauma the more likely is the resumption of sexual intercourse over time, consistent with Waterstone et al., (2003), De Judicibus and McCabe (2002) and Signorello et al., (2001).

The postnatal delay in resumption of sexual intercourse that emerged in the present study is consistent with Barrett et al.'s (2000) findings where over 83% ( $n = 402$ ) of women reported at least one postnatal sexual problem in the first three months, and 36% ( $n = 146/403$ ) were still experiencing sexual problems at six months. Although the sample in the current study ( $n = 144$ ) is smaller than Barrett et al.'s (2000) ( $n = 796$ ), in both studies women reported postnatal sexual problems. This suggests that postnatal delay in resumption of sexual intercourse can be a common issue (Barrett et al., 2000).

The findings in the present study are similar to those of Olsson et al., (2005), Barrett et al., (2000) and Barclay et al., (1997) where 'being not ready yet', 'being free' and 'having time of one's own' were reasons given by new mothers to accord low priority to the resumption of sexual intercourse. The emotional sense of motherhood created by the developing relationship with their newborn may be a contributory factor (Pastore et al., 2007). An alternative priority, such as resuming sexual intercourse, may give the new mother a sense of baby abandonment (Olsson et al., 2005).

One other possible reason for new mothers postponing having sex could be that, at this early stage after giving birth, they associate sexual intercourse with postnatal perineal trauma, an experience which only time and space can cure (Tedeschi and Calhoun, 2004). In one way or other, mothers may find themselves automatically, or even deliberately, ruminating on their postnatal perineal trauma which may have already healed. This is compatible with the phase of deliberate rumination (Phase 6) (Tedeschi and Calhoun, 2004). During this phase, the new mother's source of comfort is her newborn baby in whose regard she makes new plans that gradually release her from her trauma. This coping behaviour changes the new mother's

previous life into one of motherhood, a positive post-traumatic growth (Olsson et al., 2005). Maria expressed her motherly feelings as such:

“There is no sexual contact at the moment. My comfort is in being a full time mother. My baby needs all hours of my day and night and all my energy to feed him and care for him.” (Maria, T4:122)

Maltese culture may favour the attitude of this new mother whose husband is considerate enough to abstain from sexual intercourse in order to give his wife the required time to recover from perineal trauma. Several mothers reported their decision to wait which they took with their husband:

“... I am not at all comfortable to resume sexual intercourse due to the state of my perineum. My husband is of the same opinion.”  
(Liliana, T3:12)

“As I am still feeling uncomfortable, my husband and I decided to allow more time before we resume sexual intercourse.”  
(Rita, T3:10)

“My husband is waiting until I get better in the perineum. He respects me and he says ‘you come first’.” (Nancy, T3:113)

Alternatively, other mothers reported another factor underpinning the reluctance to resume sexual relationship, the fear of getting pregnant again. In writing about this fear, Jeanette and Anna expressed themselves thus:

“There is no chance to discuss sex with my husband as he is always ready for sex and I am terrified of another pregnancy.”  
(Jeanette, T4:74)

“It is not the perineum that is the cause of discomfort but the fear of another pregnancy. I do not think I reach orgasms as I am afraid. Sex is not comfortable as I am afraid of another pregnancy. I am cautious as I do not want to become pregnant again so soon. I am moving to a new house and it means hard work, together with the new baby and another four year old child. This is enough.”  
(Anna, T4:44)

These quotes reveal the mothers’ fear of another pregnancy in such close proximity to a previous one. Quantitative findings might also have reflected such a decision. After thirteen weeks, 18.5% (n=23) of new mothers had still not resumed sexual intercourse because of the fear of becoming pregnant. This finding was also reported in a cohort study by Waterstone et al., (2003), where the fear of another pregnancy

was reported by a great proportion of mothers who had not resumed sexual relations at six and twelve months after giving birth.

*Competing demands and extension of growth*

The religious context in Malta may further contribute to this fear of becoming pregnant again. The Roman Catholic Church allows only natural family planning and prohibits contraceptives (Archdiocese of Malta, 2006, paragraphs 2270-2275). Some Maltese mothers still refrain from using contraceptives. Besides, there is an associated lack of information about contraceptives and family planning services offered by the Health Department and other non-governmental organisations. The resulting emotional distress from fear of getting pregnant again could initiate a process of ruminative activity which may serve to reduce such distress thereby moving mothers forward to higher goals and beliefs.

Concerns about competing demands between mothering and marital relationship, the fear of another pregnancy and the delay in resuming sexual intercourse can lead to further problems between husband and wife if left unresolved. Jeanette, for example, reported:

“But I’m also afraid of breaking my relationship with my husband if I do not satisfy him sexually.”  
(Jeanette, T4:74)

This statement reflects a communication problem brought about by a greater sexual desire on the part of the husband. Another contributory factor appears to be the new mother’s consciousness of her body image and the changes her body might have gone through (Pastore et al., 2007). A negative perception of body image may decrease a new mother’s confidence to resume sexual activity after giving birth. Body image largely depends on the new mother’s perception and how she thinks others see her (Pisacane and Continisio, 2004). Some of the new mothers in this study stated that they felt less attractive to their husband. They maintained that they could hardly cope with the change in their body as it seemed to be out of their control. For example, Katrina and Maria felt that their body took another shape different from that before pregnancy:

“I am not confident to resume sex because I am shy of my husband. My husband offered but I refused. My body is too ugly to show it to him. It is self confidence which will get me started.”  
(Katrina, T3:16)

“I am not confident in sexual relations with my husband. I am breastfeeding my baby and the look of my body is not as attractive as before pregnancy.” (Maria, T4:122)

The impact of a changed body image seemed to prevent these new mothers from resuming a normal sexual relationship. Mothers’ emotional discomfort is probably intensified by a society which promotes an attractive sexual appearance of the female body (Huang and Dai, 2007). While new mothers might have wished to convey to their husband their disappointment and distress at seeing their body appearance altered, they seemed to expect a reassurance that their new image was acceptable. At times, the new mother’s perception of the change in her body image did not seem to reflect how her husband considered it, as Katrina’s comment seems to suggest. As a matter of fact, across the qualitative data none of the mothers reported that their husband looked at their altered body as unattractive, signifying that it was only the mothers’ perception. In addition, Rina ruminated on a particular change in her body, a changed perineum:

“I feel the perineum very sensitive and at times it is sore after sex. I am uncomfortable during sex because I am dry and so it is painful. I am aware that it is not the same as it has been before. It feels different down there. I am saying this because you are asking but I never realised it can change with stitches. I am not enjoying sex. I do not feel so much attractive.” (Rina, T4:110)

Besides being influenced by the discomfort associated with perineal sutures, postnatal women in the current study were also concerned about regaining their pre-pregnancy figure as early as three months after giving birth. This is consistent with literature, where women perceived a need to exercise in order to regain what they believed to be an ‘attractive shape’ (Huang and Dai, 2007, Pisacane and Continisio, 2004). In the latter studies, postnatal mothers who were unduly concerned about their altered body image did not seem to look upon body alterations created by pregnancy and breastfeeding as a form of development but rather as a negative aspect of childbearing (Pastore et al., 2007). This negative reasoning could be regarded as maladaptive rumination (Phase 6, Figure 2.1). Tedeschi and Calhoun (1995) called this process maladaptive coping and argued that negative rumination does not foster self-perceived post-traumatic growth.

In the present study, lack of interest in sexual intercourse at time 3 was found to affect 10% (n=8) out of the 79 mothers. In her study, Glazener (1997:330) found that two months after giving birth women were “*not interested in sexual intercourse*”, this being reported to be due to tiredness. Mothers get even more tired owing to the length of time spent in breastfeeding the baby, an activity they are unable to delegate. This indicates that the physical effects of pregnancy and the stress of a new infant are enduring. Severe loss of interest in sexual intercourse reported by breastfeeding mothers could also possibly be due to hyperprolactinaemia accompanied by low levels of oestrogen, progesterone and androgens (LaMarre et al., 2003, Glazener, 1997).

In the present study, 50% of mothers (n=66/132) breastfed at time 3 and 38.7% (n=48/124) at time 4. At time 3, only 10% (n=6) of those who breastfed expressed their lack of interest in sex. Breastfeeding may have also contributed towards the lack of interest in resuming sexual intercourse. Maureen, and even Rose, referred to breastfeeding whilst commenting on not having resumed sex yet:

“The perineum feels normal. I have not given much thought to sexual intercourse. I am still breastfeeding my baby.”  
(Maureen, T3:55)

“The perineal health does not affect as much. Now I think my perineum has healed. But I am not sexually active since I am fully breastfeeding my baby and the first priority is the baby. Sexual expression is not through sexual intercourse only. There are other means in which we can express our love and at the same time we give our baby space to share our union together in one family.”  
(Rose, T4:114)

This last statement indicates that, rather than lack of interest or indifference to sexual activity, the non-resumption of sexual intercourse at time 4 was the result of the new mother’s choice to concentrate on breastfeeding to the exclusion of sexual activity. Her choice could have been a coping strategy. Clearly, the reasons mothers in the present study gave for not having resumed sexual intercourse in the aftermath of perineal trauma are numerous. As the last statement illustrates, the newborn baby, though demanding the new mother’s full time and energy, proved to be the best therapy for her to adapt to a healing perineal trauma.

### **7.2.2 Category 2.2 Postponing the resumption of sexual intercourse**

#### *Strengthening growth in family relationships amongst other priorities*

The qualitative findings relating to postponing the resumption of sexual intercourse can be grouped under two sub-categories: 'caring for the baby and family first' and 'seeing the doctor first'. The first sub-category appears to reflect the new mother's sense of self-sacrifice in mothering and her quest to adapt to an enlarged family that has increased her satisfaction and enhanced her personal growth (Tedeschi and Calhoun, 2004). The second sub-category emphasises the mother's concern regarding the recovery of her perineum and her general health.

In a seminal psychosocial and cultural childbearing study, Raphael-Leff (1991) analysed motherhood following childbirth. She identified two types of characteristics of mothering: the facilitator and the regulator. The facilitator prioritises the care of and bonding with the baby (mother-baby dyad) over the resumption of sexual relationships. This is considered as the prime unit of intimacy between mother and child for several weeks and months after childbirth. In contrast, regulators affirm their husband's sexual relationship, and resume sexual intercourse earlier.

Raphael-Leff (1991) explains that the facilitator feels her lactating breasts as belonging to her baby as opposed to being an attraction for her husband. Thus, sexual desire is reduced leading to postponing sexual activity. This explains why breastfeeding contributes towards postponing sexual intercourse. Additionally, Raphael-Leff (1991) proposes that if the mother experiences conflict between her maternal role and that of a sexual being, her erotic self and sexual relationship may be impaired. Moreover, some mothers may experience a reduction in sexual feelings because, being a mother, may interfere with her view of the body as sexual. On the other hand, some women feel that giving birth and being a mother give them a sense of being a 'real woman' and increase their sexual feelings (De Judicibus and McCabe, 2002; Raphael-Leff, 1991).

Mothers in the present study whose main concern was the care of their babies voiced their extreme worry for their babies' weight in response to breastfeeding. Babies' weight gain and adequate feeding may be the common concerns with first-time breastfeeding mothers. For example, Lorian reported:

“We have not resumed sex yet. I am too absorbed in breastfeeding the baby. He is not gaining weight and we are much concerned about him.”  
(Loriana, T3:127)

The baby’s gain in weight may be a visible sign for many young mothers that their breastfeeding is being successful whilst their sexual relationship is given a lower priority. This is not consistent with Avery et al.’s study (2000) on the experience of sexuality during breastfeeding among primiparous women, where breastfeeding mothers did not worry that sexual activity would harm their milk supply or their ability to nurse their babies. Overall, in the present study breastfeeding seemed to have a slightly negative impact on sexuality. The baby’s weight gain and other anxieties on the baby were legitimate reasons for postponing the resumption of sexual intercourse.

For other mothers in the present study it was not only the baby but the family which came first. Vicky and Martina reported their choice of priorities between their family and resuming sexual intercourse:

“I do not think that I am afraid to resume sexual intercourse, far from it. The fact is that I have no desire at the moment. My family comes first.”  
(Vicky, T3:65)

“Life is getting busy now with a growing up baby and other changes at home. Sex is comfortable but not so important. There are other important things in our family life. Our family comes first.”  
(Martina, T4:71)

In these accounts it is rather priorities that are affecting resuming sex. Sexual relationship is given a lower priority. In Malta, the family is designated as a unit of three or more persons which include mother, father and children, rather than a two-person psychology (a couple: wife and husband) or a mother-baby relationship. Once the baby becomes the focal point within the family, the awareness of who is most vulnerable comes to the fore. Eventually, the birth of the child may alter the wife-husband love relationship to that of a mother-father relationship. On seeing the mother’s reaction to the baby, the father may also give less priority to the sexual relationship, a behaviour which may affect the desire for sexual intercourse. Thus, in becoming the focal point within the family, the new-born baby brings together his

mother and his father. In this perspective postponing sex, rather than being induced by perineal pain or body image, is based on a family oriented relationship.

‘Seeing the doctor first’ was another felt need for the majority of mothers in postponing the resumption of sexual intercourse at six weeks after giving birth. In this instance, Josepha and Tessa reported:

“I have not yet resumed sexual intercourse. I am waiting to attend for the first check-up visit at my gynaecologist who will give me the *go ahead* (researcher’s emphasis) for sexual intercourse.”

(Josepha, T3:106)

“I am hesitating to resume sexual activities. We have planned to make an appointment for a postnatal check-up to see whether everything is all right and that I am safe, and there is no fear that I do harm to the perineum.”

(Tessa, T3:31)

Mothers appeared to be postponing sexual intercourse until they had the approval of the doctor at their six-week postnatal visit. It is the standard practice in Malta for mothers to attend a postnatal medical examination six weeks after giving birth. It could be argued that postponing sexual intercourse until after the visit may result in delaying the discovery of sexual problems, and therefore missing the opportunity to discuss them with the doctor. Thus, postponing sexual intercourse until after the first postnatal visit to the doctor defies one of the objectives for which such visits are intended, that is to discuss any experiences of dyspareunia (De Judicibus and McCabe, 2002). Rather than requesting from the gynaecologist a verbal ‘*go ahead*’ prescription discharging her as being ready physically to resume sexual intercourse, the mother seems to seek, from a paternalistic figure, an acknowledgment that now she is a whole person and an adult woman in her motherhood. Tedeschi and Calhoun (2004) refer to such a relationship as a psychological comfort.

Within this context of a medicalised perception of birth, Barrett et al., (2000) and Raphael-Leff (1991) consider the first six weeks after birth as an extension of pregnancy with the check-up signifying another form of birth for the mother and an official recognition of her established new status. Alternatively, it can be argued that the mother’s passage into normality after six weeks from giving birth signifies a return to her pre-pregnancy state. Apparently, by this time the mother will have somehow recovered from the effects of childbirth and regained her health but she is not thereby restored to her former state of life before pregnancy. Her life has



changed with motherhood, a change that may enhance her personal and psychological growth (Tedeschi and Calhoun, 2004).

The timing of the six-week visit has been questioned by Barrett et al., (2000) who found that 91% (n=436) of women reported attending the six-week postnatal check-up. Only 45% were asked about problems with their perineum and vagina, while 9% reported that they had wanted to ask about sexual matters, but felt they could not. It was suggested that the issue of resuming sexual intercourse was rarely discussed and that at a six-week check-up the majority of the women would not have resumed sexual intercourse. Thus, the six-week check-up may be too early to discover sexual problems. Additionally, the long-term sexual morbidity issues associated with childbirth often receive scant services, even though prompt resolution of complications could ultimately prove cost-effective (Barrett et al., 2000).

In Malta, the six-week postnatal check-up is carried out by the general practitioner or private gynaecologist according to the mother's own choice. The role of the midwife usually terminates at 28 days following delivery. As midwives are the lead professionals involved with the care of the majority of women during pregnancy and childbirth, it might seem appropriate that they be also the postnatal consultants at 3 and 6 months post-delivery in order to re-assess the mother's sexual health and recovery, with the possibility of referral to medical consultation if necessary.

### **7.2.3 Category 2.3 Feeling fit to resume sexual intercourse**

#### *Experiencing meaningful personal changes*

Over sixty-nine percent (n=100/124) of mothers reported being sexually comfortable at time 4, whilst at time 3 only 36.1% (n=52/132) reported having comfortable sexual intercourse (Appendix 10.2). The qualitative data show that generally mothers had a positive outlook on their feeling of fitness to resume sexual intercourse. When questioned on their resumption of sexual activity at six weeks after giving birth, some mothers commonly referred to sexual intercourse as '*normal*' and that they felt '*comfortable*' to resume. Adriana and Lisa reported:

“When I am relaxed I feel much more comfortable and more or less no pain at all.”  
(Adriana, T3:23)

“We resumed sex. It is normal and comfortable. It was a bit uncomfortable in the beginning, but it is all right now.”

(Lisa, T3:81)

Thirteen weeks after giving birth, other mothers stated that now they were ‘*ready and fit*’ for a normal sexual life. Maria wrote:

“Now I am not finding problems. I used to be in pain in the beginning of resuming sex and I did not want to be in pain, but now I am ready and fit.”

(Maria, T4:122)

Such a positive attitude in the latter quotation may complement the modern culture of childbearing’s expectations that mothers make a rapid recovery and a quick return to a normal sexual life soon after childbirth (Pastore et al., 2007). In this context, Woollett and Marshall (2000) comment that in contrast to the medicalised constructions of women’s health in pregnancy and birth, it is assumed that postnatal recovery and return to pre-pregnancy normality, comprising the resumption of sexual intercourse, is more rapid and requires much less care. In other words, today women are led to believe that postnatal recovery should not take long (Koniak-Griffin et al., 2006) as is evidenced by a number of the participants in the present study who believed they could develop total recovery only days after giving birth. In addition, women live in a context that does not provide information about either the postpartum healing process, or the amount of time and rest that healing requires. Instead, media and health care perceive birth in such a way that what comes after birth, (including perineal trauma and resumption of sexual intercourse) is believed to be natural and easily manageable.

In PTG theory, Tedeschi and Calhoun (1998) suggest that, while individuals struggle with events and problems, they may experience meaningful personal changes which may enhance personal growth, such as, learning through experience. In the present study, the majority of postnatal mothers revealed a positive attitude towards resuming sexual intercourse. Some of them attained their goal at time 3 notwithstanding the pain and discomfort they went through. Other women stated that by time 4, they had not only resumed sexual intercourse but also felt that in their sexual activity they had reached their pre-pregnancy state. There were other women in the present study who, though physically normal, reported that they still had not resumed sexual intercourse. The reason is unclear. Joanne and Lynn wrote:

“We have not resumed sexual intercourse as yet. It is normal with the perineum.” (Joanne, T3:88)

“I have not resumed sex but the perineum feels strong and healthy.” (Lynn, T3:142)

Page (2000) argues that while sexuality is only one aspect of an intimate relationship, it serves to affirm and renew the couple’s mutual closeness. The intimate relationship of the spouses is experienced through positive psychological changes, an increased appreciation of life and by setting new life priorities (Tedeschi and Calhoun, 2004). Page (2000) also recommends that health professionals should address the couple’s needs holistically by including the husband and the bio-psycho-social and spiritual dimensions of the mother.

### **7.3 Theme 3: Maintaining postnatal general health**

The third theme identified in the qualitative data concerns the maintenance of postnatal general health. This theme comprises two categories, namely, self-worth and regaining health.

The quantitative data indicated that postnatal general health increased across time. For the mother the postnatal period is transitional but potentially stressful. During this period she faces a new maternal role, various changes in her body, changes in her relationship with her husband (Page 2000), economic demands (Saurel-Cubizolles et al., 2000) and new social support needs (Tulman et al., 1990). These changes and new demands may yield a positive development in a mother’s general health, such as an increase in her self-esteem and self-confidence in caring for her baby and in prioritising her various roles, including returning to work (McGovern et al., 2006, Thompson et al., 2002, Killien et al., 2001).

However, the mother may also find it difficult to function effectively in her new role of mothering (Page, 2000). The way in which the mother responds to this challenge may create in her a positive psychological growth. It is the struggle with the new reality in the aftermath of childbirth that is crucial in determining the extent to which postnatal growth occurs (Tedeschi, 1999). The struggle is chiefly determined by the mother’s sense of self-worth.

### 7.3.1 Category 3.1 Identifying self-worth

#### *Personal strength and growth in motherhood*

Self-worth is the feeling mothers have about themselves and through which they perceive themselves as either a success or a failure in life (Crocher et al., 2002). Quantitative findings suggest that mothers' self-worth, which Goldberg and Williams (1988) termed as 'playing a useful part in things', increased gradually across time (Appendix 10.1). When the mothers were asked whether they had 'been thinking at all of themselves as being a worthless person' their reply revealed a gradual increase of self-worth across time. For the mother, increased self-worth seems to be a gradual development (Hall, 2001, Rubin, 1984). That would mean that the mother senses a progressive increase of self-worth and confidence in mothering simultaneously with the return to normal of her physical and psychological health.

At times, the overwhelming nature of motherhood and the mothers' anxieties over their ability to cope may prove to be the test of their self-worth. Maria was very much concerned about her ability to cope with pain and tiredness and at the same time take care of her baby who depended solely on her. Through the social support in her first days of motherhood and her coping behaviour she attained a sense of self-worth, enough to move forward by herself:

“I lose sleep with worry over my inability to care for my baby but I found total support to help me with my baby. If I were alone I wouldn't have done it in the first four to five days when I came home. It was so difficult to adjust myself due to pain in the perineum and being tired with a baby who depends on me for his nourishment. I trust myself that I can do it now.” (Maria, T2:112)

Rita admits that she managed to mother her baby with a still unhealed perineum through the support she had from her family members. By focusing on the baby she gradually discovered her own self-worth as a mother:

“Although the perineum has not recovered 100%, it does not really affect me because all my attention is focused on the baby. Now, I am feeling I am doing well in mothering but I wish that the baby settles a bit more, so that I shall rest and be less dependent on my husband and my family.” (Rita, T3:10)

This ruminative process of self-worthiness in mothering appears to be influenced by social support that in turn provided comfort and relief (Joseph and Linley 2006).

Earlier, Tulman et al., (1990) found that emotional support from members of the mother's own family was linked to maternal role attainment throughout the postpartum period. Mothers grow in their experience of well-being which contributes to the effective functioning of the maternal body, and consequently may help to promote rapid recovery (Ryff et al., 2004).

#### *Social support and sources of comfort*

The Maltese culture appreciates the maternal role in the first weeks of motherhood. The mother who returns home with her newborn baby gains the full support of her family members and sometimes of her neighbours. There are instances where the parents of the mother or of the father of the newborn assist the new mother by inviting her to live in their home during the first weeks after the birth of the baby. In a culture in which motherhood is seen primarily as a fulfilling experience, it would be difficult for new mothers to declare 'negative' feelings, such as sadness brought about by feelings of unworthiness.

Mothers who stay at home may enjoy feelings of self-worth in being a fulltime mother while recovering from childbirth and perineal trauma. Others, whose choice is to return to work, may be thrilled to resume their employment after childbirth but still struggle to resolve tensions between the two. Although both the state and private agencies offer maternity leave to mothers, with or without pay, some mothers were found to prefer to return to work because of financial demands. Claire reported:

“At times I feel I am too weak in performance, as I am sad to have to return to work and leave my child to be cared for by others. In the past I had been stronger, and now, even as I observe my baby when he is in pain I feel weak because I pity him. At times, I feel guilty that I have failed my child as I have returned to work but I have no other solution as we need money.” (Claire, T4:66)

As women increasingly resume their pre-delivery activities and return to their place of work, the father's participation in the care of his child becomes essential. In addition, support may include the maternity services that are provided during the first few weeks after birth and later if needed. McCourt et al., (1998) found maternity services that provide good mutual communication and exchange of information and known carers, to be beneficial to mothers. In the current study, the full support provided by the husband, family members, friends, and professionals

during the first days after discharge from hospital appeared to be effective in enhancing the mothers' self-worth, their self-confidence with body changes, and the attainment of maternal role. Jo shared her feelings by saying:

“I feel that every day I am recovering to better health. I pass through moments of sadness but generally not longer than one hour, then it passes. I understand this is normal. I can understand the changes my body has passed through – from a state of pregnancy to the present state – from where I have to return to normal as before being pregnant. But with the full support of my husband, my own parents and friends, and especially with my midwife's support, I am feeling good. Most important is to have someone who listens to you and understands what your needs are.”  
(Jo, T2:116)

This statement confirms the moments of sadness that may consequently influence the mother's perception of self-worth during the early postnatal days. Even so, low self-worth can lead to personal growth if facilitated by effective social support which can come from numerous sources. The mother's positive response to social support is essential. Bitzer and Alder (2000) elaborate that a mother's negative response to the effects brought about by biological, psychological and social changes may lead to sexual problems, dysfunction and difficulties.

The reciprocal support of the couple and their sexual health seem to enhance the mother's self-worth and comfort. The mother in turn transmits the affection she receives from her husband to her newborn and other siblings. Helen expressed her feelings of gratitude towards her family members as such:

“Sexual health in general makes me feel being loved and in return I love my baby and my older child. It increases my self worth. There are moments when I am sad and down and I feel that I need such love from my husband. He is supportive and understands me well...”  
(Helen, T4:39)

The new mother's feelings of sadness may lead to difficulties in her maternal role and family life, affect her relationship with her husband and interfere with her developing a relationship with the newborn child. The above statement reveals mutual love and affection of husband and wife after the birth of the baby. Such reactions between the couple may help the mother overcome the incidence of postpartum mood disorders, that go beyond postpartum blues (Bitzer and Alder, 2000), and may strengthen the unity amongst all the members in the family.

Therefore, although giving birth with its associated pain brings about major changes in the mother which may lead to distress, the event is described as a happy one. It increases the mother's self-worth and helps her grow physically, psychologically and spiritually.

#### *Spiritual comfort and personal growth*

The religious context of Maltese culture is revealed through the mothers' trust in a supernatural power. For some women, their faith in God helped them to enhance their self-worth and adapt to the maternal role. Christine expressed how her spirituality helped her to appreciate herself as a worthy person:

“It is more tiredness and fatigue rather than tension or stress. I can never say about myself that I am a worthless person. I believe that since God has given me the responsibility of being a mother of this child, I should feel happy. At present, my health is poor with pains and I am very busy. Even so, I am happy and feeling worthy.”

(Christine, T1 :101)

Even though tiredness and fatigue may lower a mother's mood to the extent of affecting her general health, the sense of the spiritual nature of motherhood as a gift from God appears to increase her self-worth, bringing forth a spiritual change and an appreciation of life (Tedeschi and Calhoun, 2004, Calhoun and Tedeschi, 1998) (figure 2.1). From this point of view, being a mother can be regarded as complex, incorporating not only the bio-psycho-social but also the spiritual dimension (Shaw, Joseph and Linley, 2005, Hall, 2001).

#### *Unhappy, lonely, but worthy*

In contrast to the majority of mothers who experienced self-worth and the resultant enhancement brought about by motherhood, a few mothers expressed a form of grief at the loss of their previous sense of identity which they had spent years building up and have now lost with the birth of their first child. For these few women, motherhood becomes a reality contrary to their expectations. Lina described her feelings of tension and unhappiness weeks after the birth of her child:

I have great fear because I do not know for how long I am going to have these effects of tension and unhappiness. While everybody at home is concentrating on the baby, I feel at times lonely and full of unwanted tension in a crowd of people. Besides taking care of a new born baby I have to take care of my own health and I feel I have not yet recovered because of the perineum and its effects after birth:

effects that I have never been aware of or learnt about before the birth of the baby and that they might be possible after a normal delivery!  
(Lina, T4:35)

A woman's passage into motherhood can be a struggle against fear and tension which in turn can make her lonely, unhappy and unable to communicate with the people around her (van Bussel et al., 2006). In the above case, it seems that fear and tension and their effects were produced by the woman's complete lack of being prepared for the trauma of birth and the multiple demands of the new role of motherhood. Similarly, in Gatrell's sociological study (2005), women who were combining mothering with their career, and who had felt prepared antenatally through reading a great quantity of literature on pregnancy, childbirth and mothering, felt that they were totally unprepared for the reality of the changes brought about by the birth of a first baby. They were shocked to discover what a deep and irrevocable impact a new baby had on them especially when they returned to their place of work.

For other mothers in the present study, mothering in general proved to be a positive experience despite the difficulties and the responsibilities of motherhood. For them it was exciting and worthy. Motherhood may have affected their self-confidence, but not their self-worth. Jessie expressed her helplessness in handling her newborn baby but she never thought of herself as being a worthless person:

"I have a great tension and excitement at the moment because everything is new, even cleaning and washing the baby. I am anxious to breastfeed successfully. I suffer from loss of confidence in dealing with a small helpless creature. I never handled a newborn baby. I am forgetting all my pain while I try to do my utmost to do things as best as possible. I am doing all I can and if things go wrong I can say I have done my very best. But I never thought of myself as a worthless person."  
(Jessie, T1:117)

When expressing their feelings with negative statements, some mothers revealed their loneliness. Unhappiness can persist even at thirteen weeks after childbirth:

"When I find myself alone with the baby, I feel lonely and distressed. Finding myself alone is what affects me and I begin feeling isolated. The pain in the perineum is so very distressing that it is making my life unhappy and I want to enjoy my new baby."  
(Bertha, T1:11)



“As to health as such I feel well but there are times when I feel weak in health with a great weakness in my morale. I am unhappy at the moment, as I feel all alone although I have the support of my mother but it is just the same that I am alone with a child and small finances.”  
(Sylvian, T4:134)

Women’s feelings of isolation, common all through the postnatal period can cause distress. Some women in the present study put the blame on themselves for not feeling happy. They doubted their own abilities in mothering and their sensitivity towards their babies. Gendered parenting roles ultimately place the responsibility of the baby on the mother, which can prove to be overwhelming and emotionally difficult (Gatrell, 2005). This is illustrated in the following extract:

“I become tense in the busy moments. I’m still sad with the effect of labour and the delivery of the baby. At times I am afraid and I am in doubt of my own abilities. But it depends on me whether I should work on becoming happy in order to live happily in a normal family.”  
(Yvonne, T1:90)

Women may feel guilty for not feeling happy after childbirth. They believe that they should be able to cope. Society perceives motherhood as natural. However, the reality of motherhood can be somewhat different. It may turn out to be very disappointing for the mother who, whilst still in pain, has to face the responsibilities of motherhood and the difficulties of the family (Wilkins et al., 2009).

On the other hand, all along the thirteen weeks of the present study, mothers also referred to mothering as fulfilling and as providing them with a new identity of self-worth. Both Rebecca and Christine felt a sense of worthiness as they gained more experience in mothering:

“I feel that the more time passes the more I am getting used to rearing and caring for my baby and being his mother ...and I feel my health is coming back to normal.”  
(Rebecca, T4:144)

“Of course I am not a worthless person. I have my husband and my four-year old child and the baby. They all love me. There are times when I am down but not worthless. I am a mother of two. I am a wife to my husband and I am happy. It is not that I am happy after considering everything but I feel happy with all the good and bad experiences in my daily family life.”  
(Christine, T4:101)

These mothers' statements may suggest that postnatal women go through alternating feelings of happiness and unhappiness, of worthiness and low morale. In the present study some mothers who rated their happiness, confidence and worthiness positively in terms of their scores on the General Health Questionnaire also reported feelings of unhappiness, doubt or loneliness, a fact suggesting that feelings of distress and satisfaction can co-exist (Calhoun and Tedeschi, 1998). The PGT theory indicates that in spite of psychological growth, distress from trauma could still prevail even at a late stage after the traumatic event. The PTG theory demonstrates the capacity to analyse mothers' experiences all along thereby proving its applicability.

Postnatal mothers in the present study were found to suffer from pain and tiredness and yet reported their satisfaction in prioritising their newborn baby and the family. As their sleepless nights wore on, through their low spirits and fatigue emerged new feelings of gratitude towards family members, an awesome sense of appreciation combined with a feeling of love towards themselves, their baby, their husband and the rest of the family (McGowan, 2006). In such moments mothers rank their general health positively as was shown earlier in this study, where quantitative findings illustrated that there were significant negative correlations between general health and total perineal trauma across time resulting in high rates of general health and low rates of total perineal trauma.

### **7.3.2 Category 3.2 Regaining health after childbirth**

#### *Life-style changes and maternal well-being*

The quantitative findings demonstrated an increase in the mothers' rate of "overcoming difficulties" across time. However, perineal pain and sexual difficulties were commonly reported over time, up to time 4. The prolonged effect of episiotomy resulting in perineal pain and dyspareunia has earlier been noted by Glazener (2005b) and Brown and Lumley (1998a). For example, in Glazener (2005b), 44% (n=208) of women who had perineal pain in hospital continued to report it at home for two months postnatal. This result indicates that physical recovery is a gradual process and contrasts with the unrealistic common expectation of a quick recovery and an as much quick postpartum adjustment. The time taken for recovery could be a source of concern for mothers. Victoria wrote:

"I am very uncomfortable with the perineum. It is sore and red. The stitches have given way early and it is slow to heal. I cannot

go out for long times as it is very painful and uncomfortable. I stopped breastfeeding and I am also in pain with full breasts. I feel down and it is difficult to overcome these feelings of pain at the moment.”  
(Victoria, T2:139)

This quotation implies that little or insufficient systematic guidance on dealing with postnatal physical and emotional changes may account for the amount of worry experienced at time 2 (ten days postnatal). Physical recovery may be delayed by several factors, apart from perineal pain. Such factors may be incontinence of urine, lack of sleep, and stress. Findings show a decline in the mothers' lack of sleep and stress across time and less insomnia over worrying by the 13<sup>th</sup> week. Similarly, “feeling constantly under strain” seemed to resolve by time. Catherine and Anita illustrate the gradual recovery from birth and perineal pain within their subjective comments:

“I am gradually gaining my health but I am not fit yet. I am too tired. I have not recovered from that fatigue after the birth of the baby.”  
(Catherine, T4:86)

“I am feeling all well again and gaining strength every day. I am expecting myself to get over the bad moods I am suffering. When I think on these questions I am aware of my improvement in health in my whole body.”  
(Anita, T4:108)

In considering the quantitative and the qualitative findings, the complexity of the mothers' feelings in adjusting to the new maternal role appear to be ‘normal’ postpartum experiences rather than indicating pathology (Percival and McCourt, 2000). It is to be expected that mothers who are facing so much change and so many challenges may feel distressed or experience mood liability. These negative emotions and pain may lead to personal growth (Tedeschi and Calhoun, 2004). In fact, the life-style changes that are brought about by the arrival of a newborn baby may help mothers to attain maternal wellbeing.

Thompson et al., (2002) in their prevalence survey of health problems after childbirth, found some differences between primiparae and multiparae. Primiparae were more likely to report sexual problems and perineal pain. The current study collected information from mothers, the majority of whom were primiparae, while only a few were with their second and third baby. The differences in the prevalence of health problems between mothers of different parity were not systematically

considered. However, primiparae seemed more concerned with the time of adjustment and recovery as Jo explained:

“Generally I am feeling well. What is making me uneasy is the fact that I have no time for myself because the baby takes more time than I am expecting. Perhaps in the future I shall have more time for my husband and myself. We need to adapt to this new situation. It is a big change but my husband and I are trying to adjust to our new experience in our lives. Above all, we are happy with our baby although she takes all our time.” (Jo, T3:116)

A mother’s awareness of the coming postnatal body changes and the time required to recover from childbirth appear to contribute towards her postnatal general health. McVeigh (2002) in investigating the relationship between satisfaction with social support and functional status after childbirth argues that a woman’s whole being is called upon to make the necessary adjustments that may result in important consequences for her future ability to function. McVeigh continues to argue that postpartum adjustment is related to the mother’s level of preparation for the changes, to the availability and adequacy of support systems, to the mother’s perception of her confidence to deal with the changes and to her expectation of the maternal role. Glazener (2005a) argues that time is the best healer. For the mothers who have a positive outlook, the time taken to get back to normal again does not seem to be a concern. Miriam gave a descriptive account of time and past events:

“I feel that life is too quick and short. Sometimes I forget what day of the week it is. Week after week passes where I am always busy with the baby and a house to keep clean. But this (the questionnaire) is a test for me to remember that I am fine in the perineum though I am still uncomfortable and unsatisfied with sex. Everything is coming back to normal. When I remember of the great experience of pregnancy and the birth of my baby, I feel excited; it is lovely though painful. I wish to go through it again.” (Miriam, T4:123)

This excerpt demonstrates that the new maternal role helps mothers overcome most postnatal problems and regain their physical health without being aware of the length of time for recovery. In appreciating the “great” experience of pregnancy and the birth of the baby the mother reaches a climax in post-traumatic growth and acquires wisdom particular to motherhood. Additionally, such growth reflects the adoption of the new role of motherhood, which is beneficial to the mother’s general

health as she takes up responsibility for her newborn baby on a day to day basis (Schytt, Lindmark and Waldenstrom, 2005).

#### **7.4 Conclusions**

The qualitative data relating to women's experiences of postnatal perineal trauma and general health across time identified three main themes: experiencing total perineal trauma, resuming sexual intercourse, and maintaining postnatal general health.

This study reveals that mothers were concerned about soreness and tenderness in the sutured perineum after childbirth. They expressed their distress in relation to restrictions in carrying out their daily activities and in taking care of their newborn baby and the rest of the family. Tiredness due to childbirth and painful perineum were found to deter new mothers from feeling fully functioning at home. Fatigue affected their physical and psychological state of health. Family support somehow relieved the burden of pain, tiredness and fatigue. In some women, perineal numbness was found to revive their traumatic experience of being sutured. At time 3, mothers reported their eagerness to '*get back to normal*'. Those who were still in pain doubted whether they would recover fully. Fear of pain held some back from resuming sexual activity even at time 4. Few mothers reported symptoms of urinary and faecal incontinence, but these instances should not be overlooked because they may mark out a negative experience of personal growth. Findings suggest that total perineal trauma (perineal pain, urinary and faecal incontinence) decreased over time. Post-traumatic growth appeared to be higher for those mothers who used adaptive coping strategies, including positive interpretation of distress through deliberate rumination (Tedeschi and Calhoun, 2004).

Some mothers expressed feeling of unfitness to resume sexual intercourse within the thirteen week period of the study, mainly because of an unhealed perineum. They were also anxious about the future of their sexual health and their perineal integrity. Tiredness proved a key factor for not resuming postpartum sexual intercourse. Caring for the newborn baby took the priority over the desire to resume sex. Findings also show that lack of postpartum sexual activity raised the risk of conflict between spouses and adaptation in others. '*Being not ready yet*' was another issue that rendered resumption of sexual intercourse a low priority for mothers. The

impact of body image as perceived by the postnatal mother seemed to influence her return to normality and the resumption of sex. Lack of interest in sex was also revealed especially with breastfeeding mothers who were tired due to the length of time consumed in infant care. '*Caring for the baby first*' was the ultimate goal for "facilitators" who could tolerate no more demands upon them. For the other mothers who perceived that their family came first, the birth of the child strengthened the bond between the couple and brought about a change that might supersede the desire of sexual intercourse. '*Seeing the doctor first*' provided a 'go ahead' for mothers who purposely postponed sexual intercourse until the 6<sup>th</sup> week postnatal visit. Due to this postponement, sexual problems can only be discovered after this visit, which questions the purpose of such a visit. The majority of mothers had a positive attitude in expressing their feeling of fitness for resuming sexual intercourse. Their readiness may imply that they comply with the childbearing culture that expects a rapid recovery and a quick return to normality. The challenges postnatal women had to face throughout the thirteen week period of the study and their struggle in order to manage each situation and adapt to it may have produced in them positive psychological changes and possibly personal growth.

Some new mothers felt overwhelmed by the responsibility of the newborn and struggled with feelings of fatigue, isolation, fear, and worry which may have influenced their self-confidence but did not interfere with their self-worth. The full support supplied by the husband, other family members, and the maternity community services helped new mothers develop in themselves a sense of trust, self confidence and an eventual personal growth. The mothers' self-worth was further enhanced by the mutual love and affection of the husband and the increased unity in the family brought about by the coming of the newborn baby which set the stage for a personal growth for both parents. The sense of the spiritual nature of motherhood also helped the new mother to appreciate life, thereby increasing her self-worth and wisdom about life.

A few mothers, overwhelmed by the multiple demands of the new role of motherhood, expressed grief over the loss of their previous sense of identity on the birth of their first baby. All through the postnatal period there were mothers who expressed feelings of isolation and distress and a consequential sense of guilt for not feeling happy with the birth of their baby, whilst others stated that mothering

gradually proved to be fulfilling and provided them with a new identity. Mothers ruminated on the events of their life and expressed mixed feelings of happiness and unhappiness, of worthiness and low morale, suggesting that for new mothers there are moments of distress and moments of satisfaction.

For mothers, regaining general health is a gradual process that may be delayed by perineal pain, incontinence of urine, lack of sleep, and stress. New mothers seem to be concerned with the time taken to recover. Those having their first baby appeared more affected by the body changes, perineal pain and sexual difficulties and the challenges brought about by the new role of motherhood. When mothers get absorbed in the care of the newborn baby, they overcome psychological problems and regain their physical health without giving much notice to the time taken in recovering from perineal trauma. The post-traumatic growth process (Calhoun and Tedeschi, 1998) indicates that in spite of recovery from the effects of perineal trauma and the relative personal growth, distress from trauma can be enduring. Post-traumatic growth is not a linear process and mothers can move backwards and forwards through the phases until growth is achieved.

Post-traumatic growth in new mothers is real. They not only survive their perineal traumatic experience in childbirth but also face various physical and psychological challenges until they regain their general health. They also face the challenge of mothering. In the process they develop a personal and psychological growth which goes beyond their previous state of life. Post-traumatic growth is not simply a return to baseline. Motherhood provides a woman with a new identity.

The final chapter continues to explore the combination of the quantitative and the qualitative findings, limitations of the study, and the principal implications of the findings, followed by some recommendations for practice, further research and education for midwives.

## **Chapter 8**

### **Conclusions, Limitations and Recommendations**

#### **8.0 Introduction**

This thesis has presented the findings of a longitudinal study which aimed to explore the relationships between perineal trauma, resumption of sexual intercourse, general health and obstetric characteristics of Maltese mothers following normal vaginal deliveries. The study provides both theoretical and clinical insight into the mothers' experience of perineal trauma and general health. This chapter incorporates a discussion of the combination of the quantitative and qualitative findings, strengths and limitations, recommendations for research and practice, and implications for midwives' continuing education.

#### **8.1 Combination of quantitative and qualitative data**

The quantitative findings, when combined with the qualitative themes, illuminate perineal trauma as a multifaceted maternal experience which can potentially endure beyond the early postnatal days. The quantitative findings suggest that perineal recovery is affected by various characteristics at a number of levels, as for example, at the clinical level by parity, maternal position during birth and suture operator. At the personal level, perineal recovery is affected by age, smoking and length of hospital stay. However, the simplicity of the impact of individual variables on outcome is not reflected in women's experiences, which means that recovery from perineal trauma is more complex. Perineal trauma affects women's personal and psychological experience which may or may not lead to post-traumatic growth. It affects the relationship with their husband, their body image and their ability to adapt to mothering and motherhood.

The interpretation of the combined findings may enhance midwifery knowledge of postnatal mothers' perineal trauma and general health. The three themes identified in the synthesis of the qualitative findings, namely, experiencing total perineal trauma, resuming sexual intercourse and maintaining general health, represent the following three main sections in the combination of quantitative and qualitative data.



### **8.1.1 Theme 1: Experiencing total perineal trauma**

While the qualitative findings gave important insights into the lives of postnatal women with perineal trauma and pain during the first thirteen weeks, the demographic and the obstetric characteristics in the quantitative part of this study gave a clear picture of the nature of the women (Tables 5.1 and 5.2). For example, they had a mean age of 27.8 years, the majority of them were parity one, with a level of secondary education, married, worked outside home, attended antenatal classes, did not smoke or consume alcohol, with a hospital stay of two days after childbirth, and the person who performed perineal suturing for them was the senior hospital officer. These are all characteristics that are associated with a positive transition to the mothering role. Amongst these mothers perineal trauma was the common factor of concern that required a process of personal and psychological change in their lives following the entire experience of childbirth.

The measurement of fixed, observational and clinical outcomes of demographic and obstetric characteristics is insufficient when studying any human being. Therefore, the qualitative data wherein mothers specify their views on perineal trauma becomes essential. This research approach enabled women to voice the issues related to perineal trauma, for example, concerns with perineal pain and its influence on their physical and psychosocial life. In the literature, Salmon (1999) found that women were mostly concerned about the skills of the clinicians repairing their perineum and the rapport they had with them. Later literature confirmed the same focus where women recalled very traumatic experiences of repair and perineal pain (Sanders et al., 2002). Thus, qualitative research seems to achieve, as in the current study, new findings and knowledge which quantitative research by its nature has no means of achieving. In post-traumatic growth theory, the overturn of the postnatal women's lives from independence to dependence and back again to independence upon their full recovery is manifested in a variety of ways which include more meaningful interpersonal relationships and altered priorities (Tedeschi and Calhoun, 2004). This experience of positive change occurs as a result of working through the challenges of postnatal life. For example, mothers worked hard through their own recovery from childbirth and perineal trauma while shifting priorities to cope and to take care of their newborn baby most often with the help of their spouse or other members of the family.

Quantitative data continued to give substantial information on postnatal women with perineal trauma. Inferential statistics showed that mothers who were sutured by senior registrars had more severe perineal trauma than those who were sutured by either senior hospital officers or registrars. These findings become significant when considering the mothers' accounts which show that the real cause of severe pain and distress that brought about limitations in their lifestyle, rather than being an episiotomy or a tear, was perineal suturing.

When the means of the two nominal groups of ages were compared with total perineal trauma across time, a significant difference at time 1 was found. This difference may be due to the younger age group perceiving greater total perineal trauma than the more mature group. The younger age group might have suffered more episiotomies and tightening of sutures both of which increase postpartum perineal pain and total perineal trauma. This finding complies with other research (Gottvall et al., 2007, Samuelson et al., 2002, Thompson et al., 2002) where primiparous young women were found to experience higher perineal damage than multiparous older women. While quantitative data identified the younger age group from the older age group, the qualitative data indicated that perineal trauma proved to be painful for every participant irrespective of age. This is in accord with several studies which examined differences in perineal outcomes after vaginal deliveries, regardless of age (N. Fleming et al., 2003, Sampsel and Hines, 1999, Larsson et al., 1991).

In agreement with other findings, smoking was a risk factor for perineal trauma. Social smokers (mothers who used to smoke one or two cigarettes only on social occasions) were found to have a high mean perineal trauma across time. Although qualitative data did not identify smokers from non smokers, it did identify mothers who more than others reported perineal trauma (such as pain and incontinence of urine and flatus) and who continued to report the consequences of their pain over time. In recent years, the epidemiology of pelvic floor morbidity after childbirth has been analyzed in depth and smoking was found to be a contributing factor among other factors for pelvic floor problems which needed repair in later life (Rortveit et al., 2003). This implies that whilst perineal trauma may continue to pose a risk to women's health generally and contribute to a considerable burden of ill health, the risk is particularly greater for women who smoke.

When the means of the two nominal groups of marital status (married and single mothers) were compared with total perineal trauma, a significant difference at time 1 was found. Single mothers reported higher means scores than married mothers. This might be due to the fact that all single mothers were primiparae and were therefore likely to perceive more perineal trauma than married mothers who included multipara. This finding is supported by other studies (Albers et al., 2006, Woollett, Dosanjh, Nicolson, 1995) which found that first time mothers seemed to have somewhat different medical experiences of childbirth and the postpartum from women having their second and subsequent child, as first time mothers were more likely to be induced, to sustain a sutured perineal wound and to have a longer stay in hospital. No difference resulted between married and single mothers from qualitative data. Whether married or unmarried, all mothers experienced perineal pain during the first ten days of the study and some continued to experience trauma throughout the thirteen week study period. The relationship between perineal injury and perineal pain may have a long-term effect on maternal well-being which, as the qualitative findings show, might have a negative implication on marital relationship or on the future stability of the family unit (Glazener, 2005b). In midwifery practice, good perineal care and minimisation or avoidance of injury might have far-reaching benefits for mothers.

There were no significant differences in total perineal trauma by other subgroups of parity, position of the baby's head at birth and maternal position at birth. These variables did not appear to make much difference in their contribution to perineal trauma, although both the position of the baby's head at birth and the maternal position at birth could have influenced the perineal state of health during birth. It is worthwhile to note that mothers responded to the questionnaires in a self-report manner and would not know such clinical details of their own delivery or their perineal state of health. Nonetheless, qualitative data did reveal findings of severe perineal pain and other psychosocial problems which might have hindered the ability to manage emotional distress and reaction to the trauma and which for some women could have been debilitating. Post-traumatic growth theory assumes that the level of emotional distress, which tends to be higher in the time following trauma, tends to be accompanied by cognitive engagement that tends to be more automatic than deliberate.

In the first ten days after childbirth, qualitative findings expose the fear and helplessness of mothers on account of the loss of their body image against a background of perineal pain. These findings comply with the statistically significant decrease in the mean score on perineal oedema and bruising over time. Physical data alongside qualitative data represent a more holistic integrated view where healing and pain are not seen in a narrow clinical focus but in a social context. Pain and discomfort hinder a mother's social recovery and the mothering of her newborn. In the current study, some mothers described perineal pain as being 'intolerable', 'worse than giving birth', others 'preferring a caesarean section' to a normal delivery which entails perineal trauma. The latter perception along with the other observations can be interpreted as intrusive thoughts which form the process of an adaptive mechanism. But it can also be argued that there is a move in some countries (including Malta) towards elective caesarean section on maternal request. Although research into why women opt for a caesarean section is still in its infancy, it is becoming apparent that some mothers feel caesarean section would prevent perineal trauma and its effects, such as incontinence.

Whilst quantitative findings showed consistent significant differences in total perineal trauma mean scores in pairs of time periods suggesting constant perineal recovery, qualitative findings continue to reveal mothers' own emotional experiences and feelings of perineal healing. All through the thirteen week study period mothers reported physical healing by first intention. Some reported a feeling of detachment from their injured perineum. Others described emotional experiences of flashbacks of the perineal pain they had endured during the process of suturing. Personal and psychological growth can take place if such events of emotional pain and flashbacks are great enough to force individuals to ruminate and reconsider their lives and their future (Tedeschi and Calhoun, 2004).

Other women in the study embarked upon active or constructive thinking about their experience of perineal trauma and appeared to be more likely to report positive changes in their priorities in response to pain. They were presented with a challenge to breastfeed and they succeeded, against all odds of perineal pain, tiredness and fatigue. It is important for professionals to have knowledge of the holistic composite of the person in order to be able to support the individual in traumatic circumstances (Tedeschi and Calhoun, 2004). The combination of the quantitative and qualitative

data within the present study provides a more complete representation (Halcomb and Andrew, 2005) of women's experience related to total perineal trauma.

Finally, in the context of experiencing total perineal trauma, one might ask why mothers used such a strong language to express their discomfort in the perineum after giving birth. One can look for the reason in the statements of the mothers themselves. Mothers are in great pain in time 1, and that is understandable. But why should they keep referring their uneasiness and helplessness to pain in the perineum, even up to time 4? In some cases, it was the fear of pain in the perineum, rather than real pain that, for example, kept them away from being confident to resume sexual intercourse even at time 4. In other cases, painful haemorrhoids, which persisted for long, seemed to be the reason of continuing perineal pain. It is also possible that in the vicious cycle of pain, fear and anxiety (Sharp, 2000), mothers tend to put all the blame of their uneasiness, emotional distress, tiredness and fatigue on their pain in the perineum, even while it is in the process of healing.

### **8.1.2 Theme 2: Resuming sexual intercourse**

The second theme, that of resuming sexual intercourse after childbirth, highlighted women's fear of pain and wound breakdown, their fear of resuming sex early and their individual negative perceptions of perineal trauma. Making time for sleep and rest to combat tiredness and increased stress in meeting the baby's needs and breastfeeding were major priorities in mothers' lives to the extent of making these their full time occupation. Tedeschi and Calhoun (2004) suggest that the search for meaning of challenges is considered to be central to the process of psychological adaptation and growth. The challenges in the present study are similar to those in the findings of several other prevalence surveys that related tiredness, fatigue, dyspareunia, breastfeeding and postnatal distress to the loss of sexual desire in the postpartum period (DeJudicibus and McCabe, 2002, Thompson et al., 2002, Glazener, 1997).

Postponing the resumption of sexual intercourse was a consistent category across the data. This issue is supported by quantitative findings. By six weeks after giving birth the majority of participants were clearly 'not ready yet' to resume sexual intercourse. By this time, the reasons the mothers gave for not resuming sexual intercourse were various: seeing the doctor first, the need of time and space for

healing, the fear of getting pregnant again, and the need to establish themselves as mothers, prioritizing the care of the baby or the family. The mothers' priorities appear to reflect their sense of self-sacrifice in mothering and their quest for adaptation in a newly enlarged family. In each participant life was thereby personally and psychologically enhanced (Calhoun and Tedeschi, 1998).

The significant difference in the mean scores at time 3 between subgroups of maternal positions during childbirth and suturing seemed to be linked to the postponing of sexual intercourse. It may be argued that women's experiences of perineal trauma during childbirth followed by suturing contributed to their delay in resuming sexual intercourse. Qualitative data showed that resuming a satisfactory sexual life after childbirth was not uncomplicated. Mothers' concern for sexual life had probably declined in favour of other basic needs such as sleep and maternal interest in the new baby.

Additionally, significant differences rose again in the mean scores of resumption of sexual intercourse at time 3 in relation to the person performing sutures. Significant differences persisted at time 4 between the SHO and senior registrar. These persistent significant differences may be due to the degree of perineal trauma suffered by mothers sutured by the senior registrar and it may also be the reason for postponing resuming sexual intercourse, in some instances beyond the time limit of thirteen weeks. However, mothers' views that vaginal labours and births with perineal trauma adversely effect their resumption of sexual intercourse is well documented and has been a reason put forward by a number of pregnant women opting for a caesarean section (NOIS, 2007). Research is scarce in this area, except on the specific symptom of dyspareunia (Buhling et al., 2005) where, together with perineal pain, the aetiology is linked to forceps and ventouse deliveries, episiotomy and anal sphincter tears.

### **8.1.3 Theme 3: Maintaining general health**

Quantitative findings showed an increase in postnatal general health across time which would seem intuitive. Women indicated a variable recovery in general health during the thirteen week study period following childbirth. However, at no time did the group show a linear rise. The qualitative findings suggest possible reasons for this unsteady rise, in that postnatal women may go through alternating feelings of

happiness and unhappiness, of worthiness and low morale. The early postnatal weeks are a time of transition, a transition that is potentially stressful as mothers try to cope with their new maternal role, with the change in their bodies, with their lack of sexual desire and with the new economic demands. Self-worth was identified as increasing gradually across time. Mothers acknowledged that they were gaining strength and ability to cope with the overwhelming anxieties of motherhood, perineal pain and tiredness. This view is supported by other qualitative and quantitative studies (Gibb and Hundley, 2007, Williams et al., 2005, Olsson et al., 2005) wherein postnatal health was explored through the mothers' and midwives' views on women's general health after childbirth. The period of recovery may lead to personal growth and positive development in a mother's general health if facilitated by effective social support from the husband, family and friends (Tedeschi and Calhoun, 2004).

Whilst significant differences in general health mean scores in pairs of time periods were found to increase ( $p < 0.0001$ ), no significant difference was revealed between time 3 and time 4. Qualitative findings indicate that these were the times where women were expected to look after themselves and their babies and to resume household responsibilities or to return to work outside home. In spite of an increase in work brought about by the newborn, there were consistent significant negative correlations between perineal trauma and general health across time, resulting in high rates of general health and low rates of total perineal trauma. Throughout the thirteen week study period, mothers reported positive health through building up their self-esteem and self-confidence in caring for a newborn baby and prioritising amongst the various maternal roles. There were no significant differences in the mean scores in mothers' general health between subgroups of marital status, parity, position of the baby's head at birth, maternal position at birth and person performing sutures. Qualitative data supports these findings.

The combination of the quantitative and qualitative data in the present study provides a holistic picture of how postnatal mothers find their way through new challenges of mothering and raising a family whilst recovering from childbirth and perineal trauma. Post-traumatic growth in this instance takes the form of personal strength and recognition that others can be helpful (Tedeschi and Calhoun, 2004). The degree of growth in turn contributes to positive change in the personality of the

mothers (Calhoun and Tedeschi, 1998). The following section addresses the factors which may have enhanced or hindered the rigour of the study along its process.

## **8.2 Limitations and strengths of the current study**

Data collection was undertaken in 2003 and it could be argued that perceptions and practices have changed considerably in the intervening period. However, the lack of research in this area, both before and since the data were collected, suggests that the findings are still worthy of dissemination, will integrate well with existing literature and so strengthen the body of knowledge.

The number of mothers recruited to the study was limited (n=144). A larger number of participants would have enriched the results and would have allowed greater generalizations of findings. Attrition was expected in such a longitudinal study, but the information and knowledge regarding those mothers who dropped out may have enriched the results as they may have differed in important respects from the mothers who continued to participate. A non probability sampling, such as the convenience sampling used, was another potential limitation. Probability sampling would have ensured that the sample was representative of the whole population under study.

A limitation of the visual analogue scales was that they measured only one dimension of total perineal trauma, resumption of sexual intercourse or general health, for example the strength or intensity of one variable at a time. Therefore, several VAS were needed to measure different dimensions of the three variables. Another limitation of using VAS simultaneously was that mothers were likely to place their marks near the centre of each scale. Photocopying the scales could cause small alterations in the length of the line, which unless catered for would result in invalid data. Therefore, printing is preferable to photocopying the tools.

Although questionnaires were chosen as the most suitable data collection method, interviews could have been a better method of data collection. In midwifery in particular, interviews have the advantage of being compatible with a woman-centred approach to care. Social desirability was another limitation (Parahoo, 2006). The longitudinal design might have altered the mothers' awareness and might have given them time to change their views, which may have implications for the accuracy of the results. Open-ended questions do not necessarily make a questionnaire a



qualitative data collection method. Parahoo (2006) argues that questionnaire data are treated at face value and that there is no opportunity to unravel the real meaning of each individual response. What people say and what they mean can be different, and several interviews with the same person are sometimes necessary to collect meaningful data. In the present study, the open-ended questionnaires were an attempt to give responders some freedom in expressing themselves rather than keeping them constrained by closed questions. The recruitment questionnaire and the supplement collected bio-socio-demographic data which were not totally utilised in the present study. The data can be utilised for further studies.

The General Health Questionnaire-12 (Goldberg and Williams, 1988) was developed in English and oriented to that context. As expected, some expressions could not be literally translated into Maltese. Care was taken not to distort the meaning of the English text upon translating the questions into Maltese. In the present study, reliability and validity of the translated questionnaire were carried out with good results. All questions in the General Health Questionnaire-12 (Goldberg and Williams, 1988) were presented in VAS format. This could have also affected their validity and reliability, but reliability studies in VAS on the questionnaire yielded high measurements. One advantage of the General Health Questionnaire-12 (Goldberg and Williams, 1988), namely, that of concentrating on mental health, particularly anxiety or depression and societal dysfunction, was not utilized. The GHQ-12 was specifically used as a means to measure positive general health and as an aid for mothers to comment on their health and their experience of the state of their perineum at that time of questioning. Standardized clinical questionnaires, such as Glazener et al.'s (2003) and Barrett et al.'s (2000), which include somatic symptoms of physical and sexual health, could possibly be more suitable for surveys.

The rigour of the study would have been increased had the researcher used the service of other midwives familiar with community midwifery in order to analyze concurrently with her the qualitative data. The researcher's subjectivity might have biased the analysis of the data thereby threatening the reliability of the study. Following these limitations it is important to look at the strengths of the study.

The present study combined the quantitative and the qualitative data to promote a more complete approach, thereby also increasing its validity through increased

trustworthiness of the data and its interpretation (Halcomb and Andrew, 2005). The use of both bodies of knowledge (quantitative and qualitative) complimented each other by providing a rationale on the main variables under study, allowing also a more open interpretation of data following the initial analysis.

The triangulation of data collection was obtained by having the quantitative data supported by some open-ended questions intended to uncover the perceptions and feelings of mothers during the first few weeks in which they were experiencing perineal trauma after childbirth. This helped in identifying the directions of the relationships between perineal trauma, general health and other variables (Analytic model, Figure 4.2).

The inclusion of both quantitative and qualitative questions in the questionnaires at four stages during the thirteen week period of study enhanced the understanding of perineal trauma among mothers, the majority of whom were primiparae. The questionnaires also gave an opportunity to mothers to reflect more on their perineal trauma and its gradual healing. By the 13<sup>th</sup> week, when the perineum had healed or was about to heal, mothers were regarding the final questionnaire as an exercise where they would say whether they were healed or not.

The detailed inclusion and exclusion criteria produced a homogenous sample, giving an opportunity of studying perineal trauma in mothers with spontaneous vaginal deliveries. The sampling technique occurred by convenience, which in itself might create a limitation, but it gave the opportunity to every mother with a normal labour to have an equal chance to be recruited on the study.

The General Health Questionnaire-12 (Goldberg and Williams, 1988) encompasses two main factors: anxiety or depression and social factors. Thus, it addresses two key components of a new mother embarking on motherhood. Primiparae and multiparae are included alike because motherhood is a phase that continues to develop in the lives of mothers irrespective of parity.

The translated General Health Questionnaire-12 (Goldberg and Williams, 1988) in visual analogue scales underwent a series of test-retests on nursing students. The findings demonstrated its reliability and validity, although further testing with a sample of mothers would have additionally enhanced reliability and validity.

The use of the researcher's midwifery supervisor expertise also informed the content validity of the tool, which was suitable for postnatal mothers, concise, easy to understand and to fill in. This process also contributed towards the trustworthiness of the study.

The meticulous translation of the instruments by experts in the English and Maltese languages contributed towards the internal consistency of the tool. Setting the questionnaires in Maltese resolved the problem of those representatives of the target population who were not conversant in the English language and ensured their full comprehension of the content of the questionnaires.

The use of various pilot studies of the translated drafts of the tool contributed towards the selection of the most appropriate version of the General Health Questionnaire from amongst the various versions of the same questionnaire. The shortest one (GHQ-12) proved to be the most appropriate to be completed by busy mothers because of its brevity and its selection of wording regarding anxiety or depression and social functions relating to the postnatal period. This undoubtedly contributed towards the reliability of the tool.

My home visits to collect the questionnaires and to examine the mothers could have threatened anonymity, but confidentiality of the findings was assured. A community midwife was responsible for the care of the mothers at home, but knowing that I was a midwife myself, mothers used my expertise to clarify their queries regarding their health and that of their baby. I considered that being a midwife was an added asset for the study since mothers felt more at ease to answer the questionnaires. In this regard, Jootun et al. (2009) reported that awareness of the reciprocal influence of participants and researcher on the process and outcome is a vital part of ensuring rigour in qualitative research. In more than one instance, I had to choose between my role of researcher and that of midwife in which case I opted to uphold the ethical rules of midwifery at the expense of my other role. At all times, I tried to reflect lucidly *in* and *on* the research process in order to minimize bias as much as possible (Atkinson and Coffey, 2002). Following these strengths and limitations it is important to address again the research limitations identified in the introduction of this thesis.

### **8.2.1 Research limitations**

On weighing the strengths and limitations of this research study, the researcher believes that the strengths have a weighting in favour of reliability and validity. In general, the study produced new knowledge which, if applied to the midwifery clinical area, may facilitate the needs of postnatal mothers especially in the community. In addition, it may contribute towards filling the research limitations identified in the introduction of this thesis.

The study provides a further proof of the reality of the effects of perineal trauma following spontaneous childbirth and the genuineness of the mothers' complaints of perineal pain which may persist for weeks on end and sometimes for months. Mothers were found to cope with such problems but support from their spouse, family and professionals played a significant role in the recovery of their general health.

The longitudinal study captured the fluctuations in the variables of total perineal trauma, resumption of sexual intercourse and general health. Thus, findings provided a useful contribution to the current body of knowledge. In addition, they provided a culturally relevant insight which others may replicate in other cultural contexts.

The quantitative data identified the correlations between the three main variables adding new knowledge in this area. The qualitative findings shed light on the possible impact of Maltese culture on perineal trauma, resumption of sexual intercourse and general health.

The use of post-traumatic growth theory provides a unique insight in the way midwives may recognize the experience of personal growth that often occurs in mothers who face a traumatic childbirth and possibly help them develop it. Tedeschi and Calhoun (1995) use an essentially cognitive framework to explain such an experience. These authors believe that changes in belief, so often reported by persons who describe their growth, appear to play a central role in relieving emotional distress and encouraging useful activity.

On the basis of the research findings recommendations for research and practice can be made and implications for midwives' education identified.

### **8.3 Recommendations for research**

The recovery of a mother's general health after childbirth is facilitated by effective social support from the husband and other family members. With the increasing number of single mothers who find themselves without the support of a husband or partner, Maltese society is seeing to providing an adequate source of support through civil and non-governmental agencies. Further research aiming at considering the role of the family and the community in the early weeks after childbirth is needed. In addition, there is a need of a debate into whether the midwife's role should be extended further as to include her as an appropriate healthcare professional in caring for the mother for the first thirteen weeks after childbirth.

Comparative research on the effects on the perineum between mothers delivering spontaneously with a vaginal delivery, in different positions during the second stage of labour can provide information on how maternal positions can protect the perineum. Further research could explore Maltese midwives' views on the use of different positions during labour intended to protect the perineum, and to determine whether women in Malta have any preference for a particular birth position. Furthermore, the research could be extended to examine the relationship of the position of the fetal head in spontaneous vaginal deliveries and its impact on maternal general health.

Whilst resumption of sexual intercourse after childbirth may be delayed by dyspareunia, it may also be prevented by psychological factors, such as fear of falling pregnant again or the woman's complex that her body might not have its previous sexual attraction. These possible relationships, which have not been reported previously in local literature, need to be explored further since such fear may possibly be a direct consequence of women's experience of psychological morbidity after childbirth. Further research could shed light on the sexual problems Maltese women face in the first three months following childbirth.

#### **8.3.1 Recommendations for practice**

An important function of the midwife is to confirm the normal in labour, support and protect physiological processes including perineal effacement and healthy outcomes, and to enhance postnatal perineal health.

The usual objective for the six week postnatal visit at the gynaecologist should be reviewed. One of its main objectives should be to discuss the problems the couple could be facing after having resumed sexual intercourse after childbirth or the problem for non resumption. In case the mother experiences dyspareunia, a follow-up visit within three months after childbirth could be planned. Specialist services for women with sensitive health problems should be audited possibly by a midwife who has confidence to ask women questions about sensitive issues in order to ensure appropriately that sensitive and accessible services are in place.

Practising midwives should acknowledge that the early weeks following childbirth are a time of pain and stress for the new mother apart from being a time of joy. Midwives should give a chance to women to vent their feelings of pain and distress. This may help mothers find ways and means how to overcome the challenges of motherhood through reflection. PTG theory implies, that despite the distressing experiences mothers may face during childbirth, they can report positive transformations which Tedeschi and Calhoun (1995) termed “post-traumatic growth”. Empirical evidence indicates that post-traumatic growth is common but not universal. Thus, midwives should never have the expectation that every mother (as a trauma survivor) will experience growth or that growth is a necessary outcome for trauma recovery.

Where possible, midwives in Malta should include fathers in antenatal as well as postnatal classes. Preparation, regarding the unique and potentially overwhelming nature of childbirth and transition to parenthood, is the key for changing cultural understanding of the role of women as mothers in contemporary society. Midwives should review the preparation for parenthood component in antenatal classes and should organise groups which prove to be a gainful way of teaching parents and help them get to know and support each other. Research has shown that peer support produces positive benefits.

### **8.3.2 Implication for continuing midwives' education**

Midwives should recognise the value of effective listening without necessarily trying to give solutions to their clients.

Tedeschi and Calhoun (2004), in an article entitled *A Clinical Approach to Post-traumatic Growth*, emphasize that one way of ensuring that the practitioner practises

a clinical approach is to relate to the trauma survivor in such a manner that the client's story affects the practitioner personally. A skilled listener, being herself changed as a result of listening to the story of trauma and its aftermath, communicates the highest degree of respect for her clients and encourages them to see the value of their own experience. This acknowledged value is a short step away from post-traumatic growth. Although this may seem to be a rather passive clinical stance, the way the practitioner listens and what the practitioner listens to and attends to can have significant therapeutic consequences (Tedeschi and Calhoun, 2004).

### **8.3.3 Reflection**

On reflection, I may say that since I trained and worked as a clinical midwife, I was able to relate with the mothers' pain, tensions and uncertainties, sometimes 'reading between the lines' of what they remarked in their replies to the questionnaires on their experience of perineal trauma. My clinical experience provided an insight into what the mothers were experiencing first hand which might not be evident to outsiders (Reed and Procter, 1995). In using a reflexive approach I had the opportunity to scrutinize my understanding of what I obtained from direct contact with the mothers.

I took every precaution possible to enhance the rigour of the study mostly guided by my supervisors at the University of Hull. Now, I can say that, having completed this research study, I feel confident to go ahead with further scientific research and contribute new knowledge for the benefit of community midwifery and postnatal mothers and their families.

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# Appendix 1

THE UNIVERSITY OF HULL  
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SCHOOL OF NURSING

COTTINGHAM ROAD · HULL HU6 7RX · UNITED KINGDOM  
RECEPTION/SWITCHBOARD 01482 346311 · FACSIMILE 01482 466166  
26 June 2002

Research Ethics Committee,  
Faculty of Medicine and Surgery,  
University of Malta,  
G'Mangia, MALTA

Dear Sir,

**Re: PhD Midwifery Clinical Research Study**

I am a Midwifery Officer with the Department of Health and a part-time Assistant Lecturer in Midwifery Studies at the Institute of Health Care.

At present, I am reading for the PhD at the University of Hull, Yorkshire, United Kingdom, as a part-time student. This course of studies includes a research study on Perineal Trauma, Perineal Pain, and Perineal Wound Healing in Maltese Women following Normal Childbirth: A Longitudinal Study.

Following the establishment of the research proposal of my study, data collection will be carried out on a random sample of post-natal mothers at Karen Grech Hospital and in the community. It is planned that the data collection for the pilot study will be initiated in October 2002.

I am now in the process of asking the requisite permissions to conduct this study at Karen Grech Hospital and in the community. My supervisor, Dr Janet Draper, University of Hull, finds no objection to the nature of my study, as it does not seem to be disruptive or unethical to the clients involved. I am aware that I am bound by the ethical issues as declared in the research proposal, herewith attached, regarding the informed consent and confidentiality.

In the meantime I am also asking permission from Prof. M. P. Brincat PhD (Lond) FRCOG, Director, Dept. of Obstetrics & Gynaecology and Dean, Faculty of Medicine & Surgery; the Nursing and Midwifery Directorate, Department of Health, the Hospital Midwifery Management, and from the respective Midwifery Officers. I am hereby asking your permission for data collection. Your support for this research study is greatly appreciated.

Enclosed please find a research proposal with the drafts of instruments that are being developed for further testing, including content validity.

Whilst thanking you, I look forward for your reply.

Yours sincerely,



Miss Mary Carmen Spiteri

---

Home Address: 22 St. Faustina Street, Zejtun, ZTN 04, MALTA  
E-mail Address: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)  
Telephones: 2595 1843 (Work); 2169 4630 (Home)



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REF. TAGHNA:  
OUR REF:

REF. TIEGHEK:  
YOUR REF:

)))

Ref No: 41 /2002

18<sup>th</sup> September 2002

Dear Ms Spiteri,

Please refer to your application submitted to the Research Ethics Committee in connection with your clinical midwifery research entitled:

**PERINEAL TRAUMA, PERINEAL PAIN AND PERINEAL WOUND  
HEALING IN MALTESE WOMEN FOLLOWING NORMAL  
CHILDBIRTH: A LONGITUDINAL STUDY**

I have been directed to inform you that at the last meeting of the Research Ethics Committee held on 4<sup>th</sup> September 2002, members reviewed and approved the Protocol mentioned above.

You are kindly requested to submit to the Research Ethics Committee a brief report on completion of your research.

Yours sincerely,

*M Axiaq*

Mary Axiaq  
Office at the Medical School

c.c. Professor A Cilia Vincenti – A/Chairman, Research Ethics Committee  
Dr H Draper, RCN Institute, UK – Supervisor  
Mr C Savona Ventura, Department of Obstetrics & Gynae, SLH – Supervisor

Ms M C Spiteri  
22 Faustina Street  
Zejtun ZTN04

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1-2

26 June 2002

Prof. M. P. Brincat PhD (Lond) FRCOG  
Director, Dept. of Obstetrics & Gynaecology  
Dean, Faculty of Medicine & Surgery  
Karen Grech Hospital  
G'Mangia, MALTA

Dear Prof Brincat

**Re: PhD Midwifery Clinical Research Study**

I am a Midwifery Officer with the Department of Health and a part-time Assistant Lecturer in Midwifery Studies at the Institute of Health Care.

At present, I am reading for the PhD at the University of Hull, Yorkshire, United Kingdom, as a part-time student. This course of studies includes a research study on Perineal Trauma, Perineal Pain, and Perineal Wound Healing in Maltese Women following Normal Childbirth: A Longitudinal Study.

Following the establishment of the research proposal of my study, data collection will be carried out on a random sample of post-natal mothers at Karen Grech Hospital and in the community. It is planned that the data collection for the pilot study will be initiated in October 2002.

I am now in the process of asking the requisite permissions to conduct this study at Karen Grech Hospital and in the community. My supervisor, Dr Janet Draper, University of Hull, finds no objection to the nature of my study, as it does not seem to be disruptive or unethical to the clients involved. I am aware that I am bound by the ethical issues as declared in the research proposal, herewith attached, regarding the informed consent and confidentiality.

In the meantime I am also asking permission from the Research Ethics Committee Faculty of Medicine and Surgery, University of Malta, the Nursing and Midwifery Directorate, Department of Health, the Hospital Midwifery Management, and from the respective Midwifery Officers. I am hereby asking your permission for data collection. Your support for this research study is greatly appreciated.

Enclosed please find a research proposal with the drafts of instruments that are being developed for further testing, including content validity.

Whilst thanking you, I look forward for your reply.

Yours sincerely,



Miss Mary Carmen Spiteri

---

**Home Address:** 22 St. Faustina Street, Zejtun, ZTN 04, MALTA

**E-mail Address:** [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)

**Telephones:** 2595 1843 (Work); 2169 4630 (Home)



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Our Ref. ....

Your Ref. ....

1.2.2

## TO WHOM IT MAY CONCERN

This is to certify that Ms. Mary Carmen Spiteri has been granted permission to examine patients who have had a normal delivery on the post-natal ward.

A handwritten signature in cursive script, appearing to read 'M. P. Brincat', written over a horizontal line.

**Professor M. P. Brincat PhD(Lond) FRCOG**  
**Director**  
**Department of Obstetrics & Gynaecology**

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1.3

11 November 2002

Mr. Jesmond Sharples BSc (Hons), M Mus (Comp), FLCM  
Directorate Nursing/Midwifery Services  
15, Merchants Street  
Valletta  
Malta



Dear Mr. Sharples

Re: Midwifery Clinical Research Study

I am a Midwifery Officer with the Department of Health and a part-time Assistant Lecturer at the Institute of Health Care at the University of Malta.

At present I am reading for the Ph.D. at the University of Hull in East Yorkshire in the United Kingdom, as a part-time student. This course of studies includes a research study on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth: A Longitudinal Study*.

Following the establishment of the research proposal of my study, data collection will be carried out on a random sample of postnatal mothers at Karen Grech Hospital and in the Community. It is planned that data collection for the pilot study will be initiated in January 2003.

My supervisors Dr. Janet Draper, Dr. Annie Macleod (Lecturers at the University of Hull) and Mr. C. Savona-Ventura (Consultant in Obstetrics and Gynaecology in Malta) find no objection to the nature of my study, as it does not seem to be disruptive or unethical to the postnatal women involved. I am aware that ethical issues regarding the informed consent and confidentiality bind me still.

Permissions to conduct the study at Karen Grech Hospital and in the Community have already been granted me by the Research Ethics Committee, Faculty of Medicine and Surgery, University of Malta, G'Mangia, and by Professor M. P. Brincat, Director, Department of Faculty of Medicine and Surgery, Karen Grech Hospital, G'Mangia.

I am hereby asking your permission to carry out data collection at the Postnatal Wards at Karen Grech Hospital. Your support for this research study is greatly appreciated.

Whilst thanking you, I look forward for your reply.

Yours sincerely,

*M C Spiteri*

Mary Carmen Spiteri

*Recommended & approved*  
*A. M. A.*  
DIRECTORATE NURSING SERVICES  
DEPARTMENT OF HEALTH

Home Address: 22, St. Faustina Street, Zejtun, ZTN 04, MALTA  
E-mail Address: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)  
Telephone/Facsimile: 00356 2169 4630

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1.4  
03<sup>rd</sup> January, 2003

Mr. Publius Abdilla  
Manager Nursing Services  
St. Luke's Hospital, G'Mangia, Malta

Highly Recommended  
P. Abdilla  
7/1/03



Dear Sir,

I am presently undertaking a longitudinal research study leading to the Ph.D. in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth*.

The study will be using a random sample of 250 postnatal mothers who give birth with vaginal deliveries and are eligible to participate. Data collection will start in the Postnatal Ward within the first 48 hours of birth, after the purpose of the study is explained to the mothers and they give their consent for participation. Data collection will continue in the community for three times over a period of thirteen weeks. It is hoped that the study will generate knowledge that will be useful in the design and delivery of appropriate midwifery services for postnatal mothers.

Permissions to conduct this study have already been granted by:  
Research Ethics Committee, Faculty of Medicine and Surgery, University of Malta, G'Mangia  
Professor M. P. Brincat, Director of the Department and Obstetrics and Gynaecology, Dean, Faculty of Medicine and Surgery, Karen Grech Hospital  
Mr. J. Sharples, Director of Nursing/Midwifery Services.

I am aware of safeguarding the voluntary participation by informed consent of the mothers and of maintaining confidentiality and anonymity throughout all the research process.

I am hereby asking your permission for the process of data collection at the Postnatal Wards at Karen Grech Hospital. Your support for the study is greatly appreciated.

Whilst thanking you I look forward for your reply.

*M C Spiteri*

Mary Carmen Spiteri  
Lecturer, Midwifery/Nursing Studies

Copied to:

Mrs Natalie Zammit, Midwifery Manager  
Ms Carmen Pace, Midwifery Officer PNW, Karen Grech Hospital, G'Mangia, Malta

Home Address: 22, St. Faustina Street, Zejtun, ZTN 04, MALTA  
E-mail: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)  
Telephone/Fax: 00356 2169 4630

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1.5

03<sup>rd</sup> January, 2003

Mrs Natalie Zammit  
Manager Midwifery Services  
Karen Grech Hospital, G'Mangia, Malta

Highly recommended  
and approved.  
*[Signature]* 9.1.03.



Dear Madam,

I am presently undertaking a longitudinal research study leading to the Ph.D. in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth.*

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Permissions to conduct this study have already been granted by:  
Research Ethics Committee, Faculty of Medicine and Surgery, University of Malta, G'Mangia  
Professor M. P. Brincat, Director of the Department and Obstetrics and Gynaecology, Dean, Faculty of Medicine and Surgery, Karen Grech Hospital  
Mr. J. Sharples, Director of Nursing/Midwifery Services.

I am aware of safeguarding the voluntary participation by informed consent of the mothers and of maintaining confidentiality and anonymity throughout all the research process.

I am hereby asking your permission for the process of data collection at the Postnatal Wards at Karen Grech Hospital. Your support for the study is greatly appreciated.

Whilst thanking you I look forward for your reply.

*[Signature]*

Mary Carmen Spiteri  
Lecturer, Midwifery/Nursing Studies

Copied to:

Ms Carmen Pace, Midwifery Officer PNW, Karen Grech Hospital, G'Mangia, Malta  
Mr Publius Abdilla, Manager Nursing Services, St. Luke's Hospital, G'Mangia, Malta

Home Address: 22, St. Faustina Street, Zejtun, ZTN 04, MALTA  
E-mail: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)  
Telephone/Fax: 00356 2169 4630



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1.6  
03<sup>rd</sup> January, 2003

Mr. Publius Abdilla  
Manager Nursing Services  
St. Luke's Hospital, G'Mangia, Malta

Dear Sir,

I am presently undertaking a longitudinal research study leading to the Ph.D. in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth*.

The study will be using a random sample of 250 postnatal mothers who give birth with vaginal deliveries and are eligible to participate. Data collection will start in the Postnatal Ward within the first 48 hours of birth, after the purpose of the study is explained to the mothers and they give their consent for participation. Data collection will continue in the community for three times over a period of thirteen weeks. It is hoped that the study will generate knowledge that will be useful in the design and delivery of appropriate midwifery services for postnatal mothers.

Permissions to conduct this study have already been granted by:  
Research Ethics Committee, Faculty of Medicine and Surgery, University of Malta, G'Mangia  
Professor M. P. Brincat, Director of the Department and Obstetrics and Gynaecology, Dean, Faculty of Medicine and Surgery, Karen Grech Hospital  
Mr. J. Sharples, Director of Nursing/Midwifery Services.

I am aware of safeguarding the voluntary participation by informed consent of the mothers and of maintaining confidentiality and anonymity throughout all the research process.

I am hereby asking your permission for the process of data collection at the Postnatal Wards at Karen Grech Hospital. Your support for the study is greatly appreciated.

Whilst thanking you I look forward for your reply.

Mary Carmen Spiteri  
Lecturer, Midwifery/Nursing Studies.

Copied to:

Mrs Natalie Zammit, Midwifery Manager  
✓ Ms Carmen Pace, Midwifery Officer PNW, Karen Grech Hospital, G'Mangia, Malta

Home Address: 22, St. Faustina Street, Zejtun, ZTN 04, MALTA  
E-mail: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)  
Telephone/Fax: 00356 2169 4630



290

1.7

4<sup>th</sup> February 2003

Ms Carmen Cachia  
The Principal  
MMDNA  
Community Nursing & Midwifery Services  
St Julians, Malta

Dear Madam,

I am a lecturer in Midwifery Studies at the University of Malta and at present I am reading for the Ph.D. at the University of Hull in East Yorkshire in the United Kingdom. This course of studies includes a longitudinal research study on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth*.

The study will be using a random sample of 250 postnatal mothers, who give birth with vaginal deliveries, and are eligible to participate. Data collection will start in the Postnatal Ward within the first 48 hours of birth, after the purpose of the study is explained to the mothers and they give their consent for participation. Data collection will continue in the community for three times over a period of thirteen weeks i.e. at 10 days, 6 weeks, and 13 weeks. It is hoped that the study will generate knowledge that will be useful in the design and delivery of appropriate midwifery services for postnatal mothers.

Permissions to conduct the study have already been granted me by:

- ✓ Research Ethics Committee, Faculty of Medicine & Surgery, University of Malta, G'Mangia
- ✓ Professor M. P. Brincat, Director of the Department and Obstetrics and Gynaecology, Dean Faculty of Medicine and Surgery, Karen Grech Hospital
- ✓ Mr. J. Sharples, Director of Nursing/Midwifery Services
- ✓ Ms N. Zammit, Manager Midwifery Services

I am aware of safeguarding the voluntary participation by informed consent of the mothers and of maintaining confidentiality and anonymity throughout all the research process.

Your support for this study will be greatly appreciated.

Thanking you,



Mary Carmen Spiteri  
Lecturer in Midwifery & Nursing Studies



CARMEN CACHIA  
Principal District Nursing Officer  
(H.H.D.N.A.)

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1-8  
03<sup>rd</sup> January, 2003

Mr Professor M.P. Brincat  
Consultant in Obstetrics and Gynaecology  
Karen Grech Hospital  
G'Mangia, Malta



Dear Sir,

I am presently undertaking a longitudinal research study leading to the Ph.D. in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth*.

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Professor M. P. Brincat, Director of the Department and Obstetrics and Gynaecology, Dean, Faculty of Medicine and Surgery, Karen Grech Hospital  
Mr. J. Sharples, Director of Nursing/Midwifery Services.

I am aware of safeguarding the voluntary participation by informed consent of the mothers and of maintaining confidentiality and anonymity throughout all the research process.

Your support for this study will be greatly appreciated.

Thank you,

M C Spiteri

Mary Carmen Spiteri  
Lecturer in Midwifery/Nursing Studies

I would be  
glad to  
support this  
study. Good luck  
Mary  
M. Brincat

Home Address: 22, St. Faustina Street, Zejtun, ZTN 04, MALTA

E-mail: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)

Telephone/Fax: 00356 2169 4630



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1.9  
03<sup>rd</sup> January, 2003

Mr  
Consultant in Obstetrics and Gynaecology  
Karen Grech Hospital  
G'Mangia, Malta

Dear Sir,

I am presently undertaking a longitudinal research study leading to the Ph.D. in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth*.

The study will be using a random sample of 250 postnatal mothers who give birth with vaginal deliveries and are eligible to participate. Data collection will start in the Postnatal Ward within the first 48 hours of birth, after the purpose of the study is explained to the mothers and they give their consent for participation. Data collection will continue in the community for three times over a period of thirteen weeks. It is hoped that the study will generate knowledge that will be useful in the design and delivery of appropriate midwifery services for postnatal mothers.

Permissions to conduct this study have already been granted by:

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Professor M. P. Brincat, Director of the Department and Obstetrics and Gynaecology, Dean, Faculty of Medicine and Surgery, Karen Grech Hospital  
Mr. J. Sharples, Director of Nursing/Midwifery Services.

I am aware of safeguarding the voluntary participation by informed consent of the mothers and of maintaining confidentiality and anonymity throughout all the research process.

Your support for this study will be greatly appreciated.

Thank you,

Mary Carmen Spiteri  
Lecturer in Midwifery/Nursing Studies

Home Address: 22, St. Faustina Street, Zejtun, ZTN 04, MALTA  
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# Appendix 2

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Mary Carmen Spiteri

14<sup>th</sup> February, 2003

2.1  
Customer Service  
NFER-NELSON, Publishing Company Limited  
414 Chiswick Highroad  
W4 5TF  
London  
United Kingdom

Dear Sir / Madam

**Request for Permission**

I refer to my last correspondence of the 7<sup>th</sup> instant addressed as above where I requested your permission to use the GHQ for my PhD studies in Midwifery at the University of Hull, East Yorkshire.

I have duly followed the instructions set on your website: [www.nfer-nelson.co.uk/ghg/ghg28.htm](http://www.nfer-nelson.co.uk/ghg/ghg28.htm) regarding my registration and the details of my studies.

After further consultations with my supervisors, Dr Janet Draper: [jan.draper@RCN.ORG.UK](mailto:jan.draper@RCN.ORG.UK) and Dr Annie Macleod, I was advised to use the other short version of the General Health Questionnaire, namely, GHQ-12.

Therefore, would you kindly consider my request to buy the User's Guide for the GHQ-12 and to obtain your permission to use GHQ-12 for my studies, and to translate the questionnaire into Maltese?

Kindly consider my application as urgent because I am expected to proceed with my pilot studies in Malta.

Waiting for your kind reply,

Mary Carmen Spiteri

2.1.1

Miss Mary Carmen Spiteri  
University of Malta  
Institute of Health Care  
St Luke's Hospital  
Guardamangia MSD 07  
Malta

18<sup>th</sup> March 2003

Dear Miss Spiteri

**WELCOME TO nferNelson**

Thank you for completing the nferNelson Registration Form. You have been entered onto our confidential registration list.

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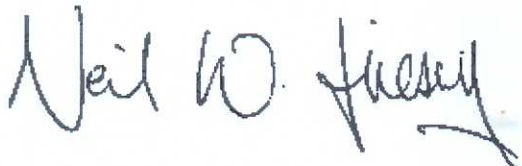
Please find enclosed a brief description of our Registered Test User System, which explains why we operate the system, and how your **Qualification Code** works.

We would be very grateful if you could quote both your **Reader Number**, and **Qualification Code**, whenever you order from us. This will enable us to process your orders quickly and efficiently. The direct line to our Customer Advisors is 0845 6021937. Also, please notify us of any changes in your details so we can keep our records up-to-date.

If you require a catalogue or have any further enquiries, or comments, please contact us on 0845 6015356, or you can e-mail us on [information@nfer-nelson.co.uk](mailto:information@nfer-nelson.co.uk). Our website address is <http://www.nfer-nelson.co.uk>.

In the meantime, thank you for your interest in nferNelson, and we look forward to being of service to you.

Yours sincerely  
**nferNelson**



**NEIL LIVESEY**  
Head of Sales and Marketing  
enclosure: Qualification Information

**nferNelson**

The Chiswick Centre 414 Chiswick High Road London W4 5TF  
Tel: +44 (0)20 8996 8444 Fax: 0845 601 5356 Website: [www.nfer-nelson.co.uk](http://www.nfer-nelson.co.uk)  
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Granada Learning

2.1.2

9 April 2003

Ms Mary Carmen Spiteri  
22 St Faustina Street  
Zejtun 04  
MALTA

Dear Ms Spiteri

**GHQ-12**

I am enclosing herewith our invoice and two copies of the permission agreement which has now been agreed and signed. Please would you sign both copies of the agreement and return one to me, keeping the other for your files.

Yours sincerely  
**nferNelson**



**ROSALIND CLIFTON**  
Contracts Manager

enclosure:



2.1.2

## MEMORANDUM OF AGREEMENT

made this 1<sup>st</sup> day of April 2003

BETWEEN

The nferNelson Publishing Company Limited of The Chiswick Centre, 414 Chiswick High Road, London W4 5TF (hereinafter called 'the Publishers')

AND

Mary Carmen Spiteri of 22, St Faustina Street, Zejtun, ZTN 04, Malta ('hereinafter called 'the Translator').

**NOW IT IS MUTUALLY AGREED** between the parties hereto as follows:

1. The Publishers grant to the Translator the non-exclusive right to translate the GENERAL HEALTH QUESTIONNAIRE 12 record form ('GHQ-12') into the Maltese language ('the Translated Material') subject to the following conditions:
2. The Translator hereby agrees that the Translated Material is to be used only by the Translator for the Translator's research study entitled Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth.
3. The Translator recognises that the Translated Material is to be used by the Translator only for the purposes specified above, and never under any circumstances for any commercial or other use unspecified in this Agreement.
4. The Translator agrees to pay to the Publishers a fee of £30.00 (thirty pounds Sterling) which includes up to 200 (two hundred) administrations of the Translated Material and an invoice is enclosed for the total amount. Further administrations over and above 200 (two hundred) may be negotiated as required on terms to be agreed.
5. The Translated Material must not be reproduced in any publication or journal nor should the Translated Material be used in any other way other than that described above.
6. The Translated Material must be directly comparable to the English language version.
7. The Translator hereby acknowledges that the GHQ-12 has been developed in the UK in the English language and therefore any reference data published in the test manual may not apply as a result of the translation or modifications to the test questions.

2.1.2

8. The Translator will submit one copy of the Translated Material and one copy of the back translation from the Maltese language into English by an independent translator to the Publishers for approval before the Translated Material may be used in accordance with Clause 2 above.
9. The Translator agrees to exercise the utmost vigilance in protecting the Publishers' copyright privileges on the material involved, both in the English language and as translated and unauthorised persons should not be given access to these materials. The copyright notice and any acknowledgements to third parties contained in the published English version must appear both in English and the translated language in full on the cover page of each copy of the Translated Material, or any other form, together with the following acknowledgement:

Translated by permission of the Publishers, The nferNelson Publishing Company Ltd., The Chiswick Centre, 414 Chiswick High Road, London W4 5TF, UK, all rights reserved.

The copyright notice must also appear on each subsequent page of each copy of the said material.

10. The Publishers have a licence on all national and international copyright privileges in the Translated Material. The Publishers retain full rights to quote from or otherwise to utilise the Translated Material in any way it sees fit with the acknowledgement to the Translator. Specifically, this includes the Publishers' right to submit the Translated Material for copyright in any country. The Translator's rights extend only over the specified purposes as described in Clause 2 above, but no further. Specifically, the Translator's rights do not include the right to submit the Translated Material for copyright or any commercial use.
11. If for any reason it is necessary for the Translator not to continue on the process of Translation or to delay it materially, the Translator will inform the Publishers of the discontinuation or delay as soon as possible whereupon the Publishers shall have the right to terminate this agreement without further notice.
12. This Agreement constitutes the entire agreement between the parties in respect of the Translated Material and supersedes all prior oral or written proposals, agreements or undertakings concerning the same.
13. This Agreement shall not be amended or modified in any way other than by an agreement in writing and signed by both parties or their duly authorised representatives and shall come into effect on receipt of the payment in full as specified above and a counter-signed copy of this Agreement.
14. A person who is not a party to this Agreement has no rights under the Contracts (Rights of Third Parties) Act 1999 to enforce any term of this Agreement but this does not affect any right or remedy of a third party that exists or is available apart from that Act.
15. This Agreement shall be governed by and construed in all respects in accordance with English Law.



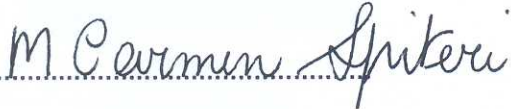
2.1.2

**AS WITNESS THE HANDS OF THE PARTIES** hereto the day and year first above written

Signed on behalf of the  
nferNelson PUBLISHING COMPANY LIMITED

Tim Cornford, General Manager.....

Signed by the Translator.....  
Mary Carmen Spiteri



Reader Number 145087

Registered Test User Code 10230



2.1.3

## PERMISSION REQUEST FORM

Name: Mary Carmen Spiteri  
Address: 22 St Faustina Street, Zejtun, ZTN 04, MALTA  
Contact Telephone Number: 00356 21694630  
Email Address: mary.c.spiteri@um.edu.mt  
NferNelson Reader Number: 1450987 Registered Test User Code: 10230  
Name of Licensee to appear on the contract: Mary Carmen Spiteri  
University course and supervisor (if applicable) PhD in Nursing Studies at The University of Hull, U K, under the supervision of Dr Janet Draper and Ms Annie Macleod

**Details of Permission Required:**  
(including study title, title of project, book etc.)

To change the Likert Scales in the original General Health Questionnaire -12 into Visual Analogue Scales (VAS) by keeping both extreme ends of the original Likert Scales.

My study title is:  
Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth – Longitudinal Study

Name of product: General Health Questionnaire -12

Is the original material to be adapted in any way? If yes, please give details:

The original material will be translated into the Maltese language [according to the Permission] and will be presented in VAS.

Number of administrations required i.e. if test to be administered twice to 50 participants – number of administrations will be 100:

To be administered twice to 100 subjects, therefore, number of administrations is 200.

Please note that this form must be completed in full – incomplete forms will receive limited consideration:

Please return to: Rachel Atkinson  
By email: Rachel.Atkinson@nfer-nelson.co.uk  
By fax: 0208 996 3622  
By post: 3<sup>rd</sup> Floor, The Chiswick Centre, 414 Chiswick High Road, London W4 5TF

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2.1.4

5th June 2003

Mary Carmen Spiteri  
22 St Faustina Street  
Zejtun  
ZTN 04  
Malta

Dear Ms Spiteri

**Permission to adapt the Maltese GHQ-12 into VAS**

I am happy to give you written permission to adapt the Maltese GHQ-12 into VAS but only for your study entitled "Perineal Trauma and Psychological Functioning of Maltese Women following Normal Childbirth- Longitudinal Study".

There is no need for you to sign another agreement with us for this permission as this letter is all you need. There will also be no additional charge for you to adapt the scale into VAS.

Yours sincerely



Rachel Atkinson  
Publishing Assistant

2.2

**Carmen Spiteri**

---

**From:** "mary steen" <mpsteen@hotmail.com>  
**To:** <mary.c.spiteri@um.edu.mt>  
**Sent:** Wednesday, November 26, 2003 9:47  
**Subject:** Re: Use of the Categorical Scoring Scale  
 Hi Carmen

I am delighted that you find the tool useful, and yes you can of course use it. I am presently in Maputo, Mozambique at the African Midwives Research Network conference (AMRN) presenting some of my research.

I did follow women up at 3,6 and finally 12 mths following the RCT and have alot of data on how women describe perineal pain most of the words reflected acute pain which are on the McGill Pain Scale.

I can send you further information if you want when I get back to the UK.

Best Wishes

Mary Steen

PS Good look with your studies

>From: "Carmen Spiteri" <mary.c.spiteri@um.edu.mt>  
 >To: <mpsteen@hotmail.com>  
 >Subject: Use of the Categorical Scoring Scale  
 >Date: Wed, 26 Nov 2003 09:29:38 +0100  
 >  
 >Dear Dr Mary Steen  
 >  
 >I am Ms M. Carmen Spiteri an midwife lecturer at the University of Malta  
 >and at present I am a doctoral student on a part time basis at the  
 >University od Hull, East Yorkshire.  
 >I am conducting a longitudinal reseach study on Perineal Trauma following  
 >Normal Chidbirth under the supervision of Dr Janet Draper and Ms Ann  
 >McCleod. Part of my study is to evaluate perineal Healing at 48 hours and  
 >at 10 days postnatal. Although I am a midwife with experience, I am finding  
 >your valid tool (MIDIRS Midwifery Digest Jun 1998 8:2) to be useful as a  
 >scoring scale in the evaluation of perineal healing for oedema and  
 >bruising.  
 >Would you please give me permission to use the categorical scoring scale to  
 >evaluate perineal trauma in my study subjects?  
 >Thank you very much and I am looking foward for a positive answer.  
 >  
 >Regards  
 >Mary Carmen Spiteri  
 >Home address:18 St Faustina Street Zejtun ZTN 04 Malta  
 >Home Tel no 00356 21694630  
 >Fax no 00356 21244973 Institute of Health Care G'Mangia Malta

---

Is there a gadget-lover on your gift list? MSN Shopping has lined up some good bets! <http://shopping.msn.com>

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11/27/2003

THE UNIVERSITY OF HULL  
GRADUATE RESEARCH INSTITUTE

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INSTITUTE TELEPHONE 01482 466846 • FAX 01482 466436

23

03<sup>rd</sup> January, 2003

Dr Sandra Buttigieg  
Director  
University of Malta  
Institute of Health Care  
G'Mangia



Ms G. Jaccarini  
Co-ordinator of Nursing/Midwifery  
Institute of Health Care  
G'Mangia

Dear Dr Buttigieg,

Re: Students' Participation in the Test-Retest of Research Tools

With reference to my longitudinal research study on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth*, I am now in the process of testing the tools for reliability.

Would you kindly give me permission to invite students to participate in the test-retest of my research instruments?

The Research Ethics Committee, Faculty of Medicine and Surgery, University of Malta, G'Mangia has already granted me the required permission to conduct the study at the Postnatal Ward, Karen Grech Hospital, and in the Community.

I am aware of the ethical issues of informed consent and confidentiality. Furthermore in an attempt to safeguard anonymity, one of my colleagues will help me to deal with the students' code numbers.

Thanking you,

*M C Spiteri*

Mary Carmen Spiteri  
Lecturer  
Midwifery/Nursing Studies

*Permission granted  
Good luck with  
your study:  
A Spiteri  
7/1/2003*



2.4

Pilot Study  
(Times 1 and 2 Questionnaires)

Code No:

22, St. Faustina Street  
Zejtun ZTN 04  
Malta

Date .../.../...

Dear Mother,

I am a lecturer in Midwifery Studies at the University of Malta. Presently I am carrying out a study on the recovery of the *perineum* after spontaneous normal deliveries. The *perineum* in a woman is the area between the vagina and the back passage. This part of the body may have been altered as a result of pregnancy and the birth of the baby. In the small scale study I am testing two questionnaires on fifteen (15) mothers regarding their recovery of their *perineum* and their general health.

Please, follow the instructions on each questionnaire, each of which will take around fifteen minutes to complete it all. You are kindly requested to fill in the first of the questionnaires while in hospital, before your discharge. The other questionnaire will be filled in at home 10 days later. For confidentiality and anonymity purposes, please do not write your name on any of the questionnaires as only your code number will be used.

On completion of the first questionnaire, please use one of the enclosed self-addressed envelopes, which will be collected personally before your discharge from hospital. You will keep the second questionnaire for you to answer and send it by post to me after the tenth day of your delivery.

Although your participation is on voluntary basis, your contribution will be much appreciated in order to fulfil the aims of the research study, that is to explore any possible relationships between the recovery of the *perineum* and the experience of the general health after normal delivery of your baby. These questionnaires will help to improve maternity care in Malta.

Whilst thanking you for your participation in this study, I appreciate greatly your comments and suggestions on the attached Feedback Sheet, on how to ameliorate these questionnaires. Should you have any difficulties, do not hesitate to contact me on either of the following:

Home: Tel. No. 21694630  
Work: Tel. No. 2595 1843  
E-mail: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)

Yours sincerely

M. Carmen Spiteri

Lecturer in Midwifery Studies

301



---

# Appendix 3

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THE UNIVERSITY OF HULL  
GRADUATE RESEARCH INSTITUTE

HULL HU6 7RX · UNITED KINGDOM  
INSTITUTE TELEPHONE 01482 466844/46 · FAX 01482 466436

3.11.0

11 November 2002

Mrs Rita Borg Xuereb MSc  
Lecturer in Midwifery Studies  
Institute of Health Care  
University of Malta  
G'Mangia  
Malta



Dear Mrs Borg Xuereb

In connection with my part-time studies leading to the PhD in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, I am carrying out an in-depth longitudinal research study on *Perineal Trauma and Psycho-social Functioning of Maltese Women following Normal Childbirth*.

Now I am in the process of establishing the content validity of the questionnaires. I am therefore inviting an expert panel of four members in order to examine the contents of my questionnaires. The panel will have the function to make his suggestions on the adequacy and relevance of the questions.

In this regard, I would like to ask you to be one of the members in the panel.

After I have completed the questionnaires and refined my final draft of the research proposal, I shall be in a position to send you a copy.

Whilst thanking you, I look forward to receive your reply.

Regards.

Yours sincerely,

M C Spiteri

Mary Carmen Spiteri

accepted  
By R. B. D.  
11/11/02

THE UNIVERSITY OF HULL  
FACULTY OF HEALTH  
SCHOOL OF NURSING

COTTINGHAM ROAD • HULL HU6 7RX • UNITED KINGDOM  
RECEPTION/SWITCHBOARD 01482 346311 • FACSIMILE 01482 466166

3.1.1

11 November 2002

Dr Donia Baldacchino PhD  
Lecturer in Nursing Studies  
Institute of Health Care  
University of Malta  
G'Mangia  
Malta



Dear Dr Baldacchino

In connection with my part-time studies leading to the PhD in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, I am carrying out an in-depth longitudinal research study on *Perineal Trauma and Psycho-social Functioning of Maltese Women following Normal Childbirth*.

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In this regard, I would like to ask you to be one of the members in the panel.

After I have completed the questionnaires and refined my final draft of the research proposal, I shall be in a position to send you a copy.

Whilst thanking you, I look forward to your reply.

Regards.

Yours sincerely,

M Carmen Spiteri

Mary Carmen Spiteri

Accepted. Wishing you all  
the best for your studies

Donia Baldacchino

13/11/02

Home Address: 22, St. Faustina Street, Zejtun, ZTN 04, MALTA  
E-mail Address: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)  
Telephone/Facsimile: 00356 2169 4630



THE QUEEN'S  
ANNIVERSARY PRIZES  
FOR HIGHER AND FURTHER EDUCATION

1996

303

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INSTITUTE TELEPHONE 01482 466844/46 • FAX 01482 466436

3.1.2

11 November 2002

Mr. Charles Savona Ventura M.D., PhD, M.R.C.O.G, A.C.O.G  
Consultant in Obstetrics & Gynaecology  
Karen Grech Hospital  
G'Mangia  
Malta



Dear Mr Savona Ventura

In connection with my part-time studies leading to the PhD in Midwifery/Nursing Studies at the University of Hull, East Yorkshire, United Kingdom, I am carrying out an in-depth longitudinal research study on *Perineal Trauma and Psycho-social Functioning of Maltese Women following Normal Childbirth*.

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Whilst thanking you, I look forward to receive your reply.

Regards.

Yours sincerely,

*M C Spiteri*

Mary Carmen Spiteri

3.1.2

**Carmen Spiteri**

---

**From:** "Savona Ventura Charles at MOH" <charles.savona-  
**To:** <mary.c.spiteri@um.edu.mt>  
**Sent:** Tuesday, November 12, 2002 11:51 AM  
**Subject:** re panel  
Go ahead  
Charles

c. savona-ventura

3041

11/20/2002

THE UNIVERSITY OF HULL  
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INSTITUTE TELEPHONE 01482 466844/46 • FAX 01482 466436

3-1-3

11 November 2002

Dr Geraldine Barrett  
**London School of Hygiene & Tropical Medicine**  
(University of London)  
Department of Public Health and Policy  
Keppel Street, London, WC1E 7HT  
United Kingdom



Dear Geraldine

Thank you for your reply to my queries regarding the use of the validated tools: the SF-36 and EPDS. I am going to use the SF-36, together with other questionnaires that I have devised following the analysis of literature.

Now I am in the process of establishing the content validity of the questionnaires. I am therefore inviting an expert panel of four members in order to examine the contents of my questionnaires. The panel will have the function to make his suggestions on the adequacy and relevance of the questions.

In this regard, I would like to ask you to be one of the members in the panel.

After I have completed the questionnaires and refined my final draft of the research proposal, I shall be in a position to send you a copy.

Whilst thanking you, I look forward to receive your reply.

Regards.

Yours sincerely,

Mary Carmen Spiteri

3.1.3

**Carmen Spiteri**

---

**From:** "Geraldine Barrett"  
**To:** <mary.c.spiteri@um.edu.mt>  
**Sent:** Tuesday, November 19, 2002 12:24 PM  
**Subject:** Content validity expert panel

Dear Mary Carmen,

Yes, I would be happy to be on the panel to look at your questionnaire.

Best wishes,  
Geraldine

---

Geraldine Barrett  
Lecturer  
Sexual Health Programme,  
Health Promotion Research Unit,  
Dept of Public Health and Policy,  
London School of Hygiene and Tropical Medicine,  
London WC1E 7HT  
Tel. 020-7927 2268  
Mobile: 07729 179 648  
Home tel. 020 8368 0286

Please note new format for email address (geraldine.barrett@...). Old format (g.barrett) will not work anymore.

305.1

3.2.0

17<sup>th</sup> January 2003

Ms Rita Borg Xuereb  
Lecturer in Midwifery Studies  
Institute of Health Care  
University of Malta  
G'Mangia

Dear Ms Borg Xuereb,

**Re: The Content Validity of the Postnatal Perineal Pain Questionnaires and the  
General Health Questionnaire – 28 (GHQ – 28)**

In the first place, I would like to thank you for accepting to be one of the members in the panel that will examine the contents of the questionnaires in my longitudinal study on *Perineal Trauma and Psychosocial Functioning of Maltese Women following Normal Childbirth*.

Following the feedback from my supervisors, Dr Janet Draper and Ms Annie Macleod from the University of Hull, East Yorkshire, United Kingdom, I have now finalized my research questionnaires.

With your kind assistance I would like to ensure that the Questionnaires contain the appropriate questions for the achievement of the aims and objectives of my research study.

Enclosed please find copies of the questionnaires, namely:

- Recruitment Data Form (Personal Characteristics)
- Perineal Assessment Sheet
- First Forty-eight Hours after the Delivery of your Baby
- Ten Days after the Delivery of your Baby
- Six Weeks after the Delivery of your Baby
- Thirteen Weeks after the Delivery of your Baby

Enclosed you also find a copy of:

- A brief research proposal
- Aims and objectives of the study
- Demographic Data Sheet of the Expert Panel
- Feedback Sheets for your Comments and Suggestions

I have planned to start data collection in July 2003. I appreciate if your feedback should reach me before that time.

Yours sincerely,

Mary Carmen Spiteri



3.2.1

17<sup>th</sup> January 2003

Dr Donia Baldacchino  
Lecturer in Nursing Studies  
Institute of Health Care  
University of Malta  
G'Mangia  
Malta

Dear Dr Baldacchino,

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Yours sincerely,

Mary Carmen Spiteri

3.2.2

17<sup>th</sup> January 2003

Dr Geraldine Barrett  
Health Promotion Research Unit  
Department of Public Health and Policy  
London School of Hygiene and Tropical Medicine  
Keppel Street  
London WC1E, 7HT  
United Kingdom

Dear Dr Barrett,

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Yours sincerely,

Mary Carmen Spiteri

3.2.3

17<sup>th</sup> January 2003

Mr. Charles Savona Ventura M.D., PhD, M.R.C.O.G, A.C.O.G  
Consultant in Obstetrics & Gynaecology  
Karen Grech Hospital  
G'Mangia  
Malta

Dear Mr Savona Ventura,

**Re: The Content Validity of the Postnatal Perineal Pain Questionnaires and the  
General Health Questionnaire – 28 (GHQ – 28)**

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Yours sincerely,

Mary Carmen Spiteri

Perineal Trauma and Psychosocial Functioning of Maltese Women following  
Normal Childbirth – Longitudinal Study

Content Validity of the Postnatal Perineal Pain Questionnaires and the  
General Health Questionnaire-28 (GHQ-28)

FEEDBACK

Demographic Data of Panel of Experts

1. Name Rita Borg Xuereb
2. Country of Residence MALTA
3. Gender: Male  Female
4. Qualifications MSc, PGDip M.D. Ed., Dip. Ed. (Adults)  
R.M. R.N.
5. Profession Lecturer in Midwifery Studies
6. Years of experience in research 10 yrs

**Thank you for your contribution**

3.3.1

Perineal Trauma and Psychosocial Functioning of Maltese Women following  
Normal Childbirth – Longitudinal Study

Content Validity of the Postnatal Perineal Pain Questionnaires and the  
General Health Questionnaire-28 (GHQ-28)

FEEDBACK

Demographic Data of Panel of Experts

1. Name Dr. Donia Baldarino
2. Country of Residence Malta
3. Gender: Male  Female
4. Qualifications PhD (Hull), MSc (Lond), BSc (Hons), Cert Ed, RN.
5. Profession Lecturer  
University of Malta.
6. Years of experience in research 20 yrs

Thank you for your contribution



Perineal Trauma and Psychosocial Functioning of Maltese Women following  
Normal Childbirth – Longitudinal Study

Content Validity of the Postnatal Perineal Pain Questionnaires and the  
General Health Questionnaire-28 (GHQ-28)

FEEDBACK

Demographic Data of Panel of Experts

1. Name CHARLES SAVONA-VENTURA
2. Country of Residence MALTA
3. Gender: Male  Female
4. Qualifications MB (Med) & S. Med (Winnipeg) FRCOG (UK) MRCP (Int)  
Acc. C. of (Linn)
5. Profession CONSULTANT OBSTETRICIAN - Gynaecologist;  
SENIOR LECTURER
6. Years of experience in research > 20 yrs

**Thank you for your contribution**

3.4

## Overall Comments and Suggestions



# Appendix 4

4.1

Date.../.../...

22, St. Faustina Street,  
Zejtun, Malta ZTN 04

Dear Student,

### Reliability Testing of the General Health Questionnaire – 12

With reference to my study on Perineal Trauma and General Health amongst Maltese postnatal women, I am now in the process of organising the research instruments to meet the aims of the research study. One of the aims is to identify the possible relationships between perineal trauma and general health of postnatal women with spontaneous vaginal deliveries.

In order to establish the reliability of the General Health Questionnaire – 12, which was translated into Maltese, statistical analysis through test and retest method will be conducted.

Consequently may I ask you please to participate in this test-retest process on -  
\_\_\_\_\_ at the Institute of Health Care, Room \_\_\_\_\_ at \_\_\_\_\_? Filling the questionnaire will take you about 10 minutes.

Participation is on voluntary basis. However, your contribution will be highly appreciated. Whilst thanking you I look forward to see you.

Yours sincerely

Mary Carmen Spiteri

Home Tel. N° 21694630

E-mail Address: mary.c.spiteri@um.edu.mt

## Appendix 4.2

### Translation of the General Health Questionnaire-12 into Maltese

The original General Health Questionnaire-12 (GHQ-12) and the back translation of its items are presented hereunder:

<b>Original</b>	<b>Back translation</b>
Have you recently:	Have you recently:
1 been able to concentrate on whatever you're doing?	been able to concentrate on what you are doing?
2 lost much sleep over worry?	been losing on sleep on account of worry?
3 felt that you are playing a useful part in things?	been feeling that you are taking a useful part in things?
4 felt capable of making decisions about things?	been feeling able to take decisions on things?
5 felt constantly under strain?	been feeling tense all the time?
6 felt you couldn't overcome your difficulties?	been feeling unable to overcome difficulties?
7 been able to enjoy your normal day-to-day activities?	been able to enjoy your normal daily work?
8 been able to face up to your problems?	been able to take up your problems?
9 been feeling unhappy and depressed?	been feeling sad and bored?
10 been losing confidence in yourself?	been losing faith in yourself?
11 been thinking of yourself as a worthless person?	been thinking of yourself as a worthless person?
12 been feeling reasonably happy, all things considered?	been feeling so much happy once you consider everything?

Overall, the back translation appears to have achieved an adequate level of semantic equivalence between the measures for all items, except for item 3: «felt that you are playing a useful part in things». The expression 'playing a useful part in things' is commonly used in English, yet it could not be translated into Maltese literally and

still maintain its meaning in the original text. The back translation of this item indicated that part of the original meaning was lost in translating it word for word. The same argument can be applied to item 5: «felt constantly under strain». The back translation for the idiom ‘under strain’ resulted in *feeling tense*. While the term ‘tense’, adopted in the Maltese language from English is in common use, it does not precisely describe the extent of “strain” in the original text. Another difference is found in item 9: «been feeling unhappy and depressed» that has been back translated as *been feeling sad and bored*. While ‘unhappy’ and ‘sad’ may have the same equivalence in the English language, it is not so for the words ‘depressed’ and ‘bored’. If the back translation really reflected the meaning conveyed by the term used in Maltese, the original term might have lost some of its intensity in translation. Another variation lies in item 10: «been losing confidence in yourself». ‘Confidence’ was back translated into *faith*. The Maltese word for ‘faith’ encompasses the meaning of the word ‘confidence’ in English. It is the most adequate term to use to convey the meaning in the original text.

## Appendix 4.3

### Reliability test of the original version of the GHQ-12 in Likert scales

#### Paired-Samples T-tests

Test-retest	Paired t-test	df	p value
a1 – b1	- 2.576	39	0.143
a2 – b2	- 2.020	39	0.591
a3 – b3	- 0.570	39	0.570
a4 – b4	0.167	39	0.868
a5 – b5	- 1.503	39	0.141
a6 – b6	- 1.482	39	0.146
a7 – b7	- 1.096	39	0.280
a8 – b8	- 1.138	39	0.262
a9 – b9	- 1.711	39	0.095
a10 – b10	0.000	39	1.000
a11 – b11	- 1.548	39	0.130
a12 – b12	- 1.045	39	0.303

\* significant at  $p < 0.05$

### Appendix 4.3.1

#### Reliability test of the original version of the GHQ-12 in VAS

##### Paired-Samples T-tests

Test-retest	Paired t-test	df	p value
a1 – b1	- 0.542	39	0.591
a2 – b2	- 0.513	39	0.611
a3 – b3	- 0.446	39	0.658
a4 – b4	- 0.996	39	0.325
a5 – b5	- 0.024	39	0.981
a6 – b6	- 0.010	39	0.992
a7 – b7	- 1.467	39	0.151
a8 – b8	- 2.124	39	0.408
a9 – b9	- 0.277	39	0.783
a10 – b10	- 0.099	39	0.922
a11 – b11	1.735	39	0.091
a12 – b12	0.340	39	0.735

\* significant at  $< p = 0.05$

## Appendix 4.3.2

### Reliability test of the Maltese version of the GHQ-12 in VAS

#### Paired-Samples T-tests

Test-retest	Paired t-test	df	p value
a1 – b1	- 14.172	38	0.058
a2 – b2	- 2.916	38	0.053
a3 – b3	1.670	38	0.103
a4 – b4	- 1.469	38	0.150
a5 – b5	2.090	38	0.063
a6 – b6	- 1.053	38	0.299
a7 – b7	- 0.263	38	0.794
a8 – b8	- 2.760	38	0.293
a9 – b9	0.435	38	0.666
a10 – b10	- 2.806	38	0.803
a11 – b11	- 3.524	38	0.183
a12 – b12	1.603	38	0.117

\* significant at  $< p = 0.05$

### Appendix 4.3.3

#### Reliability test of the Back Translation of the GHQ-12 in VAS

##### Paired-Samples T-tests

Test-retest	Paired t-test	df	p value
a1 – b1	- 1.489	39	0.145
a2 – b2	2.231	39	0.061
a3 – b3	- 1.680	39	0.101
a4 – b4	- 0.444	39	0.660
a5 – b5	0.089	39	0.929
a6 – b6	- 0.119	39	0.906
a7 – b7	- 1.532	39	0.134
a8 – b8	- 1.397	39	0.170
a9 – b9	- 1.525	39	0.135
a10 – b10	- 1.364	39	0.181
a11 – b11	- 3.122	39	0.321
a12 – b12	- 1.130	39	0.265

\* significant at  $< p = 0.05$



# Appendix 5

## Appendix 5 Pilot Study

This is a discussion of the quantitative and the qualitative results of the pilot study for which fifteen mothers, willing to participate, and who fulfilled the inclusion and exclusion criteria were recruited.

### 5.1 Quantitative data from the pilot study

The measurements of both variables of perineal trauma and general health in Visual Analogue Scales (VAS) yielded **ordinal data** (Burns and Grove, 1997, Hicks, 1990). Data collection by VAS rated the magnitude or intensity of the mothers' sensations and their subjective feelings in perineal trauma (Waltz et al., 2005) and also rated the degree of their general health.

### 5.2 Anticipated types of variation

Literature on perineal trauma suggests that perineal pain decreases progressively as mothers regain their general health (Andrews et al., 2007, Macarthur and Macarthur, 2005, Barrett et al., 2000, Brown and Lumley, 1998, Barrett et al., 1998, McCandlish et al., 1998, Glazener, 1997). The following created examples of mean scores illustrate the variation of scores as indicated by the authors in the above stated literature.

Figure A5.1 Mean scores of perineal trauma expected across time

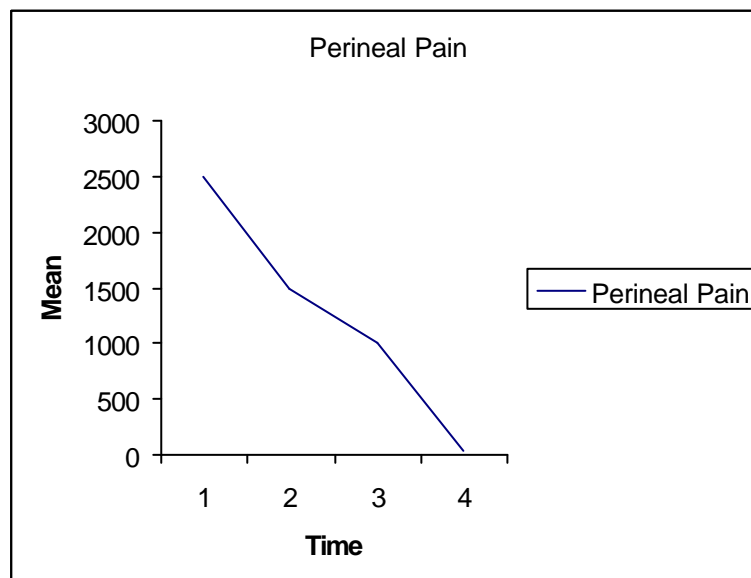
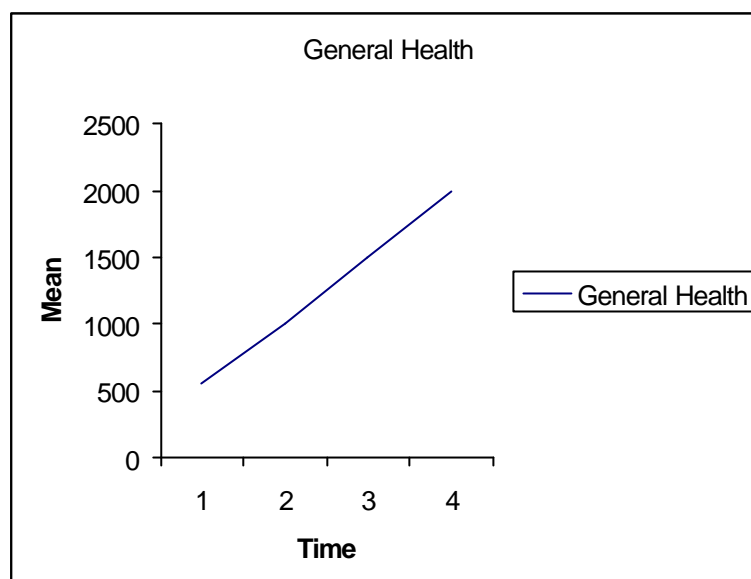


Figure A5.1 demonstrates a consistent decline in scores of perineal trauma across time. It compares with the upward trend in the general health scores in Figure A5.2.

Figure A5.2 Mean scores of General health expected across time



In contrast, the pilot study revealed an increase in the mean value of perineal trauma at time 2, meaning that mothers' perineal trauma was rated higher at time 2 than at time 1. This is contrary to what was expected and contrary to what Figure A5.1 shows. In fact, the pilot study shows the mean value of 1852.07 at T2 versus a mean value of 1249.60 at T1 (Table A5.1).

On the other hand, with respect to general health, the pilot study agreed with the above stated literature in that the general health scores did increase by time. In fact, the pilot study shows an increase in the mean value at time 2 general health (mean value of 842.67 in T2 versus the mean value of 807.93 in T1) (Table A5.2).

Table A5.1 Range of values of perineal trauma in the Pilot Study

	n	Minimum range	Maximum range	Mean	Std. Deviation
T1 – Perineal Trauma	15	762	1859	1249.60	333.50
T2 – Perineal Trauma	15	1285	2399	1852.07	345.06

Table A5.2 Range of values of general health in the Pilot Study

	n	Minimum range	Maximum range	Mean	Std. Deviation
T1 – General Health	15	560	1102	807.93	168.30
T2 – General Health	15	388	1135	842.67	232.56

### 5.3 Relationship between perineal trauma and general health

The researcher planned to use the Spearman's rank order correlation test or the Pearson's correlation test to identify statistical relationships between perineal trauma and the general health of postnatal mothers. Both coefficients lie between -1.0 and +1.0. The continuum (-1.0 .... 0 .... +1.0) provides information on the strength and direction of relationships. If the *r* is close to -1.0, it is indicative of a negative correlation, while if it is close to +1.0, it is indicative of a positive correlation.

The researcher expected a negative relationship between perineal trauma and general health of postnatal mothers across time, which means that during the first two time periods of data collection, that is, around 48 hours (T1) and 10 days after childbirth (T2), perineal trauma was expected to be lower and general health higher. It was thought that with the passage of time, perineal trauma would decrease due to the healing of the perineum with higher scores of general health and a negative significant relationship between the two variables would result.

Table A5.3 Relationship between perineal trauma and general health of mothers in the first 48 hours (T1) and at 10 days after childbirth (T2)

Time	n	Pearson's r	2-tailed p value	Spearman's r	2-tailed p value
T1	15	0.148	0.599	0.265	0.340
T2	15	0.852**	<0.0005	0.868**	<0.0005

\*\* significant at 0.01 level (2-tailed)

Table A5.3 shows that both Pearson's (parametric) and Spearman's correlation (non-parametric) tests revealed the same picture. At time 1, no significant relationship was identified. At time 2, a positive significant relationship was identified between perineal trauma and mothers' general health.

Moreover, the pilot study data consisted of only 15 mothers. Descriptive statistics showed that the data were negatively skewed which can threaten the reliability of the findings. Consequently, the pilot study served only to check the feasibility of data collection and to provide an opportunity to develop skills in the use in the use of SPSS.

It could be argued that though the pilot-study findings were not totally consistent with previous published research findings which propose that perineal trauma decreases over time (Carroli et al, 2000, Barrett et al., 2000, Barrett et al., 1998) with a relative increase in general health (Barrett et al., 2005, Bick et al., 2002, Alexander and Bouvier-Colle 2001, Brown and Lumley, 2000), they nonetheless prepared the way for the main study.

#### **5.4 Qualitative data analysis**

In the present study, mothers reported 21 other activities, besides those indicated in the questionnaires, which they found difficult to carry out due to perineal discomfort. Some of their other difficult activities were enjoying a full bath, changing position in bed, driving a car for long distances and braking, full-time attendance to the baby, reaching out for a crying baby and coping with older siblings along with a newborn baby.

The qualitative data in the present study were analyzed through thematic analysis following some of the stages adapted by Burnard (1991) who developed his method from that described in the grounded theory literature (Glaser and Strauss, 1967).

The following is a breakdown of the themes: perineal trauma, passing of urine, opening of bowels and postnatal general health, into categories and subcategories (Table A5.4) followed by some mothers' quotations (Table A5.5).

Table A5.4 Perineal trauma at time 1 (T1) and time 2 (T2)

<b>Themes</b>	<b>Categories</b>	<b>Subcategories</b>
1.0 Perineal trauma	1.1 Experiencing limited activities	1.1.1 still early to be active 1.1.2 being limited in carrying out activities 1.1.3 activities not yet tried out
	1.2 Recovering from perineal pain and exhaustion	1.2.1 being in pain and uncomfortable 1.2.2 being tired and exhausted 1.2.3 fears of perineal trauma and pain
	1.3 Being comfortable and happily supported	1.3.1 support to relieve pain 1.3.2 forgetting perineal trauma 1.3.3 comfortable in carrying out activities 1.3.4 recovering 1.3.5 other pains than the perineum
2.0 Passing of urine	2.1 Stopping midstream	2.1.1 normal and comfortable passing urine 2.1.2 cannot stop midstream
	2.2 Leaking urine on stress	2.2.1 being in pain/soreness while passing urine 2.2.2 perineum not yet healed; still recovering 2.2.3 leaking urine with stress and pain
	2.3 Holding urine for a long time	2.3.1 can hold urine for long 2.3.2 need to take a shower after holding urine for long
3.0 Opening of bowels	3.1 cannot hold much	3.1.1 leaking without warning 3.1.2 perineal pains on controlling bowels 3.1.3 cannot control wind
	3.2 have not yet opened bowels	3.2.1 fears to open bowels 3.2.2 uncomfortable to open bowels
	3.3 comfortable opening bowels	3.3.1 better state of perineum 3.3.2 haemorrhoids rather than the perineum 3.3.3 need to take a shower afterwards
4.0 Postnatal general health	4.1 Being unworthy of self	4.1.1 reflection on the recent traumatic experience 4.1.2 fears on one's own health, baby, perineum 4.1.3 being tired and fatigued 4.1.4 feeling unwell, unworthy and sad
	4.2 Recovering from childbirth	4.2.1 being uncomfortable, frustrating and slow 4.2.2 being isolated, in pain in perineum 4.2.3 being supported
	4.3 being happy and worthy	4.3.1 willing to concentrate 4.3.2 being well, normal in general health 4.3.3 being worthy, happy and responsible

Table A5.5 Mothers' excerpts describing the themes that emerged from thematic analysis

Themes	Mothers' Excerpts
Perineal trauma	<p>I am not comfortable at all. My perineum is very swollen and I am trying to move as much as possible because I am very stiff. I am scared and in pain (M4, T1).</p> <p>I am not in a position to carry out all the activities above such as exercising or going up and down the stairs. I cannot wear tight underwear because of perineal pain (M5, T1).</p>
Passing of urine	<p>I am afraid to pass urine without control till I arrive in the bathroom. I feel burning pains in the first moments of passing urine. I pass urine easily on laughing, sneezing or coughing (M14, T1).</p>
Opening of bowels	<p>I am still afraid to strain on opening bowels. I may open up the stitches in the perineum. I am still feeling odd in the perineum (M4, T2).</p>
Postnatal general health	<p>I try to challenge myself. I make my very best. There are too many responsibilities. A little bit of sadness which goes away after a short time (M5 T1).</p> <p>When I find myself alone I feel such symptoms quite a lot. Finding yourself alone is what worries me and I begin to feel isolated (M11, T2).</p>

# Appendix 6



## 6.1 FIRST FORTY EIGHT HOURS AFTER THE DELIVERY OF YOUR BABY

Dear Mother,

Thank you for agreeing to participate in the study on how you feel after the delivery of your baby and in the recovery of your *perineum*. The *perineum* in a woman is the area between the vagina and the back passage. This part of your body may have been altered as a result of the birth of your baby.

Many mothers ask questions about the complete recovery of this area. Here is a questionnaire that seeks answers on the recovery of your *perineum* and how you experience the change in your day-to-day life. The questionnaire consists of a set of short sections with statements to answer after the first two days of the birth of your baby. I would like you to take a few minutes of your time to complete the questionnaires by yourself. I shall come and collect it myself before your discharge from hospital.

Your participation is of course always on voluntary basis. Your participation will help in the improvement of maternity care in Malta.

I wish to assure you that all information you provide in the questionnaires will be **STRICTLY CONFIDENTIAL**. It will be stored safely and securely with me as the researcher and all findings from the study will be presented in an anonymous form.

In case you have any questions to ask, please feel free to contact me by telephone. Home 2169 4630, Work 2595 1843, or by e-mail [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)

Thank you again,

Yours sincerely,

Ms Mary Carmen Spiteri  
Lecturer in Midwifery Studies

N.B. Please, do not write your name or surname anywhere in the questionnaire. A code number is used

---

## 6.1.2 Recruitment Data Form

Guide – SPSS – Coding

Case Identification Code

Date

Name & Surname \_\_\_\_\_

Home Address & Tel. No \_\_\_\_\_

Nationality \_\_\_\_\_

Identity Number \_\_\_\_\_

A. Age

B. Occupation: 1 At home

2 Out-side home

Where? \_\_\_\_\_

C. Status:

1 Single

2 Married

3 Widowed

4 Separated or divorced

5 Cohabiting

D. Education level:

1 Primary

2 Secondary

3 Post Secondary

4 University

5 Post graduate

E. Mother's Height (in centimetres)

### Past Obstetric History (before the present pregnancy)

F. If the mother is not a primipara, did she have either of the following in the previous deliveries?

1 First-degree tear      No       Yes       How many times?

2 Second-degree tear      No       Yes       How many times?

3 An episiotomy      No       Yes       How many times?

4 An episiotomy and a tear      No       Yes       How many times?

### Social Data on this Index Pregnancy

G. Did the mother attend antenatal classes? 1 No

2 Sometimes

3 Yes

H. Weight at last antenatal visit in Kg \_\_\_\_\_

I. Cigarette smoking during pregnancy

- |                         |                          |                      |                          |
|-------------------------|--------------------------|----------------------|--------------------------|
| 1 None                  | <input type="checkbox"/> | 2 One to three a day | <input type="checkbox"/> |
| 3 More than three a day | <input type="checkbox"/> | 4 Up to one a week   | <input type="checkbox"/> |
| 5 Social smoking        | <input type="checkbox"/> |                      |                          |

J. Alcohol use during pregnancy

- |                               |                          |                           |                          |
|-------------------------------|--------------------------|---------------------------|--------------------------|
| 1 None                        | <input type="checkbox"/> | 2 Up to one unit per day  | <input type="checkbox"/> |
| 3 More than three units a day | <input type="checkbox"/> | 4 Up to one unit per week | <input type="checkbox"/> |
| 5 Social drink                | <input type="checkbox"/> |                           |                          |

**Data on the present Delivery**

K. Gravity  L. Parity   
(Gravity 1 = 1; gravity 2 = 2; gravity 3 = 3; gravity 4 or more = 4)  
(Parity 1 = 1; parity 2 = 2; parity 3 = 3)

Date of delivery    M. Gestation \_\_\_/40

N. Birth of baby:

1 Vertex Occipito Anterior	<input type="checkbox"/>
2 Vertex Occipito Posterior	<input type="checkbox"/>

O. Most senior attendant: 1 Unattended  2 Midwife  3 Doctor

Analgesics: (Please specify) \_\_\_\_\_

P. Is there an ...?

- |                        |                             |                              |
|------------------------|-----------------------------|------------------------------|
| 1 Episiotomy           | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 2 Tear or tears        | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 3 Episiotomy and tears | No <input type="checkbox"/> | Yes <input type="checkbox"/> |

What was the indication for the episiotomy? \_\_\_\_\_

Q. What position did the mother deliver in?

- |   |  |   |                                   |
|---|--|---|-----------------------------------|
| 1 Semi-recumbent <input type="checkbox"/> | 2 On her side <input type="checkbox"/> | 3 On all fours <input type="checkbox"/> |                                   |
| 4 Squatting <input type="checkbox"/>      | 5 Lithotomy <input type="checkbox"/>   | 6 Sitting down <input type="checkbox"/> | 7 Others <input type="checkbox"/> |

R. Type of delivery: 1 Normal   
2 Forceps Extraction   
3 Ventouse Extraction



**The PERINEUM before PREGNANCY**

This section asks about the state of the perineum before your pregnancy regarding passing of urine, opening of bowels and sexual activities.

1. **Before my pregnancy** I used to leak urine without wanting to.

1. Yes \_\_\_                      2. Uncertain \_\_\_                      3 No \_\_\_

2. **Before my pregnancy**, I could not hold urine for a long time after I feel the need to empty my bladder.

1. Yes \_\_\_                      2. Uncertain \_\_\_                      3. No \_\_\_

*If any of the above answers 1 or 2 is 'Yes', answer the following question 3, and then continue with question 4. If the answers are 'No', go to question 4*

3. Have you discussed with anyone the leaking of urine or that you could not hold it as long as used to be necessary?

1. Yes \_\_\_                      2. No need to \_\_\_                      3. No \_\_\_

If 'yes', with whom? *Please mark with an X at the point where you feel it best corresponds with you.*

1. Partner \_\_\_                      2. Midwife \_\_\_                      3. Doctor \_\_\_

Others \_\_\_\_\_ *(Please say who they are)*

If you have not discussed this condition with any one, please say why.

\_\_\_\_\_

If you have discussed this condition with anybody, please say what advice you were given.

\_\_\_\_\_

4. **Before my pregnancy** I could not hold for a long time after I feel the need to open my bowels.

1. Yes \_\_\_                      2. Uncertain \_\_\_                      3. No \_\_\_

*If 'Yes', answer the following question 5, and then continue with question 6  
If the answers are 'No', go to question 6*

5. Have you discussed this condition of your bowels with any one?

1. Yes \_\_\_                      2. No need to \_\_\_                      3. No \_\_\_

If 'yes', with whom? *Mark with an X at the point where you feel it best corresponds with you.*

1. Partner \_\_\_                      2. Midwife \_\_\_                      3. Doctor \_\_\_

Others \_\_\_\_\_ (*Please say who they are*)

If you have not discussed this condition with anyone, please say why.

\_\_\_\_\_

If you have discussed this condition with anybody, please say what advice you were given.

\_\_\_\_\_

6. **Before my pregnancy** I used to feel pain on sexual intercourse

1. Yes \_\_\_                      2. Uncertain \_\_\_                      3. No \_\_\_

*If 'Yes', answer the following question 7*

7. Have you discussed the condition of pain on sexual intercourse with any one?

1. Yes \_\_\_                      2. No need to \_\_\_                      3. No \_\_\_

If 'yes', with whom? *Mark with an X at the point where you feel it best corresponds with you.*

1. Partner \_\_\_                      2. Midwife \_\_\_                      3. Doctor \_\_\_

Others \_\_\_\_\_ (*Please say who they are*)

If you have not discussed this condition with any one, please say why.

\_\_\_\_\_

If you have discussed this condition with somebody, please say what advice you were given.

\_\_\_\_\_

**6.1.4 Perineal Evaluation Score** Time 1

Code no. \_\_\_\_\_

Score	Category	Oedema	Bruising
0	None	No swelling No redness	No bruising
1	Mild	Any tissue swelling up to 1cm of incision; slight redness	Any slight bruising (pale purple) up to 1cm of incision
2	Moderate	Any tissue swelling up to 2cm of incision; slight redness	Any deep bruising (purple) up to 2cm of incision
3	Severe	Any tissue swelling up to 2 cm or more from incision; marked redness	Any deep bruising (purple) more than 2cm of incision
Score			
Total			

Reference: Steen, M. Cooper, K. (1997) A tool to assessing perineal trauma Journal of Wound Care, 6 (9) 432-436

## 6.1.5

### **FIRST FORTY EIGHT HOURS AFTER THE DELIVERY OF YOUR BABY**

Mother's Code N°

#### Date

Please follow every item in this questionnaire and answer each statement as best reflects your feelings.

**Section A Pain in the Perineum.** *This section asks if you experience any pain in your perineum with the following activities. Mark with an X at the point where you feel it best corresponds with you, on each scale that follows:*

For example: To what extent do you feel comfortable with your back when you move about?

I-----X-----I  
0 10  
Very uncomfortable very comfortable

---

Please answer the following questions:

1. To what extent do you feel comfortable with your *perineum*, when you move about?

I-----I  
0 10  
Very uncomfortable very comfortable

2. To what extent are you now comfortable in your *perineum* when you are...?

2.1 Sitting on hard surface I-----I  
0 10  
Very uncomfortable very comfortable

2.2 Getting in/out of bed I-----I  
0 10  
Very uncomfortable very comfortable

2.3 Walking about I-----I  
0 10  
Very uncomfortable very comfortable

2.4 Running I-----I  
0 10  
Very uncomfortable very comfortable

2.5 Going up/down the stairs I-----I  
0 10  
Very uncomfortable very comfortable

2.6 Standing up for long time I-----I  
0 10  
Very uncomfortable very comfortable



2.7	Stretching your body	I-----I 0 Very uncomfortable	10 very comfortable
2.8	Bending down	I-----I 0 Very uncomfortable	10 very comfortable
2.9	Exercising	I-----I 0 Very uncomfortable	10 very comfortable
2.10	Changing your baby	I-----I 0 Very uncomfortable	10 very comfortable
2.11	Cuddling your baby	I-----I 0 Very uncomfortable	10 very comfortable
2.12	Carrying your baby	I-----I 0 Very uncomfortable	10 very comfortable
2.13	Wearing tight trousers	I-----I 0 Very uncomfortable	10 very comfortable
2.14	Clearing around bed/cot	I-----I 0 Very uncomfortable	10 very comfortable
2.15	Lifting things	I-----I 0 Very uncomfortable	10 very comfortable

2.16 Which other activities do you find difficult to carry out during the recovery of your *perineum*? Please write in the space below.

---



---

**Section B Feeding your Baby**

3. This section deals with your experience of feeding your baby. *Please indicate in the space below by marking with an X, how you are feeding your baby. Choose one from 3.1 to 3.3.*

3.1 I am breast-feeding my baby

*If you are breast-feeding answer statements 4 and 5.1 Then go to section C.*

3.2 I am bottle-feeding my baby

If you are bottle-feeding answer statements 5 and 5.1 Then go to section C.

3.3 I am both breast-feeding and bottle-feeding

If you are both breast and bottle, answer the following statements. Then go to section C.

4. I am comfortable with my *perineum* during breast-feeding

I-----I  
0 10  
Very uncomfortable very comfortable

5. I am comfortable with my *perineum* while bottle-feeding my baby.

I-----I  
0 10  
Very uncomfortable very comfortable

5.1 Write down comments on the experience with the state of your *perineum* and feeding your baby.

---

### Section C Passing of Urine

This section deals with your experience on the state of your *perineum* and passing of urine after the birth of your baby. Mark with an **X** at the point where you feel it best corresponds with your experience, on each scale that follows:

6. I am comfortable passing urine.

I-----I  
0 10  
Strongly disagree strongly agree

7. I am leaking urine without wanting to.

I-----I  
0 10  
Strongly agree strongly disagree

8. I am leaking urine with pain in my *perineum*

I-----I  
0 10  
Strongly agree strongly disagree

9. I leak urine on coughing, sneezing or laughing.

I-----I  
0 10  
Strongly agree strongly disagree

10. I can stop midstream.

I-----I  
0 10  
Strongly disagree strongly agree

11. I can stop leaking urine.

I-----I  
0 10  
Strongly disagree strongly agree

12. I can hold urine for a long time after I feel the need to empty my bladder.

I-----I  
0 10  
Strongly disagree strongly agree

12.1 Write down your comments on the experience of the state of your *perineum* and passing of urine

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#### Section D Opening of Bowels

This section deals with your experience on the state of your *perineum* and opening of bowels after the birth of your baby. Mark with an **X** at the point where you feel it best corresponds with your experience, on each scale that follows:

13. I am comfortable opening bowels.

I-----I  
0 10  
Strongly disagree strongly agree

14. I am comfortable passing wind.

I-----I  
0 10  
Strongly disagree strongly agree

15. I leak from the back passage without warning.

I-----I  
0 10  
Strongly agree strongly disagree

16. I can control wind.

I-----I  
0 10  
Strongly disagree strongly agree

16.1 Write down your comments on the experience of the state of your *perineum* and opening of bowels.

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### Section E. Your General Health

This section deals with the experience of the state of your *perineum* and how you feel in general. *Mark with an X at the point where you feel it best corresponds with you, on each scale that follows:*

#### Have you recently:

17. - been able to concentrate on whatever you're doing?

I-----I  
0 10  
Much less than usual better than usual

18. - lost much sleep over worry?

I-----I  
0 10  
Much more than usual not at all

19. - felt that you are playing a useful part in things?

I-----I  
0 10  
Much less useful more so than usual

20. - felt capable of making decisions about things?

I-----I  
0 10  
Much less capable more so than usual

21. - felt constantly under strain?

I-----I  
0 10  
Much more than usual not at all

22. - felt that you couldn't overcome your difficulties?
- I-----I  
 0 10  
 Much more than usual not at all
23. - been able to enjoy your normal day-to-day activities?
- I-----I  
 0 10  
 Much less than usual more so than usual
24. - been able to face up to your problems?
- I-----I  
 0 10  
 Much less able more so than usual
25. - been feeling unhappy and depressed?
- I-----I  
 0 10  
 Much more than usual not at all
26. - been losing confidence in your self?
- I-----I  
 0 10  
 Much more than usual not at all
27. - been thinking of your self as a worthless person?
- I-----I  
 0 10  
 Much more than usual not at all
28. - been feeling reasonably happy, all things considered?
- I-----I  
 0 10  
 Much less than usual more so than usual

28.1 Write down your comments on the experience of the state of your *perineum* and your general health.

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## 6.2 TEN DAYS AFTER THE DELIVERY OF YOUR BABY

Dear Mother,

Thank you for answering the questionnaire after the first two days of the delivery of your baby. I am very grateful for your participation in the study. Can I remind you that this is a study on how you feel after your delivery and in the recovery of your *perineum*? The *perineum* in a woman is the area between the vagina and the back passage. This part of your body may have been altered as a result of the birth of your baby.

Many mothers ask questions about the complete recovery of this area. This questionnaire asks you how that area affects you in your day-to-day life. It consists of a set of short sections with statements that you answer today on your tenth day following the birth of your baby.

I request you to take a few minutes of your time to complete this questionnaire by yourself. However your participation is always on a voluntary basis. After completing the whole questionnaire, please put it in the enclosed, addressed, stamped envelope and please return it as early as possible.

I wish to assure you that all information you provide in the questionnaires will be **STRICTLY CONFIDENTIAL**. It will be stored safely and securely with me as the researcher and all findings from the study will be presented in an anonymous form. Your participation will help in the improvement of maternity care in Malta.

In case you have any questions to ask, please feel free to contact me by telephone. Home 2169 4630, Work 2595 1843, or by e-mail [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)

Thank you again,

Yours sincerely,

Ms Mary Carmen Spiteri  
Lecturer in Midwifery Studies

N.B. Please, do not write your name or surname anywhere in the questionnaire. A code number is used

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## 6.2.1 TEN DAYS AFTER THE DELIVERY OF YOUR BABY

Mother's Code N°

Date

Please follow every item in this questionnaire and answer each statement as best reflects your feelings.

**Section A Pain in the Perineum.** *This section asks if you experience any pain in your perineum with the following activities. Mark with an X at the point where you feel it best corresponds with you, on each scale that follows:*

For example: To what extent do you feel comfortable with your back when you move about?

I-----X-----I  
0 10  
Very uncomfortable very comfortable

---

Please answer the following questions:

1. To what extent do you feel comfortable with your *perineum*, when you move about?

I-----I  
0 10  
Very uncomfortable very comfortable

2. To what extent are you now comfortable in your *perineum* when you are...?

2.1 Sitting on hard surface I-----I  
0 10  
Very uncomfortable very comfortable

2.2 Getting in/out of bed I-----I  
0 10  
Very uncomfortable very comfortable

2.3 Walking about I-----I  
0 10  
Very uncomfortable very comfortable

2.4 Running I-----I  
0 10  
Very uncomfortable very comfortable

2.5 Going up/down the stairs I-----I  
0 10  
Very uncomfortable very comfortable

2.6 Standing up for long time I-----I  
0 10  
Very uncomfortable very comfortable

- |      |   |  |
|------|---|--|
| 2.7  | Stretching your body  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.8  | Bending down  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.9  | Exercising  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.10 | Changing your baby  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.11 | Cuddling your baby  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.12 | Carrying your baby  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.13 | Wearing tight trousers  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.14 | Doing housework   | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.15 | Doing shopping  | I-----I<br>0 10<br>Very uncomfortable very comfortable |
| 2.16 | Which other activities do you find difficult to carry out during the recovery of your <i>perineum</i> ?<br>Please write in the space below. |  |

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**Section B Feeding your Baby**

3. This section deals with your experience of feeding your baby. *Please indicate in the space below by marking with an X how you are feeding your baby. Choose one from 3.1 to 3.3.*

3.1 I am breast-feeding my baby

*If you are breast-feeding answer statements 4 and 5.1 Then go to section C.*

3.2 I am bottle-feeding my baby



If you are bottle-feeding answer statements 5 and 5.1 Then go to section C.

3.3 I am both breast-feeding and bottle-feeding

If you are both breast and bottle, answer the following statements. Then go to section C.

4. I am comfortable with my *perineum* during breast-feeding

I-----I  
0 10  
Very uncomfortable very comfortable

5. I am comfortable with my *perineum* while bottle-feeding my baby.

I-----I  
0 10  
Very uncomfortable very comfortable

5.1 Write down comments on the experience with the state of your *perineum* and feeding your baby.

---

---

### Section C Passing of Urine

This section deals with your experience on the state of your *perineum* and passing of urine after the birth of your baby. Mark with an **X** at the point where you feel it best corresponds with your experience, on each scale that follows:

6. I am comfortable passing urine.

I-----I  
0 10  
Strongly disagree strongly agree

7. I am leaking urine without wanting to.

I-----I  
0 10  
Strongly agree strongly disagree

8. I am leaking urine with pain in my *perineum*

I-----I  
0 10  
Strongly agree strongly disagree

9. I leak urine on coughing, sneezing and laughing.

I-----I  
0 10  
Strongly agree strongly disagree

10. I can stop midstream.

I-----I  
0 10  
Strongly disagree strongly agree

11. I can stop leaking urine.

I-----I  
0 10  
Strongly disagree strongly agree

12. I can hold urine for a long time after I feel the need to empty my bladder.

I-----I  
0 10  
Strongly disagree strongly agree

12.1 Write down your comments on the experience of the state of your *perineum* and passing of urine

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### Section D Opening of Bowels

This section deals with your experience on the state of your *perineum* and opening of bowels after the birth of your baby. *Mark with an X at the point where you feel it best corresponds with your experience, on each scale that follows:*

13. I am comfortable opening bowels.

I-----I  
0 10  
Strongly disagree strongly agree

14. I am comfortable passing wind.

I-----I  
0 10  
Strongly disagree strongly agree

15. I leak from the back passage without warning.

I-----I  
0 10  
Strongly agree strongly disagree

16. I can control wind.

I-----I  
0 10  
Strongly disagree strongly agree

16.1 Write down your comments on the experience of the state of your *perineum* and opening of bowels.

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### Section E. Your General Health

This section deals with the experience of the state of your *perineum* and how you feel in general. *Mark with an X at the point where you feel it best corresponds with you, on each scale that follows:*

#### Have you recently:

17. - been able to concentrate on whatever you're doing?

I-----I  
0 10  
Much less than usual better than usual

18. - lost much sleep over worry?

I-----I  
0 10  
Much more than usual not at all

19. - felt that you are playing a useful part in things?

I-----I  
0 10  
Much less useful more so than usual

20. - felt capable of making decisions about things?

I-----I  
0 10  
Much less capable more so than usual

21. - felt constantly under strain?

I-----I  
0 10  
Much more than usual not at all

22. - felt that you couldn't overcome your difficulties?
- I-----I  
 0 10  
 Much more than usual not at all
23. - been able to enjoy your normal day-to-day activities?
- I-----I  
 0 10  
 Much less than usual more so than usual
24. - been able to face up to your problems?
- I-----I  
 0 10  
 Much less able more so than usual
25. - been feeling unhappy and depressed?
- I-----I  
 0 10  
 Much more than usual not at all
26. - been losing confidence in your self?
- I-----I  
 0 10  
 Much more than usual not at all
27. - been thinking of your self as a worthless person?
- I-----I  
 0 10  
 Much more than usual not at all
28. - been feeling reasonably happy, all things considered?
- I-----I  
 0 10  
 Much less than usual more so than usual

28.1 Write down your comments on the experience of the state of your *perineum* and your general health.

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**6.2.2 Perineal Evaluation Score**

Time 2

Code no. \_\_\_\_\_

Score	Category	Oedema	Bruising
0	None	No swelling No redness	No bruising
1	Mild	Any tissue swelling up to 1cm of incision; slight redness	Any slight bruising (pale purple) up to 1cm of incision
2	Moderate	Any tissue swelling up to 2cm of incision; slight redness	Any deep bruising (purple) up to 2cm of incision
3	Severe	Any tissue swelling up to 2 cm or more from incision; marked redness	Any deep bruising (purple) more than 2cm of incision
Score			
Total			

Reference: Steen, M. Cooper, K. (1997) A tool to assessing perineal trauma Journal of Wound Care, 6 (9) 432-436

### 6.3 SIX WEEKS AFTER THE DELIVERY OF YOUR BABY

Dear Mother,

Thank you for completing the two previous questionnaires after the birth of your baby. I really am grateful for your continuing contribution to the study. Now that you are in the sixth week after delivery, I realize that life is very busy for you with the baby and the family. I am still interested in your experience of recovery from childbirth and in your *perineum* returning to normal and would be really grateful if you would complete the enclosed questionnaire.

This questionnaire helps you reflect how the recovery in your *perineum* may affect you in your day-to-day life. There are also some questions about your health in general. I request you to take some of your time to complete it by yourself and then you will send it by post in an enclosed addressed paid envelope.

I wish to assure you that all information you provide in the questionnaires will be **STRICTLY CONFIDENTIAL**. It will be stored safely and securely with me as the researcher and all findings from the study will be presented in an anonymous form. Your participation will help in the improvement of maternity care in Malta.

In case you have any questions to ask please feel free to contact me by telephone. Home 2169 4630, Work 2595 1843, or by e-mail: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)

Thank you

Yours sincerely,

Ms Mary Carmen Spiteri  
Lecturer in Midwifery Studies

N. B. Please, do not write your name or surname anywhere in the questionnaire. A code number is used.

---

### 6.3.1 SIX WEEKS AFTER THE DELIVERY OF YOUR BABY

Mother's Code N°

Date

Please follow every item in this questionnaire and answer each statement as best reflects your feelings.

**Section A Pain in the Perineum.** This section asks if you experience any pain in your perineum with the following activities. Mark with an **X** at the point where you feel it best corresponds with you, on each scale that follows:

For example: To what extent do you feel comfortable with your back when you move about?

I-----X-----I  
0 10  
Very uncomfortable very comfortable

---

Please answer the following questions:

1. To what extent do you feel comfortable with your *perineum*, when you move about?

I-----I  
0 10  
Very uncomfortable very comfortable

2. To what extent are you now comfortable in your *perineum* when you are...?

2.1 Sitting on hard surface I-----I  
0 10  
Very uncomfortable very comfortable

2.2 Getting in/out of bed I-----I  
0 10  
Very uncomfortable very comfortable

2.3 Walking about I-----I  
0 10  
Very uncomfortable very comfortable

2.4 Running I-----I  
0 10  
Very uncomfortable very comfortable

2.5 Going up/down the stairs I-----I  
0 10  
Very uncomfortable very comfortable

2.6 Standing up for long time I-----I  
0 10  
Very uncomfortable very comfortable

- 2.7 Stretching your body I-----I  
0 10  
Very uncomfortable very comfortable
- 2.8 Bending down I-----I  
0 10  
Very uncomfortable very comfortable
- 2.9 Exercising I-----I  
0 10  
Very uncomfortable very comfortable
- 2.10 Changing your baby I-----I  
0 10  
Very uncomfortable very comfortable
- 2.11 Cuddling your baby I-----I  
0 10  
Very uncomfortable very comfortable
- 2.12 Carrying your baby I-----I  
0 10  
Very uncomfortable very comfortable
- 2.13 Wearing tight trousers I-----I  
0 10  
Very uncomfortable very comfortable
- 2.14 Doing housework I-----I  
0 10  
Very uncomfortable very comfortable
- 2.15 Doing shopping I-----I  
0 10  
Very uncomfortable very comfortable
- 2.16 Which other activities do you find difficult to carry out during the recovery of your *perineum*?  
Please write in the space below.

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## Section B Feeding your Baby

3. This section deals with your experience of feeding your baby. *Please indicate in the space below by marking with an X how you are feeding your baby. Choose one from 3.1 to 3.3.*

3.1 I am breast-feeding my baby

*If you are breast-feeding answer statements 4 and 5.1 Then go to section C.*



3.2 I am bottle-feeding my baby

*If you are bottle-feeding answer statements 5 and 5.1 Then go to section C.*

3.3 I am both breast-feeding and bottle-feeding

*If you are both breast and bottle, answer the following statements. Then go to section C.*

4. I am comfortable with my *perineum* during breast-feeding

I-----I  
0 10  
Very uncomfortable very comfortable

5. I am comfortable with my *perineum* while bottle-feeding my baby.

I-----I  
0 10  
Very uncomfortable very comfortable

5.1 Write down comments on the experience with your recovery of the *perineum* and feeding your baby.

---

### Section C Passing of Urine

This section deals with your experience on the recovery of your *perineum* and passing of urine after the birth of your baby. *Mark with an X at the point where you feel it best corresponds with your experience, on each scale that follows:*

6. I am comfortable passing urine.

I-----I  
0 10  
Strongly disagree strongly agree

7. I am leaking urine without wanting to.

I-----I  
0 10  
Strongly agree strongly disagree

8. I am leaking urine with pain in my *perineum*

I-----I  
0 10  
Strongly agree strongly disagree

9. I leak urine on coughing, sneezing or laughing.

I-----I  
0 10  
Strongly agree strongly disagree

10. I can stop midstream.

I-----I  
0 10  
Strongly disagree strongly agree

11. I can stop leaking urine.

I-----I  
0 10  
Strongly disagree strongly agree

12. I can hold urine for a long time after I feel the need to empty my bladder.

I-----I  
0 10  
Strongly disagree strongly agree

12.1 Write down your comments on the experience of the recovery of the *perineum* and passing of urine

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#### Section D Opening of Bowels

This section deals with your experience on the recovery of your *perineum* and opening of bowels after the birth of your baby. Mark with an **X** at the point where you feel it best corresponds with your experience, on each scale that follows:

13. I am comfortable opening bowels.

I-----I  
0 10  
Strongly disagree strongly agree

14. I am comfortable passing wind.

I-----I  
0 10  
Strongly disagree strongly agree

15. I leak from the back passage without warning.

I-----I  
0 10  
Strongly agree strongly disagree

16. I can control wind.

I-----I  
0 10  
Strongly disagree strongly agree

16.1 Write down your comments on the experience of your recovery of the *perineum* and opening of bowels.

---

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### Section E. Your Sexual Health

This section deals with the state of your *perineum* and your sexual health. *Please choose one from 17.1 and 17.3 and indicate in the space provided by marking with an X then follow the instructions.*

17. Have you resumed sexual intercourse since the birth of your baby?

17.1 No but I have a partner. *Now go to number 18 up to 22. Then go to 27.1*

17.2 Yes *continue with the rest of the questions*

17.3 No as I have no partner. *Now go to 27.1*

18. I have discussed sex with my partner. Yes No

*Mark with an X at the point where you feel it best corresponds with you.*

19. Fear of pain in my *perineum* makes me not want to bother with sex.

I-----I  
0 10  
Strongly agree strongly disagree

20. I am afraid to resume sexual intercourse.

I-----I  
0 10  
Strongly agree strongly disagree

21. My partner is hesitating to resume sexual intercourse.

I-----I  
0 10  
Strongly agree strongly disagree

22. My *perineum* is influencing badly my sexual health.

I-----I  
0 10  
Strongly agree strongly disagree

23. During sex my *perineum* is feeling same as usual.

I-----I  
0 10  
Strongly disagree strongly agree

24. I feel pain on penetration.

I-----I  
0 10  
Strongly agree strongly disagree

25. I feel pain during sexual intercourse.

I-----I  
0 10  
Strongly agree strongly disagree

26. I feel pain on orgasm.

I-----I  
0 10  
Strongly agree strongly disagree

27. Full sexual intercourse is comfortable.

I-----I  
0 10  
Strongly disagree strongly agree

27.1 Write down your comments on the experience of the state of your *perineum* and your sexual health.

---

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### Section F. Your General Health

This section deals with the experience of the state of your *perineum* and how you feel in general. *Mark with an X at the point where you feel it best corresponds with you, on each scale that follows:*

**Have you recently:**

28. - been able to concentrate on whatever you're doing?
- I-----I  
0 10  
Much less than usual better than usual
29. - lost much sleep over worry?
- I-----I  
0 10  
Much more than usual not at all
30. - felt that you are playing a useful part in things?
- I-----I  
0 10  
Much less useful more so than usual
31. - felt capable of making decisions about things?
- I-----I  
0 10  
Much less capable more so than usual
32. - felt constantly under strain?
- I-----I  
0 10  
Much more than usual not at all
33. - felt that you couldn't overcome your difficulties?
- I-----I  
0 10  
Much more than usual not at all
34. - been able to enjoy your normal day-to-day activities?
- I-----I  
0 10  
Much less than usual more so than usual
35. - been able to face up to your problems?
- I-----I  
0 10  
Much less able more so than usual

36. - been feeling unhappy and depressed?

I-----I  
0 10  
Much more than usual not at all

37. - been losing confidence in your self?

I-----I  
0 10  
Much more than usual not at all

38. - been thinking of your self as a worthless person?

I-----I  
0 10  
Much more than usual not at all

39. - been feeling reasonably happy, all things considered?

I-----I  
0 10  
Much less than usual more so than usual

39.1 Write down your comments on the experience of the state of your *perineum* and your general health.

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MCS 28/05/03

**Thank you for your participation**

## 6.4

### THIRTEEN WEEKS AFTER THE DELIVERY OF YOUR BABY

Dear Mother,

Thank you for completing the three questionnaires after the birth of your baby. I know that you are busy and that filling in the questionnaires will have taken some time, but your cooperation in the study is very important to me. Now that you are in the thirteenth week after delivery, I realize that life is even busier for you with your growing-up baby, and the family. But I wonder whether I can ask you to complete one final questionnaire?

This is the last questionnaire after thirteen weeks of delivery of your baby and I would like to know whether your *perineum* is at present affecting your day-to-day life. There are also some questions about your health in general. I request that you take some time by yourself to complete this questionnaire and then you will send it by post in an enclosed addressed paid envelope.

I wish to assure you that all information you provide in the questionnaires will be **STRICTLY CONFIDENTIAL**. It will be stored safely and securely with me as the researcher and all findings from the study will be presented in an anonymous form. Your participation will help in the improvement of maternity care in Malta.

In case you have any questions to ask please feel free to contact me by telephone. Home 2169 4630, Work 2595 1843, or by e-mail: [mary.c.spiteri@um.edu.mt](mailto:mary.c.spiteri@um.edu.mt)

Thank you

Yours sincerely,

Ms Mary Carmen Spiteri  
Lecturer in Midwifery Studies

N. B. Please, do not write your name or surname anywhere in the questionnaire. A code number is used.

---

## 6.4.1 Thirteen weeks after the Delivery of your baby

Mother's Code N°

Date

Please follow every item in this questionnaire and answer each statement as best reflects your feelings.

**Section A Pain in the Perineum.** *This section asks if you experience any pain in your perineum with the following activities. Mark with an X at the point where you feel it best corresponds with you, on each scale that follows:*

For example: To what extent do you feel comfortable with your back when you move about?

I-----X-----I  
0 10  
Very uncomfortable very comfortable

---

Please answer the following questions:

1. To what extent do you feel comfortable with your *perineum*, when you move about?

I-----I  
0 10  
Very uncomfortable very comfortable

2. To what extent are you now comfortable in your *perineum* when you are...?

2.1 Sitting on hard surface I-----I  
0 10  
Very uncomfortable very comfortable

2.2 Getting in/out of bed I-----I  
0 10  
Very uncomfortable very comfortable

2.3 Walking about I-----I  
0 10  
Very uncomfortable very comfortable

2.4 Running I-----I  
0 10  
Very uncomfortable very comfortable

2.5 Going up/down the stairs I-----I  
0 10  
Very uncomfortable very comfortable

2.6 Standing up for long time I-----I  
0 10  
Very uncomfortable very comfortable



2.7	Stretching your body	I-----I 0 Very uncomfortable	10 very comfortable
2.8	Bending down	I-----I 0 Very uncomfortable	10 very comfortable
2.9	Exercising	I-----I 0 Very uncomfortable	10 very comfortable
2.10	Changing your baby	I-----I 0 Very uncomfortable	10 very comfortable
2.11	Cuddling your baby	I-----I 0 Very uncomfortable	10 very comfortable
2.12	Carrying your baby	I-----I 0 Very uncomfortable	10 very comfortable
2.13	Wearing tight trousers	I-----I 0 Very uncomfortable	10 very comfortable
2.14	Doing housework	I-----I 0 Very uncomfortable	10 very comfortable
2.15	Doing shopping	I-----I 0 Very uncomfortable	10 very comfortable

2.16 Which other activities do you find difficult to carry out in the present state of your *perineum*? Please write in the space below.

---



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### Section B Feeding your Baby

3. This section deals with your experience on the state of your perineum and feeding your baby. Please indicate in the space below by marking with an **X** how you are feeding your baby. Choose **one** from 3.1 to 3.3.

3.1 I am breast-feeding my baby

*If you are breast-feeding answer statements 4 and 5.1 Then go to section C.*

3.2 I am bottle-feeding my baby

*If you are bottle-feeding answer statements 5 and 5.1 Then go to section C.*

3.3 I am both breast-feeding and bottle-feeding

*If you are both breast and bottle, answer the following statements. Then go to section C.*

4. I am comfortable with my *perineum* during breast-feeding

I-----I  
0 10  
Very uncomfortable very comfortable

5. I am comfortable with my *perineum* while bottle-feeding my baby.

I-----I  
0 10  
Very uncomfortable very comfortable

5.1 Write down comments on your experience on the state in the *perineum* and feeding your baby.

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### **Section C Passing of Urine**

This section deals with your experience on the state in your *perineum* and passing of urine after the birth of your baby. *Mark with an X at the point where you feel it best corresponds with your experience, on each scale that follows:*

6. I am comfortable passing urine.

I-----I  
0 10  
Strongly disagree strongly agree

7. I am leaking urine without wanting to.

I-----I  
0 10  
Strongly agree strongly disagree

8. I am leaking urine with pain in my *perineum*

I-----I  
0 10  
Strongly agree strongly disagree

9. I leak urine on coughing, sneezing or laughing.

I-----I  
0 10  
Strongly agree strongly disagree

10. I can stop midstream.

I-----I  
0 10  
Strongly disagree strongly agree

11. I can stop leaking urine.

I-----I  
0 10  
Strongly disagree strongly agree

12. I can hold urine for a long time after I feel the need to empty my bladder.

I-----I  
0 10  
Strongly disagree strongly agree

12.1 Write down your comments on your experience of the state in the *perineum* and passing of urine

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### Section D Opening of Bowels

This section deals with your experience on the state in your *perineum* and opening of bowels after the birth of your baby. *Mark with an X at the point where you feel it best corresponds with your experience, on each scale that follows:*

13. I am comfortable opening bowels.

I-----I  
0 10  
Strongly disagree strongly agree

14. I am comfortable passing wind.

I-----I  
0 10  
Strongly disagree strongly agree

15. I leak from the back passage without warning.

I-----I  
0 10  
Strongly agree strongly disagree

16. I can control wind.

I-----I  
0 10  
Strongly disagree strongly agree

16.1 Write down comments on your experience of the state in the *perineum* and opening of bowels.

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### Section E. Your Sexual Health

This section deals with the state in your *perineum* and your sexual health. *Please choose one from 17.1 and 17.3 and indicate in the space provided by marking with an X then follow the instructions.*

17. Have you resumed sexual intercourse since the birth of your baby?

17.1 No but I have a partner. *Now go to number 18 up to 22. Then go to 27.1*

17.2 Yes *continue with the rest of the questions*

17.3 No as I have no partner. *Now go to 27.1*

18. I have discussed sex with my partner. Yes No

*Mark with an X at the point where you feel it best corresponds with you.*

19. Fear of pain in my *perineum* makes me not want to bother with sex.

I-----I  
0 10  
Strongly agree strongly disagree

20. I am afraid to resume sexual intercourse.

I-----I  
0 10  
Strongly agree strongly disagree

21. My partner is hesitating to resume sexual intercourse.

I-----I  
0 10  
Strongly agree strongly disagree

22. My *perineum* is influencing badly my sexual health.

I-----I  
0 10  
Strongly agree strongly disagree

23. During sex my *perineum* is feeling same as usual.

I-----I  
0 10  
Strongly disagree strongly agree

24. I feel pain on penetration.

I-----I  
0 10  
Strongly agree strongly disagree

25. I feel pain during sexual intercourse.

I-----I  
0 10  
Strongly agree strongly disagree

26. I feel pain on orgasm.

I-----I  
0 10  
Strongly agree strongly disagree

27. Full sexual intercourse is comfortable.

I-----I  
0 10  
Strongly disagree strongly agree

27.1 Write down your comments on the experience of the state in your *perineum* and your sexual health.

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## Section F. Your General Health

This section deals with the experience of the state in your *perineum* and how you feel in general. *Mark with an X at the point where you feel it best corresponds with you, on each scale that follows:*

**Have you recently:**

28. - been able to concentrate on whatever you're doing?
- I-----I  
0 10  
Much less than usual better than usual
29. - lost much sleep over worry?
- I-----I  
0 10  
Much more than usual not at all
30. - felt that you are playing a useful part in things?
- I-----I  
0 10  
Much less useful more so than usual
31. - felt capable of making decisions about things?
- I-----I  
0 10  
Much less capable more so than usual
32. - felt constantly under strain?
- I-----I  
0 10  
Much more than usual not at all
33. - felt that you couldn't overcome your difficulties?
- I-----I  
0 10  
Much more than usual not at all
34. - been able to enjoy your normal day-to-day activities?
- I-----I  
0 10  
Much less than usual more so than usual
35. - been able to face up to your problems?
- I-----I  
0 10  
Much less able more so than usual

36. - been feeling unhappy and depressed?

I-----I  
0 10  
Much more than usual not at all

37. - been losing confidence in your self?

I-----I  
0 10  
Much more than usual not at all

38. - been thinking of your self as a worthless person?

I-----I  
0 10  
Much more than usual not at all

39. - been feeling reasonably happy, all things considered?

I-----I  
0 10  
Much less than usual more so than usual

39.1 Write down your comments on the experience of the state in your *perineum* and your general health.

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# Appendix 7

## Appendix 7

### Tables of Differences in variables' scores by characteristics

**Table 7.1.1 Differences in Total Perineal Trauma scores by Age: Student T-Test**

Demographic Characteristic	Time	Subgroup	n	Mean	T	DF	p
Age	T1	1	112	1507.43	2.335	142	0.021*
		2	32	1382.72			
				MD124.7			
	T2	1	108	931.99	0.371	138	0.711
		2	32	902.50			
				MD29.49			
	T3	1	102	418.62	0.928	130	0.355
		2	30	362.80			
				MD55.82			
	T4	1	95	162.54	0.041	122	0.968
		2	29	161.00			
				MD1.54			

\* Significant difference  $p < 0.05$ ;

MD = Mean Difference

Subgroup N° 1 20-30 years of age  
2 31-40 years of age

There was a significant difference ( $p = 0.021$ ) in mean scores of T1 total perineal trauma between the two subgroups (Table 7.1.1). At time 2, time 3, and time 4, there were no significant differences within the subgroups but the mean of subgroup 1 is consistently greater than that of subgroup 2 across time. There was also a consistent decline in scores of perineal trauma in the two subgroups across time.

**Table 7.1.2 Differences in Total Perineal Trauma scores by Education: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (sub group)	F	DF	p	Subgroup number	Mean difference	p
1	144	4	0.899	3	0.443	1 – 2	40.155	1.000
						1 – 3	24.172	1.000
						1 – 4	131.486	1.000
						2 – 3	-15.983	1.000
						2 – 4	91.331	1.000
						3 – 4	107.314	0.917
2	140	4	0.350	3	0.789	1 – 2	21.291	1.000
						1 – 3	-50.239	1.000
						1 – 4	51.860	1.000
						2 – 3	-71.530	1.000
						2 – 4	-73.151	1.000
						3 – 4	01.621	1.000
3	132	4	1.164	3	0.326	1 – 2	-38.328	1.000
						1 – 3	54.216	1.000
						1 – 4	69.333	1.000
						2 – 3	92.544	0.841
						2 – 4	107.662	0.771
						3 – 4	15.118	1.000
4	124	4	2.906	3	0.038	1 – 2	-199.038	0.122
						1 – 3	-123.798	0.995
						1 – 4	-75.764	1.000
						2 – 3	75.240	0.880
						2 – 4	123.274	0.201
						3 – 4	48.034	1.000

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/4 = 0.0125$  to decrease the likelihood of Type I error.

Subgroup N° 1      Primary  
                          2      Secondary  
                          3      Post-secondary  
                          4      University

There were no significant differences in Total Perineal Trauma between the subgroups by education.

**Table 7.1.3 Differences in Total Perineal Trauma scores by Occupation: Student T-Test**

Demographic Characteristic	Time	Subgroup	n	Mean	T	DF	p
Occupation	T1	1	59	1459.02	-0.764	142	0.446
		2	85	1494.08			
				MD-35.07			
	T2	1	56	868.66	-1.394	138	0.166
		2	84	962.98			
				MD-94.32			
	T3	1	51	380.69	-0.794	130	0.428
		2	81	421.83			
				MD-41.14			
	T4	1	47	165.47	0.161	122	0.872
		2	77	160.17			
				MD5.30			

MD = Mean Difference

Subgroup N<sup>o</sup> 1 working at home  
2 working outside home

The classification by occupation of the mothers was recorded in their maternity case-notes. At the time of booking at early pregnancy, 41% (n=59) were recorded to be working at home, whilst 59% (n=85) were recorded to be working outside home.

There was no significant difference in mean total perineal trauma with regard to occupation. There was a consistent decline in the mean scores of total perineal trauma in both subgroups across times. Subgroup 1 showed lower scores than subgroup 2 at T1, T2, and T3. At T4 the scores in both subgroups were nearly similar.

**Table 7.1.4 Differences in Total Perineal Trauma scores by Attending Antenatal Classes: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	Number (sub group)	F	DF	p	Subgroup number	Mean difference	p
1	144	3	2.727	2	0.069	1 – 2	-75.71	1.000
						1 – 3	-115.68	0.063
						2 – 3	-39.98	1.000
2	140	3	1.459	2	0.236	1 – 2	-245.06	0.903
						1 – 3	-104.96	0.396
						2 – 3	140.10	1.000
3	132	3	.731	2	0.483	1 – 2	134.26	1.000
						1 – 3	55.99	0.876
						2 – 3	-78.27	1.000
4	124	3	1.284	2	0.281	1 – 2	154.29	0.852
						1 – 3	60.97	0.524
						2 – 3	-93.32	1.000

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type I error.

Subgroup N° 1 No  
 2 Sometimes  
 3 Yes

There were no significant differences in Total Perineal Trauma between the subgroups by attending antenatal classes.

**Table 7.1.5 Differences in Total Perineal Trauma scores by Smoking:  
Student T-Test**

Demographic Characteristic	Time	Subgroup	n	Mean	T	DF	p
Smoking	T1	1	119	1485.97	-2.227	142	0.028*
		2	25	1627.56			
				MD-141.5			
	T2	1	116	929.19	-0.936	138	0.351
		2	24	1013.17			
				MD-83.97			
	T3	1	110	393.10	-2.074	130	0.040*
		2	22	534.32			
				MD-141.2			
	T4	1	103	272.84	-1.156	122	0.250
		2	21	339.62			
				MD-66.77			

\* Significant difference  $p < 0.05$ ;

MD = Mean Difference

Subgroup N° 1 no smoking  
2 social smoking

There were significant differences in Total Perineal Trauma between the subgroups by smoking at time 1 and time 3. In subgroup 2, the social smokers reported greater mean scores in total perineal trauma than the non smokers across time.

**Table 7.1.6 Differences in Total Perineal Trauma scores by Alcohol: Student T-Test**

Demographic Characteristic	Time	Subgroup	n	Mean	T	DF	p
Alcohol	T1	1	116	1487.22	-1.964	14	0.052
		2	28	1607.18		2	
				MD-119.9			
	T2	1	113	923.60	-1.212	13	0.228
		2	27	1027.22		8	
				MD-103.6			
	T3	1	108	413.77	-0.236	13	0.814
		2	24	429.54		0	
				MD-15.77			
	T4	1	100	295.03	1.024	12	0.308
		2	24	238.83		2	
				MD56.19			

MD = Mean Difference

Subgroup N° 1 no alcohol  
2 social drinkers

There was no significant difference in Total Perineal Trauma between the subgroups by alcohol consumption. Subgroup 2, the social drinkers reported greater mean scores at time 1, time 2, and time 3. At time 4 the position was reversed with subgroup 1 reporting greater mean scores than subgroup 2.

**Table 7.1.7 Differences in Total Perineal Trauma scores by Length of Hospital Stay after the birth of the baby: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (sub group)	F	DF	p	Subgroup number	Mean difference	p
1	144	3	4.715	2	0.010	1 – 2	-98.53	0.238
						1 – 3	-388.44	0.025*
						2 – 3	-289.91	0.170
2	140	3	0.800	2	0.451	1 – 2	-43.66	1.000
						1 – 3	-242.38	0.711
						2 – 3	-198.72	1.000
3	132	3	0.395	2	0.674	1 – 2	-23.00	1.000
						1 – 3	-126.86	1.000
						2 – 3	-103.86	1.000
4	124	3	2.570	2	0.081	1 – 2	103.55	0.132
						1 – 3	-95.98	1.000
						2 – 3	-199.53	0.358

Results for mean differences between groups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type I error.

Length of Hospital Stay after the birth of the baby:

Subgroup N°	1	2 days
	2	3 days
	3	5 days

There were no significant differences in the Total Perineal Trauma between the subgroups by length of hospital stay after the birth of the baby. When applying the Bonferroni correction test the findings are altered at time 1 between subgroups 1 and 3.



## Appendix 7.2

**Table 7.2.1 Differences in Total Perineal Trauma scores by Parity: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (sub group)	F	DF	p	Subgroup number	Mean difference	p
1	144	3	2.600	2	0.078	1 – 2	119.43	0.075
						1 – 3	77.70	1.000
						2 – 3	-41.73	1.000
2	140	3	3.140	2	0.046	1 – 2	180.76	0.042*
						1 – 3	0.11	1.000
						2 – 3	-180.65	1.000
3	132	3	1.226	2	0.297	1 – 2	74.74	0.557
						1 – 3	146.99	0.993
						2 – 3	72.25	1.000
4	124	3	0.596	2	0.553	1 – 2	3.43	1.000
						1 – 3	-133.06	0.858
						2 – 3	-136.49	0.857

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type I error.

Subgroups by Parity:

Subgroup N°	1	1 <sup>st</sup> baby
	2	2 <sup>nd</sup> baby
	3	3 <sup>rd</sup> baby

There were no significant differences in Total Perineal Trauma between the subgroups by parity. When applying the Bonferroni correction test the findings are altered at time 2 between subgroups 1 and 2.

**Table 7.2.2 Differences in Total Perineal Trauma scores by Position of Baby's Head at Birth: Student T-Test**

Obstetric Characteristic	Time	Subgroup	n	Mean	T	DF	p
Position of Baby's head at birth	T1	1	114	1478.54	-0.102	142	0.919
		2	30	1484.20			
				MD-5.66			
	T2	1	110	910.01	-0.877	138	0.382
		2	30	981.13			
				MD-71.12			
	T3	1	102	400.68	-0.384	130	0.702
		2	30	423.80			
				MD-23.12			
	T4	1	96	171.23	1.056	122	0.293
		2	28	131.14			
				MD40.09			

MD=Mean Difference;

VOA = vertex occipito anterior. VOP = vertex occipito posterior

Subgroup N° 1 VOA  
2 VOP

One hundred fourteen (79%) of the mothers delivered the baby in the vertex occipito anterior position (Subgroup 1, VOA) and 30 (21%) in vertex occipito posterior position (Subgroup 2, VOP). The mean total perineal trauma scores in both subgroups decreased across times. Subgroup 1 perceived less trauma at T1 (mean 1478.54), T2 (mean 910.01) and T3 (mean 400.68). At T4, the position was reversed: subgroup 2 perceived less trauma (mean 131.14) than subgroup 1 (mean 171.23).

**Table 7.2.3 Differences in Total Perineal Trauma scores by Maternal Position during Childbirth: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (sub group)	F	DF	p	Sub group number	Mean difference	p
1	144	4	2.372	3	0.073	1 – 2	100.22	1.000
						1 – 3	-211.01	0.080
						1 – 4	-113.44	1.000
						2 – 3	-311.23	0.569
						2 – 4	-213.67	1.000
						3 – 4	97.56	1.000
						2	140	4
						1 – 3	-166.16	0.943
						1 – 4	-191.95	1.000
						2 – 3	-228.54	1.000
						2 – 4	-254.33	1.000
						3 – 4	-25.79	1.000
3	132	4	0.307	3	0.820	1 – 2	-106.11	1.000
						1 – 3	1.30	1.000
						1 – 4	126.22	1.000
						2 – 3	107.41	1.000
						2 – 4	232.33	1.000
						3 – 4	124.92	1.000
						4	124	4
						1 – 3	95.39	1.000
						1 – 4	102.72	1.000
						2 – 3	21.83	1.000
						2 – 4	29.17	1.000
						3 – 4	7.33	1.000

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/4 = 0.0125$  to decrease the likelihood of Type I error.

Subgroups of Maternal Position during Childbirth:

- Subgroup N° 1 semi-recumbent
- 2 sideways
- 3 lithotomy
- 4 sitting down

There were no significant differences in the Total Perineal Trauma scores between the subgroups by maternal position during childbirth.

## Appendix 7.3

**Table 7.3.1 Differences in the Resumption of Sexual Intercourse scores by Marital Status: Student T-Test**

Obstetric Characteristic	Time	Subgroup	n	Mean	t	DF	p
Marital status	T3	1	11	376.09	-0.193	130	0.847
		2	121	391.54			
				MD-15.44			
	T4	1	8	565.50	-0.976	122	0.331
		2	116	647.04			
				MD-81.54			

MD = Mean Difference

Subgroup N° 1      single  
                   2      married

There were no significant differences in the Resumption of Sexual Intercourse between the subgroups by marital status. The married mothers reported greater mean scores in both time 3 (391.09) and time 4 (647.04).

**Table 7.3.2 Differences in the Resumption of Sexual Intercourse scores by Parity: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (sub group)	F	DF	p	Subgroup number	Mean difference	p
3	132	3	2.646	2	0.075	1 – 2	-94.25	0.152
						1 – 3	120.85	1.000
						2 – 3	215.10	0.312
4	124	3	1.521	2	0.223	1 – 2	-66.22	0.415
						1 – 3	82.88	1.000
						2 – 3	149.10	0.644

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type I error.

Subgroups by Parity:

Subgroup N°	1	1 <sup>st</sup> baby
	2	2 <sup>nd</sup> baby
	3	3 <sup>rd</sup> baby

There were no significant differences in the Resumption of Sexual Intercourse between the subgroups of parity.

**Table 7.3.3 Differences in the Resumption of Sexual Intercourse scores by Position of Baby’s Head at Birth: Student T-Test**

<b>Obstetric Characteristic</b>	<b>Time</b>	<b>Subgroup</b>	<b>n</b>	<b>Mean</b>	<b>t</b>	<b>df</b>	<b>P</b>
<b>Position of baby’s head at birth</b>	T3	1	102	404.65	1.205	130	0.230
		2	30	341.30			
				MD 63.34			
	T4	1	96	645.05	0.294	122	0.769
		2	28	630.57			
				MD14.48			

MD = Mean Difference.

VOA = vertex occipito anterior. VOP = vertex occipito posterior

Subgroup N° 1 VOA  
2 VOP

There were no significant differences in the Resumption of Sexual Intercourse between the subgroups by position of the baby’s head at birth. The vertex occipito anterior subgroup reported greater mean scores than the other sub group.

## Appendix 7.4

**Table 7.4.1 Differences in the General Health scores by Marital Status : Student T-Test**

Obstetric Characteristic	Time	Subgroup	n	Mean	t	DF	p
Marital status	T1	1	12	672.25	-1.948	142	0.053
		2	132	768.28			
				MD-96.03			
	T2	1	12	751.83	-1.474	138	0.143
		2	128	840.72			
				MD-88.89			
	T3	1	11	895.27	-0.085	130	0.932
		2	121	900.60			
				MD-5.33			
	T4	1	8	862.88	-1.032	122	0.304
		2	116	939.84			
				MD-76.96			

MD = Mean Difference

Subgroup N° 1      single  
                   2      married

There was no significant difference in scores of general health between the subgroups across time. But there was a consistent rise in mean across time (subgroup 1, T1=672.25, T2=751.83, T3=895.27, T4=862.88; subgroup 2, T1=768.28, T2=840.72, T3=900.60, T4=939.84). Subgroup 1 (the single subgroup) showed consistent lower general health than the married subgroup with the married subgroup reporting greater scores than the single subgroup at all times.

**Table 7.4.2 Differences in the General Health scores by Parity: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Scores of GH	n (sub group)	F	DF	p	Subgroup number	Mean difference	p
1	144	3	0.419	2	0.659	1 – 2	-16.96	1.000
						1 – 3	55.39	1.000
						2 – 3	72.34	1.000
2	140	3	0.909	2	0.405	1 – 2	-49.91	0.540
						1 – 3	-12.33	1.000
						2 – 3	37.58	1.000
3	132	3	0.482	2	0.619	1 – 2	24.78	1.000
						1 – 3	73.20	1.000
						2 – 3	48.42	1.000
4	124	3	1.007	2	0.368	1 – 2	30.47	1.000
						1 – 3	133.78	0.609
						2 – 3	103.31	1.000

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type1 error.

Subgroups by Parity:

Subgroup N°	1	1 <sup>st</sup> baby
	2	2 <sup>nd</sup> baby
	3	3 <sup>rd</sup> baby

There were no significant differences in the General Health between the subgroups by parity.



**Table 7.4.3 Differences in the General Health scores by Position of Baby's Head at Birth: Student T-Test**

Obstetric Characteristic	Time	Subgroup	n	Mean	t	DF	p
Position of baby's head at birth	T1	1	114	752.83	-1.055	142	0.293
		2	30	788.57			
					MD-35.74		
	T2	1	110	834.55	0.163	138	0.871
		2	30	827.80			
				MD6.75			
	T3	1	102	895.87	-0.461	130	0.645
		2	30	914.87			
				MD-19.00			
	T4	1	96	930.11	-0.480	122	0.632
		2	28	951.21			
				MD-21.1			

MD = Mean Difference.

VOA = vertex occipito anterior. VOP = vertex occipito posterior

Subgroup N° 1 VOA  
2 VOP

There was no significant difference in mean general health between subgroup 1 (vertex occipito anterior) and subgroup 2 (vertex occipito posterior) across time.

There was a consistent rise in the two subgroups across times.

**Table 7.4.4 Differences in the General Health scores by Maternal Position during Childbirth: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (sub group)	F	DF	p	Group number	Mean difference	p
1	144	4	2.522	3	0.060	1 – 2	64.72	1.000
						1 – 3	72.95	0.755
						1 – 4	216.39	0.145
						2 – 3	8.23	1.000
						2 – 4	151.67	1.000
						3 – 4	143.44	1.000
						2	140	4
						1 – 3	58.20	1.000
						1 – 4	-83.73	1.000
						2 – 3	125.26	1.000
						2 – 4	-16.67	1.000
						3 – 4	-141.92	1.000
3	132	4	0.797	3	0.498	1 – 2	32.91	1.000
						1 – 3	82.22	0.804
						1 – 4	36.91	1.000
						2 – 3	49.31	1.000
						2 – 4	4.00	1.000
						3 – 4	-45.31	1.000
						4	124	4
1 – 3	-24.41	1.000						
1 – 4	5.42	1.000						
2 – 3	92.83	1.000						
2 – 4	122.67	1.000						
3 – 4	29.83	1.000						

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/4 = 0.0125$  to decrease the likelihood of Type I error.

Subgroups of Maternal Position during Childbirth:

- Subgroup N° 1 semi-recumbent
- 2 sideways
- 3 lithotomy
- 4 sitting down

There were no significant differences in the General Health between the subgroups of maternal position during childbirth.

**Table 7.4.5 Differences in the General Health scores by Person Suturing the Perineum: ANOVA**

ANOVA						Multiple Comparisons by Bonferroni test		
Time	Total	n (sub group)	F	DF	p	Subgroup number	Mean difference	p
1	144	3	0.913	2	0.404	1 – 2	17.90	1.000
						1 – 3	45.10	0.544
						2 – 3	27.20	1.000
2	140	3	0.097	2	0.908	1 – 2	6.10	1.000
						1 – 3	18.26	1.000
						2 – 3	12.16	1.000
3	132	3	1.185	2	0.309	1 – 2	-66.05	0.494
						1 – 3	11.80	1.000
						2 – 3	77.85	0.449
4	124	3	0.010	2	0.990	1 – 2	6.07	1.000
						1 – 3	-2.41	1.000
						2 – 3	-8.48	1.000

Results for mean differences between subgroups by one-way analysis (ANOVA) were considered to be statistically significant at  $p < 0.01$  following a Bonferroni correction of  $0.05/3 = 0.0167$  to decrease the likelihood of Type I error.

Subgroups by Person suturing the Perineum:

Subgroup N° 1      Senior House Officer (SHO)  
                          2      Registrar  
                          3      Senior Registrar

There were no significant differences in the General Health between the subgroups of mothers being attended by senior house officer, registrar or senior registrar.

# Appendix 8

## Appendix 8

### Lists of Qualitative Analysis in Categories in the Main Study

#### 8.1 List 5: Theme 1      Experiencing Total Perineal Trauma across Time

Categories	Excerpts
<b>1.1</b> Recovering from perineal trauma	<p>“Very stiff and numb as if it is not a part of my body; it feels strange” (8,T1)</p> <p>“One would like to keep same position and keep stiff immobile as possible. I did not succeed to stay sitting comfortable anywhere. I got panicked when I had to sit down. I had to calm myself and sit down slowly and very uncomfortable. I am feeling the stitches on the front and I am in great pain and distress” (3, T1)</p> <p>“There is no activity that I cannot do; I have come to normal. I am comfortable in my perineum with all activities in general but at certain times of the day when I am very tired even the caring of my baby causes discomfort in the perineum” (28, T3).</p>
<b>1.2</b> Controlling incontinence of urine and faeces	<p>“When I come to pass urine I take the position of bending forwards, more to the front so that urine flows to the front and not on the sutures or else I pass urine in the shower with running cold water. Like that I avoid the burning sensation in my perineum. Important as well I find that drinking enough fluids I avoid concentrated urine” (62, T1)</p> <p>“I am quite concerned on the type of diet I take to prevent constipation and straining on my perineum. In the beginning I felt it difficult to open my bowels and I was very much afraid once I imagined that I had to work out on an injured part of my body. I made an effort to think of something else and to let nature work for me” (16, T2)</p>

## 8.2 List 6: Theme 2

### Resuming Sexual Intercourse across Time

Categories	Excerpts
2.1 Perceiving oneself regarding resumption of sexual intercourse	<p>“It is only one week that we started sex but we had to stop because I am afraid that I will harm my perineum. It is painful to get started with a sore perineum” (36, T3)</p> <p>“For sexual intercourse I am a bit cautious as I am in pain at the beginning and during the act but in all it is comfortable” (113, T4)</p>
2.2 Postponing resumption of sexual intercourse	<p>“The perineum is still sore and very tender and at times I am in pain there without touching them, I mean the stitches and it bleeds a bit. The doctor said that it is still “raw”. Complete sex is very uncomfortable with a painful perineum” (80, T3)</p>
2.3 Feeling fit for resumption of sexual intercourse	<p>“I feel much better now than the last time I have answered the questionnaire. I am back to normal and life seems to settle down a bit. Sexual experience is as it has been before the birth of the baby” (52, T4)</p>

## 8.3 List 7: Theme 3

### Maintaining General Health across Time

Categories	Excerpts
3.1 Identifying self-worth	<p>“I am not the person to lose sleep but I do worry. I am an anxious person. I visit the bathroom frequently with excitement. I have learnt through my own experience to feel that I am a worthy person. I have many personal problems and I have learnt doing things on my own. It is much more on the contrary of thinking me a worthless person. I am rather slow by nature but I do comply with my own plans and ultimately I carry out what I would like to do” (94, T1).</p> <p>“I try to challenge myself. I make my very best. There are too many responsibilities in caring for my baby. A little bit of sadness which goes away on its own... At times I do feel like a person who is good for nothing but the people around me especially my children help me with their own little ways to feel better. I think everybody may be sad as such in some moments in life” (3, T1).</p>

<p><b>3.2</b> Regaining health after childbirth</p>	<p>“I lose much sleep with the baby at night. I am tense as I am never ready from what I have to do. I do not finish anything I try to do, and as for decision making I am not confident yet. I know that this pregnancy came unplanned, but that is gone now and we are very happy with our baby and she is growing fast. But I am not gaining that rest in mind to concentrate in my own things and to be happy to learn on the care of the baby. I think though I am recovering from the whole experience of birth” (87, T4).</p> <p>“On the whole I am well. When I consider that I have passed through the experience of childbirth I may say I am all right in my general health. The only discomfort I have is in the perineum that feels very tender and sore on any spontaneous movement. It is not that boring but it is there” (150, T2).</p> <p>“My husband and I talk together about our changes in life and on our sexual health. We both feel good and we feel we are changing in our relationships. Perhaps it is more our responsibility for our child or that we are caring for each other now that we have children and we need to support each other in our own ways. At times I am in a tension with all the changes and new things in life, but I am well as I have been ever before” (30, T4).</p>
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## Theme 1: Experiencing Total Perineal Trauma across Time

### 8.4 List 8: Category 1.1

### Recovering from perineal trauma

Subcategories	Excerpts
<p><b>1.1.1</b> being afraid of helplessness and hurting</p>	<p>“I am still afraid to do well such things...because the perineum is still sore with some gaps. Sexual intercourse is intolerable” (99, T3)</p> <p>“I am limited in my movements while I am having a bath or a shower” (7, T1)</p> <p>“I am afraid of infections in my perineum if I go swimming, but my perineum is healing well and the stitches have fallen and I am eager to swim” (87, T3)</p> <p>“I was afraid that I shall never come back to normal. It is still uncomfortable when I stand up for too long. Sometimes I feel it stretching when I stay in the sitting position for long. I am still afraid of sexual intercourse as I may be in pain in the perineum” (87, T4)</p>

<p><b>1.1.2</b> feeling tired</p>	<p>“It is more tiredness and fatigue that respond in my back and perineum” (27, T2)</p> <p>“In the evenings when I begin to feel very tired, the perineum hurts. I am feeling an increase of exhaustion day by day and I cannot carry any shopping ... or other loads about the house” (66, T2).</p> <p>“The 10<sup>th</sup> day after delivery is the worst day, after a day of work with the baby. Burning pain with my body’s perspirations....I feel fairly well and tired and in the evening I am really uncomfortable in my perineum” (100, T2)</p>
<p><b>1.1.3</b> experiencing perineal pain</p>	<p>“I cannot keep my back straight in a good position due to the constant pain in my perineum” (97, T1)</p> <p>“I have to lie down most of the time. The sutures in my perineum are worst than giving birth” (106, T1)</p> <p>When I try to dry the perineum, I suddenly realise the reality of my experience. It’s just a feeling of faintness in trying to dry the perineum. Trying to touch my area feels stiff and numb as if it is not a part of my body. It feels strange especially on the back (125, T1).</p> <p>“...Flash backs of the pain I endured at the time of suturing. It is more emotional pain than physical pain in the perineum” (134, T1)</p> <p>“It is back to normal as to pain. It is the sensation that is different I feel the perineum uncomfortable during and on opening bowels I feel the whole thing has changed and the perineum feels shrunk, short and rigid. It does not give enough on opening bowels” (29,T4)</p>



## Theme 1: Experiencing Total Perineal Trauma across Time

### 8.5 List 9: Category 1.2 Controlling incontinence of urine and faeces

Subcategories	Excerpts
<b>1.2.1</b> leaking and holding urine	<p>“I leak urine without wanting to and on coughing or sneezing and with pain in the perineum” (26, T2)</p> <p>“I do not stop midstream as it is a painful exercise and it continues to flow when I try” (15, T2)</p> <p>“To stop midstream is impossible with pain in the swollen perineum. Urine begins to flow as soon as I remove my panty. It does not give me chance to control the flow” (44, T1)</p> <p>“There is no chance to hesitate. As soon as I am in the bathroom I have to be quick to pass urine or else it is not easy to hold it. I cannot hold it once I remove my panty” (64, T2).</p>
<b>1.2.2</b> leaking bowels without knowing	<p>“I am not comfortable to open bowels. I am afraid to do so. I felt some stretching feelings on opening bowels first time after the delivery. It was comfortable passing wind” (35, T1)</p> <p>“I cannot control wind because of the stitches” (6, T1)</p> <p>“Sometimes I do leak a bit from my back passage because of painful haemorrhoids. I wear light protective sanitary towels” (8, T1)</p>

## Theme 2: Resuming Sexual Intercourse across Time

### 8.6 List 10: Category 2.1. Perceiving oneself regarding resumption of sexual intercourse

Subcategories	Excerpts
<p><b>2.1.1</b> desiring more time and space</p>	<p>“I am not confident to resume sex because I am shy of my husband. My husband offered but I refused. My body is too ugly to show it to him. But it is more self confidence to get started” (16, T3)</p> <p>“I have not resumed sexual intercourse. It is not pain in the perineum but simply I am not interested as yet” (54, T3)</p> <p>“I feel there is need of more time and space before I resume sexual intercourse with my husband” (64, T3)</p> <p>“I am afraid to start sex again. I have suffered so much in the healing of the perineum....the wound opened up and it took weeks to heal I am still afraid to get touched” (52, T3)</p> <p>“The act in sexual intercourse is comfortable I am not in pain and the perineum feels healthy but I feel I am not ready yet” (43, T4)</p>
<p><b>2.1.2</b> fearing another pregnancy</p>	<p>“There is no chance to talk on sex. He is always ready and I am terrified of another pregnancy” (74, T4)</p> <p>“I am on the alert to avoid another pregnancy. Children are beautiful and loving but their ailments are too above me” (42; T4)</p> <p>“It is not the perineum that is cause of discomfort but the fear of another pregnancy. I do not think I reach orgasms as I am afraid. Sex is not comfortable as I am afraid of another pregnancy. I am cautious as I do not want to become pregnant again so soon. I am in time of moving to a new house and it is hard work together with the new baby and another four year old child. This is enough” (44; T4)</p>
<p><b>2.1.3</b> being tired</p>	<p>“I feel I am too tired to think on sex and I am busy and I have a problem with my husband’s relationship” (109, T3).</p> <p>“We have not resumed sex as I am too tired in the evenings” (147; T3)</p> <p>“I am tired and I do not sleep well at night because of the baby feeding. I am very tired” (11; T4)</p> <p>“I do not know how to answer the questions on sex, as I have not tried sex yet. I feel it is a bit early for me. I am still tired and busy with the changes in the routine of my life and the increased responsibility of the baby” (148; T3)</p>

## Theme 2: Resuming Sexual Intercourse across Time

### 8.7 List 11: Category 2.2 Postponing resumption of sexual intercourse

Subcategories	Excerpts
<p><b>2.2.1</b> caring for the baby and family first</p>	<p>“We have not resumed sex yet. I am too absorbed in feeding the baby. He is not gaining weight and we are much concerned about him” (78, T3)</p> <p>“There is some fear of the perineum once I got to know more on its recovery, but it is perhaps there is the baby and he comes first” (88; T3)</p> <p>“I do not think that I am afraid to resume sexual intercourse and far from it, it is for my husband. The fact is that I feel no desire, my family comes first now” (65, T3)</p> <p>“The perineal health does not affect me much. Now I think my perineum has healed, but I am not sexually active since I am fully breastfeeding my baby and the first priority is the baby. Sexual expression is not through sexual intercourse only. There are other means in which we can express our love and at the same time we give the baby space to share our union together in one family” (114; T4)</p>
<p><b>2.2.2</b> seeing the doctor first</p>	<p>“It is early to start sexual intercourse. I am waiting for the due time of my appointment to visit the gynaecologist and it is up to him to judge the state of the perineum, and to discuss sexual activities that I can do without fears of pain” (14, T3)</p> <p>“I prefer to abstain from sex until after the sixth week check-up visit to the doctor” (26; T3)</p> <p>“I am hesitating to resume sexual activities. We have planned to make the appointment for a postnatal check-up to see whether everything is all right and that I am safe and that there is no fear that I do harm in the perineum because of sex” (31; T3)</p>

## Theme 2: Resuming Sexual Intercourse across Time

### 8.8 List 12: Category 2.3 Feeling fit for resumption of sexual intercourse

Subcategories	Excerpts
<p><b>2.3.1</b> being ready to resume sexual intercourse</p>	<p>“We have not resumed sex as yet. That has been the decision. Now I think we feel ready because I can feel now that the perineum is back to normal” (60; T4)</p> <p>“Now I am not finding problems. I used to be in pain in the beginning of resuming sex and I did not want to be in pain but now I am ready and fit” (122; T4)</p> <p>“This is my second experience of birth and I feel more ready and fit than being in the first birth as I am feeling as if I had never been pregnant and had no tears in the perineum. Sexual act is much more comfortable than it had been after the first baby. It may be due to the fact that this time I have a tear and not an episiotomy like in the first one” (132; T4)</p>
<p><b>2.3.2</b> feeling comfortable and normal in resuming sexual intercourse</p>	<p>“When I am relaxed I feel much more comfortable and more or less no pain at all” (23. T3)</p> <p>“We resumed sex. It is normal and comfortable. It was a bit uncomfortable in the beginning ... but it is all right now” (81, T3).</p> <p>“It is normal. My sexual health is not affected with the experience of childbirth and I had only few stitches in the perineum that never affected my health” (137; T3)</p>

### Theme 3: Maintaining Postnatal General Health across Time

#### 8.9 List 13: Category 3.1 Identifying self-worth

Subcategories	Excerpts
<p><b>3.1.1</b> increasing self-worth</p>	<p>“Sexual health makes me feel being loved and in return I love my baby and my older child. It increases my self worth. There are moments where I am sad and down and I feel that I need such love from my husband. He is supportive and understands me well” (39, T4)</p> <p>“I lose sleep with worry in my ability to care for my baby and I found a 100% support to help me with my baby. If I were alone I would not have done anything in the first four to five days when I came home. It was so difficult to adjust myself with pain in the perineum and being tired with a baby who depends on me for his nourishment...I trust myself that I can do it now” (122, T2)</p> <p>“This is my second baby and I feel I can make decisions on my own. In my first baby it was very hard to do it. Since my baby is safe and sound all my bad moods and feelings pass away” (43, T1)</p>
<p><b>3.1.2</b> being unhappy and tired</p>	<p>“I grow tense in the busy moments. I am sad with the affect of labour and the delivery of the baby. At times I am afraid and I am in doubt of my own abilities. But it is in me to believe that I lead a happy life in a normal family” (90, T1).</p> <p>“I have a great tension and excitement at the moment because everything is new even cleaning and washing a baby. I am anxious to breastfeed successfully. I suffer from loss of confidence in dealing with a small helpless creature. I never handled a newborn baby. I am forgetting all my pain while I try to do my best to do things as well as they should be done. I am doing all I can and if things get wrong I may say I am doing my very best. But never I thought myself as a worthless person” (117, T1)</p> <p>“I am gradually gaining my health but I am not fit yet. I am too tired I have not recovered from that fatigue after the birth of the baby” (86, T4)</p>
<p><b>3.1.3</b> perceiving mothering</p>	<p>“I feel that the more time passes the more I am getting used to the rearing and caring of my baby and being his mother ...and I feel my health is coming back to normal” (17,T4).</p> <p>“It is much more fatigue and tiredness rather than tension or stress. I can never say on myself that I am a worthless person I believe that since God has given me the responsibility of being a</p>

	<p>mother of this child, I should feel happy. At present my health is poor with pain and I feel breathless. Even now I am happy and worthy” (48,T1)</p> <p>“When I find myself alone with the baby, I feel lonely and distressed. Finding myself alone is what affects me and I begin feeling isolated. The pain in the perineum is very distressing that it makes me unhappy and I want to enjoy mothering my new baby” (11, T1).</p>
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### Theme 3: Maintaining Postnatal General Health across Time

#### 8.10 List 14: Category 3.2 Regaining Health after Childbirth

Subcategories	Excerpts
<p><b>3.2.1</b> perineal healing still in process</p>	<p>“I am very uncomfortable with perineum. It is sore and red. The stitches have given way early and it is slow to heal. I cannot go out for long times as it is very painful and uncomfortable. I stopped breastfeeding and I am also in pain with full breasts. I feel down and it is difficult to overcome these feelings of pain at the moment” (139, T2)</p> <p>“Nothing affects me except when it is hot and humid. In such weather I feel uncomfortable in the perineum as it feels tender and sore” (55,T3)</p> <p>“It is not the perineum but the haemorrhoids. They itch and burn and sometimes they bleed a bit when I strain. They make my life miserable and are much worst than birth itself. It is embarrassing to talk on haemorrhoids with the husband” (52, T4).</p>
<p><b>3.2.2</b> feeling of the perineum during sexual intercourse</p>	<p>“The perineum seems to have recovered well. It is now during sexual act that it is uncomfortable. The muscles feel numb and it is not comfortable as it has been before pregnancy but better than after birth. I have no interest in sexual intercourse it does not satisfy me at the moment” (28, T4).</p> <p>“I am back to normal in my routine life at home. Although the perineum seemed to have healed from the outside, it can be felt especially during sex. It is not always that I am comfortable as it feels that there is something different as to what was usual. I say that I am not healed completely. But it goes with the hectic daily life” (128; T4).</p>

	<p>“I feel the perineum very sensitive, as it is sore after sex. I am uncomfortable during sex because I am dry and so it is painful. I am aware that it is not the same as it has been before. It feels different down there. I am saying this because you are asking but I never realise that it can change. I am not enjoying sex” (110; T4).</p>
<p><b>3.2.3</b> going back to normal</p>	<p>“I feel that everything is normal as I used to feel before the birth of the baby and I feel happy with my baby” (38,T4)</p> <p>“Now I may say that the perineum and my whole body came back to normal. I am feeling very well and my priority is the care of my baby as well as to gain my figure that I had before pregnancy” (60; T4).</p> <p>“I feel that I am back to normal as if I was never in pain ... I am busy in the house as I have been before my pregnancy and on the daily tasks and needs in the house” (97; 3).</p>
<p><b>3.2.4</b> experiencing childbirth as a whole</p>	<p>“I feel that life is too quick and short. Sometimes I forget what day it is to-day. Week after week passes where I am always busy with the baby and a house to keep clean. But this is a test for me to remember that I am fine in the perineum though I am still uncomfortable an unsatisfied with sex. Everything is coming back to normal. When I remember of the great experience of pregnancy and the birth of my baby, I feel excited; it is a lovely though painful. I wish I go through it again” (123, T4).</p> <p>“I have great fears because I do not know how much time I am going to spend with these effects of tension and unhappiness. While everybody at home is concentrating on the baby, I feel at times lonely and full of unwanted tension in a crowd of people. Besides taking care of a new born baby I have to take care of my own health and I feel I have not yet recovered because of the perineum and its affects after birth: affects that I have never been aware of or learnt about before the birth of the baby and that they might be possible after a normal delivery” (35, T4).</p> <p>“I make it a point to be hectic and enjoy my normal day to day activities. After my experience of childbirth I do feel happy and worth. But it was not so when I was in labour. I was so tired and in some moments I felt the loss of coping” (72, T1).</p>
<p><b>3.2.5</b> adjusting to changes</p>	<p>“The perineum feels well and good. All that discomfort and feeling of hardness in the perineum on cleaning and drying it</p>

	<p>well, went away on its own and I can do everything without difficulty. As to my general health I am lacking sleep and I have some pain in my back. It is more work now as every thing is new and my routine has changed for me and for my husband. We are adapting in a new life of a family” (131, T4).</p> <p>“My general health is much better than before. And because I feel healthier I am much more enjoying the bringing up of our child” (12, T4).</p> <p>“Generally I am feeling well. What is making me uneasy is the fact that I have no time for myself because the baby takes more time than I am expecting. Perhaps in the future I shall have more time for my husband and myself. We need to adapt to this new situation. It is a big change but my husband and I are trying to adjust to our new experience in our lives. Above all we are happy with our baby although she takes all our time” (116; T3).</p>
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# Appendix 9

## **Appendix 9**

### **Activities mothers reported difficult to carry out after giving birth to their baby**

Mothers were asked to report other activities they found difficult to carry out during the recovery of their perineum. At time 1, that is, around 48 hours after spontaneous delivery, mothers reported a composite amount of 252 activities they found difficult to perform. These were categorised into four main groups, namely, movement, caring for self and the baby, response to stimuli and elimination of urine and faeces.

Difficulty in movement, mainly, walking, exercising, stretching the body, changing positions and rising up in bed was quite common, the reason being that during childbirth mothers had sustained some degree of perineal injury which later prevented them from being fully mobile or moving comfortably. Caring for self and the baby was another common group of activities. In this regard, mothers reported difficulty in having a proper bath, reaching the soles of their feet and cleaning and changing their baby. The third group of postpartum difficult activities, namely that of responding to stimuli, included sudden coughing, sneezing, laughing or rising up suddenly to reach their crying baby. The fourth group of postpartum difficult activities consisted in passing of urine or opening of bowels. Mothers expressed their fear to open their bowels because of the proximity of the injury in the perineum. Thus, fear was added on to their pain.

At time 2, around ten days after the delivery of the baby the groups of difficult activities were the same but less frequent (n=170). These were reported in clusters, such as, bending down, doing postnatal exercises, wearing tight jeans, doing housework or shopping. By this time, mothers engaged themselves in tiring activities. They seemed to realise their increased responsibility of mothering a newborn baby and managing a house. For these activities they needed energy which was still lacking due to perineal pain.

At time 3, around six weeks after childbirth, mothers were feeling still limited in energy to cope with the increased demands in the house, shopping, doing a full day's work in a hot and humid weather, or going to work outside the house. By this time, the number of reported activities which mothers found difficult to perform was reduced to 69.

At time 4, around thirteen weeks after childbirth, mothers reported much less difficulty in activities (n=20). At this stage, the quality of such activities became the focal point of restriction, such as the resumption of sexual intercourse. Pain on penetration or during sexual intercourse was the common activity mothers reported difficult to complete.

Mothers were enthusiastic to report not only the activities they found difficult to carry out but also the type and intensity of pain they were experiencing while performing such activities. It was evident that mothers were describing an acute pain during the first ten days following childbirth. At this stage, the most common word descriptors used were sensory, such as, burning, pulling, stretching, responding, numb and awful. The word descriptors changed over time to describe chronic pain at thirteen weeks postnatal.

The descriptors of perineal pain on activities give an insight into the kind and extent of pain that mothers were experiencing and marked its influence on their general health and wellbeing.

# Appendix 10

## Appendix 10

### 10.1 Mean and Standard Deviation of the General Health Questionnaire -12

General Health Questionnaire-12	Time 1; n=144		Time 2; n=140		Time 3; n=132		Time 4; n=124	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Been able to concentrate on whatever you are doing	56.83	23.91	60.98	26.09	71.08	22.97	76.56	22.43
Lost much sleep over worry	33.72	26.45	59.45	30.54	68.94	28.17	74.82	25.36
Felt that you are playing a useful part in things	67.78	18.66	68.24	21.83	77.65	18.56	79.20	19.46
Felt capable of making decisions about things	65.78	22.31	72.14	19.35	77.82	17.59	80.88	17.44
Felt constantly under strain	54.65	26.37	64.71	27.85	66.61	27.27	69.60	25.88
Felt that you couldn't overcome your difficulties	62.55	23.21	69.43	24.97	76.64	19.96	78.02	21.54
Been able to enjoy your normal day-to-day activities	61.35	22.77	62.49	24.65	67.79	24.78	72.28	22.42
Been able to face up to your problems	60.52	21.42	67.16	22.62	73.70	20.09	73.70	20.09
Been feeling unhappy and depressed	65.79	25.45	67.24	27.11	73.90	23.92	74.65	23.12
Been losing confidence in your self	63.81	24.29	73.35	23.34	78.87	18.60	77.17	21.70
Been thinking of yourself as a worthless person	80.15	19.04	80.99	19.30	85.55	15.33	85.54	16.68
Been feeling reasonably happy all things considered	87.34	11.64	86.92	13.37	87.68	14.22	89.94	11.75

## 10.2 Mean and Standard Deviation of the Resumption of Sexual Intercourse Questionnaire

Resumption of Sexual Intercourse Questionnaire	Time 3; n=132		Time 4; n=124	
	Mean	SD	Mean	SD
Fear of pain in my perineum makes me not want to bother with sex	59.04	31.93	76.31	25.02
I am afraid to resume sexual intercourse	54.42	32.57	77.31	27.26
My partner is hesitating to resume sexual intercourse	68.39	30.60	82.04	25.93
My perineum is influencing badly my sexual health	55.67	30.35	77.61	25.98
During sex my perineum is feeling same as usual	58.61	29.44	73.20	26.73
I feel pain on penetration	57.97	31.21	64.86	31.96
I feel pain during sexual intercourse	66.43	30.07	73.77	27.53
I feel pain on orgasm	70.87	26.48	81.85	22.88
Full sexual intercourse is comfortable	65.53	29.11	73.39	26.44