THE UNIVERSITY OF HULL

AN INVESTIGATION OF PATIENTS' EXPECTATIONS OF OUTPATIENT PHYSIOTHERAPY FOR PERIPHERAL MUSCULOSKELETAL CONDITIONS AND THEIR EFFECT ON TREATMENT OUTCOME.

Being a Thesis submitted for the Degree of Doctor of Philosophy

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by

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Abstract

Little or no research has been conducted to explore patients' expectations of physiotherapy, or the effect that pre-conceived expectations might have on the outcome of treatment. This thesis aimed to fill that void.

Stage one involved a review of the literature to develop a conceptual framework and understanding of expectations and how they may affect outcome. **Stage two** explored the evidence regarding the role of patients' expectations of physiotherapy and the impact that such expectations may have on the outcome of treatment. Three studies were carried out (1) a Delphi study with physiotherapists; (2) exploratory interviews with patients; and (3) the development and testing of a questionnaire. **Stage three** examined the relationship between patients' expectations of benefit and the outcome of physiotherapy using a postal survey of patients, with upper or lower limb musculoskeletal problems. **Stage four** consisted of a randomised-controlled trial aimed at determining whether manipulation of patients' expectations of benefit could influence treatment outcome in patients with non-traumatic knee problems.

The results from stage one suggested that patient expectations were likely to be associated with patients' previous experiences of physiotherapy, anecdotal knowledge, preferences, expectation of benefit, time related issues, such as duration of condition (chronicity), educational level and work status. In stage two, the Delphi study with thirteen physiotherapists, resulted in a list of factors, ranked in order of importance, that they believed may influence the outcome of physiotherapy. The list concurred with the literature. Twelve patients were then interviewed. They generally had a positive view of physiotherapy, understood why they needed to have physiotherapy, but had limited knowledge of what physiotherapy is, what physiotherapists do or what level of involvement that they would have in their treatment. Their knowledge came mainly from first-hand or anecdotal experience of physiotherapy. Finally, a questionnaire was developed to gather information on patients' expectations and tested on 18 patients.

The survey in stage three (n=289) found statistically significant positive relationships ($p<0.002$) between expectations of benefit before treatment and trauma, upper limb problems, locus of control and satisfaction with the health care received so far. Furthermore, negative relationships were found between the expectations variable and duration of condition and previous experience of physiotherapy. A statistically significant positive relationship ($p<0.004$) was also found between expectations of benefit and treatment outcome in terms of change in functional disability, perceived improvement, change in health status and satisfaction. Finally, 95 patients with non-traumatic knee problems participated in the randomised controlled trial in stage four. However, the results found no evidence that the intervention, through changes in expectations or locus of control, improved the outcome of physiotherapy.

The research carried out in this thesis appears to support the notion that the characteristics that patients demonstrate in terms of their beliefs, perceptions and cognitions appear to have some influence on the course of their physiotherapy. The findings suggest that physiotherapists need to be more aware of the psychological attributes of their patients as well as the effect that their intervention (communication, handling and therapeutic) has on their patients' beliefs, perceptions and cognitions. However, further research is needed to determine whether, and by what means, patients' expectations can be influenced to improve the outcome of physiotherapy.

Acknowledgements

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Finally, thanks to all the physiotherapy staff of Hull & East Yorkshire Hospitals (NHS) Trust; both those whose enthusiasm encouraged me and those whose ambivalence challenged me.

Dedication

This thesis is dedicated to my family and friends. I could not have done this without the love and understanding afforded to me by my children, Katie, Christopher and Hannah - thank you for putting up with my desertion from motherly duties. To my mum and dad, - thank you for always being there. To Peter, whose love gave me the will power to 'finish the job'. Finally, to my friends Lesley and Liz whose constant reinforcement convinced me that I could do this - better friends I could not wish for.

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Chapter One

Introduction and Overview of Thesis

1.1 Introduction

This thesis investigates the role of patient *expectations* on the outcome of physiotherapy for patients with peripheral musculoskeletal disorders. It uses both qualitative and quantitative research approaches to firstly identify the sources of patient expectations and secondly, the extent to which *expectations* affect the outcome of treatment.

Physiotherapists are faced with a multitude of challenges from each patient who attends for treatment, most notably how to achieve the best possible outcome. The assessment of outcomes and investigation of factors that influence outcomes are essential components of effective clinical practice. The biomedical model[1] is often the usual starting point for many health care professionals when investigating clinical effectiveness. Knowledge of the physiological effects of available treatment guides the clinician to apply specific treatments for specific symptoms, and evidence for the most effective treatment can sometimes be found in the research literature. This knowledge and research evidence, together with experience can assist clinicians in their efforts to decide which treatment to use. This is not to say that clinicians always use knowledge and research evidence in their clinical reasoning. From observation and personal experience, it appears that much of physiotherapy practice is based on received wisdom and familiarity. Textbooks may describe 'typical' signs and symptoms for any specific diagnosis, but the clinical perception is that few patients present with these making the treatment of every patient unique. Despite the evidence to support the expected physiological effects of the treatment given and the clinician's knowledge of their chosen intervention, all too often the patient will still fail to respond. In these circumstances, the

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[1] Biomedical model assumes that (a) illness is biologically specific; (b) the individual is not responsible for the illness; (c) treatment is biologically mediated; (d) responsibility for treatment lies with the medical profession; (e) there is no continuum between health and illness; and (f) the mind and body function independently of each other. (Ogden, 2000)

biomedical model fails to support the clinician's decision-making process and an alternative is sought.

In addition to the physical signs and symptoms of a given condition, there are psychosocial issues, which may impact upon the treatment plan and ultimately the outcome of physiotherapy. The physiotherapy profession is gradually realising that these psychosocial issues are important to the outcome of treatment and there has been a move towards the biopsychosocial model (Gifford, 1999; Watson, 1999; Jackson, 2000). More researchers now recognise the importance of the psychosocial elements of treatment and attempt to take these factors into account when designing their research. As behavioural sciences become more integrated into undergraduate physiotherapy education, it is hoped that clinicians will also be more aware of the psychosocial effects of their intervention.

Expectations are an integral part of the psychosocial makeup of each individual patient. This is acknowledged in the recently revised Standards of Professional Practice produced by the Chartered Society of Physiotherapy (CSP) (Chartered Society of Physiotherapy, 2000), where 'expectations' is listed among the nine elements that comprise Criterion 5.1 of Standard 5. This states that there should be written evidence of a compilation of data consisting of ...(b) *the patient's expectations.* The CSP recognises that patients' expectations may influence all aspects of quality, and physiotherapists need to identify these unique attributes if quality of care and the best possible outcome is to be achieved. Indeed, it has been suggested that to improve the success of health care treatment should be tailored to fit patients' expectations (Strickland, 1978). However, the effect of expectations on the outcome of physiotherapy outpatient treatment for musculoskeletal conditions does not appear to have been investigated. The purpose of this research was to explore these issues, in particular expectations, with regard to physiotherapy outpatient treatment for musculoskeletal conditions, and to determine whether patient expectations influence the clinical outcome of treatment.

1.2 Motivation and Background to the Thesis

The subject of this thesis was originally conceived from discussions with colleagues working within the specialty of musculoskeletal outpatient physiotherapy. There was a general feeling that the outcome of physiotherapy may be predictable from the initial assessment of the patient, based on the physiotherapist's perception of each patient's attitudes, expectations, perceptions or beliefs regarding physiotherapy. Clinicians may be faced with patients who, for a variety of reasons, have specific expectations or preferences regarding any treatment offered. Alternative treatment is frequently refused or reluctantly accepted, but probably regarded by the patient as being ineffective. A limited amount of evidence exists to suggest that health professionals should take patients' expectations into account when making clinical decisions and planning treatment (Mondloch *et al.*, 1999).

An important series of research studies carried out by Partridge and Johnson suggested that patients' cognitions regarding their recovery, which included beliefs about physiotherapy, could be measured and used to predict outcome (Partridge, 1985; Partridge and Johnston, 1989 - see 3.3.2.4 for full critique). They developed a scale to measure perceived control of recovery from physical disability (Recovery Locus of Control (RLOC) scale) and used it to predict recovery from stroke and Colles fracture. Partridge and Johnston (1989) found that patients with more internal control tended to make better progress and suggested that patients' perceptions of their condition and their control over their recovery could be useful in predicting improvement in disability. They recommended that physiotherapists should '*foster patients' belief in their own control*'. Further research (Johnston *et al.*, 1992; Johnston *et al.*, 1999) went on to test the hypothesis that perceived control could be altered by means of additional information in a standard letter informing patients about the treatment ahead. The experimental group had significantly higher mean internality scores than the control group indicating that it was possible to alter patients' perceptions of control. This series of studies suggested that there was a link between patients' cognitions and outcome of treatment that went some way to explaining why some patients do well with physiotherapy, while others with a similar complaint do not. The results of these studies supported the author's clinical experience and helped to further underpin the rationale for the present research.

Most patients will have some perception of what physiotherapy is and what the treatment will involve. These perceptions allow them to develop a mental representation (schema) for "physiotherapy" regardless of any previous experiences. However, the accuracy of an individual's schema for physiotherapy will be influenced by their previous experiences. Expectations are also dependent on experience and social learning, and this may add further information to the schema (Rotter, 1954). Expectations could therefore play an important role in improving the outcome of outpatient physiotherapy for patients with musculoskeletal conditions (Payton *et al.*, 1998). Patients' expectations and their effect on the outcome of physiotherapy need further investigation. The research described in this thesis was undertaken to fill that gap.

1.3 Aims

In summary, the aim of this thesis was to describe investigations into the issues surrounding patient expectations in regard to physiotherapy. A number of research questions were posed:

a) Is there any evidence from the literature to support the notion that patients' expectations of benefit are important to the outcome of physiotherapy?
b) Do patients usually have expectations regarding physiotherapy and treatment outcome, and if so, where do these expectations come from?
c) What factors are associated with patients' expectations of benefit from physiotherapy?
d) Is there a relationship between patients' expectations of benefit and physiotherapy outcome?
e) Can patients' expectations of benefit be altered to improve the outcome of physiotherapy?

These investigations were carried out in four stages:

1. The development of a conceptual framework and understanding of expectations and how they may affect outcome.
2. An exploration of the evidence for the existence and source of patients' expectations of physiotherapy and outcome.
3. An empirical examination of the relationship between patients' expectations of benefit and the outcome of physiotherapy.
4. A randomised controlled trial to determine whether manipulation of patients' expectations of benefit influenced treatment outcome.

The possible implications of this research could be:

- A wider acceptance of the potential benefits of harnessing patients' perceptions to improve treatment outcomes.
- Recognition of the need to improve patient-therapist communication.
- A more prominent focus on psychology in undergraduate physiotherapy training.

1.4 Outline of the thesis

Stage One

Two chapters contribute to the development of a conceptual framework and understanding of expectations and how they may affect outcome. Chapter 2 provides an overview of the concepts and theories relating to expectations, and explains the context in which expectations may be investigated. Chapter 3 reviews the literature on patient expectations, focusing on the relationship between expectations and treatment outcome.

Stage two

A variety of methodologies were used to explore the evidence for the existence and source of expectations of physiotherapy and outcome. First, the Delphi technique was used to develop a list of factors and arrive at a consensus regarding the importance of each factor. Similarities and differences between the findings of the literature review and the Delphi study are summarised. Chapter 4 describes this investigation of physiotherapists' perceptions regarding factors that may influence patients' expectations of physiotherapy and outcome, using the Delphi technique. To compliment this, semi-structured interviews were carried out with patients due to start physiotherapy for a musculoskeletal problem. Chapter 5 presents this study, which aimed to investigate the patients' perceptions of physiotherapy and their expectations for physiotherapy and outcome. Finally, the information collected from chapters 4 and 5, together with the findings of the literature review and advice from experts in the field of questionnaire development and research, were used to develop the Patient Expectation Questionnaire (PEQ). Chapter 6 describes the development and piloting of the questionnaire.

Stage three

Stage three was a survey using the PEQ, to examine the effects of patients' expectations on the outcome of physiotherapy for peripheral musculoskeletal conditions. Chapter 7 describes the method used, while chapter 8 provides details of the results of the patient expectation survey with an exploration of associations and correlations.

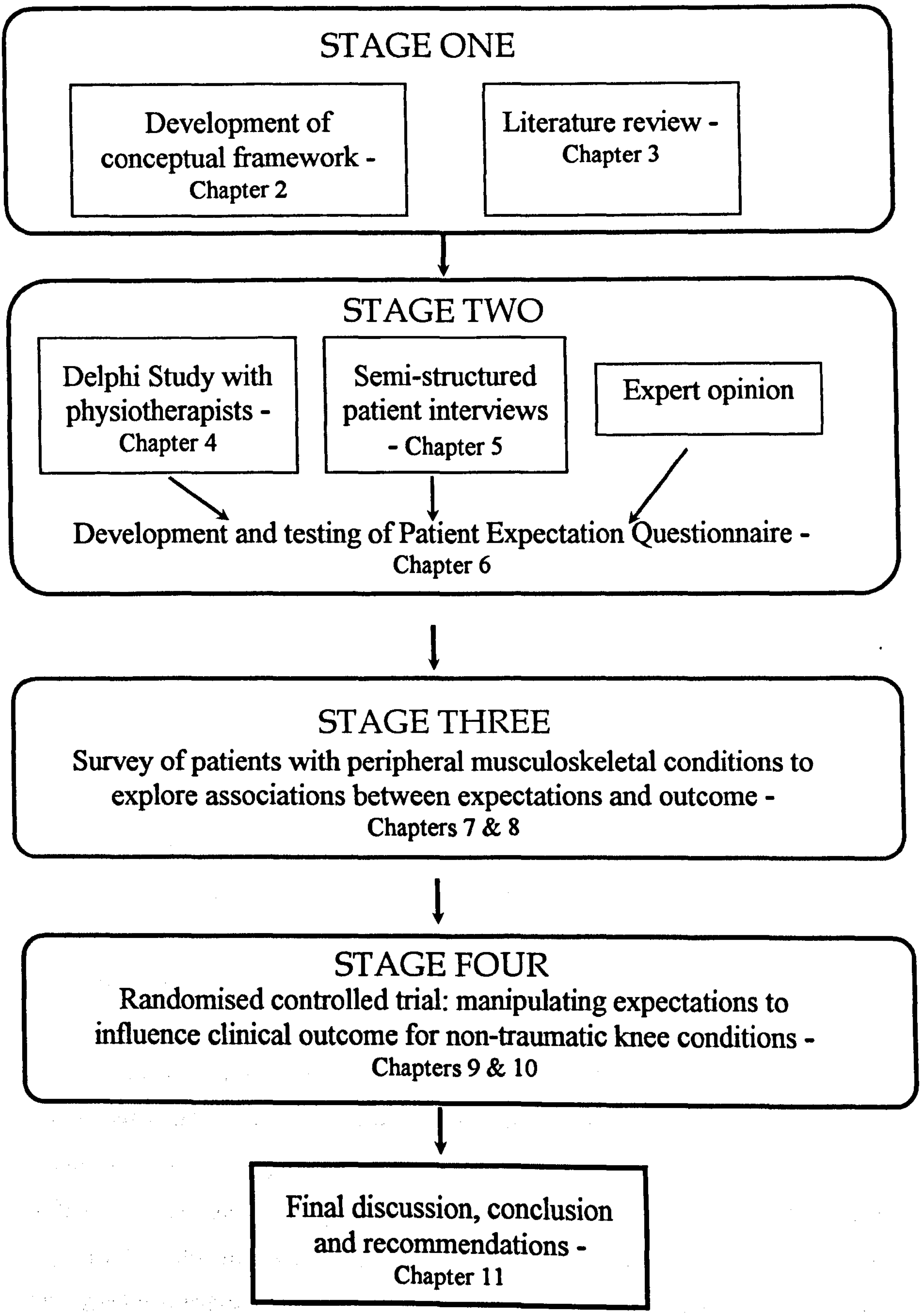
Stage four

The final stage consisted of a randomised-controlled trial (RCT) to test the hypothesis that manipulation of patients' expectations can influence the outcome of treatment for non-traumatic knee conditions. Chapter 9 describes the method used, and chapter 10 provides details of the results of the RCT.

Chapter 11 contains the discussion of the studies within this thesis, draws conclusions and explores the implications for physiotherapy practice and training.

Figure 1.1 provides an overview of the research and illustrates the framework upon which this thesis is based.

Figure 1.1 Flowchart of Research Framework.



Chapter Two

PATIENT EXPECTATIONS:
Definitions, Concepts and Theories

2.1 Introduction

This chapter will provide some definitions of expectations thereby setting the context for the study. An overview of the literature describing the concepts and theories associated with expectations is given in an attempt to document some of the complexities involved in carrying out empirical studies relating to expectations.

2.2 Towards a Definition of Expectation

To clarify what is meant by expectations, as well as some related words, the etymological origins and modern definitions were sought. Historically, *expectation* is derived from *expect*, which dates back to the mid-16th century (Merriam-Webster, 2001); from the Latin *ex(s)pectare* 'to look out for', from *ex* 'out' + *spectare* 'to look'. In modern terms, expectation is (a) *a strong belief that something will happen or be the case in the future,* (b) *a belief that someone will or should achieve something* (New Oxford Dictionary of English, 1998). Another word often used synonymously with expectation is expectancy – *the state of thinking or hoping that something, especially something pleasant, will happen or be the case.* It is worth noting that expectancy differs from expectation in its meaning.

It is interesting to note that 'hope' does not appear in the definitions for 'expectation', but 'expectation' is part of the definition of 'hope': *a feeling of expectation or desire for a certain thing to happen.* However, expectation and desire are conceptually quite different. Expectation is cognitive, while desire is motivational. Thus, the definitions provided here do little to clarify the difference between expectations and hopes. It could be argued that expectation requires some degree of knowledge, possibly due to previous experiences, thus allowing for a weighing up of the probability of 'success' or 'failure'.

However, if hope is defined in terms of desire, probability does not necessarily play a part since even the most improbable outcome can still be hoped for. To illustrate this point, a person buys a lottery ticket in the hope/desire of winning, but does not necessarily 'expect' to win.

Research into satisfaction with health care has provided a variety of definitions for expectations, but little consistency (Williams *et al.*, 1995; Buetow, 1995). Linder-Pelz's (1982a) exploration of patient satisfaction proposed expectations as one of four perceptual determinants of satisfaction with health care. In this complex, prospective study with 125 patients, expectations, values and entitlement were ascertained before seeing the GP and satisfaction, doctor conduct and convenience were rated after the consultation. They found that expectation was the most important social psychological variable having an independent effect on satisfaction, i.e. subjects were satisfied with the encounter irrespective of what the doctor did. This result suggested that satisfaction of care could be ensured by promoting positive expectations. Expectations were linked to beliefs based upon the information that an individual has; the probability and anticipation of an event; and perceived probable outcome, thereby connecting expectations and outcomes.

2.2.1 Types of Expectation

Two distinct types of expectations were identified by Freidson's (1961) investigation of patients' views of medical practice, *ideal expectations* - referring to patients' preferred outcomes (based on their evaluation of their problem and goal-seeking activity), and *practical expectations* - defined as anticipated outcome (based on personal experiences or knowledge of others' experiences). Fitton and Acheson (1979) subdivided Freidson's definition of practical expectations into '*background*', '*interaction*' (the patients assessment/perception of the situation and anticipated response), '*ideal action*' (the action the patient would like to be taken) and '*actual action*' (the action that he thinks will be taken). This further subdivision illustrates the complex nature of expectations that is not readily captured by simple, literary definitions.

Perhaps a more comprehensive and useful description of the different types of expectation can be found in Thompson and Suñol's (1995) review of expectations as determinants of satisfaction. This review encompassed concepts, theories and evidence, covering a variety of perspectives: psychology, sociology, social policy, health care services and management, and marketing. The authors proposed four types of expectations:

Ideal: an aspiration, desire, want or preferred outcome, essentially concerned with an idealistic state of beliefs.

Predicted: the realistic, practical or anticipated outcome, matching what users actually believe will happen in a service encounter.

Normative: what should or ought to happen.

Unformed: this state occurs when users are unable or unwilling, for various reasons, to articulate their expectations, which may be because they may not have any, or find it too difficult to express their feelings.

To illustrate how different types of expectations may be accessed and changed, take an example from primary care. A patient presents themselves to their General Practitioner (GP) for a consultation on a complaint that in the past has been managed with medication. The patient's *predicted* expectation of his GP would probably be to provide a prescription, although due to recurrence of the problem and discussions with friends or colleagues, his *ideal* expectation may be for referral to a specialist. The GP recognises that referral to a specialist is now called for and the patient is referred further into the health care system. As a result of this experience, the patient's perception of the capabilities of his GP will be changed, in relation to this particular problem. In future consultations with his GP the patient may recall this experience and his *predicted* expectation may be for a referral rather than medication. His *ideal* expectation will now be determined by his experiences from the previous specialist consultation and outcome and any other information/knowledge that he has gained about his condition.

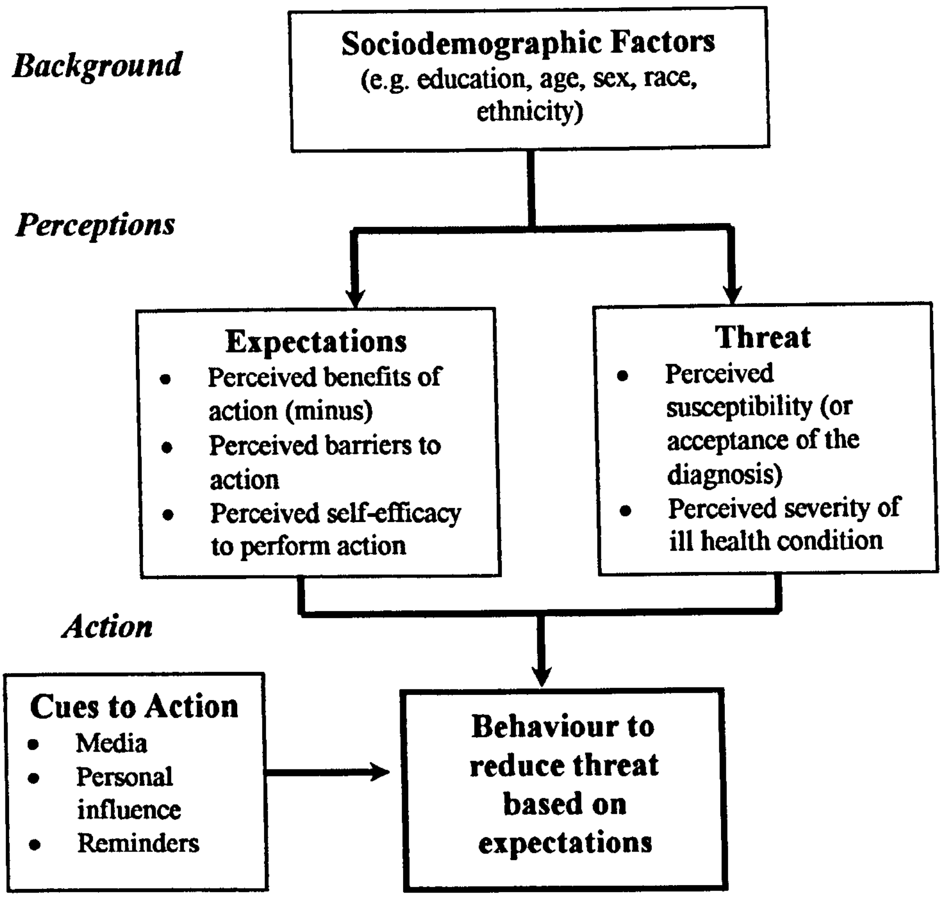
In the health care setting, Thompson and Suñol suggested that *unformed* expectations might be extremely prevalent. Their review also identified a number of personal and social influences at work in developing and modifying expectations. Personal influences included experience, information, interest, emotions, and perceived consequences of outcomes. The literature that they reviewed suggested that social influences, such as sociodemography, social norms, group pressures and equity were strong enough to outweigh many of the personal influences.

Clearly, definitions alone cannot fully describe the meaning of some words or the connotations formed by those using a particular word. From the definitions offered so far, the concept of expectations may not easily be transferable from setting to setting. Each situation should be appraised regarding the expectations of all parties involved, so that a clearer picture of which type of expectations are active at any given time. In health care it would be unwise to assume that patients' expectations of their doctor are the same as their expectations of their physiotherapist. While there are some similarities between general practice and physiotherapy (indeed many practices now have their own 'in-house' physiotherapist), there are also many differences, for example, the patient's perception of the hierarchy in medical practice (Freidson, 1961). The GP is regarded as the authority on all things medical until referral to a specialist is required. Once a referral further into the health care system is made, the patient's perception of the capabilities of his GP will be changed, in relation to this particular problem. Thus, the specialist now becomes the authority. This is where medical and physiotherapy practices diverge. Physiotherapists are autonomous professionals, with the knowledge and expertise to diagnose, assess and treat musculoskeletal conditions and those working in the private sector do not require a medical referral before treatment can commence. Within the National Health Service, physiotherapists are also recognised as autonomous professionals, however the patient's perception of the physiotherapist's role in his treatment may be simply 'carrying out doctor's orders'. Perceptions such as these form part of the background to expectation formation, and must be carefully examined if interventions to change expectations are to be effective.

2.3 Health Beliefs and Behaviour

The concept of expectation has been used in a variety of theories that have attempted to explain and improve our understanding of health behaviour. One of the most widely accepted theoretical models of behaviour change is the Health Belief Model (HBM), a *value expectancy theory* that uses a systematic method to explain and predict preventive health behaviour. Figure 2.1 illustrates the key components of the Health Belief Model.

Figure 2.1 The Health Belief Model.



Source: (Rosenstock *et al.*, 1994).

However, the HBM does not take into account the wider role of psychosocial factors, such as personality, nor environmental factors, socio-economic status, previous experiences, and the influence of social norms (Rosenstock *et al.*, 1994; Strecher and Rosenstock, 1997). Outcomes based on the HBM were measured in terms of change in *intention*, rather than change in *action*. Intentions to act are not necessarily linked to actual change (Ogden, 2000). Despite additions and modifications and because it focuses on attitudes, it is thought to have limited usefulness in understanding how habitual behaviours can be changed (Becker and Rosenstock, 1974).

2.3.1 Self-efficacy and Social Cognitive Theory

Self-efficacy, a key construct in social cognitive theory, refers to the confidence in one's ability to behave in such a way as to produce a desirable outcome (Bandura, 1977). A strong sense of personal efficacy has been shown to be related to better health (Brekke *et al.*, 2001), higher achievement (Moriarty *et al.*, 1995; Zimmerman, 1990), and more social integration (Conyers *et al.*, 1998), which can impede or promote motivation to act (Kelly *et al.*, 1991).

Three main sets of cognitions represent Social Cognitive Theory (Schwarzer and Fuchs (1996):

(a) situation-outcome expectancies, in which outcomes result without personal action,
(b) action-outcome expectancies, in which outcomes result from personal action,
(c) perceived self-efficacy, which is the confidence one has to perform a specific action required to achieve a desired outcome.

For example, a patient may present with a mildly arthritic knee. Their situation-outcome expectancies may be determined by their perception of the current level of degeneration in the knee joint, and their vulnerability to increased damage; their action-outcome expectancies could involve their perception that exercises could be done to strengthen the knee, thereby reducing the risk; and their perceived self-efficacy would relate to their confidence that they could undertake the programme of exercises effectively. In this scenario, the physiotherapist would need to raise the patient's awareness of the risks involved if they do not act, as well as the benefits of acting, and try to increase the patient's self-efficacy.

People learn to behave in a specific manner in order to fulfil their expectations of a positive outcome (Fishbein and Ajzen, 1975). Hence, if a patient attends with a negative attitude towards physiotherapy based on previous experience, it is hypothesised that their behaviour is unlikely to be co-operative with the therapeutic regimen. A person's positive expectancies should be assessed as early as possible so that any potential motivators could be identified and utilised (Baranowski *et al.*, 1997).

2.3.2 Locus of Control

Another concept closely related to self-efficacy is locus of control, which is a generalised belief about one's ability to control events by virtue of one's own efforts (Rotter, 1966). Based on this concept, tools have been developed to measure locus of control (Wallston *et al.*, 1976; Wallston *et al.*, 1978). The Multidimensional Health Locus of Control Scales measure expectancy rather than beliefs about specific behaviour in three main domains: '*internal*', '*powerful others*' and '*chance*'. Locus of control may be of particular relevance in physiotherapy as shown by Partridge and Johnston's research (see 3.3.2.4). For example, patients who have strong beliefs that their health is in the hands of 'powerful others' i.e. physiotherapists, may not respond well to a 'prescription' of exercises to do at home. On the other hand, patients with a strong internal locus of control may feel frustration with passive treatments which, if not recognised by the physiotherapist, could lead to non-attendance. It may be important for physiotherapists to recognise and assess a patient's locus of control in order to identify which patients will 'cope' and which will need more 'care' (King, 1984).

2.3.3 Attitudes

In psychology, the literature on attitudes, beliefs and behaviour towards health related issues is extensive, and many theories and concepts have been put forward in an attempt to explain health behaviours e.g. (Fishbein and Ajzen, 1975; Bandura, 1977; Wallston *et al.*, 1978). In summary, attitudes are based on beliefs, which have formed in the course of a person's life, as result of experiences both observational (direct) and inferred (indirect). A person's attitude at any particular moment is determined by his *salient* beliefs at that time. Intervention may influence those beliefs thereby altering a person's attitude and subsequent behaviour (Fishbein and Ajzen, 1975). Furthermore, attitudes formed from direct experience may be more predictive of subsequent behaviour, than those formed indirectly (Johnston, 1995).

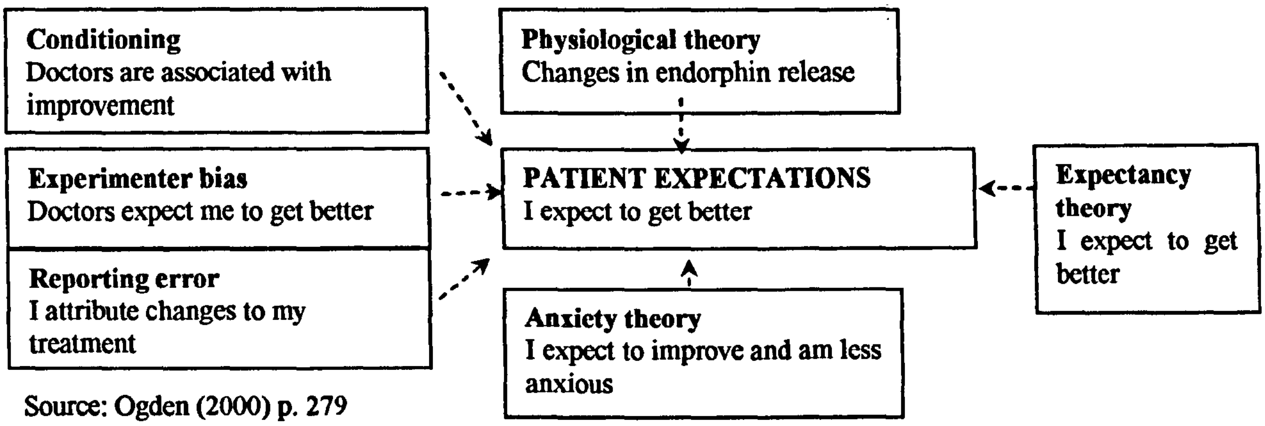
2.3.4 Schemata

Schema allow people to mentally represent the structure of things, their function and how they are used (Piaget, 1926; Bartlett, 1932; Schank and Abelson, 1977; Medcof and Roth, 1979). The information contained in schemata varies from very simple to very complex, which are often organised in a hierarchy, depending on the level of knowledge available about a specific event. In addition, schemata have slots that may have fixed, optional or default values (Rumelhart and Norman, 1988). As information is gathered, it is sorted and organised so that an understanding of what is happening, what might happen and what has happened can be explained. This information is built up over time and represents an individual's experience and beliefs. The schema being accessed at any one time will determine how people will react in a given situation. When a new event or experience takes place, information related to the event is accessed. If there are gaps in the information, through lack of knowledge, the individual draws on schemata to fill the gap and assumptions are made. The formation of schemata is a continual ongoing process, constantly being updated and sorted. However, the sorting that each individual carries out is not necessarily rational and the amount of information that a schema will accommodate will often be determined by the value placed by the individual on the information. The schema that patients apply when attending for physiotherapy may be based on incomplete or inaccurate information and may be affected by unrealistic or irrational values.

2.3.5 The 'placebo effect'

Closely linked to beliefs and expectations is the so-called 'placebo effect', defined by Shapiro and Morris (1978) as: "*the psychological or psychophysiological effect produced by placebos.*" (cited by Grünbaum (1989) p. 9), where a placebo is "*any therapy or component of therapy that is deliberately used for its non-specific, psychological, or psychophysiological effect, or that is used for its presumed specific effect, but is without specific activity for the condition being treated.*" (cited by Grünbaum (1989) p. 10). The central role of patient expectations in the placebo effect is illustrated in Figure 2.2

Figure 2.2 The central role of patient expectations in the placebo effect.



Source: Ogden (2000) p. 279

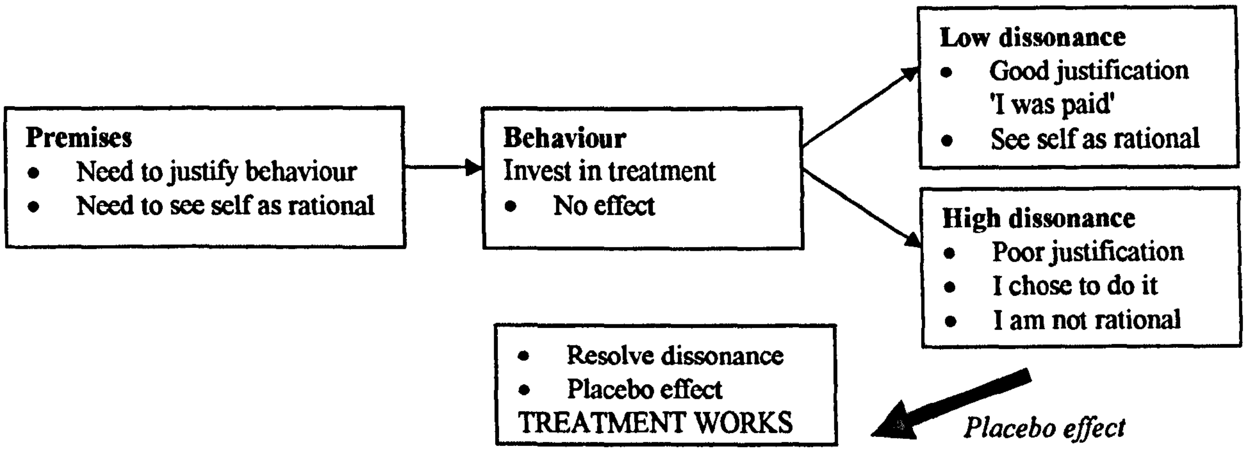
The benefit attributable to the placebo effect has been shown to vary somewhere between 20% and 50% (Beecher, 1955; Beecher, 1959; Pogge, 1963; Mortel et al., 1976; French, 1989; Richardson, 1992). The mechanisms by which the placebo effect might work were explored by Flood *et al* (1993), who described five ways in which expectations may influence outcome via the placebo effect:

- triggering of a physiologic response
- acting to help motivate patients to achieve better outcomes
- conditioning the patient psychologically to observe certain types of symptoms and ignore others
- changing the patient's understanding of the disease
- acting in concert with anxiety to heighten or reduce symptoms

Ogden (2000) concurred with most of these themes, but added three others: *experimenter* {clinician} *bias*, *reporting error* and *expectancy theory*. *Experimenter bias* describes how the expectations of the experimenter (e.g. doctor) are communicated to the patient, thereby changing the patient's expectations. *Reporting error* suggests that when patients expect to get better, they misattribute spontaneous changes and inaccurately report recovery. *Expectancy theory* relates patient expectations directly to previous experience.

While the relationship between expectations and the placebo effect appears to be very strong, Totman's cognitive dissonance theory suggested that justification and dissonance (difference between action and theory) may override expectations (Totman, 1976). Totman proposed that the investment by the patient in terms of money, dedication, pain, time or inconvenience would act to justify the results. Only a positive outcome would allow individuals to justify their behaviour and appear rational, thereby resolving dissonance. Figure 2.3 illustrates Totman's cognitive dissonance theory of placebo effects.

Figure 2.3 Cognitive dissonance theory of placebo effects.



Source: Ogden (2000) p. 284

Certainly the placebo effect appears to be stronger when more effort, time, money or risk is involved - witnessed by results from surgery where, unbeknown to the patient, the expected intervention was not in fact carried out (Moseley *et al.*, 2002).

2.4 Health Behaviour and Physiotherapy

The above theories should be considered by physiotherapists when treatment is planned, particularly when patient participation is an essential component. However, the psychological attributes of physiotherapy are yet to be universally acknowledged and incorporated in everyday clinical practice. Some research has been carried out to explain the relevance to physiotherapy of psychological factors, such as attitudes and beliefs regarding physiotherapy (Partridge and Johnston, 1989; Härkäpää *et al.*, 1991; Jette,1996; Kendall *et al.*, 1997).

Jette's (1996) detailed study of 426 patients with knee impairments found that patient characteristics rather than clinical presentation accounted for much of the variance in health outcomes following knee rehabilitation. Patients who were older, had not had surgery, were on sick leave, or were depressed, were more likely to have poor health outcomes than patients without these characteristics. Kendall and colleagues (1997) highlighted the importance of 'yellow flags'[2] (patients' beliefs or behaviours) with low back pain patients. Subsequently, yellow flags have been included in two national guidelines for the treatment of low back pain as factors that may predict poor outcomes (RCGP, 1999; New Zealand Ministry of Health, 1997). Patients with higher levels of perceived control over recovery have been shown to make better progress following Colles fracture (Partridge and Johnston, 1989), and low back pain patients with stronger internal beliefs gained more from treatment, learned their exercises better and did them more frequently than those with weak internal beliefs (Härkäpää *et al.*, 1991). These studies seem to suggest that the sources of belief in personal control, such as attitudes, experiences and cognitions are important and must be discussed with the patient, so that any incorrect beliefs can be dispelled.

To bring the theories of health behaviour into context, their relevance to physiotherapy needs to be understood. Most of the literature related to health behaviour is aimed at understanding and changing a person's 'unhealthy' behaviour. In musculoskeletal outpatient physiotherapy, 'ill' health is rarely an issue. The patient usually presents with some kind of physical disability, sometimes linked to systemic problems, e.g. rheumatoid arthritis. Unhelpful health behaviour may be associated with activities that cause or prevent resolution of a physical impairment, for example wearing high heels with an unstable lateral ligament of the ankle. Sometimes the patient will be completely unaware that the behaviour is 'unhealthy', but once 'educated' is able to make simple alterations to their lifestyle, to allow restoration of normal function. However, at the other end of

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[2] 'Yellow Flags' are factors that increase the risk of developing, or perpetuating long-term disability and work loss associated with low back pain. (Kendall *et al.*, 1997)

the spectrum, patients can present with quite severe physical disabilities, often as a result of 'unhealthy' behaviour.

Adherence to a specific exercise programme will be particularly susceptible to negative health behaviours (Dean, 1994; Groth and Wulf, 1995; Schneiders *et al.*, 1998). If health behaviours are to be changed by patient-therapist interaction, knowledge and understanding of health behaviours is needed, as well as recognition of how the therapist's own behaviour can positively or negatively affect her patients' expectations. Health care professionals need to be aware of patients' beliefs and prior knowledge and take them into account in their teaching strategies, since some patients' erroneous beliefs can remain unchanged despite being given information (Cedraschi *et al.*, 1992; Klaber Moffett and Richardson, 1997).

Problems can also arise when patients' expectations are much lower than those of the physiotherapist (Harding and Williams, 1995a). This is of particular importance in the treatment of chronic pain, where patients often misconstrue their symptoms as an indication of underlying serious pathology. Physiotherapists have an excellent opportunity to change inaccurate beliefs about the pathology of the problem, reduce anxiety, thereby increasing self-efficacy, and combat depression. They need to be able to recognise these opportunities and develop the skills required to facilitate the use of basic cognitive principles in the treatment of physical disabilities when necessary. Whilst this is commonly used in the treatment of chronic pain, many of the principles could be applicable in the acute setting (Harding and Williams, 1995b; Fordyce *et al.*, 1986; Linton *et al.*, 1990). Patients with unhelpful health behaviours and beliefs about their condition and the benefit of physiotherapy may inadvertently prevent a successful outcome of treatment.

Physiotherapists need to identify the patients' cognitions (thoughts and beliefs), address any concerns and help them to exploit their inner potential, which may improve the outcome of treatment. Effective communication, particularly active listening, is essential and physiotherapists have an advantage over their medical colleagues in that their consultations often last for twenty minutes or more. However, the consequences of poor communication can be dissatisfaction, inaccurate diagnosis, reduced compliance, suboptimal outcome and an increased risk of litigation (Davis and Fallowfield, 1991). Action to address factors that might help or hinder the delivery of effective health-care is required, including the role of patients' views (Wensing and Grol, 1998).

2.5 Summary

This chapter has provided some definitions of the term 'expectation' in order to place the research within this thesis into context. In this research, expectations are not hopes, but the perception that a person has of the world and his interaction with the world, based on knowledge or information gained irrespective of the nature and accuracy of the source. However, in musculoskeletal physiotherapy, there are likely to be several types of expectation, depending on the previous experiences of the individual. *Ideal* expectations might be most prevalent for those without previous experience of physiotherapy, whereas those with experience are more likely to have *predicted* expectations based on previous encounters. However, there may also be a large proportion of patients with *unformed* expectations, i.e. they really have no idea what to expect.

Expectations have been shown to be directly linked to health beliefs, self-efficacy, locus of control and attitudes. It is clear that any research attempting to investigate the effect of expectations on the outcome of treatment must also examine these psychological attributes. Whatever the type of expectation, a variety of patients will present for physiotherapy. The impact of their expectations of benefit from physiotherapy on the outcome of treatment is largely unknown, as the literature review in the next chapter will show.

Chapter 3

REVIEW OF RESEARCH LITERATURE RELATED TO PATIENT EXPECTATIONS AND OUTCOME OF TREATMENT.

3.1 Introduction

Chapter Two identified a number of theories drawn mainly from the psychological literature that incorporate the concept of expectation and help to explain the mechanisms through which expectations may influence the outcome of treatment. This chapter provides details of a review of the research literature related to patients' expectations and the outcome of treatment. The aims of this literature review were to:

1. Identify any research into the effect of patients' expectations on the outcome of outpatient physiotherapy for musculoskeletal conditions.
2. Identify any related research or information that could support or refute the hypothesis that pre-conceived expectations do influence the outcome of treatment.
3. Develop a greater understanding of the issues involved.

While this thesis was primarily concerned with patients undergoing physiotherapy treatment, it was recognised that the literature regarding expectations would cross many professional boundaries. The review presented here deals mainly with health-related expectations, with additional literature from other areas included where relevant.

3.2 Method

The literature search was carried out in two stages. First, a search of completed and ongoing research, to ensure that the topic had not been or was not currently being researched and second, research publications. Both stages of the initial literature search were carried out during the period August to December 1997.

3.2.1 Search strategy

Stage 1 of the literature review was carried out to determine if there was any completed or ongoing research pertinent to this thesis. The sources included:

- *Aslib Index to Theses* - for completed UK theses (1967 to date)
- *Dissertation Abstracts on disc* - for completed USA theses (from 1861, including British and other theses from 1988)
- *Reference Collection* - for subject-specific indexes to consult
- *Current Research in Britain* - for ongoing research
- *British reports translations and theses*
- *Index of conference proceedings*
- *Focus on British Research Series*
- *Index to scientific and technical proceedings*

The second stage of the review attempted to establish a knowledge base by searching for any periodical or journal articles of relevance. The sources used at this stage were the electronic databases:

- MEDLINE - database of the U.S. National Library of Medicine (from 1966)
- CINAHL - Cumulative Index to Nursing and Allied Health (from 1982)
- PsycLIT - abstracting service for psychology and related behavioural and social sciences (from 1887)
- BIDS - Bath Information and Data Services (from 1981)
- AMED – Allied and Complementary Medicine (from 1985)
- EMBASE – *Excerpta Medical* database(from 1987)

- Evidence Based Medicine Reviews – including the Cochrane database of systematic reviews, Best Evidence and DARE (Database of Abstracts of Reviews of Effectiveness)

For both stages the primary keywords or terms used were:

- Patient (client, customer or consumer)
- Expectation(s)
- Expectancy (ies)
- Perception(s)
- Prediction of outcome
- Physiotherapy or Physical Therapy
- Rehabilitation

Although the word *'patient'* is most commonly used, it was recognised that some of the literature pertaining to expectations might use other terms such as *'client'*, *'customer'* or *'consumer'*. This is particularly so in the therapies, therefore these terms were also used. Throughout this review, the word *'patient'* is used synonymously to include client, customer and consumer. The expectation of the patient, not the service provider, was the central issue.

All key terms were searched for in isolation before being combined with any other to narrow the focus. The searches were limited to English language articles; no limitation was placed on the publication year at this stage. The results of each search were downloaded into a reference manager (EndNote, 1998) for easier synthesis and pooled to remove any duplicates and extraneous references, e.g. articles about animal studies. Finally the abstracts were reviewed for applicability to the topic. At this stage, articles were excluded if neither the title nor the abstract contained any of the key terms already mentioned. All relevant articles were obtained and reviewed in full. Citation searching was carried out on all reviewed articles and any additional references obtained.

3.3 Results

3.3.1. Stage 1

Stage 1 identified fifty-five dissertations or theses related to patient expectations or physiotherapy (including physical therapy and rehabilitation), but only five investigated expectations of physiotherapy/rehabilitation. Unfortunately none had been published and only one (Staniszewska, 1996) could be obtained for review.

Staniszewska (1996) in her thesis and subsequent publications (Staniszewska, 1998; Staniszewska and Ahmed, 1998;Staniszewska, 1999; Staniszewska and Ahmed, 1999; Staniszewska and Ahmed, 2000) explored the ways in which patients evaluated their satisfaction with health care based on their expectations. Using both qualitative and quantitative methodologies to investigate the expectations of cardiac patients, Staniszewska was able to demonstrate links between health status and expectations before treatment. In particular, worse health status was associated with higher expectations and greater satisfaction with outcome. She also found that most patients had realistic expectations of their care, given the seriousness of the condition, and that patients were easily able to voice their expectations of the doctor and nursing staff. Patients' expectations were based on their own knowledge of what doctors and nurses did, although expectations of their own involvement in care were less clear. In a different setting, such as outpatient physiotherapy, the knowledge base may be more limited and expectations may be more difficult to extract. Staniszewska did not evaluate the effect of patients' expectations on the outcome of health care other than their satisfaction with care and subsequent research did not explore the relationship between expectations and satisfaction with the outcome of care.

Although the full theses were not available, the abstracts provided some information. However, none investigated the effect of patient expectations on the outcome physiotherapy in terms of functional disability and health status. Additional searching was carried out to discover whether any publications had arisen from the unpublished and unobtainable theses. This search yielded three further articles of relevance (Maeland

and Havik, 1987a; Maeland and Havik, 1987b; Maeland and Havik, 1989), which will be discussed in stage 2 of this review.

3.3.2 Stage 2

The second stage of the review was similarly unsuccessful when physiotherapy or physical therapy was cross-referenced with any of the primary key terms, indicating the lack of research in this area of physiotherapy. However, a total of 124 references were identified which were specifically related to either *patient expectations*, *perceptions*, or *prediction of outcome* and appeared to be relevant to the question posed by this thesis, i.e. 'Do patient expectations of physiotherapy have an effect on the outcome of treatment?' Citation searching identified many more articles, but only ten articles were found that explored expectations with regard to physiotherapy. The following sections provide details of those ten, with further supporting findings from other areas. These papers are discussed under five main themes:

- Patient expectations as predictors of outcome
- Expectations and compliance
- Incongruent expectations or perceptions
- Locus of control and perceptions of illness
- Sources of expectations

3.3.2.1 Patient expectations as predictors of outcome

Although a large amount of literature exists regarding patients' expectations of treatment, management and care, very little actually explored patients' expectations of treatment outcome. One of the authors of an unpublished thesis (Maeland, 1988) had published articles from it and subsequent research. Maeland investigated four dimensions of expectations of cardiac patients: reduced physical ability, autonomy, emotional control and work capacity. In a study of 249 Norwegian patients following MI, expectations of future work capacity was found to be a strong predictor of return to work (Maeland and Havik, 1987b). Patients who expressed more optimistic expectations about future physical ability returned to physical activities more rapidly, reported less emotional upset and saw their doctor less than those with pessimistic

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expectations (Maeland and Havik, 1987a). In an extension of this study, of 383 MI patients, expectation of reduced emotional control was found to be the best predictor for readmission with chest pain (Maeland and Havik, 1989). The overall message from this research was that psychological factors were stronger predictors of outcome than medical factors, and the strongest associations were found between patients' initial expectations of outcome and actual outcome measured in terms of physical ability, autonomy, emotional control and work capacity. Knowledge of cardiac health was only moderately correlated with expectations. However, patients' expectations of treatment outcome regarding a well-known condition such as myocardial infarction cannot be readily translated to physiotherapy treatment for musculoskeletal condition, where the knowledge base regarding physiotherapy may be limited. Maeland's findings support the need for research into the effect of patients' expectations on the outcome of physiotherapy.

A recent study by Skargren and Oberg (1998) found that expectations were among several predictive factors for the outcome of low back and neck pain treatments. In this randomised trial of 323 patients, Skargren and Oberg compared chiropractic and physiotherapy treatments. At baseline, a simple question asked the patients to rate their expectations of benefit on a four-point scale (completely restored, quite improved, partial relief, no expectations of being restored or getting relief). Using step-wise multiple regression analysis, they found that expectation of treatment was significantly associated with a change in the Oswestry score at 12 months follow-up ($p < 0.002$). Other significant predictors were duration of episode, Oswestry score at entry, number of pain sites and well-being. Non-predictive factors were age, sex, previous problems, pain intensity or general health. This was a well-conducted, pragmatic randomised controlled trial with a 98% follow-up. However, it is unclear from this study how the patients' expectations of treatment had been formed, since previous experiences only considered whether the patient had had similar problems over the past 5 years and not their previous experience of physiotherapy or chiropractic.

The preference for and belief in a specific treatment was explored by Kalauokalani *et al.*, (2000; 2001) in a randomised trial comparing acupuncture and massage for low back pain. In this well-designed study, Kalauokalani and colleagues hypothesised that patient expectation for benefit from a specific treatment would be associated with improved functional outcomes when that treatment was given. One hundred and thirty-five patients were asked to describe their expectation of benefit from each treatment before randomisation to either massage or acupuncture. Four expectation variables were determined, to measure not only expectation of benefit, which was the main predictor variable, but also relative and average expectation for treatment benefit and general expectations regarding prognosis. These were then dichotomised into high or low expectations. The results for 104 patients (77% follow-up) showed that the strength of the subject's belief in each treatment option predicted their outcome. Improved function was found for 86% of those with high expectations, compared to 68% with low expectations (Kalauokalani *et al.*, 2001).

In a recent report of a systematic review carried out by Mondloch *et al* (1999) for the Institute for Work and Health the evidence for a relationship between patients' recovery expectations and health outcomes was considered. Sixteen studies that explored the relationship between patients' recovery expectations and health outcomes for a variety of orthopaedic, medical and psychiatric conditions were included in the review. All but one found moderate evidence to support the *clinical wisdom* that patients' recovery expectations are predictive of recovery. However, due to a number of inadequacies of the included studies, Mondloch and colleagues recommended that further research was needed to clarify the nature of the relationship between patients' expectations of recovery and outcomes. The review was also limited in its scope. Only Medline was searched, which has been found to cover only 87.5% of articles relevant to physiotherapy (Bohannon, 1999). Another factor limiting the extrapolation of the results to physiotherapy is that many conditions treated by physiotherapists are progressive, e.g. multiple sclerosis, rheumatoid arthritis, etc. in which case recovery is unattainable.

Patient expectations have also been investigated in a life threatening condition, cancer (Koller *et al.*, 2000). This small, but interesting study examined the outcome expectations of 55 patients (19 curative and 36 palliative) before and after radiotherapy using validated questionnaires and a list of ten specific expectations. This list was developed through collaboration between patients, physicians and nurses on the radiotherapy unit. They found evidence suggesting that patients with life-threatening conditions often have unrealistic expectations of benefit, with 58% of patients expecting the radiotherapy to 'heal' them. However, it is notable that these patients achieved better outcomes in terms of quality of life, physical and role functioning, and ability to relax and enjoy life. In these circumstances, although the patients' expectations appeared unrealistic, the outcome of treatment was better. This may also be true for patients with progressive musculoskeletal conditions. It is possible that physiotherapists may reduce the possibility of a better than expected outcome if their intervention causes the reduction of expectations.

3.3.2.1.1 Expectations as predictors of surgical outcome

Several studies have examined patients' expectations of outcome following surgery. Haworth *et al* (1981), looked at 145 osteoarthrosis or rheumatoid arthritis patients undergoing total hip replacement. Seventy-one of these patients were assessed pre-operatively and asked for their expectations in respect of specific outcomes such as reduction in pain, walking and functional activities. However, it is unclear how expectations were elicited or whether a scale used. Post-operatively, 24% had not had their expectations of walking ability met, and 42% had not had their expectations met with regard to personal care. Nine months post-operatively, 86% of patients felt that their general expectations had been met, although satisfaction with specific outcomes ranged from 31% to 97%. Despite the high satisfaction rating, many patients (up to 15%) were still disappointed that their expectations had not been met. In this study, doctors and occupational therapists were also invited to rate their expectations of outcome. Doctors had greater expectations than their patients, while occupational therapists' expectations were similar to patients. There is a suggestion here that therapists, because of their level of involvement with the patients, may have more realistic expectations. Another explanation may be the similarity between occupational therapists' and patients' interest in the restoration of purposeful activity, rather than simply the success of surgery from an anatomical point of view. Unfortunately, no analysis was carried out to determine if pre-operative expectations were associated with improved outcome. Similarly, Burton *et al* (1979) found that despite high perceptions of success following total hip replacement, out of 88 patients, expectations were only met in 55% of the cases. Those patients whose expectations were met achieved a greater quality of life post-operatively, suggesting that fulfilment of expectations was a more appropriate outcome measure than success alone. Again, pre-operative 'remembered' expectations were collected retrospectively, limiting the validity of this study.

The influence of positive expectations was investigated by Flood *et al* (1993), who tested four hypotheses related to positive expectations before surgery and various aspects of 'improvement' after surgery for benign prostatic hyperplasia in 348 patients. In this complicated, prospective study they found that positive expectations, measured on a five-point scale, before surgery resulted in patients reporting greater improvement after surgery, both short-term and long-term. However, they made the assumption that positive expectations could not lead to a negative outcome and therefore, used one-way significance tests. Also, they suggested caution when interpreting their results, since the mechanisms behind the effect of expectations on outcome are not fully understood. Two hypotheses were proposed to explain their findings. First, patients with positive expectations reported more improvement by distorting their memory of pre-surgical symptoms. Second, patients with positive expectations are more likely to see the improvement as significant. In either case, it was possible that patients' self-rated improvement may be systematically influenced by their expectations.

More recently, Lindsay *et al* (2000) used qualitative methods to explore patients' expectations of coronary artery bypass grafting (CABG). One hundred and eighty-three patients were interviewed before and after CABG surgery. Patients were encouraged to give their expectations in terms of relevance to them, e.g. independence, additional years. Themes that emerged from the interviews revealed that many patients were unclear about the effect of the surgery on their health and hence, found it difficult to voice their expectations. In these cases *hopes* were substituted for expectations. Patients' expectations were varied and often unrealistic. Disappointingly, there appears to have been no further study carried out with this group of patients to explore the relationship between their expectations and the outcome of surgery.

A similar link between expectations and improvement were found by Iversen and colleagues (1995; 1998), in a prospective study of the outcome of spinal stenosis surgery in 257 patients. Although it is unclear what scale was used to record patient expectations and the methods used to create scores and analyse the data were difficult to decipher, they found that patients with many pre-operative expectations reported more improvement in post-operative function than those with few expectations. However, in respect of pain, patients who expected more pain relief before surgery reported more pain and less satisfaction with pain relief afterwards. Thus, although expectations seemed to influence outcome, the trend was not always in the same direction.

Tielsch and colleagues (1995) were also interested in the relationship between pre-operative expectations and actual outcome. They conducted a large study of 552 patients undergoing cataract surgery. In this observational study expectations of benefit were ascertained pre-operatively and four months after surgery. Achievement of expected benefit was measured by comparing expected and actual VF scores, as well as the patient's judgement that the improvement was as much as expected. The only correlation reported in this study was between expected post-operative function and pre-operative function (Spearman correlation = 0.45, $p < 0.001$). An exploration of the relationship between pre-operative expectation of benefit and actual outcome might have been revealing.

An extensive investigation of factors that may affect patient expectations of the outcome of prosthodontic treatment, was carried out by Hakestam *et al* (1996) using a postal survey of 489 Swedish patients. Expectations were gathered with regard to the importance of achieving 7 specific outcomes. A high response rate (84.2%) was achieved, but it is unclear from the data how many questionnaires were suitable for analysis. Nevertheless, the results showed that patients of low education had higher expectations of the health effects of prosthetic treatments and that, in general, patients expected the prosthodontic surgery to enhance their general well being. Further analysis on the same data used factor analysis of the responses to seven personality questions to identify three distinct personality types; "open-minded", "control-minded" and "fearful-depressed" (Hakestam *et al.*, 1997). These appeared to be related to the patients' levels of expectation of treatment and surgical outcome. In essence, Hakestam suggested that patients' expectations are *'coloured by his or her personality characteristics'*.

3.3.2.2 Expectations and compliance

Another theme that emerged from the literature review related to issues of compliance and adherence. When 'compliance' was used as a keyword on Medline, more than 37,000 references were found. Hence, only articles dealing specifically with expectations or perceptions when cross-referenced with compliance or adherence were reviewed.

Several authors have explored the problem of compliance with treatment (e.g. Hayes-Bautista, 1976; Garrity, 1981; Becker, 1985; Ley and Llewelyn, 1995) and offered various explanations for non-compliance with medical treatment, with unfulfilled patient expectations invariably implicated. The underlying reasons for non-compliance are applicable to all areas of health care. In physiotherapy, the term 'non-compliant' is frequently used to describe patients who do not do the exercises that the physiotherapist instructed them to do, usually at home. This implies that the patient actively decided not to follow the instructions as an act of defiance or to demonstrate their autonomy. It is equally possible that the patient did not understand the rationale behind the exercises or appreciate the length of time needed for improvement to take place, and gave up as soon as no demonstrable improvement was seen. Physiotherapists tend to be aware that while some patients can be left to do the exercises competently alone, others will require constant supervision. The same approach to all patients will fail to meet the needs of some. Lack of understanding of patients' views and beliefs has been suggested as a factor in non-adherence with chest physiotherapy, despite very positive attitudes towards physiotherapy in general (Carr *et al.*, 1996). The close relationship that physiotherapists can forge with their patients can lead to improved adherence to home exercise regimes, but many factors can also reduce adherence and physiotherapists must be aware of these in order to compensate.

Mayo (1978) undertook a review of the literature on compliance. Although limited in its depth and rigour, suggested that although physiotherapists are aware of the problems of compliance, they often do little to deal with these problems. The physiotherapist's enthusiasm, Mayo suggested, might lead to over-loading the patient with information and their expectations of the patient's participation may be unrealistic. For example, if a patient's previous experience of physiotherapy was having to do exercises at home, despite the problems they encountered, such as insufficient space, time etc., they may come to view future physiotherapy as 'a waste of time, since it didn't help last time'. In this case, it would be important for the physiotherapist to be aware of the problem and suggest ways of addressing it this time. Preferences may also affect adherence. For example, a patient may have been told by a friend about a treatment which 'worked wonders' for a similar complaint leading to the patient prefering to have the same treatment as their friend. If an alternative is suggested without taking into account any preferences, the patient may be disappointed and less co-operative.

A much more in-depth review of the literature on compliance with treatment for rheumatoid arthritis was carried out by Feinberg (1988). She recognised that there were many reasons why patients may not comply with a prescribed regimen, be it medication, splintage or exercises. These included previous experiences and biases, influences of friends and family, and cost. Feinberg suggested that better communication between patient and doctor (or therapist) would help in developing a mutually agreed treatment regimen and ensure optimum patient participation. She also pointed out that *'detection of dissatisfaction or unmet expectations requires awareness by the doctor and counter-management'*. Another interesting point that Feinberg raised, highlighted the lack of research into the effect of the health care professional's expectations on patient-practitioner interaction, compliance and outcome of treatment. For example, 'How does the physiotherapist's belief in the efficacy of the treatment affect patient-therapist interaction?' and 'How do the beliefs of the physiotherapist influence compliance?'

Sluijs *et al* (1993) attempted to answer this last question. Their study involved the audio taping of treatment sessions (25 with each of 300 randomly selected physical therapists in the Netherlands), as well as a questionnaire on physical therapists' views on patient education. The questionnaire achieved a 74% response rate (n=222), although only 28% provided audiotapes (n=1837). Trained judges assessed the contents of the tapes according to strict criteria, assigning numeric scores that was then analysed for statistical significance. The study showed that therapists differed in their opinions about patient compliance and that those therapists with high expectations about the effects of education compliance paid more attention to the education of their patients. This additional attention would not only create a better relationship between patient and therapist, but may improve compliance from the patient. Differences were also demonstrated between male and female, and between older and younger physical therapists. However, the results and authors' conclusions should be viewed with caution. The study had a low response rate, particularly the number of therapists willing to provide audiotapes, and it is unclear how much information the therapists had prior to participation in the study. It is possible that their behaviour may have altered in response to participation in a research project, thereby creating a Hawthorne Effect (Roethlisberger and Dickson, 1939).

The link between expectations and adherence to treatment was further explored in a longitudinal survey by Mohr *et al* (1996). Ninety-nine patients with multiple sclerosis (MS) were recruited to the study, which aimed to assess patients' expectations of the therapeutic effect of Interferon beta-1b before an educational session, after an educational session and six months after treatment. The education was designed to teach patients how to administrate interferon beta-1b treatments and correct unrealistic expectations regarding its effectiveness. It also aimed to explore the association between expectations of benefit and adherence to treatment. The results suggested that unrealistic expectations of improvement in functional status before treatment could be altered by educational procedures. Also, more than twice as many patients who persisted with unrealistic expectations discontinued therapy within 6 months (64% compared to 28%). They also noted that expectations of adverse effects of therapy were related to adherence to treatment and to discontinuing therapy. Disappointingly, this study did not continue to determine whether expectations were related to outcome.

There will be many reasons why patients discontinue treatment, of which non-compliance will comprise only a small proportion. As already mentioned, 'drop-out' is a huge problem in musculoskeletal outpatient physiotherapy and, although compliance is not measured directly in this thesis, the 'drop-out' rate will be assessed in relation to pre-treatment expectations.

3.3.2.3 Incongruent expectations or perceptions

The differences in outcome expectations between stakeholders (74 physiotherapists, 121 patients, 21 GPs and 13 insurance companies) was explored by Grimmer *et al* (1999). Although conducted in Australia where the health system is different to the U.K., Grimmer found that naïve acute low back pain patients had higher expectations for a complete recovery than experienced patients (23% compared to 3.8%) after their initial consultation. The physiotherapists in this survey also suggested areas where therapist and patient expectations may differ. These included the patient's expectation of (a) a complete cure, (b) to only attend once and (c) little personal commitment to maintenance of improvement. For these acute low back pain sufferers, the immediate need was that of symptom relief. This may be unlikely after one consultation, therefore the future attendance and ultimate outcome of treatment for the patient may rely on discussion of outcome expectations within the first consultation. The qualitative nature of this study did not predispose the data to statistical testing. Also, the low response rate from GPs (36%) and physical therapists (40%) throws doubt on the generalisability of the results.

Another study by Partridge (1984) looked at why patients with similar conditions recover at different rates. She asked 62 patients and their therapists to list the patients' main problems and found differences between physiotherapists' and patients' perceptions of the patients' problems. The physiotherapists' list consisted of items associated with restoration of movement, while patients identified specific functions. Consequently there were discrepancies between therapists' and patients' perceptions of progress, which resulted in both patients and therapists seeing the other as being *unrealistic*. Improved communication, agreed goal setting and recognition of differing perceptions were recommended. Unfortunately, little detail is given regarding the methods used to gather the information or how the data were analysed, therefore this study, although interesting, is of a poor quality.

In a study of patients with eating disorders, Clinton (1996) demonstrated that a lack of congruence between patients' and therapists' expectations of potential treatment interventions, was associated with increased risk of dropout. They found that patients who dropped out had significantly greater expectations of being helped by the treatment than their therapists had. This implied a lack of understanding between patient and therapist with regard to each other's role, as well as disparate perceptions about the potential for improvement. 'Dropout' is a large problem for outpatient physiotherapy departments, i.e. those patients who cease treatment prematurely (see section 9.1, page 151). In physiotherapy, where patient participation in the treatment regimen is essential, premature cessation of treatment might be avoided if these issues are addressed. As Clinton quite rightly suggested, therapists should openly discuss expectations of treatment with the patient from the start.

3.3.2.4 Locus of control and perceptions of illness

Initial work by Partridge in her unpublished thesis (Partridge, 1985) was followed by a series of studies that explored the relationship between locus of control and treatment outcome. The importance of these studies has already been alluded to in Chapters One (1.2) and Two (2.3.2, 2.4). In the absence of a suitable tool, Partridge and Johnston (1989) developed a scale to measure perceived control of recovery from physical disability (RLOC scale). From the small amount of information provided in this paper, it appeared that the RLOC was constructed from statements by 58 patients (34 with stroke and 24 with Colles fracture) about their perceptions of control. Following content analysis, a team of therapists and psychologists agreed upon a nine-item questionnaire, with psychometric testing providing evidence of the scale's validity. The scale was used in a correlational study to predict recovery from stroke and Colles fracture. Again though, very little detail is given regarding the conduct and methodology used in the study, but the results suggested that a patient's RLOC score was strongly correlated with their progress in recovery. To lend support to this study, Johnston *et al* (1999) conducted a longitudinal study of 71 patients following onset of stroke. Their aim was to replicate the findings of Partridge and Johnston (1989) with a larger, more homogeneous sample and to further explain the relationship between perceived control and recovery in terms of exercise as a coping response. This well designed and conducted study was able to demonstrate support for their earlier work, again finding a strong correlation between perceived control and recovery.

Following on from their 1989 study, Johnston *et al* (1992) then went on to test the hypothesis that perceived control (as measured by the RLOC scale) could be altered by means of additional information in a standard letter informing patients about the treatment ahead. In this randomised, controlled trial, 71 outpatients with a variety of conditions were randomised to receive either a modified or standard letter before their first physiotherapy treatment. The accuracy of expectations about physiotherapy and satisfaction with information were assessed by questionnaire after one week's treatment. The experimental group had significantly higher mean internality scores than the control group ($p < 0.007$) indicating that it was possible to alter patients' perceptions of control. Unfortunately, baseline measurements were carried out within one week of first attendance rather than before any treatment and no measures were taken before the intervention. Therefore we cannot be sure that the changes were as a result of the intervention (i.e. the letter) or any information given by the therapist. Also the subjects were not homogeneous in diagnosis and few details of the selection process were provided. In addition, a large number of patients (25) were excluded from the analysis because they did not attend or cancelled their appointment. It is unclear whether these patients had been included in the randomisation and, if so, whether the intervention was related to their non-attendance. Previous experience of physiotherapy was not ascertained and nearly 40% felt that they had not experienced enough physiotherapy to say how accurate their expectations were, which may account for why the later study found that the letter did not alter the accuracy of patients' expectations of physiotherapy. Later research by Fisher and Johnston (1996) provided some support for the findings of Johnston and colleagues, with a much better designed and conducted randomised, controlled trial, avoiding the short falls described above. In this RCT with 50 chronic low back pain patients, they found that perceived control could be successfully manipulated using focussed attention and recall strategies. Expectations were not assessed.

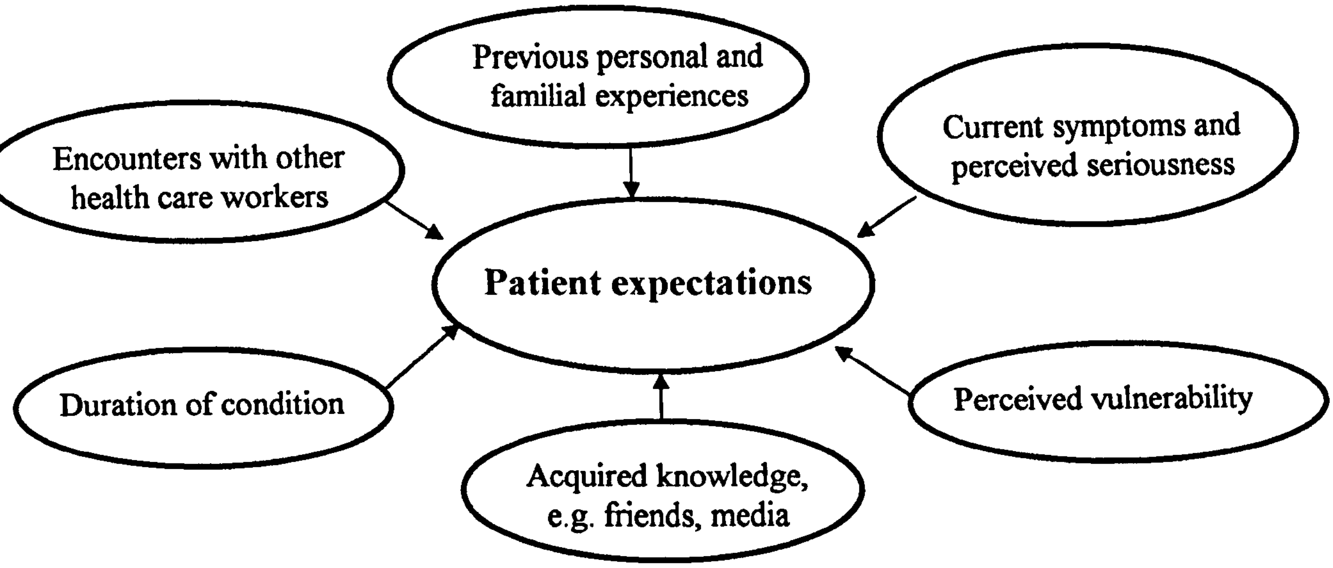
Closely related to perceived control are patients' perceptions of their illness. Thow and Campbell (1996) looked at 143 consecutive patients who had been hospitalised following myocardial infarction. Questionnaires were used to collect information from patients while in hospital and 3 and 6 months later. They found that patients' initial perception of their illness predicted, to some degree, attendance at cardiac rehabilitation sessions, time to return to work, and disability. It is likely that these treatment outcomes were linked. For example, non-attendance at cardiac rehabilitation would mean that treatment aimed at returning the subject to work would be interrupted, leading to delayed fitness for work, thereby delaying return to work. Since disability is often measured in terms of return to usual activities, such as work, the fact that the subject had not returned to work would be seen as continued disability. Cardiac rehabilitation relies on good communication and quality patient education regarding the condition (Centre for Reviews and Dissemination, 1998). In physiotherapy these skills are fundamental to good clinical practice (Chartered Society of Physiotherapy, 2000; Klaber Moffett and Richardson, 1997). Initial perceptions must be explored and misconceptions resolved if chronicity and prolonged disability are to be avoided (Troup, 1988).

3.3.2.5 Sources of Expectations

The literature reviewed in previous sections has identified two main sources of expectations: (1) previous personal experience and (2) anecdotal or vicarious knowledge, including the media. In addition to these, a large-scale survey by (Kravitz *et al.*, 1996) on 688 patients attending a G.P. surgery, found that 125 had unmet expectations in respect of their GPs actions. Eighty-eight patients were subsequently interviewed by telephone to discover more about those unmet expectations. The interviews were subjected to thematic analysis with four major sources of unmet expectations identified: (1) current symptoms (intensity, duration and perceived seriousness of symptoms); (2) perceived vulnerability to illness; (3) previous experience and (4) knowledge from others. This was a thorough exploration of the issues using qualitative methods of data collect and analysis. It also led to the development of a preliminary model of how patients' expectations of their GP develop and how the GP's actions may lead to the reporting of unmet expectations.

Figure 3.1. illustrates the sources of patients' expectations. One of the aims of the research in this thesis is to explore the sources of patients' expectations of physiotherapy.

Figure 3.1 Sources of patient expectations.



3.4 Conclusion

This review has demonstrated the limited research carried out to date into the effects of patients' expectations on physiotherapy outcome. A number of theses and dissertations were identified that explored certain aspects of patient expectations, but little research appears to have been done to investigate the effect of patient expectations on physiotherapy outcome. However, there is a large body of evidence to suggest that patient expectations and perceptions, in many spheres of health service provision, influence the outcome of treatment, and compliance or adherence with treatment. These expectations and perceptions should be taken into consideration when clinical decision-making is taking place. Table 3.1 provides a summary of the literature reviewed with an indication of the type of study, level of evidence (as measured by the Oxford Centre for Evidence-based Medicine), quality of study and issue of relevance to this thesis. The literature is listed in order of importance to this thesis.

Table 3.1 Summary of Literature Review

Study	Type of study	Level of Evidence*	Quality of study	Relevance to Thesis
Partridge and Johnston (1989)	Correlational study; n=58	1b	Fair	Prediction of recovery
Johnston *et al* (1992)	RCT; n=71	2b	Poor	Changing perceived control
Johnston *et al* (1999)	Longitudinal, study; n=71	2b	Good	Prediction of recovery
Fisher and Johnston (1996)	RCT; n=50	1b	Good	Changing perceived control
Skargren and Oberg (1998)	Secondary analysis of data from RCT; n=323	1b	Good	Expectations as predictors of outcome
Kalauokalani *et al* (2000; 2001)	Secondary analysis of data from RCT; n=135	2b	Good	Expectations as predictors of outcome
Mondloch *et al* (1999)	Systematic review	3a	Good	Relationship between expectations and outcome
Iversen *et al* (1995)	Prospective study; n= 257	2b	Poor	Expectations as predictors of surgical outcome
Partridge (1985)	Unpublished PhD thesis	2b	Good	Prediction of recovery
Staniszewska (1996)	PhD thesis	2b	Good	Health status and satisfaction
Mohr *et al* (1996)	Longitudinal study; n=99	2b	Good	Expectations of benefit and compliance
Kravitz *et al* (1996)	Qualitative study; n=88	Q[a]	Good	Sources of expectations
Thow and Campbell (1996)	Longitudinal study; n=143	1b	Good	Perceptions of illness
Hakestam *et al* (1996; 1997)	Exploratory survey; n=489	2b	Fair	Factors affecting expectations

Koller *et al* (2000)	Before and after study; n=55	3b	Fair	Expectations as predictors of outcome
Maeland and Havik (1987a)	Quasi-experimental design; n=249	1b	Good	Expectations as predictors of return to work
Maeland and Havik (1987b)	Prospective, cohort study; n=249	1b	Good	Expectations as predictors of return to work
Maeland and Havik (1989)	Quasi-experimental evaluation; n=383	1b	Good	Expectations as predictors of readmission
Haworth *et al* (1981)	Prospective study; n=71	2b	Fair	Expectations as predictors of surgical outcome
Tielsch *et al* (1995)	Longitudinal study; n=552	2b	Fair	Expectations as predictors of surgical outcome
Flood *et al* (1993)	Prospective study; n=348	2b	Fair	Expectations as predictors of surgical outcome
Lindsay *et al* (2000)	Prospective study; n=183	2b	Fair	Expectations of surgical outcome
Feinberg (1988)	Review	2a	Fair	Compliance
Sluijs *et al* (1993)	Exploratory study (tapes, n=1837; questionnaire, n=222)	2b	Fair	Patient education
Grimmer *et al* (1999)	Observational study; n=229	Q[a]	Fair	Congruence of expectations
Burton *et al* (1979)	Retrospective survey; n=88	X[b]	Poor	Expectations as predictors of surgical outcome
Mayo (1978)	Review	X[b]	Poor	Compliance
Partridge (1984)	Observational study; n=124	X[b]	Poor	Congruence of expectations

* Oxford Centre for Evidence-based Medicine Levels of Evidence (May 2001)

[a] Qualitative study, unable to allocate level of evidence

[b] Poor quality study, unable to allocate level of evidence

Methods used to measure expectations ranged from non-specific, such as globally met or unmet expectations asked post-treatment, to very specific, using a list of events or actions and a scale. Of the few studies that attempted to manipulate expectations, the methods used were either information (written or verbal) prior to treatment or feedback during treatment. The main outcome used to assess the impact of, or relationship with, expectations was satisfaction. However, functional outcome was explored in a few studies and a relationship with pre-treatment expectations was found.

Patients' expectations of benefit may be difficult to extract, are likely to vary and are often unrealistic. There may be also discrepancies between patients' and health professionals' expectations and this may affect outcome. However, there appears to be sufficient evidence to indicate that patients' expectations do impact on the outcome of treatment in many aspects of health care. To date, little research has been carried out in physiotherapy to determine whether patients' expectations of benefit are related to the outcome of physiotherapy for musculoskeletal conditions.

This thesis will attempt to uncover how the issues raised by this literature review are related to musculoskeletal outpatient physiotherapy. The issues are:

- What factors are associated with patients' expectations of benefit from physiotherapy?
- What do patients usually expect regarding physiotherapy and treatment outcome?
- How have expectations been formed?

Once these issues have been explored the following hypotheses can be investigated:

- Patients' expectations of benefit can predict physiotherapy outcome.
- Patients' expectations of benefit can be altered.
- Altering patients' expectations alters the outcome of physiotherapy.

Chapter 4

THE PHYSIOTHERAPIST'S PERCEPTION: Factors that influence patient expectations

4.1. Introduction

The subject of this thesis had initially been conceived from personal clinical experience and discussions with colleagues about the possible reasons why some patients do well with physiotherapy while others do not despite apparently similar circumstances. My colleagues and I appeared to be in agreement that patients often attend with preconceived perceptions and expectations of physiotherapy treatment and its likely benefit. We felt that some patients held such strong beliefs, usually about the futility of physiotherapy treatment, that considerable time and effort was needed to alter their expectation of benefit from negative to positive. Sometimes this effort appeared worthwhile and sometimes not. We also agreed that it was important for the physiotherapist to be able to recognise and act upon any inaccurate perceptions that a patient may have that might reduce the potential benefit from treatment. However, no formal study had been undertaken to determine what factors physiotherapists felt might influence patients' expectations of physiotherapy and treatment outcome.

This chapter describes an investigation using the Delphi technique to gather information in a structured and controlled fashion, regarding physiotherapists' views of factors that influence patients' expectations of physiotherapy and treatment outcome. The primary aims of this study were to:

1. explore physiotherapists' perceptions of factors that might influence patients' expectations of physiotherapy and treatment outcome.
2. develop of list of factors that might influence patients' expectations.
3. reach a consensus regarding the importance of each factor

4.2. Methodology

The Delphi technique was developed in the 1950's by the Rand Corporation in the United States of America, to predict the effects of a nuclear attack from the Soviet Union (Linstone and Turoff, 1975). The Rand Corporation recognised that the limitations of face-to-face committee meetings, such as social pressure to join the majority, stronger opinions dominating, clashes of personality or subordinate intimidation in a hierarchical situation, could be eliminated by using the Delphi technique, allowing diverse opinions to be identified (Grbich, 1999). Various adaptations have been made (Williams and Webb, 1994; Sumsion, 1998; Toward, 2002), but four basic characteristics remain:

- Anonymity of the participants
- Two or more rounds of questionnaires
- Feedback to the participants on the results of previous questionnaires
- Statistical or descriptive analysis of responses to show the strength of consensus

In a review of the literature on the Delphi technique, Reid (1988) found that there had been only limited use in health research. Interest in the use of the Delphi technique for health research has increased in recent years, (e.g. (Duffield, 1993; Williams and Webb, 1994; McKenna, 1994; Walker and Selfe, 1996; Sumsion, 1998)). Many of the studies in health research have investigated policy or process issues requiring consensus, (e.g. Green, 1996, Sindhu *et al.*, 1997, Stokes, 1997). There have been only a few studies using this method of enquiry in physiotherapy (Walker, 1994; Cross, 1999; Dorey, 2000; Barclay-Goddard and Strock, 2001). Walker (1994) and Barclay-Goddard and Strock (2001) both found the Delphi technique to be a useful way of gaining group opinion with regards to research priorities and training needs respectively, in physiotherapy. Cross (1999) found it useful for revealing the perceptions of university-based physiotherapy academics and senior physiotherapy practitioners towards undergraduate physiotherapy students on clinical placement, while Dorey (2000) used it to explore physiotherapy currently used to treat male lower urinary tract symptoms.

4.2.1. Physiotherapist sample and setting

All physiotherapists of grades Senior II or above working in the musculoskeletal out-patient departments of one National Health Service (NHS) Trust in the Hull area were invited to participate in the study. This covered three hospitals with a variety of patient referrals from both GP's and hospital specialists, including traumatic, surgical orthopaedic and degenerative conditions. A letter of explanation was sent to them all (Appendix 1), regarding the purpose of the study. Where possible the letter was personalised, but it was clearly stated that all responses would be anonymous and treated confidentially. Basic details of age and gender were asked, as well as more specific details such as number of years experience in treating musculo-skeletal conditions and types of patient treated (e.g. acute, chronic, spinal and/or peripheral conditions). A good spread of characteristics would determine how representative the views of these physiotherapists were, in order to generalise the findings to other physiotherapy outpatient departments.

4.2.2. Study Procedures

A list of ten basic issues regarded as relevant to the development of expectations or perceptions was devised by the author based on her clinical experience and in conjunction with the literature (Letter 1, Appendix 1). The issues were listed (in no particular order), with respondents asked to indicate on a five-point Likert scale, ranging from strongly disagree to strongly agree, how much they agreed or disagreed that each item was important. In addition, the respondents were asked if they could think of any other issues that might influence patients' expectations of physiotherapy. If so, they should write them in the blank table provided and indicate how important they might be, on a three-point ordinal scale (minimally important, moderately important and extremely important).

After analysis of the responses to the first questionnaire, a second questionnaire was formed, which incorporated the additional items that the respondents themselves had generated (Letter 2, Appendix 1). No reminders were sent out to non-responders to the first questionnaire, since item generation was the main purpose, rather than consensus at this stage.

The second questionnaire was distributed to the same physiotherapists in the same manner as before, with additional feedback regarding the frequencies of responses to the first questionnaire. Subsequent rounds followed the same pattern until no new information was generated and when a consensus of more than 80% had been achieved. This represented no more than two respondents in disagreement with the others. Once no new issues had been generated, the subsequent questionnaires' responses (Letter 3, Appendix 1) were reduced to a bipolar scale (disagree or agree), to prevent respondents from choosing the 'no opinion' option. Where a strongly held opinion was found to be in contrast to the rest of the panel, the respondent was asked to clarify their reasons for going against the general consensus. This would highlight any misinterpretations or other issues as yet not recognised. The final stage involved ranking the items generated from the previous rounds (Letter 4, Appendix 1).

Since the responses were anonymous and the non-responders themselves could not be identified, reminders were sent to the senior member of staff responsible for each of the three physiotherapy departments, to encourage their staff to return the questionnaires.

4.3 Results

4.3.1. Physiotherapist characteristics

All thirteen physiotherapists currently working in the musculoskeletal out-patient departments were recruited to the panel. Seven female, six male, with a mean age of 33.4 years (SD 6.88, range 22 to 47). The mean length of time that they had been specialised in the treatment of musculoskeletal conditions was 6.77 years (SD 4.82, range 1 to 17). All of the physiotherapists treated peripheral condition; two did not treat spinal conditions. Ten treated both acute and chronic conditions, with two physiotherapists involved with chronic conditions only. Eleven dealt with orthopaedic surgical cases, traumatic and degenerative conditions, with one treating only surgical cases. Table 4.1 summarises these details.

Table 4.1 Summary of Physiotherapist Characteristics.

	Distribution
Gender	7 female + 6 male
Age	Mean 33.4 years; SD 6.88; Range 22 to 47 years
Time specialised	Mean 6.77 years; SD 4.82; Range 1 to 17 years
Case Load	**Number of Physiotherapists**
Peripheral conditions	13
Spinal conditions	11
Acute cases	10
Chronic cases	12
Trauma cases	12
Degenerative conditions	12
Surgical cases	11

4.3.2. Questionnaire responses

Thirteen first round questionnaires were sent out, with eight returned (62% response rate) (Table A1, Appendix 1). For the second round, some of the items from the first questionnaire were amalgamated, based on the similarity of responses and overall consensus, e.g. two items regarding personal experience became one, as did the three items related to anecdotal experience. Ten additional items were generated and subsequently incorporated into the second questionnaire. The second questionnaire achieved a much better response, all thirteen were returned (Table A2, Appendix 1). Three new items were generated from one respondent and incorporated into round three: (1) patient's intelligence/understanding; (2) patient's attitude (towards life); (3) insurance, litigation or other monetary implications. Eleven questionnaires from the third round were returned (84.6%) (Table A3, Appendix 1). With the options reduced to either agree or disagree, the physiotherapists had to make a decision one way or the other. No new items were generated and four items failed to reach consensus (i.e. more than two in disagreement). These were:

- *Knowledge about physiotherapy from life experiences (media etc.)*
- *Fear of hospitals*
- *Patient awaiting further investigations*
- *Patient's general health*

Finally, the items were ranked in order of importance. Eight questionnaires were returned (61.5%). Where there were wide differences between the physiotherapists' views, the average (median) rank for each item was used to create an overall opinion of rank position. Table 4.2 shows the rank position, mean and range for each item.

Content analysis of the items generated led to the development of themes using the following 4-stage system:

Stage 1 - items placed into broad categories by the main investigator.
Stage 2 - broad categorisation was checked by senior clinician (not a panel member).
Stage 3 - reclassification of broad categories into themes by main investigator.
Stage 4 - reclassification was checked by senior clinician (not a panel member).

Figure 4.1. summarises the physiotherapists' perceptions of factors influencing patients' expectations of treatment.

Table 4.2 Rank position, mean and range for each item.

Item	Rank	Median	Range
Previous personal experience of physiotherapy for the **same** complaint	1	1	1 - 5
Previous personal experience of physiotherapy for a **different** complaint	2	4	2 - 19
Trust in the ability of the physiotherapist	3	4.5	2 - 19
What the doctor said	4=	6	3 - 23
Insurance, litigation or other monetary implications	4=	6	1 - 24
Patient's intelligence/understanding	6	6.5	4 - 19
Outcome of other treatments already given	7	7	4 - 15
Duration of condition	8	9.5	2 - 12
What the other health professionals have said	9=	10	3 - 23
Anxiety about their condition	9=	10	1 - 21
Patient's attitude (towards life)	11	10.5	1 - 22
Personal experience of other practices (e.g. osteopathy, chiropractic)	12=	12.5	5 - 21
Number of different treatments already given	12=	12.5	7 - 24
Patients general health	14	13	11 - 18
Anecdotal experiences from a relative	15	13.5	6 - 22
Patient on waiting list for surgery	16	14.5	3 - 21
Patient awaiting further investigations	17=	15.5	8 - 18
Waiting time for treatment	17=	15.5	7 - 24
Negative results of investigations	19	17.5	12 - 23
Fear of hospitals	20	18	8 - 23
Anecdotal experiences from a friend	21=	18.5	4 - 23
Patient already had surgery	21=	18.5	13 - 24
Knowledge about physiotherapy from the media	23	21	11 - 24
Anecdotal experiences from a neighbour	24	21.5	14 - 24

Figure 4.1. Physiotherapists' perceptions of factors influencing patients' expectations of treatment.

First hand experience of:

- Physiotherapy
- Other physical treatments, e.g. osteopathy/chiropractic
- Surgery
- Medication
- Investigations

Second hand experience from:

- Relatives and friends
- Other health professionals

Personality factors:

- Anxiety/Fear
- Trust
- Attitude
- Intelligence

Time related factors:

- Duration of condition
- Waiting for other interventions e.g. surgery
- Waiting time for treatment
- Waiting for further investigations
- Waiting for the outcome of claims or compensation

4.4. Discussion

The results of the first round indicated a general agreement with the author regarding the initial list of influential factors. Subsequent rounds also showed a general agreement with all the issues identified, with very few disagreeing (maximum of 3 (23%) disagreeing with any particular issue). The results of the Delphi study confirmed the findings from the literature review, but also provided an additional issue of time related factors.

This additional issue of *time related factors*, such as duration of condition or waiting for other investigations, although not highlighted by the literature review on expectations, has been linked with outcome by Klaber Moffett *et al* (1996). Their investigation of the efficacy of pulsed short wave diathermy for osteoarthritis of the hip and knee, demonstrated statistically significant differences between patients who were on the waiting list for surgery and those who were not. Despite similar reported pain levels, those waiting for joint replacement surgery did not respond to physiotherapy as well as those not on the waiting list. The authors suggested that this difference might have been due to high expectations of surgery relegating physiotherapy to a conservative treatment, which would be of unlikely benefit. However, data on expectations were not collected and this interpretation was based only on clinical observation.

Interestingly, the majority of factors suggested by the physiotherapists were unrelated to the actual clinical problem. Only three items: *duration of condition*, *general health* and *surgery* would be routinely assessed clinically and at least half would not be openly discussed with the patient. If expectations are related to the outcome of treatment, physiotherapists may need to evaluate the type of information that they routinely gather.

The wide range of characteristics of the physiotherapists involved with this Delphi study allows for some generalisation of their views to other physiotherapy outpatient departments. There was an even mix of men and women, and a good spread of age and experience. The good response rate to the first three questionnaires (overall 82.2%) was surprising, since recent research has shown that many physiotherapists perceive involvement in a research project to be less important than direct clinical care (Metcalfe *et al.*, 2000). Time can also be a common barrier to physiotherapists conducting research (Metcalfe *et al.*, 2000) and utilising research findings (Closs and Lewin, 1998). The method used in this case may have been less time consuming than others, lending support to the use of the Delphi technique in physiotherapy research.

The study did reveal a number of interesting features. Firstly, physiotherapists with experience in the treatment of musculoskeletal conditions perceived there were many factors that might influence patients' expectations of physiotherapy treatment and outcome. Secondly, the old adage that *'several heads are better than one'* holds true and justifies the use of the Delphi technique to explore this subject, since more items were generated at the first and second rounds. Thirdly, while there was agreement on the majority of factors, in some cases opposing views were revealed and held to. Also, the attitude of the patient (towards life) was only suggested by one, but agreed with by all. Without further investigation, it is impossible to know whether the word 'attitude' had the same meaning for all the physiotherapists involved, since attitude towards life could be interpreted in a number of different ways. Finally, the ranking exercise appeared to be the most difficult, as indicated by the low response rate (61.5%). It also demonstrated the wide variation of opinion concerning the most important factors. With larger numbers and identification of physiotherapists, it may have been possible to explain this variation in terms of physiotherapist experience, type of caseload or geographical location. It is clear, however, that one cannot assume that all physiotherapists have the same perceptions regarding factors that might influence patients' expectations.

Although the topic of research was not particularly contentious, the Delphi technique proved to be a useful tool for gaining information and ideas from physiotherapists and the economic implications of a Delphi study over a departmental meeting, for instance, are clear. However, caution is needed when using this technique instead of face-to-face discussions. There is a real danger that a consensus view may have been achieved at the expense of clarity. In this particular study, face-to face discussions, in particular focus groups, would probably have been easier to carry out and yielded more in-depth data about the overall opinion, but would have been more time consuming for the clinicians.

Chapter 5

PATIENT EXPECTATIONS OF PHYSIOTHERAPY: Semi-structured interviews

5.1 Introduction

The literature on expectations, as already mentioned, dealt mainly with patients' expectations of a consultation with their general practitioner (GP). Expectations that the patient may have of the content and the outcome of the consultation have been studied in great depth (e.g. Williams *et al.*, 1995; Marple *et al.*, 1997), but these studies have been primarily concerned with patient satisfaction. Any actual improvement in patients' symptoms as a result of meeting their expectations has not been fully investigated.

Patients are often unaware of what physiotherapy is or what physiotherapists are able to do (van Eijkeren, 1995), thus expectations per se could be rare. To discover whether or not patients have any pre-conceived expectations, an integrated approach is needed. Patients attending for physiotherapy have a different perspective regarding their treatment from the physiotherapist who will be providing it. The patient's perspective must be explored to ensure that all relevant issues are considered.

This chapter describes an explorative study using semi-structured interviews designed to gather information about patients' perceptions and expectations regarding their physiotherapy treatment and its outcome. The results of the literature review and Delphi study were used to develop an interview schedule aimed at exploring:

- ➢ what patients perceive physiotherapy to be?
- ➢ how their perceptions have been formed?
- ➢ whether they have specific expectations of the physiotherapist, treatment or outcome?
- ➢ how these expectations have been formed?

5.2 Methodology

This study was concerned with patients' perceptions, beliefs and feelings. These are all very personal attributes, which convey different meanings and have different consequences to each individual. Exploratory interviews are the ideal tool to gain an understanding of how ordinary people think and feel about the subject of the research, and to develop ideas and hypotheses rather than gather facts (Oppenheim, 1992).

The interviews were semi-structured, since exploration around these specific issues was the main purpose of the study. In essence the interview schedule was a pilot of the questionnaire being developed, based on the literature in Chapters Two and Three, and the Delphi study with the physiotherapists (Chapter Four). Both the local research and the hospital ethics committees granted ethical approval.

5.2.1 Patient sample and setting

Within qualitative methodology, representativeness is not usually necessary (Oppenheim, 1992), since greater variation helps to reveal more issues. Nevertheless, a good spread of respondent characteristics, such as age and gender is needed. The population under investigation included all adult (18 years of age and over) patients attending for their first physiotherapy appointment with musculoskeletal conditions, referred to three outpatient physiotherapy departments in Kingston-upon-Hull, by either their general practitioner or a hospital consultant. A purposive (quota) sample of patients from this population was taken for these exploratory interviews; twelve patients consisting of two men and two women in each of three age groups (18-40, 41-60, 61 and over). Purposive sampling is useful when sampling a group of people with a particular characteristic (in this case people with musculoskeletal problems requiring physiotherapy intervention) and when piloting questionnaires (Bowling, 1997). Sampling by age group and sex might also be viewed as quota sampling. However, the aim here was to cover all age groups and both sexes equally, not to represent these groups in the correct proportions according to their distribution in the population. Apart from the concurrent availability of the interviewer and the interviewee, no other selectivity occurred. No attempt was made to discover whether potential interviewees had previously received physiotherapy, but to be included in this study they had to be about to commence a completely new episode of treatment.

5.2.2 Study Procedures

The waiting lists for the largest department were checked weekly for suitable interviewees, by the author (CJM). Referrals of patients who matched the criteria for the purposive sample were identified and, once the patient had been offered an appointment by the physiotherapy department, contact was initiated. The patients were informed of the study by either a letter sent to their home address, or a leaflet handed to them by the physiotherapy receptionist when they presented their referral. Both the letters and the leaflet gave a brief explanation about the study and requested their help by volunteering to be interviewed. If the leaflet was handed to the patient, they had the opportunity to volunteer immediately. If a letter had been sent, the patient would be aware that a researcher might telephone them about the study. For patients who were not on the telephone, a slightly different letter was sent to their home address, requesting them to contact the researcher if they would like to assist with the research project.

Two working days were considered to be adequate time for the letters to arrive by first class mail. The researcher then telephoned the patient, asked if they had received the letter and if so, gave a more comprehensive explanation of the study before asking if they would like to participate. If the letter had not arrived, the researcher apologised for contacting them without prior warning and gave an explanation of the study. They were then asked if they would be interested in helping with the research. In both instances, reassurance was given that participating in the interview would not influence their physiotherapy treatment in any way. Once verbal consent was obtained, they were invited to attend for an interview at the Institute of Rehabilitation. The interview was estimated to take between ten and thirty minutes. Therefore it was recommended that it should be carried out immediately before the patient's first physiotherapy appointment, to avoid unnecessary inconvenience for the interviewees. It was important to ensure that the interview was carried out before their appointment to ensure that they were not unduly influenced by the service already received. Alternative arrangements of date and venue were also available and offered if preferred. It was made clear to the patients that they were free to decline and that it would not affect their physiotherapy appointment or treatment in any way. If the patient agreed to participate, details of the time and venue were given together with a contact number should they change their mind or if their circumstances changed (e.g. the physiotherapy appointment was cancelled).

The interviews were carried out at the Institute of Rehabilitation in Hull, which is a large house situated opposite the hospital at which all the interviewees would be receiving their physiotherapy treatment. This venue was chosen for its convenience for the interviewees (a five minute walk from the physiotherapy department), the privacy afforded for the interviews and the independence that a separate site created between the physiotherapy department and the research project. On arrival at the Institute of Rehabilitation, the author, who was dressed in plain clothes (i.e. not physiotherapy uniform) and wearing an identity badge stating that she was a researcher based at the Institute of Rehabilitation, greeted the interviewees. The author introduced herself and asked the interviewee if they were still willing to participate with the interview. All interviewees were again given assurances that the interview did not form any part of their physiotherapy treatment and that if they did not wish to participate, it would not influence their treatment in any way. Once verbal consent was given, the interviewee was escorted to the interview room. Refreshments were offered and the interviewees were asked if they objected to the interview being taped. An explanation was given regarding the need for tape recording and reassurance that any information given would be treated in the strictest confidence and only used for the purposes of the research. Written information about the study was given and written consent obtained.

Two interviewers were involved in conducting the twelve interviews, the author (who is a physiotherapist) and a third year clinical psychology student, in an attempt to avoid or minimise any interviewer bias introduced as a result of the author's background. Both were aware of the purpose of the study and were trained to carry out semi-structured interviews. The author had prepared an interview schedule (Appendix 2) consisting of mainly open questions. The interview commenced with an explanation of the purpose of the research project. Interviewees were told that there were eight questions, but that other questions might need to be asked in order to clarify or explore their answers. For example after question 1 *"Can you tell me what you think physiotherapy is?"* a second question asked *"Why do you think this?"*

5.2.2.1 Data analysis

Following transcription by the author, analysis was done by hand using a cutting and pasting process. The transcripts were also analysed by the second interviewer, who had a psychology background, and a random sample of four interviews (transcripts and tape recordings) was analysed by an independent researcher with a health service background. Repeated listening and reading of the interviews added to the accuracy of the interpretation and generation of themes. Each of the interviewees was also sent a copy of their interview for their comments on its accuracy and for any additional remarks that they would like to make regarding the content of their interview. In addition, answers to specific questions were entered into a statistical analysis package (SPSS, 1999), to facilitate cross-referencing. Analysis by qualitative software was felt to be unnecessary due to the small number of interviews (Keen, 1998). Content analysis of the transcripts led to the development of themes using the following 5-stage system:

Stage 1 - transcript data coded into broad categories related to interview questions by main investigator.

Stage 2 - broad categorisation checked by an independent researcher.

Stage 3 - data sorted and coded into emerging themes within individual interviews by main investigator.

Stage 4 - themes compared between interviews, searching for similarities by main investigator.

Stage 5 - themes checked by an independent researcher.

5.3 Results

The author conducted all but the first two interviews; the reasons for this will be discussed later. The purposive sample of six men and six women (two in each of three age groups) were interviewed over a four-week period. In all eighteen patients were contacted. Eleven were contacted over the telephone and face-to-face interviews arranged immediately before their first physiotherapy appointment. One interviewee was interviewed over the telephone. Only three patients contacted over the telephone were unable to participate. In all three cases, the reason given was one of inconvenience to others on whom the patient was dependent for transport. Of the three patients who were not on the telephone, and were therefore asked to participate by letter, none contacted the researcher. From the limited data available for these patients, they did not appear to be different in any way from those sampled.

The mean age of the interviewees was 47.4 years (range 27 to 69 years). Nine of the twelve (75%) had personal experience of physiotherapy, but only four for the same complaint. Table 5.1 shows the diagnoses of each interviewee. Two-thirds had chronic or degenerative conditions.

Table 5.1 Interviewee diagnoses.

Interviewee	Diagnosis	Classification
A	Chronic neck pain	Degenerative (D)
B	Chronic back pain	Degenerative (D)
C	Rheumatoid Arthritis - wrists	Degenerative (D)
D	Finger infection - surgery	Trauma (T)
E	Fractured wrist	Trauma (T)
F	Rheumatoid Arthritis - wrists	Degenerative (D)
G	Chronic back pain	Degenerative (D)
H	Shoulder problem - for surgery	Trauma (T)
J	Chronic back pain	Degenerative (D)
K	Chronic knee pain	Degenerative (D)
L	Osteoarthritis - knees	Degenerative (D)
M	Fractured ankle	Trauma (T)

N = 12, D = 8 (66.7%), T = 4 (33.3%)

5.3.1 Summary of responses

Question 1: *What do you think physiotherapy is?*

A variety of answers to this first question were received, ranging from quite specific effects to psychological benefits. ***"I think it's to help you supple your joint and release, help to release the pain"*** (Mr A). ***"I understand that it is more of a manipulation or*** *exercise to make the joints or muscles ... work better .... after they've had an injury"* (Mrs D). *"It's a process of building up {pause} muscles .... after operations and such", "giving self confidence back.."* (Mr L). *"Exercise"* (Mr B). *"It's rehab"* (Mr H). *"It's aid .... after injury", "...they set your mind in the right way of thinking about what you've got to do", "It's your peace of mind, it motivates you"* (Mr M). Table 5.2 gives a summary of the responses to this question.

Table 5.2 Summary of interviewees' views on what physiotherapy is.

Specific effects	General effects	Education	Psychological benefits
➢ Exercises ➢ Improving stiffness ➢ Relieving pain ➢ Movement restoration ➢ Strengthening ➢ Manipulation Massage	➢ Helping ➢ Improving function ➢ Recovery after injury ➢ Recovery after surgery	➢ Self help ➢ Information	➢ Reducing anxiety ➢ Restoring confidence ➢ Motivating

Question 1a: *How do you know that is what physiotherapy is?*

As expected, the main source of knowledge about physiotherapy came from personal experiences of having physiotherapy, either as an out-patient or in-patient. Anecdotal experiences also provided many of the interviewees with additional information. Those with neither personal nor anecdotal experiences were still able to offer an idea of what physiotherapy is, but were unsure of where that knowledge had come from.

Question 2: *Do you know why you have been sent for physiotherapy?*

As well as this question, several of the interviewees were also asked if they had expected to be referred for physiotherapy. Table 5.3 gives a brief account of the responses.

Table 5.3 Expectation and understanding of referral to physiotherapy.

	Yes	No
Expected to be referred	3	5
Understands why referred	7	2

Most of the interviewees knew why they had been sent for physiotherapy, but had not necessarily expected to be referred, even if they had had previous physiotherapy for the same problem. Only one interviewee did not know why he had been sent for physiotherapy this time, although he seemed to understand how physiotherapy might have been appropriate. Previous physiotherapy had not helped him and the different specialists that he had seen seemed unsure about the diagnosis - *"You see that many specialists at the moment, it's {pause}. One's saying one thing, then the next one'll disagree and he'll say another thing."* (Mr B). In another case, the interviewee expressed surprise that she had not been sent for physiotherapy earlier. She had expected it - *"I did ask when I got the plaster off - will I have physiotherapy' and I was told "no you don't need it"*. Anecdotal experiences had led her to expect physiotherapy for this particular problem - *"In fact quite a few people have said this to me - you will be having physiotherapy"*. Of the three interviewees who expected to have physiotherapy only one would have asked for it had it not been suggested, *"but only because I've experienced it before"* (Mr M).

Question 3: *What do you think the physiotherapist will do?*

More than half of the interviewees responded with *"No idea"*. Even those with previous experience of physiotherapy seemed unable to apply their knowledge of physiotherapy in either the same or a different situation. Of the nine who had had previous physiotherapy, six had a rough idea, but the other three offered no suggestions. Mrs F commented *"No, because I don't know what treatment ... is available. It's quite scary really. "* Mr J agreed with this stating *"I don't know what's involved ... "*. Mr A added a slightly different reason for not knowing despite previous experience, by saying *"It'll be a different bloke."*

Question 4: *Is there any particular treatment that you would like?*

Not surprisingly, those interviewees with no previous experience of physiotherapy did not have any preferences for treatment. Of the nine with experience, one interviewee was particularly keen to have the same treatment as before and another was adamant that he did not want the same treatment, the rest had no preferences.

Question 5: *Are you aware of any treatment other than physiotherapy for your problem?*

The interviewees were generally unaware of any other treatments available, although chiropractic and alternative therapies were mentioned. In both cases, the interviewees had no personal experience of these other treatments. The interviewee who mentioned chiropractic preferred to have physiotherapy and, although she had not experienced chiropractic treatment herself, she *"consider*(ed) *that physiotherapy might be slightly more gentle"*.

Question 6: *What do you think that you will have to do?*

Overall, the interviewees recognised that their role in the treatment would involve carrying out exercises both in the department and at home, although two had *"no idea"* what so ever.

Question 7: *Do you think physiotherapy will be able to help your problem?*

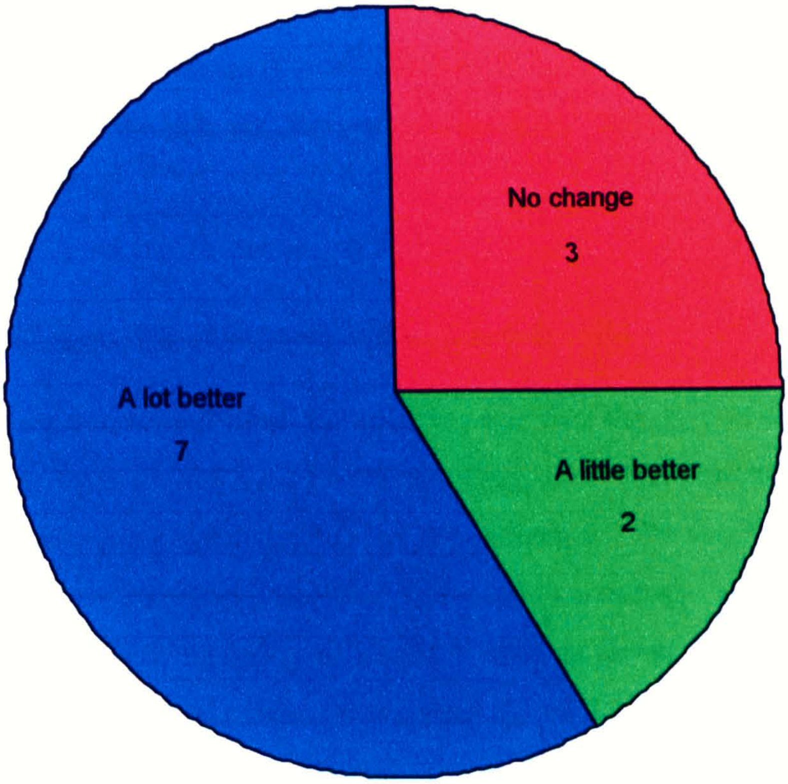
This question involved quantification of the expected outcome of treatment. Some of the interviewees started to answer this question with *"I'm hoping for...."*, but were prompted to consider their answer from a realistic point of view, bearing in mind all that they knew about physiotherapy. All the interviewees were able to give an answer on the scale shown in Figure 5.1

Figure 5.1 Expectation of Benefit Scale.

1	2	3	4	5	6
a lot worse	worse	no change	a little better	a lot better	complete cure

Figure 5.2 shows the frequency of responses to this question.

Figure 5.2 Frequency of expected benefit scores.



All those who expected no change in their condition had had previous physiotherapy, all for the same complaint. Two had gained no benefit last time and the third considered that his problem had changed *"me knees have gone again and the consultant across the road said they need replacing. He said to get some physiotherapy, it might work. He's probably just saying that {pause} I don't know. I very much doubt it, cos I've tried the physiotherapy that they've given me and all I do is put meself in agony. I can't see where physiotherapy is going to do me any good."* (Mr L).

Question 8: *Are there any aspects about having physiotherapy, which concern you or make you feel anxious?*

Nine of the twelve interviewees replied *"No"* to this question, although two of them qualified their answers with *"...so long as they don't make me any worse"* (Mrs. G) and

"So long as they don't aggravate it {laughter}" (Mr. J). Aggravation of a co-existing condition was also mentioned, along with a fear that the treatment itself would be painful. Mrs F, when asked if she had any concerns commented *"Yeah, they're gonna put me through pain {laughter}"*. Mrs E (who was not concerned) seemed to agree with this sentiment by adding *"...apart from it might hurt {laughter}. If it hurts it'll make it better."* When asked if she thought that pain was an expected part of physiotherapy, she replied *"Yes, I think so."* Bearing in mind that Mrs E had not had physiotherapy before, she was asked where she had got that impression from, *"Well, you watch television... {laughter}"* she replied.

5.3.2 Cross-referencing with patient details

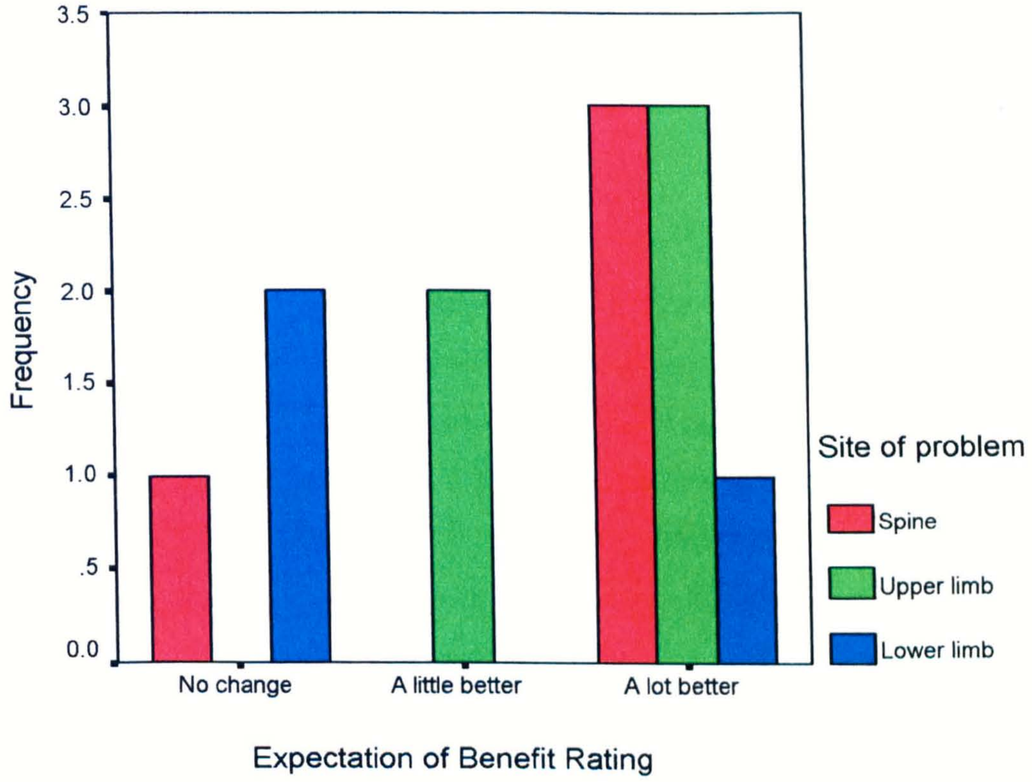
An interesting point emerged from the analysis regarding the type of condition and the expected benefit from physiotherapy. Three of the four interviewees with conditions arising from trauma predicted benefit from physiotherapy. The fourth predicted a little benefit, but this interviewee's problem had an unknown aetiology. Also, she had not had physiotherapy before and she had not thought of needing physiotherapy for her problem. By contrast, three of the eight interviewees with chronic or degenerative conditions felt that physiotherapy would be of no benefit, one predicted only a little benefit and four predicted a lot of benefit. Table 5.4 summarises these details.

Table 5.4 Frequency of expected benefit scores by of condition type and previous physiotherapy treatment.

Expected benefit	Degenerative Condition		Traumatic Condition	
	Previous physio.	No previous physio.	Previous physio.	No previous physio.
No change	3			
A little benefit	1			1
A lot of benefit	3	1	2	1

The site of injury was also interesting, although with such small numbers of each it was not possible to draw any conclusions. Figure 5.3 provides details.

Figure 5.3 Frequency of expectation of benefit score by site of problem.



5.3.3 Themes

In summary, the main themes to emerge from these semi-structured interviews were:

- These patients had a limited knowledge of what physiotherapy is and what physiotherapists do.
- Sources of knowledge came mainly from first-hand personal experience of physiotherapy and anecdotal information.
- These patients generally had a positive view of physiotherapy and generally understood why they needed to have physiotherapy, however, they were unlikely to request physiotherapy.
- Lack of knowledge meant that these patients had no idea what to expect regarding the treatment (other than exercises) nor did they have any preferences for treatment. In general, they were unaware of any other treatments available for their condition.
- Perceived self-efficacy and locus of control issues were evident. They were happy to follow whatever course of care the physiotherapist chose, but lack of knowledge

again prevented these patients from appreciating how much involvement they would have in their treatment.

- On the whole these patients were not concerned or anxious about coming for physiotherapy.

5.4 Limitations of this study

As already mentioned the author conducted all but the first two interviews. The desire to avoid interviewer bias led the author to believe that an interviewer who was not a physiotherapist would be more appropriate. However, after the first four interviews (two by the second interviewer and two by the author), it was recognised that, despite the same questions being asked, some degree of familiarity with physiotherapy was required to probe the interviewees for more in-depth answers to some of the questions. Therefore, it must be recognised that the author's interpretation may be tainted by personal experience. The themes elicited were common to all the interviews, irrespective of interviewer, but more detail and clarification was provided in the author's interviews.

The purposive sample, by its nature enabled an even spread of age and gender amongst the interviewees. The distribution of the nature of the patients' conditions (i.e. trauma or degenerative) was slightly higher than that of the population under investigation, as shown in a brief survey of the current patients undergoing physiotherapy at the time of this study (Appendix 3, section 1). From the same survey, a comparison of previous personal experience of physiotherapy also showed that the interviewees' experience was much higher (75% compared to 44%). In such a small sample these differences were inevitable, however they must be reflected upon when the questionnaire is developed and piloted.

Another deficiency in the sampling method was the lack of uptake by patients who were not on the telephone. None of these patients responded to a letter requesting their help with the research interviews. This may have been related to their social circumstances (e.g. no access to a telephone), their attitude towards research or researchers (not wanting to help), or simple apathy.

5.5 Conclusions

These were exploratory interviews aimed at building on the knowledge already acquired from the literature, the Delphi study with the physiotherapists and the author's own personal experience. With only twelve interviews, no conclusions about the general population of patients attending for outpatient physiotherapy can be drawn, but the data from the interviews seems to support the original concept of this thesis. Patients bring with them preconceived ideas about physiotherapy, which have been shaped by personal or anecdotal experiences of physiotherapy. These experiences seem to influence their expectation of benefit. The patients interviewed in this study have very little knowledge of what physiotherapy is, what physiotherapists do and what other treatments are available outside physiotherapy for their problems. These results lend support to Thompson and Suñol's (1995) suggestion that *unformed* expectations are extremely prevalent in the health care setting, although for some of these interviewees, their expectation of benefit appeared to fall somewhere between *ideal* and *predicted* expectations.

The findings of these interviews show some similarities with studies in primary care, but there are also some major differences. Patients' lack of knowledge about what physiotherapists do, is in sharp contrast to their knowledge of what doctors do. This is probably a reflection of the experiences that a person would develop during their lifetime, i.e. they are unlikely to go through life without ever seeing a doctor, but many people may never experience physiotherapy. With this in mind, patient satisfaction with an episode of physiotherapy may be higher than predicted from studies in primary care. This does not necessarily mean that they have improved as much as they had hoped. It may simply reflect that their lack of knowledge prevented them from appreciating how much improvement should have been expected.

Experienced physiotherapists should be able to predict how much improvement is likely for most situations. When this prediction fails to reach fulfilment, it begs the question 'Why?' The effect of patients' perceptions and expectations remains relatively unresearched, but may hold the key to these anomalies.

Chapter 6

DEVELOPMENT AND TESTING OF THE PATIENT EXPECTATION QUESTIONNAIRE

6.1 Introduction

It was considered important to investigate patients' expectations further with a much larger number of patients. A questionnaire was therefore needed in order to carry out a postal survey. This chapter describes the development and testing of the Patient Expectations Questionnaire (PEQ) – see Appendix 3, section 2.

6.2 Questionnaire Content

The content of the questionnaire was based on information gathered from the previous three chapters: the literature review, the Delphi study with the physiotherapists and the patient interviews. Each question was carefully designed to ensure simplicity and clarity, but with the ultimate aim of gathering the required information (Oppenheim, 1992). A combination of open and closed questions was used, to allow the respondents to express their views on certain issues rather than forcing them to choose specific categories. This would elicit the respondents' views to some of the questions in their own words, thereby gaining more of an insight into the issues of importance to them (Polgar and Thomas, 1995). The rationale behind each question is presented in the following sections.

6.2.1 Question development

Question 1: Below is a list of words or activities that other people have linked with the words: 'PHYSIOTHERAPY' or 'PHYSIOTHERAPIST'. Please put a tick next to those that you also link with physiotherapy and add any others that you can think of. The list included all the words or phrases uncovered by the semi-structured patient interviews: i.e. exercises, rehabilitation, manipulation, helping you recover, pain relief, strengthening, releasing stiffness, restoring confidence, restoring movement, teaching self help, massage, motivating, restoring function, reducing anxiety. The purpose of this question was to measure the level of understanding that patients had about what physiotherapy is and what physiotherapists do.

Question 2: Did you expect to be sent for physiotherapy?

To determine how many patients do not associate physiotherapy with a process of care for their particular problem.

Question 3: Has anyone told you what the physiotherapist will or may do? IF YES, who told you and what did they tell you?

To discover the source of knowledge about what the physiotherapist will or may do. This may highlight education needs for referrers, and/or the general public via the media, and/or information needs for the patients.

Question 4: Have you had physiotherapy treatment for this present problem before? IF YES, how much benefit did you get? Would you prefer to have the same or a different treatment this time?

To determine how many patients have had previous physiotherapy for the same problem. This question would also identify a source of their knowledge and to gain a better understanding of their expectation of and preferences for physiotherapy this time.

Question 5: Have you had physiotherapy for any other problem? IF YES, how much benefit did you get?

To determine how many patients have had any previous physiotherapy. Again, a source of knowledge may be identified and may help to explain their expectation of physiotherapy this time.

Question 6: Have you had any other kind of treatment for your <u>present</u> problem? And if yes, how much benefit did you get?

To identify the amount of treatment already undertaken for this problem, so that this could be related to the expectation of physiotherapy. Patients who have already had other kinds of treatment, may have more knowledge about their condition and likely prognosis. Also the number of other treatments tried and the benefit gained, may indicate the use of physiotherapy as a last resort, in which case the patient's confidence in a positive outcome may be compromised.

Question 7: How satisfied are you with the health care that you have received so far for your present problem?

Satisfaction has been linked with expectations in other areas of health care. This question may help to explain low expectations of physiotherapy despite no previous personal experience.

Question 8: How much better do you realistically expect (not 'HOPE') to get from physiotherapy treatment?

To quantify the patient's expectations of outcome of physiotherapy on a six point Likert scale thus:

1	2	3	4	5	6
a lot worse	worse	no change	a little better	a lot better	complete cure

Question 9: How important is it to you that physiotherapy improves the following things? Anything else?

The list includes the following: pain, stiffness, movement, overall use / function, ability to cope, understanding of their condition. These might help to better understand where patients' priorities lie with regards to improvement. Expectations of improvement in one particular aspect of the condition may be unrealistic and satisfaction with care may be reduced if the patient felt that the aspect of most importance to them had not improved.

Question 10: Is there anything about having physiotherapy that concerns you or makes you anxious?

To discover the extent to which patients are concerned or anxious about having physiotherapy. This might highlight information needs.

Question 11: Are you aware of any other treatment(s), other than physiotherapy, for your condition? IF YES, what other treatment(s) are you aware of, how do you know about this other treatment and would you have preferred this other treatment?

To determine how many patients are aware of other treatments, the source of this knowledge and the extent to which these treatments would be preferred if available on the NHS.

6.2.2 Demographic details

Age, gender and occupation status formed part of the basic data collected (Appendix 3). Further questions included number of dependants and how much sport/physical activity the patient usually did. These two items might reflect the urgency with which recovery is required or wanted. Most of the other questions related to the issues raised by the Delphi study with the physiotherapists, i.e. time related issues, educational level.

6.2.3 Scoring and qualitative data analysis

The majority of the questionnaire contained either yes/no or categorical options. Where open questions existed, content analysis was used to code answers into themes following the same method used for the semi-structured interviews (see 5.2.2.1)

6.3 Piloting the questionnaire

Before launching the questionnaire, it was necessary to pilot it. For this study expert opinion was sought before it was piloted with a patient sample.

6.3.1 Expert Opinion

Whilst patient and physiotherapist views were essential to the development of the questionnaire, it was recognised that there would undoubtedly be some aspects of the design and content which might have been overlooked. To minimise this problem, the author invited a number of clinical researchers from a variety of backgrounds for their advice (Appendix 4).

Only minor modifications were required following advice from the experts. Question 9 was given an additional aspect of importance: 'Return to work'. It was suggested that this would be useful to determine how important return to work was for this population, as a possible motivating factor. Also, it was thought that the order of 'aspects of importance' in Question 9 may influence patients' responses therefore, the ordering was reversed at random intervals for the main survey (see Appendix 3, section 2 for the final version).

6.3.2 Patient Opinion

The aim of this pilot study was to determine the acceptability of the Patient Expectations Questionnaire (PEQ) to the target population, i.e. all patients attending for out-patient physiotherapy for either an upper or lower limb musculoskeletal problem. Patient views on the questionnaire were sought and method of delivery examined (Appendix 3, section 2). In addition, the pilot study would highlight any potential problems with data collection and analysis in preparation for the main study.

6.3.2.1 Pilot Method

The pilot version of the PEQ was distributed to thirty consecutive patients attending for physiotherapy; twenty from site 1 (Hull Royal Infirmary) and ten from site 2 (The Princess Royal Hospital). All patients were about to commence a course of physiotherapy for an upper or lower limb disorder. No distinction was made as to whether or not they had previously received physiotherapy treatment for this or any other condition. Each patient was either given or sent a package containing the following:

1. An appointment leaflet detailing the time and place for their initial assessment, and the name of physiotherapist who would be treating them (standard leaflet used by Royal Hull Hospitals NHS Trust physiotherapy service)
2. A letter of explanation about the study (Appendix 3, section 2)
3. The Patient Expectation Questionnaire (PEQ) (Appendix 3, section 2)
4. A short evaluation proforma to gain patient views on specific aspects of the questionnaire (Appendix 3, section 2)

5. The Short Form – 36 (SF-36) (see 7.2.1.4.1.1 for more details), a well-recognised health status measure (Ware and Sherbourne, 1992), to check to see if there is likely to be an adequate range of responses when the main study is carried out.

The letter of explanation asked for help with the pilot study. It gave reassurances that their involvement with the pilot study did not form any part of their treatment and their treatment would not be affected in any way by participating in the study. They were also told that they did not have to complete the forms if they chose not to do so, but that their help would be much appreciated. The patients were asked to complete the questionnaires and bring them with them when they came for their first appointment. The physiotherapy receptionist then forwarded them on to the author.

6.3.3 Results

Eighteen packs were returned (60% response rate), eleven from site 1 and seven from site 2. All respondents completed the PEQ. One respondent failed to complete both the SF-36 and the evaluation form. Table 6.1 shows the basic demographic details.

Table 6.1 Demographic details of pilot study participants.

Details	Frequency
Gender	11 female, 7 male
Age 18 - 30	6
Age 31 - 45	3
Age 46 - 60	6
Age 61 - 75	3
Age 76 and over	0

6.3.3.1 PEQ results

Question 1 listed words or activities that respondents linked with the words 'Physiotherapy' or 'Physiotherapist'. The frequency of responses is shown in Table 6.2.

Table 6.2 Frequency of agreement with suggested words or activities associated with 'Physiotherapy' or 'Physiotherapist'.

Word or Activity	Frequency	Word or Activity	Frequency
Exercises	15	Rehabilitation	11
Manipulation	11	Helping you recover	16
Pain relief	11	Strengthening	15
Releasing stiffness	16	Restoring confidence	10
Restoring movement	15	Teaching self help	13
Massage	9	Motivating	10
Restoring function	14	Reducing anxiety	5

One respondent did not tick any of the boxes, which may indicate that they did not associate any of the words or activities with physiotherapy or physiotherapist, or they may not have understood the question. However, none of the respondents offered any other words or activities.

Just under half (8/18) of the respondents had previous personal experience of physiotherapy, but two of these did not expect to be sent for physiotherapy this time. One had already had previous physiotherapy for the same problem, gaining quite a lot of benefit, and for a different complaint, always gaining benefit, while the other had only had previous physiotherapy for a different complaint, sometimes gaining benefit. Three respondents had already had previous physiotherapy for their present compliant, one had got quite a bit of help and the other two had both got a lot of help from their previous physiotherapy. When asked about their preferences for treatment this time, the respondent who had got quite a bit of help had no preference, but of the two respondents who had got a lot of help one wanted the same treatment, while the other preferred a different treatment.

Five respondents (27.8%) had been told what the physiotherapist would or might do. Three had received this information from friends or family, one from their doctor and one from a physiotherapist. Eight of the eighteen (44%) had already had some other kind of treatment for their present problem, Table 6.3 shows the type and frequency of other treatment already received.

Table 6.3 Other treatment already received.

Type of treatment	Frequency
Tablets/medicine	6
Surgery	3
X-ray or Scan	6
Injections	4
Splintage / plaster cast	3
Acupuncture	1

Overall satisfaction with the health care received so far was high. Ten were satisfied and five were very satisfied, but two were dissatisfied. Their general expectation of physiotherapy, however, was universally positive, with two thirds (12/18) expecting to get a lot better and a further three expecting a complete recovery.

Six respondents had concerns or anxieties about attending for physiotherapy, with the majority (5/6) mentioning pain, either pain from the injury or pain from the treatment, as their main worry. Time for recovery was the other worry stated.

A variety of responses were gained from the question asking how important it was that physiotherapy improved certain aspects of their condition. Table 6.4 shows the responses.

Table 6.4 Importance of improvement of specific aspects of condition. Frequency of responses.

	Not important	Quite important	Very important
Pain	1	3	13
Stiffness	2	1	13
Movement		2	13
Overall use/ function		2	14
Ability to cope despite your arm/leg problem		3	12
Understanding of your arm/leg problem		4	11

Finally, awareness of other treatments available, other than physiotherapy, for their problem was ascertained. Only four respondents knew of other treatments: acupuncture, electrical muscle stimulation, surgery and injections, however, none of these were preferred to physiotherapy except the electrical muscle stimulation, which was requested alongside, not instead of, physiotherapy.

6.3.3.2 Evaluation of the PEQ

Seventeen respondents completed the evaluation form. All agreed that the questionnaire was easy to read, the print was large enough, they liked the way it was laid out and the instructions on how to complete it were clear. Two respondents would have preferred the questionnaire to be on coloured paper. They all found it convenient to complete the questionnaire at home, although one respondent would have preferred to complete it in the physiotherapy department before their first appointment. No one felt awkward about filling in any of the personal questions or found any of the questions upsetting.

Apart from one respondent who failed to complete any of the SF-36 questions, there were no major problems related to the use of the SF-36. Occasionally between one and three questions were unanswered (18 out of 612, 3%), of which only 3 (0.5%) could not be replaced by the mean value for that section.

Including the respondent who did not answer any of the SF-36 questions, four respondents (22%) failed to answer at least one of the four questions that made up the Health Value scale. This sizeable proportion suggested that the layout of the question may have been a little confusing.

6.4 Conclusion

The response rate was disappointing, especially since the reception staff indicated that most of the patients were contacted verbally to ask for their help before the pack was sent or given out. Strategies to improve the response rate would be required as well as details of non-responders to identify differences between responders and non-responders.

The data from the questionnaire however, were encouraging. In general, the data confirmed that obtained from the semi-structured interviews, suggesting that the questionnaire had face and content validity, (i.e. it was collecting the information that it was intended to collect) and appeared acceptable to patients.

Some refinements were needed as follows:

- Additional categories were added to question 6 to include other treatments mentioned by the pilot participants.
- 'Return to work' was added to Question 9 ('aspects of importance')
- The order of 'aspects of importance' would be reversed at random intervals to avoid an 'order effect'.
- The scale used to quantify expectation of benefit was changed in line with Beurskens *et al*'s (1995) global measure of change, so that comparisons could be made with post-treatment assessment of actual benefit at follow-up.
- Two additional questions were inserted between questions 3 and 4:
  - *Do you know (or have a good idea) what the physiotherapist will do?*
  - *Do you know (or have a good idea) what the treatment will involve?*
- Both these questions attempted to identify those patients who believed that they understood what the physiotherapist would do and what the treatment would entail. They would also give some indication that the patient had preconceived expectations about physiotherapy. At follow-up, similar questions would ask if their expectations on these two issues were met.
- The layout of the Health Value scale was altered to make it more 'user-friendly'.

Overall, the PEQ seemed to be acceptable to patients. The mixture of open and closed questions allowed for a more in-depth interpretation of each respondent's views, although it would have been helpful to discover which of the questions were found to be confusing and in what way. However, the piloting of the PEQ provided both relevant and useful data, suggesting that it had content and construct validity. Since the modifications were only minor, further piloting was considered unnecessary. (See Appendix 3, section 2 for the final version of the PEQ).

Chapter 7

PATIENT EXPECTATIONS SURVEY: method

7.1 Introduction

This chapter describes a survey using the Patient Expectation Questionnaire (PEQ), to explore patients' expectations and investigate what role they play in the outcome of physiotherapy for peripheral musculoskeletal conditions. The chapter also includes a discussion of the issues related to outcome measurement in musculoskeletal out-patient physiotherapy and a detailed description of the tools used in the survey.

The study was designed to test the following hypotheses:

1. Expectation of benefit will be positively correlated with outcome.
2. Expectation of benefit will be associated with previous experience of physiotherapy.
3. Respondents who have positive experiences on which to base their expectations will achieve better than average outcomes.
4. There will be differences in expectations between respondents with comparable upper and lower limb conditions.
5. Greater satisfaction with the overall improvement in condition will be found when expectations are met.
6. Respondents with degenerative conditions will have lower expectations than respondents with traumatic conditions.
7. Respondents with degenerative conditions will achieve lower than average outcomes compared to respondents with traumatic conditions.

Ethical approval was granted by the Local Research Ethics Committee and the Trust's Research and Development Quality Group.

7.2 Survey Method

This study used a before and after cross-sectional survey design to gather data on patients before receiving physiotherapy treatment and on discharge. To test the above hypotheses a number of variables needed to be measured. These included psychological variables as well as all relevant outcome measures. The tools used in this survey are discussed in the following section.

7.2.1 Tools

The development of the PEQ questionnaire highlighted the complexity of issues to be investigated. To attempt to understand the impact of patients' expectations on the outcome of treatment, a number of questionnaires were needed to collect the following information:

- Patients' knowledge, previous experiences and expectations of physiotherapy
- Sociodemographic details
- Psychological profile, including patient attitudes, beliefs and values regarding their health and health care
- Treatment outcome, including health status, functional disability, economics and satisfaction
- Site and aetiology of condition
- Time related factors

7.2.1.1 Patients' knowledge, experiences and expectations of physiotherapy

The PEQ developed in chapter six was used to gather information regarding patients' knowledge and previous experiences of physiotherapy as well as their expectations of benefit from treatment this time.

7.2.1.2 Sociodemographic details

Basic details of age and gender were collected from the departmental data form, along with a number of other items of relevance such as diagnostic code and postcode (allowing for a deprivation score based on the Townsend Index (Manchester Information and Associated Services (MIMAS), 2000) to be extracted). The deprivation score ranged from −10 to +10, with a higher score indicting higher deprivation. Further information needed to develop a socio-economic and individual profile for each patient was collected from the baseline questionnaire (Appendix 5, section 4). These included:

- Family circumstances - number of dependants
- Occupation and work status
- Educational level
- Psychological profile
- Involvement in physical activities
- Time related factors relevant to their presenting condition

The rationale for collecting this information is explained in the following sections.

7.2.1.2.1 Age, Gender and Dependency

Age and gender are collected in routine clinical practice and in research situations. Age and gender are not necessarily related to the situation under investigation. However, disability and perceived disability may be related to age, particularly with degenerative conditions, therefore in this study age is recognised as an important variable. Likewise, the differences between men and women, while largely focused on genetic and biological issues, also give rise to cultural and behavioural differences (Senior and Viveash, 1997).

Dependency is a variable often related to age. Young people (less than sixteen years of age) and some elderly people may find themselves dependent on others for transport to an outpatient physiotherapy department. This may affect the frequency of attendance for treatment. Dependency may also affect the outcome of treatment in a variety of ways. Firstly, one could surmise that people who have dependants may be more motivated to adhere to treatment plans and subsequently improve at a greater rate than those less motivated. On the other hand, people who have dependants may be too constrained by their carer role to attend for treatment on a regular basis, thereby reducing the likelihood of a successful outcome. Secondly, people who are temporarily dependent may have a strong desire to regain their independence. However, in some cases where dependence has brought with it other rewards, such as increased attention, care or monetary benefits, the desire to improve may not be quite so strong (Fredrickson *et al.*, 1988). Thirdly, studies have shown gender and dependency to be strongly related to the uptake of health care (Karlson *et al.*, 1997), resulting in the development of chronic conditions, which may influence the outcome of treatment (Linton *et al.*, 1990). In musculoskeletal medicine, chronicity is quite distinct from degenerative or progressive disorders such as osteoarthritis and rheumatoid arthritis. Chronic joint dysfunction is a more complex problem than a simple ligament strain. In chronic joint dysfunction, the physiotherapist may have to manage not only the tissue damage, but also the biomechanical alterations that have resulted from months or years of 'coping' with the problem. From clinical experience, treating these cases take more time and resources and the outcome is usually less satisfactory.

7.2.1.2.2 Ethnicity

Ethnicity is potentially an important factor. However, after examination of the 1991 census information, it was not considered necessary to collect information on ethnic origins due to the small number of ethnic people (1.2% non-white) in the Hull area (OPCS, 1991) – see Appendix 3, section 3. This may, of course, have ramifications for generalisation of the findings of this study to other areas where the ethnic populations are significantly greater. It is recognised that there may have been changes since the census and the start of this study in 1998.

7.2.1.2.3 Social Class and Occupation

Social Class can also be found in the census information. It is based on the occupation of economically active heads of households, however, major problems have been identified with allocation of social class based on occupation (Senior and Viveash, 1997). Therefore, in this study the main occupation or profession of the patient was categorised into five groups, but no social class interpretation was given. The groups were:

- Professional/Management
- Skilled work
- Unskilled work
- Full-time housewife/homemaker
- Student

For those who were unemployed, their most recent occupation was asked for. Other occupations not listed here could be added if necessary. In addition, current occupation status was determined, since the desire or need to return to work has been shown as a predictor of outcome (van Dixhoorn *et al.*, 1990). The categories used for this section were:

- At work
- Unemployed
- Retired
- On sick leave
- Unable to work - receiving disability benefit

There were a number of reasons why occupation and current employment status were relevant in this study. Firstly, current employment status may be one method of identifying availability to attend for treatment. Patients in work may lack the flexibility to attend for physiotherapy, which is usually available during 'office hours' only, i.e. 8 am - 4 pm, Monday to Friday. Secondly, certain occupations may reflect social circumstances. For example, people in professional occupations may exhibit greater tendency to remain in, or return to work following injury due to the 'responsibilities of the job'. However for those in unskilled work, the need for continued paid employment may preclude attendance for treatment, if paid leave is not available. Thirdly, satisfaction at work has been shown to be predictive of outcome and spontaneous recovery in chronic back pain (Hurri, 1989), although it is unknown whether this could equally apply to peripheral musculoskeletal conditions.

7.2.1.2.4 Educational level

Physiotherapy in the treatment of musculoskeletal conditions invariably involves educating the patient with regard to understanding their condition and co-operation with a treatment regimen. The ability of the patient to understand the explanations and instructions provided by their physiotherapist does not necessarily rely on their intelligence, since poor communication skills on the part of the clinician may be equally to blame. Educational level has been found to be associated with preferences (Sosis *et al.*, 1995) and knowledge of relevant medical issues may improve recall (Ley and

Llewelyn, 1995). Thus, as a possible source of variance, educational achievement was felt to be of importance.

7.2.1.3 Psychological profile

In psychology, considerable research has already been carried out to develop methods of evaluating the multitude of personality characteristics that exist. The exploration of a patient's complete personality profile in relation to physiotherapy treatment and outcome was beyond the scope of this study; however, specific aspects could be explored using existing measures. The tools used in this study were the Multi-dimensional Health Locus of Control Scale (Form-C) (Wallston *et al.*, 1994), the Health Value Scale (Lau *et al.*, 1986), the Generalised Self-efficacy scale (Schwarzer, 1993) and the Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983). The rationale behind the psychological scales chosen for this study is explained in the following sections.

7.2.1.3.1 Locus of Control

The health beliefs of interest in this study were locus of control, health value, self-efficacy and attitudes towards physiotherapists and physiotherapy. Locus of control has been shown to be significantly related to health behaviour. The Recovery Locus of Control (RLOC) scale (Partridge and Johnston, 1989) has been identified as a useful tool for measuring how much control the patient believes they have over their recovery and it has been used specifically with physiotherapy patients (Johnston *et al.*, 1992). Wallston's Multidimensional Health Locus of Control Scales (MLOC) (Forms A and B) have been simplified into one (Form C) (Wallston *et al.*, 1994) for use as a condition specific scale, which covers more aspects of locus of control than that of Partridge's. The MLOC scales have been extensively researched and used, making them one of the most widely respected measures available. Psychometric testing of Form C showed alpha reliability for internal consistency ranging from 0.70 for the 'Other people' sub-scale to 0.87 for the 'Internal' sub-scale. Test-retest reliability was somewhat less robust (range: r = 0.54 to 0.66), but still acceptable for such brief sub-scales. In this study, it was felt that the wider locus of control measure (MLOC-Form C) would be more appropriate for such a heterogeneous sample.

Two variables with possible interactions with locus of control are condition severity and nature (Wallston and Shelton Smith, 1994). In this study, comparisons between degenerative conditions and traumatic injuries would be drawn, for example: a patient with osteoarthritis of the knee may perceive that they have very little control over their recovery compared to someone with a sprained ankle. The acuteness of the condition was ascertained using the following time scales; less than 6 weeks (acute), 6 weeks up to 6 months (subacute), or more than 6 months (chronic).

7.2.1.3.2 Health Value

In addition to locus of control, a measure of health value was required since locus of control has been shown to be predictive of health behaviours only in people with a high health value (Shelton Smith and Wallston, 1992). A simple four-item scale was developed by Lau *et al* (1986) to provide a general measure of the value that an individual places on their health. The scale shows fairly constant alpha reliability and internal consistency across populations (range 0.63 to 0.73), with a test-retest reliability correlation of 0.62. The simplicity and brevity of the scale made it easy to incorporate into the questionnaire.

7.2.1.3.3 Self-efficacy

Closely aligned with locus of control is the concept of self-efficacy – belief in one's ability to perform the necessary actions to achieve a specific effect. Physiotherapy often requires the patient to make changes to their life style and habits, sometimes on a temporary basis, but permanent changes are often needed. These changes may not be readily accepted and the patient's belief in their ability to make these changes is crucial to the success of treatment in the short and long term. Schwarzer's Generalised Self-efficacy scale (Schwarzer, 1993) has strong psychometric properties (alpha range 0.82 to 0.93, test-retest reliability range 0.47 to 0.63) and seems to provide the most appropriate information.

7.2.1.3.4 Attitudes towards Physiotherapy

The patient's attitude towards physiotherapists and physiotherapy was thought to be of significance. These attitudes may have been formed as the result of previous treatment, or from anecdotal experiences. In either case, the effect of the patient's attitude on the course and outcome of treatment should be examined. Patients' attitudes, uncertainty and coping style have been shown to influence expectations, and factors associated with the presenting problem, including anxiety, have been found to be the most important in determining expectations (Webb and Lloyd, 1994). However, the measurement of attitude is complex. Marteau's Attitudes towards Doctors and Medicine Scale (Marteau, 1990) was developed in an attempt to classify patients as having either negative or positive attitudes towards doctor and/or medicine. An assessment of an adapted version for physiotherapy was carried out locally on 52 patients (see Appendix 3, section 4). The results showed a mean overall score of 54.87 (SD = 7.17, range 38 to 71) and good internal consistency (Cronbach's alpha = 0.77). However, slightly different factors emerged on factor analysis. There were no clear distinctions between attitudes towards *physiotherapists* and attitudes towards *physiotherapy*, unlike Marteau's 'doctor and medicine' scale. Most of the variance in the scale (28%) was accounted for by the first factor; positive attitude towards physiotherapists and physiotherapy. These differences suggested that patients' perceptions of doctors and medicine cannot be readily translated to physiotherapists and physiotherapy. As a measure of attitude towards physiotherapy and physiotherapists, the adapted version was considered to be useful.

7.2.1.3.5 Anxiety and Depression

While physiotherapists are often aware of the anxiety that patients feel regarding their condition, as well as their trepidation when attending for treatment, anxiety is not routinely measured or taken into consideration when planning treatment. These omissions may be more important than we realise (Klaber Moffett and Richardson, 1995). Good communication between patient and therapist can often reduce anxiety through relevant explanations of the patient's condition and prognosis. Similarly, depression is commonly associated with chronic conditions, but the effects of depression on outcome may be rarely appreciated by physiotherapists.

The Hospital Anxiety and Depression Score (HADS) (Zigmond and Snaith, 1983) has been used in a variety of health care settings and was deemed to be the most appropriate measure. It is simple to complete and score. It provides an overview of the patient's mental state and can be used as a screening tool for more serious anxiety or depression levels.

7.2.1.4 Treatment Outcome

The measurement of treatment outcome is multifaceted and complex, particularly in physiotherapy, where there may be numerous factors influencing the outcome of treatment. Some patients who are referred for physiotherapy do not achieve a positive outcome for a variety of reasons and these patients will undoubtedly form part of this study's population. On the other hand, many patients do improve with physiotherapy, but fail to reach their full potential outcome. Therefore, 'better' outcome in the context of this study may mean greater function restoration, improved overall health status, reduced symptoms, or simply fewer treatment sessions to achieve the same functional change.

7.2.1.4.1 Outcome measures for the present study

In this study, the patients in the population under investigation had all been referred with musculoskeletal problems. The term 'musculoskeletal' encompasses a multitude of conditions ranging from simple ligament strains to complex degenerative joint pathology. With such a wide variety of conditions the challenge of outcome measurement can be overwhelming. Several outcome measurement tools are required to capture all relevant changes, such as health status, function and presenting signs and symptoms, as well as patient satisfaction with care. The following sections provide details of the types of outcome measures used in this study.

7.2.1.4.1.1 Generic Health Status

As already discussed, there are a variety of generic health status measurement tools available. The final choice of the health status measure for this study was determined using the following criteria:

- The reliability and validity of the measure must already be established
- It must measure clinically relevant issues
- Physical function must be the main domain measured
- Anxiety and depression are assessed
- It must be simple and for completion by the patient, therefore, reading ease > 60% (Flesch, 1951; Beckman and Lueger, 1997)
- Time to complete is not more than 10 minutes

The following were considered for inclusion:

1. The Short Form 36 (SF-36) (Ware and Sherbourne, 1992)
2. The Sickness Impact Profile (SIP) (Bergner *et al.*, 1981)
3. The Stanford Health Assessment Questionnaire (HAQ) (Fries *et al.*, 1980)
4. The Nottingham Health Profile (NHP) (Hunt *et al.*, 1985)
5. The COOP/WONCA Charts (Nelson *et al.*, 1987)

Only the SF-36 fulfilled all the criteria. The SF-36 is a generic health status measure, which contains 36 items measuring eight dimensions of health covering function, well-being and an overall evaluation of health (Table 7.1). A high score indicates better health status.

The SF-36 has been extensively used and tested for reliability and validity in a variety of health care settings, including primary care (Brazier *et al.*, 1992) and musculoskeletal medicine (Beaton *et al.*, 1997; Liebenson and Yeomans, 1997; Kosinski *et al.*, 1999). Studies in the U.K. have reported high internal consistency (Cronbach's alpha between 0.60 and 0.90) (Brazier *et al.*, 1992; Jenkinson *et al.*, 1993; Garratt *et al.*, 1993). It achieves a Flesch reading ease score of 77% and takes about 5 minutes for the patient to complete. Its use in physiotherapy, however, has been questioned (Mawson, 1995; Mawson, 1999). This criticism has centred around the ability of the SF-36 to measure and compare the outcome of physiotherapy treatment across the broad spectrum of conditions encountered. However, in one area such as musculoskeletal physiotherapy it may be appropriate.

Table 7.1 Dimensions of the SF-36 health survey questionnaire.

Dimension	Number of questions
Physical functioning	10
Social functioning	2
Role limitations as a result of physical problems	4
Role limitations as a result of emotional problems	3
Mental health	5
Vitality	4
Pain	2
General health perception	5
Health change	1
Total	**36**

7.2.1.4.1.2 Region Specific Functional Outcome

In musculoskeletal medicine, numerous condition specific outcome measures exist. Since this study intended to compare conditions in general terms, as well as regional differences, the use of condition specific measures would preclude analysis between conditions and regions. Thus, the most appropriate measures would be either entirely generic for the whole body or region specific. Whilst a generic musculoskeletal outcome measure would have been more appropriate to the purposes of this study, the reduction in sensitivity that accompanies generic tools, was felt to be unacceptable. Region specific outcome tools were therefore the preferred option. Several outcome measures for spinal conditions were available (Liebenson and Yeomans, 1997), but unfortunately few exist for upper or lower limb conditions. After an extensive search of the literature for suitable measures, the following criteria were used to determine the most appropriate region specific functional outcome measure:

- ➢ Developed specifically for upper and/or lower limb regions
- ➢ Comparison between upper and lower limb scales must be possible
- ➢ Reliability and validity of each scale must already be established
- ➢ Completed by the patient, therefore, easily understood (Flesch reading ease > 60%) and simple to complete
- ➢ Time to complete is not more than 10 minutes

Only two measures fulfilled the majority of these criteria. The Lower Extremity Functional Scale (LEFS) (Binkley *et al.*, 1999) and the Disability of the Arm, Shoulder and Hand (DASH) tool (Hudak *et al.*, 1996). The LEFS is comprised of a list of twenty activities that the respondent has to state his level of difficulty, from 'extreme difficulty or unable to perform' to 'no difficulty'. The range of possible scores is 0 to 80, with a high score indicating low disability. Similarly, the DASH is a 30-item questionnaire that the respondent has to state his level of difficulty, from 'no difficulty' to 'unable'. After standardisation and transformation, the possible range of scores is 0 to 100, with a high score indicating high disability.

There was a problem with the readability of the LEFS, which had a Flesch score of 40.9%. Some minor adjustments were made to simplify the language and the Flesch readability score was increased to 59%. Only minor word changes using the Oxford Thesaurus (1996) were required, with the original meaning retained. The DASH was acceptable without simplification achieving a Flesch score of 62.3%. Both scales had very high internal consistency (LEFS $\alpha = 0.96$ (Binkley *et al.*, 1999); DASH $\alpha = 0.96$ (McConnell *et al.*, 1999)).

7.2.1.4.1.3 Severity of Condition

The final measure of change following physiotherapy for musculoskeletal conditions is probably the most commonly used in clinical practice; change in the patient's presenting signs and symptoms. In essence this is a measure of the severity of the condition. As with all other outcome measures, attribution of changes in signs and symptoms to treatment is hard to establish, particularly with traumatic musculoskeletal conditions where healing takes place with or without treatment. Regression to the mean, that is change which would have occurred naturally as part of the disease process, needs to be taken into consideration. To date, there are no standardised measures of condition severity across the multitude of musculoskeletal conditions. Various tools are available to determine the level of disability pertaining to certain conditions, e.g. the Roland Disability Questionnaire (RDQ) (Roland and Morris, 1983) for lumbar spine conditions, or specific aspects of a condition, e.g. visual analogue pain scales (McDowell and Newell, 1996). Considerable work has been carried out in arthritis research and clinical measures of arthritis severity have been used in a number of studies (Weaver *et al.*, 1995; Makarowski *et al.*, 1996), although the reliability and validity of such measures has not been tested. There appears to be no existing standardised tool, that measures all the relevant signs and symptoms in both chronic and acute peripheral musculoskeletal conditions, to arrive at a measure of severity.

During a subjective assessment, the physiotherapist asks a number of questions to gain an overall picture of the patient's presenting complaint and any other relevant details such as past medical history, previous treatment, social circumstances, pain levels etc. In the physical assessment, many observations and measurements are made to record the patient's presenting problem. Many of these questions, observations and measurements are repeated during the course of treatment to determine if any change has taken place. Unfortunately, in routine clinical practice, there are very few measurements that can be regarded as truly reliable.

The physiotherapy departments participating in this study all used a simple method for scoring the severity of each patient's condition - Severity of Condition score (SoCs) (see Appendix 3, section 5). It did not allow for direct comparisons between patients or across conditions, but a percentage change for each individual could be ascertained.

The method of scoring was based upon departmental standards of assessment documentation, therefore all assessments contained the bare minimum of detail needed to meet the departmental standards (Out-patient Physiotherapy Assessment Standards, 1998). In addition, each assessment contained specific subjective and physical findings of relevance to each individual patient, thus within each assessment, a number of items (both standard and individual specific) were recorded. Some of these items could be scored on a simple four point ordinal scale (0 = unaffected, 1 = minimally affected, 2 = moderately affected, 3 = maximally affected) or visual analogue scale for pain. A subjective rating of unaffected to maximally affected has been commonly used to describe the effect that a patient's condition has on range of spinal movement (McKenzie, 1981). Adding a number merely quantified the description. Any gross changes were easily observed and were arguably of more significance to the patient. Scores were summed at initial assessment and discharge. The total final score was subtracted from the total initial score to reach a difference, recorded as a percentage of the initial score. This would give the percentage improvement in signs and symptoms overall, incorporating both subjective and physical findings. The method has its limitations, most notably the subjective nature of the assessment and the unweighted summation of the scores. However, as a simple measure of condition severity before and after treatment, its application has been found to be useful, practical and moderately correlated to other more established measures of disability (Roland Disability Questionnaire (RDQ) $r = 0.43, p < 0.001$; Lower Extremity Functional Scale (LEFS) $r = 0.55, p < 0.005$) (see Appendix 3).

7.2.1.4.1.4 Economic outcome

Whilst functional outcome is obviously important, there are other issues that warrant consideration. The management of ever increasing demand where resources are limited means that economic evaluation is becoming increasingly more relevant and an important factor for researchers. The physiotherapy service in this study collected information that had the capability of applying a cost to individual cases, by identifying the grade of staff responsible for the treatment, the length of time per session and the number of treatment sessions, including missed appointments. Thus, the outcomes of interest from an economical viewpoint would be:

- Fewer treatment sessions
- Fewer missed appointments, therefore less wasted clinician time
- Fewer patients failing to complete their course of treatment - possibly leading to the development of a chronic condition, which would ultimately take longer to treat if re-referred.

7.2.1.4.1.5 Patient satisfaction

Patient satisfaction has been shown to be associated with expectations in numerous studies, from retailing to health care. Although not one of the primary outcomes, satisfaction with care and treatment outcome was still felt to be important. The choice of tool was somewhat limited, since the main selection criterion was that it must be physiotherapy specific. At the time of this study, only two could be found (Roush and Sonstroem, 1999; Marks, 1994). Roush and Sonstroem's Physical Therapy Outpatient

Satisfaction Survey (PTOPS) was discounted due to the large 'cost' component and the omission of a treatment efficacy component. However, Marks' satisfaction questionnaire, which was developed in New Zealand, required only minor modification for the U.K. During the questionnaire's development, Marks recognised that his questionnaire may not perfectly fit local situations, but that it could be used as a model. To ensure content validity, local physiotherapists were asked for comments, which resulted in some minor modifications. One question was omitted; two questions were combined and re-worded; and four questions were added. A pilot study using the revised questionnaire was carried out with 97 consecutive patients discharged from the out-patient physiotherapy departments of Hull and East Yorkshire Hospitals NHS Trust. All patients were aged 16 or over, had a musculoskeletal problem and had attended at least two out-patient appointments. It was found to be acceptable to patients and useful to clinicians. Factor analysis confirmed that eight factors could explain 68% of the variance in satisfaction, but further analysis suggested that four main factors were present: (1) access; (2) environment; (3) care; and (4) efficacy.

7.2.1.5 Site and aetiology of condition

Information was collected on the aetiology of the condition, i.e. traumatic or degenerative, site of problem, i.e. upper or lower limb, joint involved and number of sites in the limb affected. This allowed for any differences in patient expectation and outcome in these categories to be taken into account in the analysis.

7.2.1.6 Time related factors

The Delphi study in chapter four identified a number of time related factors, which the physiotherapists believed might influence patients' expectations of benefit from physiotherapy. These included, the duration of the condition and length of time waiting for physiotherapy treatment, as well as related issues such as waiting for other interventions, surgery etc. These could all influence patient expectations and outcomes in several different ways.

7.2.1.7 Summary of baseline questionnaire contents

Thus, the baseline questionnaire consisted of the following sections:

1. PEQ baseline
2. SF-36 plus an additional question on the severity of pain from the presenting complaint.
3. Health Value Scale
4. Lower Extremity Function Scale (LEFS) or Disabilities of the Arm, Shoulder and Hand (DASH) scale
5. MLOC Scale (Form-C)
6. Perceived Self-efficacy Scale
7. Hospital Anxiety and Depression Score
8. Attitudes towards Physiotherapists and Physiotherapy Scale
9. Patient Details - demographics, time related factors

7.2.2 Subject selection

In order to test the hypotheses relating to patient expectations and outcomes stated earlier, consideration was given regarding the type of patient required for the study. Differences were deemed to be demonstrable between degenerative and traumatic conditions, upper and lower limb conditions and patients with previous experience of physiotherapy compared to those without experience. A combination of these factors indicated that eight main categories of patients were needed:

1. Traumatic lower limb *with* previous experience of physiotherapy
2. Traumatic lower limb *without* previous experience of physiotherapy
3. Traumatic upper limb *with* previous experience of physiotherapy
4. Traumatic upper limb *without* previous experience of physiotherapy
5. Degenerative lower limb *with* previous experience of physiotherapy
6. Degenerative lower limb *without* previous experience of physiotherapy
7. Degenerative upper limb *with* previous experience of physiotherapy
8. Degenerative upper limb *without* previous experience of physiotherapy

To gain a reasonable overview of these potentially different categories, a target of 30 patients in each category was set. This would ensure that an even spread of category across the 240 patients and was a realistic number to obtain in the available time.

Subjects were identified for selection when they were referred for physiotherapy treatment to one of three NHS hospitals in the Hull area. All subjects who had a lower or upper limb musculoskeletal condition were eligible for selection. However, some subjects were excluded if any of the following criteria existed:

- multiple site injuries (i.e. upper and lower limb problems)
- elective surgery for a peripheral musculoskeletal problem

Reception staff were asked to send eligible patients a questionnaire pack (Appendix 5, sections 1-4), which consisted of the questionnaires listed above, a 'help' leaflet, an information and instruction letter and two consent forms, when the patient was offered an appointment to start physiotherapy. Subjects were invited to participate with the research project by completing and returning the pack, thus the final sample would be limited to those willing to help. This method of recruitment was undertaken following recommendations from the Ethics committee, who felt that the investigator should not contact the patient directly, but through the physiotherapy department. Also, the sample should comprise of those patients who *opt in* to the study, rather than previously used methods where all eligible patients are included unless they *opt out*.

The reception staff at each site recorded the name, date of birth, site of injury and date of first appointment on a patient data sheet, which was forwarded to the author on completion. This enabled the author to identify respondents and non-respondents, as well as patients who failed to attend for their first appointment. Information on non-respondents and patients who failed to attend would be extrapolated from the departmental data collection forms via the usual audit process.

On discharge, the physiotherapists were asked to complete a brief form indicating the treatment modalities used and giving an indication of which seemed most beneficial. This form, along with the departmental data sheet, was then forwarded to the author and follow-up was initiated. The follow-up questionnaire pack (Appendix 5, sections 5-6) was dispatched within three working days of notification of discharge, and consisted of the following sections:

1. PEQ follow-up
2. SF-36
3. Lower Extremity Function Scale (LEFS) or Disabilities of the Arm, Shoulder and Hand (DASH) scale
4. Patient Satisfaction Questionnaire – modified from Marks (1994)

The departmental data sheet (Appendix 5, sections 9-10) provided the following information on all patients, including non-respondents and patients who failed to attend:

- Date of birth
- Postcode
- Referral source (consultant or GP)
- Number of treatments
- Length of physiotherapy intervention
- Number of missed appointments
- Economic data - physiotherapy input units (PIU) = time spent with patient weighted by grade of staff (e.g. 1 unit = 4 minutes of superintendent physiotherapist's time, 6 minutes of senior I physiotherapist's time etc.) (Williams, 1991).
- Initial and final treatment date
- Discharge code
- Outcome data - Severity of Condition Scale (SoCS) initial and final scores or outcome code
- Physiotherapist responsible for the patient

7.2.3 Survey Management

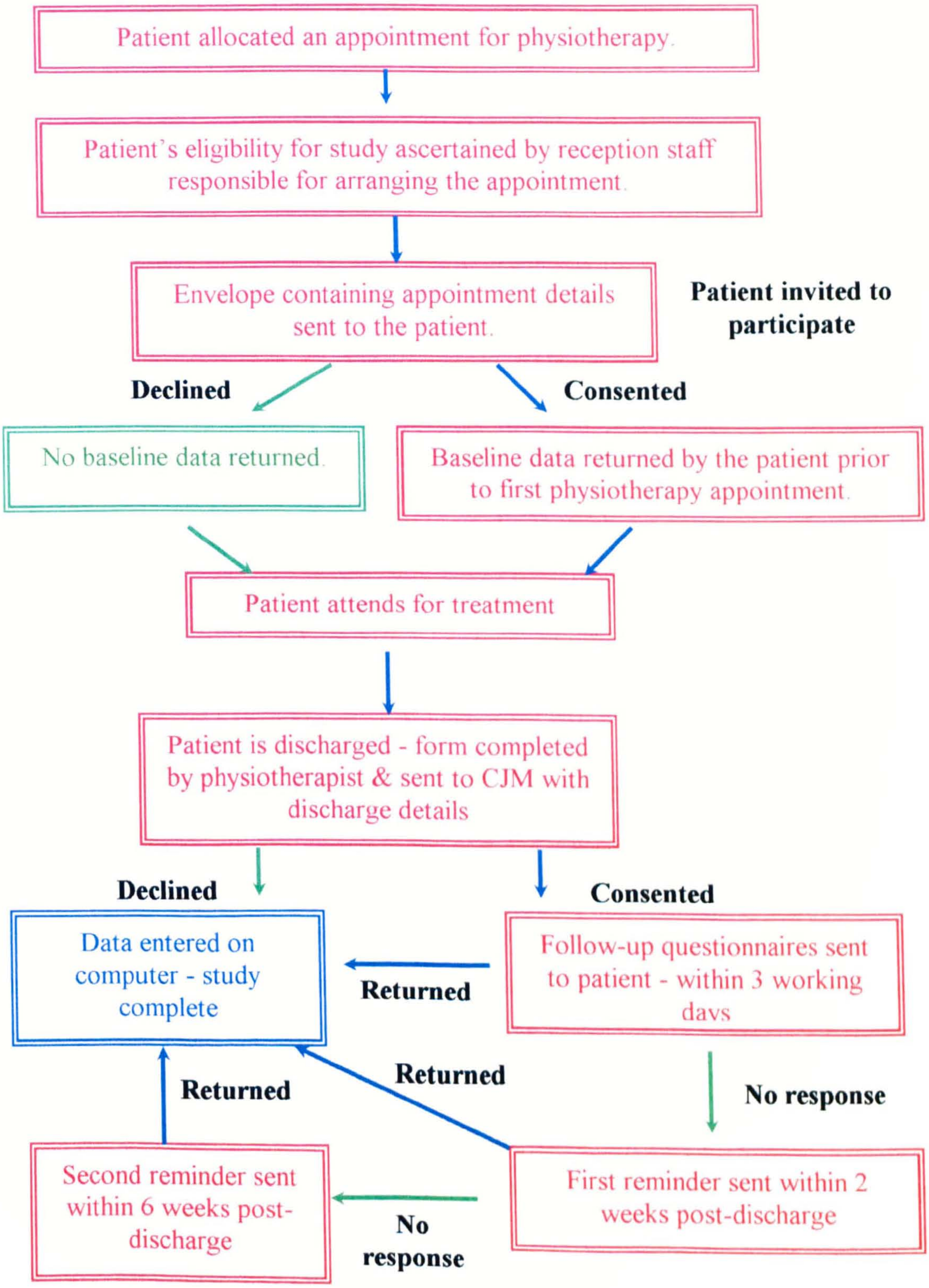
Baseline questionnaire packs were supplied by the author to each site and labelled as upper or lower limb. All the packs were in plain brown envelopes ready to be addressed by the reception staff once an appointment leaflet had been inserted. The information leaflet instructed the patient to either return the completed pack by post using the FREEPOST envelope provided, or via the physiotherapy reception on arrival for their first appointment. In the latter case, the completed packs were then either collected by the author or forwarded to her within 1 week. Due to the limited time between questionnaire pack distribution and first appointment, it was not possible to send reminders to non-respondents.

On receipt of the completed pack or patient data sheet, the author assigned a unique patient identification number for all patients who had been sent the pack. Cross-checking was carried out before any data inputting to prevent duplication of patient data. Data from completed packs and patient data sheets were inputted by the author using a computer software package (SPSS, 1999). In addition, a database of respondents was compiled to assist the follow-up process. On discharge, the physiotherapy discharge forms and the departmental data sheets were either collected by or forwarded to the author at the end of each week. On receipt, the author sent out the follow-up pack (Appendix 5, sections 5-6), identified the patient, entered the additional data on the computer and updated the database to show when the follow-up pack had been sent. On receipt of the follow-up questionnaire, the final piece of data was entered into the computer by the author.

The accuracy of data entry was checked on two occasions by an independent researcher. Initially the first twenty completed data sets were checked for anomalies in the data entry. This also helped to highlight any problems with interpretation of specific events, such as missing or multiple responses. The second checking was carried out at the end of the survey, when a 20% random sample was selected. Depending on whether the patient had an upper or lower limb problem, there were potentially 344 or 324 data entries respectively to be made for each respondent and 37 for each non-respondent. After the initial checking, minor adjustments were needed to the data entry system, such as numbering every question, to make data entry easier and the second checking less problematic. There were eight errors found on the initial check, i.e. 0.12% of the data entered was wrongly entered. On the second check, 21 errors were found, which equated to an error rate of 0.1%. All errors were corrected at the time, but with such a low error rate, it was felt unnecessary to check the remaining 80% of the data already entered. However, on analysis all frequencies were checked for outliers and anomalies.

The database was checked daily to identify non-respondents to follow-up. A second pack (Appendix 5, sections 7-8) was sent to non-responders after two weeks and a final reminder within six weeks of discharge. Figure 7.1 illustrates the patients' pathway through the study.

Figure 7.1 Flowchart of patients' pathway through the study.



In addition to the responders details obtained through the above system, all patient discharge forms were screened by the author to check for missing data and 'missed' subjects. These were patients who presented with a diagnosis consistent with the entry criteria for the survey, but for a variety of reasons were never given the opportunity to participate. The reasons for this were ascertained through informal interviews with the physiotherapists and reception staff. Typically the reasons were:

- Urgent appointment, therefore no time to send out pack
- Referral through the Accident and Emergency department, thereby bypassing the receptionist
- Staff shortages meaning that non-essential tasks were bypassed
- New staff members unfamiliar with the system

Missing data was followed up in a variety of ways. Firstly, patients who mistakenly turned too many pages and missed whole sections of the questionnaire were sent a letter asking them to complete the missing sections - invariably this missing data was recovered. Secondly, missing items from specific scales such as the SF-36, MLOC or functional scales were dealt with in accordance with the protocol for each scale, usually replacing the missing item with the mean for that particular dimension. Thirdly, missing data from the physiotherapy department was collected by hand from the patient's physiotherapy records.

To determine whether the respondents were a representative sample of the population, a number of details on non-respondents and missed patients were collected via the departmental audit process for comparison. These details included age, gender, postcode, diagnosis (to distinguish between upper and lower limb, and traumatic and degenerative conditions), referral source and discharge code. Previous experience of physiotherapy was ascertained from the departmental database, which contained details of any physiotherapy intervention between 1994 and the end of 1998. An attempt was also made to determine information about occupation, work status and dependency from physiotherapy records. However, on a 10% sample (n = 40), only 6 (15%) of records contained vague details about occupation or work status and 3 (7.5%) had information on dependency. This data was therefore deemed unreliable.

7.2.4 Statistical Analysis

All variables were tested for normality of distribution prior to statistical analysis. Normally distributed data were described using means and standard deviations, with correlations and significance testing carried out using parametric tests such as Pearson's correlation, analysis of variance (ANOVA) or t-test. Non-normally distributed data were described using medians and interquartile ranges, with relationships calculated using non-parametric tests such as Spearman's rank correlation, Pearson's chi-squared (χ^2) test, the Kruskal Wallis test or Mann-Whitney U-test depending on the level of data involved. Where appropriate, different interpretations of Pearson's χ^2 were used, such as continuity correction when both variables were binary and linear by linear association if the data of either variable were ordinal (Tabachnick and Fidell, 1996; Howell, 1997).

Also, to allow for comparisons between the lower limb and upper limb functional disability scales, the scores were standardised. The magnitude of change for the LEFS and DASH scales was calculated as the percentage change in relation to the baseline score, i.e. change score ÷ baseline score x 100. The LEFS scores were re-calculated so that a higher score represented greater disability, thereby allowing for direct comparisons between the LEFS and DASH scales and amalgamation into one functional disability change score. A percentage change in SF-36 scores was calculated in a similar fashion, to allow for comparisons with the functional disability percentage change score.

The results of the survey are presented in the next chapter.

Chapter 8

PATIENT EXPECTATIONS SURVEY: results

8.1 Introduction

This chapter presents the results of the patient expectations survey. The purpose of this study was to explore the existence and origins of patients' expectations with regard to physiotherapy and then use this information to explain some of the variance in outcome. The results and analysis of data from the survey attempted to support or refute the following hypotheses:

1. Expectation of benefit will be positively correlated with outcome.
2. Expectation of benefit will be associated with previous experience of physiotherapy.
3. Responders who have positive experiences on which to base their expectations will achieve better than average outcomes.
4. There will be differences in expectations between responders with comparable upper and lower limb conditions.
5. Responders with degenerative conditions will have lower expectations than responders with traumatic conditions.
6. Responders with degenerative conditions will achieve lower than average outcomes compared to responders with traumatic conditions.

8.2 Representativeness of Responders

Questionnaire packs were sent out to 688 patients with an upper or lower limb problem as identified from the referral card. Eighteen of these were subsequently identified as ineligible, because their condition was not a peripheral joint problem. Two hundred and eighty-nine patients (43.1%) responded. In addition to the non-responders, there were a further 398 patients who were classified as 'missed' (i.e. eligible for study, but details not passed to the investigator – see page 96). The baseline characteristics of responders and non-responders are shown in Table 8.1.

Table 8.1 Baseline characteristics of responders and non-responders.

		Responders n = 289 n (%)	**Non-responders n = 381 n (%)**	**Statistical difference between groups**	**Statistical test**
Gender	Male	114 (39.4%)	189 (49.6%)	$p < 0.02$*	*a*
	Female	175 (60.6%)	192 (50.4%)		
Age	Median (IQR)	49 years (34 - 64)	40 years (28 - 57)	$p < 0.001$**	*b*
Deprivation Index	Median (IQR)	1.57 (-2.1 - 5.34)	1.57 (-1.8 - 5.13)	$p < 0.8$	*b*
Diagnostic category	Traumatic lower limb	89 (30.9%)	112 (29.5%)	$p < 0.6$	*c*
	Degenerative lower limb	98 (33.7%)	141 (37.0%)		
	Traumatic upper limb	56 (19.4%)	79 (20.7%)		
	Degenerative upper limb	46 (16.0%)	49 (12.8%)		
Referral source	Consultant	210 (72.6%)	285 (74.7%)	$p < 0.6$	*a*
	GP	79 (27.4%)	96 (25.3%)		
Previous physio.	Yes	76 (26.3%)	94 (24.7%)	$p < 0.7$	*a*

** significant at 5% level; ** significant at 1% level.* IRQ = Interquartile Range

a = Pearson χ^2 test with continuity correction; *b = Mann Whitney U test; c = Pearson* χ^2 *test.*

These data show that two significant differences were found between responders and non-responders. Responders tended to be older and female. For the purpose of comparing responders to non-responders, previous physiotherapy experience was ascertained using an old departmental database that only had data from 1994 to 1998. This data is presented in Table 8.1. Data collected from the responders supplied more up-to-date information and is used in later analyses. Significant differences were also found between those 'missed' patients and those identified as eligible for the survey. Missed patients were more likely to have traumatic conditions ($\chi^2 = 18.19$, df = 2, $p < 0.001$) and/or upper limb involvement ($\chi^2 = 15.23$, df = 1, $p < 0.001$).

Likewise, data collected after treatment was analysed for differences between the responders and non-responders. Details for two responders and two non-responders were unobtainable because they had transferred elsewhere, leaving 287 responders and 379 non-responders. Several differences were found between responders and non-responders on discharge. The discharge characteristics of responders and non-responders are shown in Table 8.2. These data show that significantly more responders were likely to complete treatment, have more treatments (hence more units) and miss fewer appointments. Responders were also more likely to achieve greater percentage change in the severity of their condition, although this was not statistically significantly higher than non-responders.

Table 8.2 Discharge characteristics of responders and non-responders.

		Responders n = 287 n (%)	**Non-responders n = 379 n (%)**	**Statistical difference between groups (p)**	**Test**
Discharge code	Completed treatment	239 (83.3%)	227 (59.9%)	< 0.001**	*a*
	Self discharged	48 (16.7%)	152 (40.1%)		
Number of treatments	Median (IQR)	5 (3 - 8)	2 (1 - 5)	< 0.001**	*b*
Number of units	Median (IQR)	25 (16 - 40)	17 (8 – 28)	< 0.001**	*b*
Severity of Condition score change	Mean % change (SD)	64.21 (25.47)	59.95 (29.36)	0.302	*b*
Intensity of treatment	Median (IQR)	1.46 (1.07 - 2.02)	1.42 (0.87 - 2.49)	0.185	*b*

** significant at 5% level; ** significant at 1% level.*

a = Pearson χ^2 with continuity correction; *b* = Mann Whitney U-test.

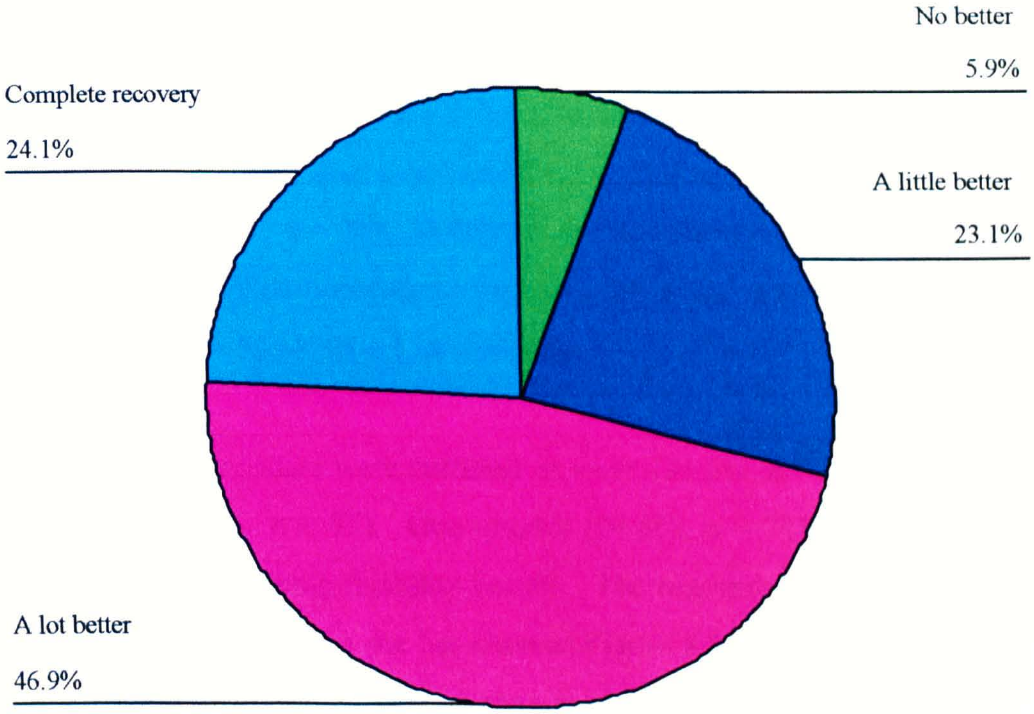
NB: 'n' reduced by 4 patients who transferred out of the area.

IRQ = Interquartile Range; SD = Standard Deviation

8.3 Survey results

The following data refers to the responders only (n = 287; 2 responders who were subsequently transferred are excluded). For each variable associations were explored, in particular the relationship with expectation of benefit. Responders' rated their expectation of benefit from physiotherapy from 'a lot worse' to 'complete recovery'. The percentage response for each expectation rating is illustrated by the pie chart in Figure 8.1.

Figure 8.1 Percentage response for each expectation rating.



These data show that no one expected to be 'worse' or 'a lot worse', but almost three quarters expected to be a lot better or a complete recovery.

8.3.1 Subject Characteristics

8.3.1.1 Sociodemographic details

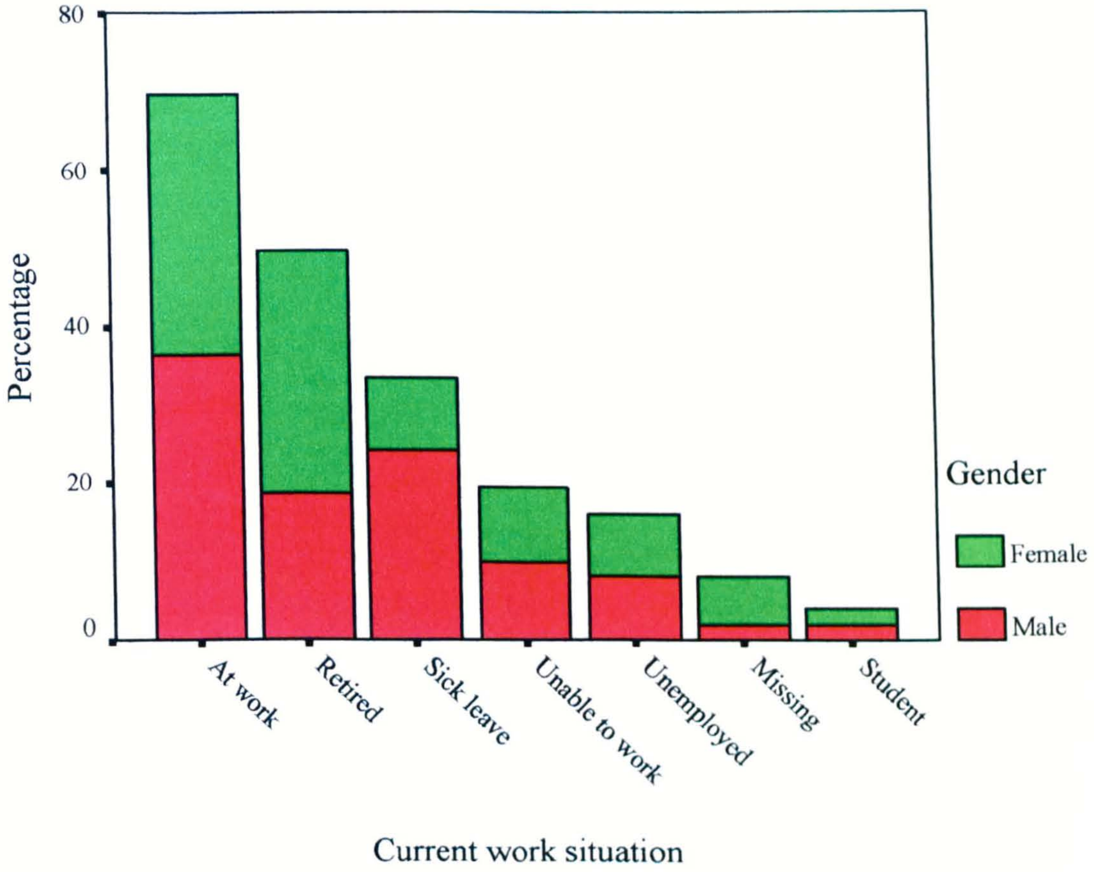
The majority of the responders were female (60.6%, n = 174). The mean age was 49.02 years (SD 18.41, range 14 to 87). Gender was associated with expectation rating, with men tending to be more optimistic than women ($\chi^2 = 8.56$, df = 1, $p < 0.004$), but there was no relationship between expectations and age.

Thirty-two responders (11.2%) stated that they had received either no formal education or primary level only. Seventy-four responders (25.8%) had achieved college or higher education, of which 15 had undergraduate or post-graduate degrees. The majority (54%) had secondary education and 26 (9.1%) did not answer this question. The largest proportion of responders (29.6%, n = 85) stated that their current or most recent work was unskilled manual work. Just over one third were either professional (18.5%, n = 53) or skilled workers (16%, n = 46); 18 (6.3%) did not answer this question. Men were more likely to have skilled occupations than women, while women were more likely to be home-makers ($\chi^2 = 18.62$, df = 1, $p < 0.001$).

Two thirds of the responders were currently at work (34.5%, n = 99), students (2.1%, n = 6) or retired (26.1%, n = 75). One quarter (24.8%, n = 71) were on sick leave or unable to work and receiving disability benefit. The responders current work situation, stacked by gender, is shown in the bar chart in Figure 8.2. These data show that there were significantly more retired women than men, and more men than women on sick leave ($\chi^2 = 13.9$, df = 5, $p < 0.02$).

In response to the question about the number of people who were dependent on them being fit and well, there were a variety of interesting answers ranging from 0 (24%, n = 69) to 60 (0.3%, n = 1). However, the median and mode for this question were both 1, with 91.2% (n = 238) having 4 or less people dependent on them. There was no relationship between number of dependants and gender.

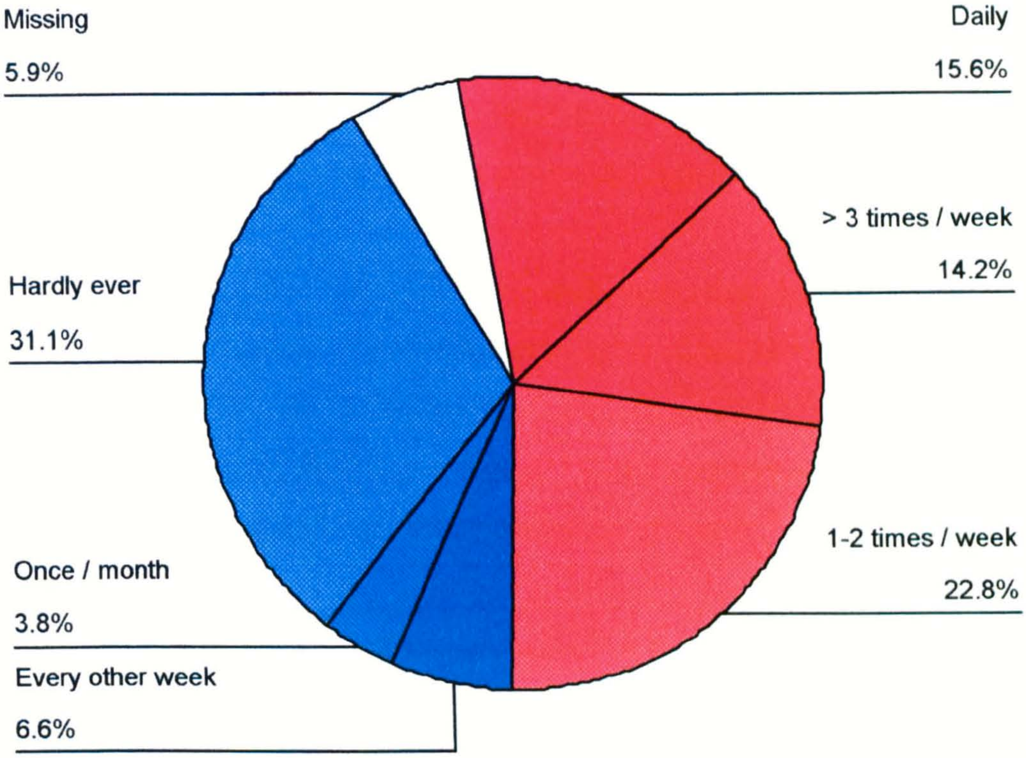
Figure 8.2 Responders' current work situation stacked by gender.



The level of sporting or physical recreation activity undertaken before the onset of their present condition was fairly evenly split between those who exercised regularly (at least once a week) and those who didn't. The physical activity levels of the responders prior to the onset of their condition are illustrated by the pie chart in Figure 8.3. These data show that 41.4% of responders were irregular exercisers (blue regions), while 52.6% were regular exercisers (red regions). There was no relationship found between education level, occupation, work status, number of dependants or pre-morbidity levels of activity and expectations of benefit.

As one might have expected, there was a significant correlation between pre-morbidity exercises levels and age (Kendall's $\tau = 0.247$, $p < 0.001$); activity levels dropping with increasing age. Activity levels were not associated with gender after adjustment for age.

Figure 8.3 Physical activity levels of responders prior to onset of condition.



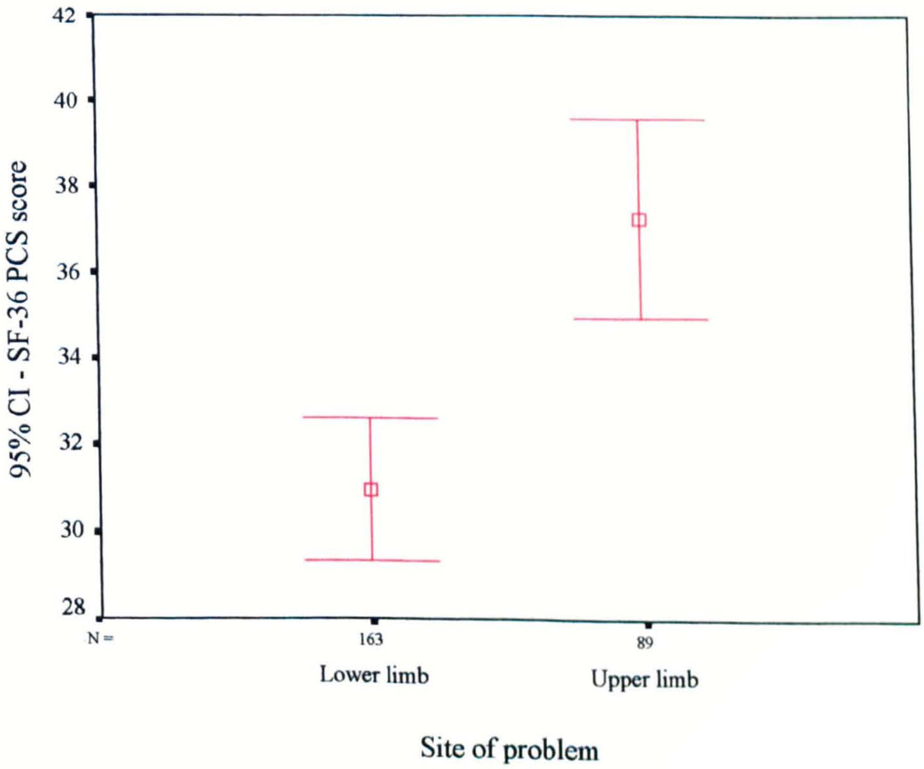
8.3.1.2 Site and nature of condition

Most of the responders (72.5%, n = 208) were referrals from hospitals. The majority (65.2%, n = 187) had lower limb conditions and half (50.5%, n = 145) were degenerative in nature. The largest proportion of responders (38%, n = 109) had the knee or elbow as the primary joint involved, with 31% (n = 89) stating that more than one joint or area of the limb was affected. The complexity of the condition (i.e. the number of joints or areas involved) was not associated with expectation rating, but expectation rating was highly significantly associated with type of condition ($\chi^2 = 37.59$, df = 1; $p < 0.001$) and limb involved ($\chi^2 = 12.48$, df = 1, $p < 0.001$). Only 22 (15.5%) responders with traumatic conditions expected little or no benefit, compared to 61 (42.4%) responders with a degenerative condition. Fourteen (14%) upper limb responders expected little or no benefit, compared to 69 (37.1%) lower limb responders. Comparable upper and lower limb conditions were analysed for differences in expectation of benefit rating. Cross-tabulation showed that responders with upper limb degenerative conditions tended to be more optimistic about their outcome than their lower limb counterparts ($\chi^2 = 10.16$; df = 1; $p < 0.002$). The differences in expectation of benefit between upper and lower limb responders with a traumatic condition were not significant. However, the differences between upper and lower limb degenerative conditions were confined to 'a little better' or 'a lot better', indicating that for those responders with degenerative conditions who expected either no change or a complete recovery, the limb involved was not a factor.

Other differences discovered were (1) upper limb responders had significantly shorter duration of condition than lower limb responders ($\chi^2 = 11.88$, df = 1, $p < 0.002$), and (2) a larger proportion of women had a degenerative condition (60% of women compared to 35.1% of men; $\chi^2 = 16.07$, df = 1, $p < 0.001$). When analysed by type of condition, no gender differences were found regarding expectation of benefit.

The SF-36 Physical Component Summary scores at baseline for upper and lower limb responders are shown by the error bar chart in Figure 8.4.

Figure 8.4 SF-36 Physical Component Summary scores at baseline for upper and lower limb responders.



These data show a significant difference between upper and lower limb responders ($t = -4.43$, $p < 0.001$; 95% CI –9.09 to –3.49) in self-rated health status using the SF-36 with higher scores i.e. better health status in the upper limb group.

Following standardisation of functional disability scores to allow for comparisons, no differences were found between upper and lower limb regarding functional disability.

Differences were also found between upper and lower limb responders on the HADS depression score (Mann-Whitney U-test, $p < 0.02$). Upper limb responders reported lower anxiety and depression levels than lower limb responders. There was no relationship between type of condition and anxiety or depression.

8.3.1.3 Previous experience of physiotherapy

A large proportion of responders (62%, n = 178) had received physiotherapy before, 28.6% (n = 82) for the same problem, 44.3% (n = 127) for a different problem and 10.8% (n = 31) for the same and a different problem. Previous experience of physiotherapy was strongly associated with expectation of benefit rating ($\chi^2 = 11.02$, df = 1, $p < 0.001$), with those without previous experience expecting to have greater benefit.

Half of those who had already had treatment for the same problem (50%, n = 41) had gained little or no benefit, while one third (33.1%, n = 42) of those who had received physiotherapy for a different problem had gained only occasional or no benefit. The responders rating of their expectation of benefit this time compared to the benefit gained from previous physiotherapy for the same and different problems are shown in Table 8.3.

Table 8.3 Responders rating of their expectation of benefit this time compared to the benefit gained from previous physiotherapy for the same and different problems.

Benefit from previous physio.			Expectation of Benefit this time		
			Little or no benefit	A lot of benefit or complete recovery	Test of association [a]
Same Problem (n = 80)	Little or no benefit	O	22 (62.9%)	19 (45.3%)	$\chi^2 = 2.26$
		E	18.1	23.9	df = 1
	A lot of benefit or complete recovery	O	13 (37.1%)	26 (56.5%)	$p < 0.14$
		E	16.9	22.1	
Different Problem (n = 125)	Occasional or no benefit	O	23 (53.5%)	19 (23.2%)	$\chi^2 = 10.30$
		E	14.4	27.6	df = 1
	Usually or always helped	O	20 (46.5%)	63 (76.8%)	$p < 0.001$**
		E	28.6	54.4	

O = *observed number;* E = *expected number*

[a] = *Pearson χ^2 test with continuity correction.* ** *significant at 1% level.*

These data show that for responders with previous experience of physiotherapy for the same problem, there was no relationship between the benefit gained before and the expectations of benefit this time. However, there was a strong association between benefit gained from physiotherapy for a different problem and responders' expectation of benefit this time ($p < 0.001$). The trend seemed to be towards expectations that matched the benefit gained from previous physiotherapy for a different condition.

To explore further the relationship between previous experience of physiotherapy, limb involved and nature of problem, responders were classified into eight groups (see table 8.4). The classification of responders based on previous experience of physiotherapy, limb involved and nature of problem cross-tabulated with expectation of benefit rating are shown in Table 8.4.

Table 8.4 Classification of responders based on previous experience of physiotherapy, limb involved and nature of problem cross-tabulated with expectation of benefit rating.

Classification		Little or no benefit 'n'	A lot of benefit or complete recovery 'n'
Traumatic lower limb, with previous experience of physiotherapy	Observed	15	35
	Expected	14.5	35.5
Traumatic lower limb, without previous experience of physiotherapy	Observed	3	35
	Expected	11	27
Degenerative lower limb, with previous experience of physiotherapy	Observed	39	33
	Expected	20.9	51.3
Degenerative lower limb, without previous experience of physiotherapy	Observed	16	20
	Expected	10.4	25.6
Traumatic upper limb, with previous experience of physiotherapy	Observed	4	26
	Expected	8.7	21.3
Traumatic upper limb, without previous experience of physiotherapy	Observed	0	24
	Expected	7	17
Degenerative upper limb, with previous experience of physiotherapy	Observed	4	20
	Expected	7	17
Degenerative upper limb, without previous experience of physiotherapy	Observed	2	10
	Expected	3.5	8.5

Grey areas indicate major differences. χ^2 *test* $p < 0.001$.

These data show that expectations of benefit were highly significantly associated with responder classification ($\chi^2 = 50.58$, df = 7, $p < 0.001$). The shaded boxes highlight the main differences between observed and expected numbers.

Previous experience tended to reduce expectations of benefit in degenerative lower limb conditions, while responders with traumatic lower or upper limb conditions expected more benefit if they had no experience of physiotherapy.

8.3.1.4 Expectation of referral for physiotherapy

Nearly two thirds of the responders (61.7%, n = 177) expected to be referred for physiotherapy and this was associated with their previous experiences ($\chi^2 = 5.86$; df = 1; $p < 0.017$). Responders were twice as likely to expect to be referred for physiotherapy, if they had received physiotherapy before (n = 119 with experience compared to 58 without). However, this trend was reversed and not significant when previous physiotherapy was for the same problem (n = 57 with experience compared to 120 without, $\chi^2 = 3.43$; df = 1; $p < 0.07$). Expectation of referral was significantly related to expectations of benefit ($\chi^2 = 8.97$, df = 1, $p < 0.004$) with the trend towards higher expectations when referral for physiotherapy was expected. However, this relationship failed to maintain its significance when broken down into type of condition.

8.3.1.5 Duration of condition, waiting times and anticipation of other interventions.

Approximately half (49.5%, n = 142) the responders indicated that their complaint had been present for more than 6 months, but only 12.9% (n = 37) had an acute problem (less than 6 weeks duration). Women were more likely to have had their condition for more than 6 months, while men were more likely to have an acute (less than 6 weeks) condition ($\chi^2 = 11.81$, df = 2, $p < 0.004$). Most (66.9%, n = 192) had been waiting for physiotherapy for less than six weeks. Just over one quarter (n = 77) were in anticipation of some other intervention. Twenty-three (8%) were waiting for some other kind of treatment, 21 were waiting for surgery (7.3%), and 41 were awaiting further investigations (14.3%). Only twelve responders (4.2%) were waiting for settlement of a compensation claim.

There was a strong relationship between duration of condition and expectation of benefit rating ($\chi^2 = 47.49$, df = 1, $p < 0.001$), with a trend showing reduced expectations with increasing duration of condition. Not surprisingly, the same relationship and trend was found between expectations and waiting time for treatment ($\chi^2 = 14.06$, df = 1, $p < 0.001$), since duration of condition and waiting time for physiotherapy were strongly related ($\chi^2 = 32.46$, df = 1, $p < 0.001$). However, 69% of responders were seen within 6 weeks of referral. No relationship was found between expectation rating and anticipation of other treatment, investigations or compensation settlement. However, a significant relationship was found between expectations of benefit and anticipation of surgery ($\chi^2 = 11.39$, df = 1, $p < 0.001$), with those waiting for surgery less likely to expect benefit from physiotherapy.

8.3.1.6 Other treatment received

In addition to previous physiotherapy for the same problem, the impact of any other interventions on expectations was assessed. Nearly three-quarters (71.8%, n = 206) had already received some kind of intervention other than physiotherapy for their present complaint. One quarter (25.1%, n = 72) had received one other intervention only, but 12.9% (n = 37) had already tried four or five different forms of treatment before being referred for physiotherapy. The largest proportion (51.7%) had been prescribed tablets, with 60.7% of these gaining little or no benefit; 20.3% had had surgery, half of which felt that there had been little or no benefit gained. Interestingly, 36.2% had undergone x-ray or scan, with more than one third (34.3%) stating that they had gained either quite a lot of benefit or a complete cure! Another 23.8% had received an injection, with more than half (53.6%) gaining little or no benefit. Of those responders who had been given some form of splintage (27.6%), which may have included plaster of paris following fracture, 36.3% perceived little or no benefit. However, there was no association between expectation rating and previous intervention for the present problem.

One-quarter was either dissatisfied (19.9%) or very dissatisfied (4.2%) with the health care received so far. Satisfaction was not related to the gender, age or referral source, but was associated with whether or not they had received other treatment ($\chi^2 = 4.91$, df = 1, $p < 0.03$). Those who had already had some kind of treatment for this problem were more likely to be dissatisfied with their health care, and those who were already dissatisfied with their health care were less likely to expect much benefit from physiotherapy ($\chi^2 = 12.63$, df = 1, $p < 0.001$).

8.3.2 Responders' knowledge, preferences and concerns

8.3.2.1 Knowledge of physiotherapy

To gauge the extent of responders' knowledge of physiotherapy, they were asked to indicate which words or statements they linked with physiotherapy. The percentage of responders linking specific words or statements with physiotherapy are shown in Table 8.5.

Table 8.5 Percentage of responders linking specific words or statements with physiotherapy.

Word or statement	% linking	Aspect	Word or statement	% linking	Aspect
Exercises	91.4	*Phys.*	Manipulation	58.3	*Phys.*
Restoring movement	86.9	*Phys.*	Teaching self help	51.9	*Comb.*
Strengthening	83.4	*Phys.*	Rehabilitation	47.8	*Comb.*
Releasing stiffness	83.2	*Phys.*	Massage	47.8	*Phys.*
Restoring function	70.4	*Phys.*	Motivating	36.8	*Psych.*
Helping you recover	67.6	*Comb.*	Restoring confidence	36.3	*Psych.*
Pain relief	61.5	*Comb.*	Reducing anxiety	29.4	*Psych.*

Key: Phys = physical aspect; Psych = psychological aspect;
Comb = combined physical and psychological aspects.

The median number of items agreed with was 8 (mode 7, range 0 to 14). When the words or statements were categorised as *physical* aspects (n = 7), *psychological* aspects (n = 3) or a *combination of physical and psychological* aspects (n = 4), the median number for each category were 5 (mode 7, range 0 to 7), 1 (mode 0, range 0 to 3) and 2 (mode 2, range 0 to 4) respectively. Notably, 70.7% of the responders identified five or more physical statements, while 47.4% did not link any psychological aspect with physiotherapy. Nine responders offered other words or statements not contained in the list. These were *pain* (2), *understanding* (2), *heat/ultrasound* (2), *teaching prevention* (1), *diagnosing* (1) and *assessing the need for further surgery* (1).

A highly significant relationship was found between the number of links and their expectation of benefit. A greater number of links were correlated with higher expectations (Kendall's $\tau = 0.182$; $p < 0.001$). Also, the number of links were significantly different between responders who had received physiotherapy for the same problem before and those who had not (Mann-Whitney U-test, $p < 0.02$). There was no significant difference in the number of links made between responders who had received physiotherapy for a different problem after accounting for those who had also had physiotherapy for the same problem.

8.3.2.2 Knowledge of what the physiotherapist would do

Less than one quarter of responders (22.6%, n = 65) had been told what the physiotherapist would or might do. Of these, 52 (80%) had been told by the doctor, with only 5 (7.7%) getting their information from a friend. The information was usually quite vague, for example *improve mobility, use or function.* Only 8 (13.8%) had been told to expect a specific modality such as ultrasound, laser etc. The most commonly cited expectation was that of exercise (29.3%). Overall, only about half the responders had a good idea about what the physiotherapist would do (53.7%) or what the treatment would involve (45.3%). As anticipated, *previous experience of physiotherapy* and *information given by others* were strongly associated with responder's knowledge of what to expect ($\chi^2 = 22.70$; df = 1; $p < 0.001$ and $\chi^2 = 22.91$; df = 1; $p < 0.001$ respectively).

The relationship between knowledge of what to expect and expectations of benefit was not statistically significant. Also, for those responders with previous experience of physiotherapy, the relationship between knowledge of what the physiotherapist would do and expectation of benefit was not statistically significant.

8.3.2.3 Preferences / importance of symptom improvement

Responders varied in the level of importance assigned to the improvement of particular aspects of their condition. The aspects rated as very important or essential to improve included *movement* (98.5%), *function* (97.9%), *stiffness* (96.3%), *pain* (94.5%), *understanding of their condition* (92.2%), *coping* (92.1%) and *return to work* (73.4%). The aspects rated most important overall were *function* (32.9%) and *pain* (29.3%). Differences between importance ratings by men and women were explored, with the most striking associations found regarding ***understanding of their condition*** and ***return to work***. Men were much more likely to rate return to work as essential ($\chi^2 = 6.91$, df = 1, $p < 0.01$) and understanding as unimportant ($\chi^2 = 7.17$, df = 1, $p < 0.008$). No relationship was found between preferences for symptom improvement and expectation of benefit.

8.3.2.4 Concerns

Only 35 responders (12.3%) had concerns or anxieties about attending for physiotherapy, which included worries about the following:

a) the treatment hurting or making the condition worse (n = 31)
b) the treatment not working, taking a long time or being too late (n = 7)
c) not knowing what will happen or be expected of them (n = 6)
d) the physiotherapist not listening, being 'bossy' or not working in partnership with them (n = 5).

Only gender was associated with concerns, with women more likely to express concerns than men ($\chi^2 = 7.46$, df = 1, $p < 0.01$). No association was found between expectations of benefit and concerns about treatment.

8.3.2.5 Awareness of alternative treatments

Nearly one-quarter (22.3%, n = 64) of responders were aware of treatments other than physiotherapy for their condition, with one-third (32.8%, n = 21) of these preferring the alternative treatment. Surgery was cited the most often (n = 29), with the reasons for preferring it usually involving a more permanent solution than physiotherapy or simply that the doctor suggested that it would be needed. The second most cited alternative treatment was an injection (n = 14), with the reasons for preferring it including '*a quicker, more permanent solution*' or '*it worked last time*'. The sources of knowledge about alternative treatments came from their doctor (77.9%, n = 58), friends/family

(20.9%, n = 14), their own experience (17.9%, n = 12) or the media/Internet (6%, n = 4).

Awareness of other treatments was associated with occupation ($\chi^2 = 13.63$, df = 5, $p < 0.02$) and employment status ($\chi^2 = 12.06$, df = 5, $p < 0.04$). Students, those in work or those who were retired with a professional or skilled background were more likely to know of other treatments.

A strong relationship was found between awareness of other treatments, and expectations of benefit ($\chi^2 = 14.0$, df = 1, $p < 0.001$). Those who were aware of other treatments were more likely to expect little or no benefit from physiotherapy and three times less likely to expect a complete recovery.

8.3.3 Baseline data

8.3.3.1 Psychological measures

The psychological measures were primarily used as variables that may be related to patients' expectations and could potentially impact on the outcome of treatment. Three of the locus of control (LOC) sub-scales: *Internal*, *Doctors* and *Other People* had weak but highly statistically significant correlations ($\tau = 0.18$, 0.28 and 0.23 respectively, $p < 0.001$ for each) with expectations of benefit, while the correlation with the *Chance* sub-scale was not statistical significance. The baseline LOC sub-scales for each level of expectation of benefit rating are shown in Table 8.6. Multivariate analysis of variance revealed that there were statistically significant differences for three LOC sub-scales (*Internal* – F = 4.31, df = {3,267) $p < 006$; *Doctors* – F = 14.28, df = {3,267} $p < 0.001$; *Other People* – F = 7.57, df = {3,267} $p < 0.001$).

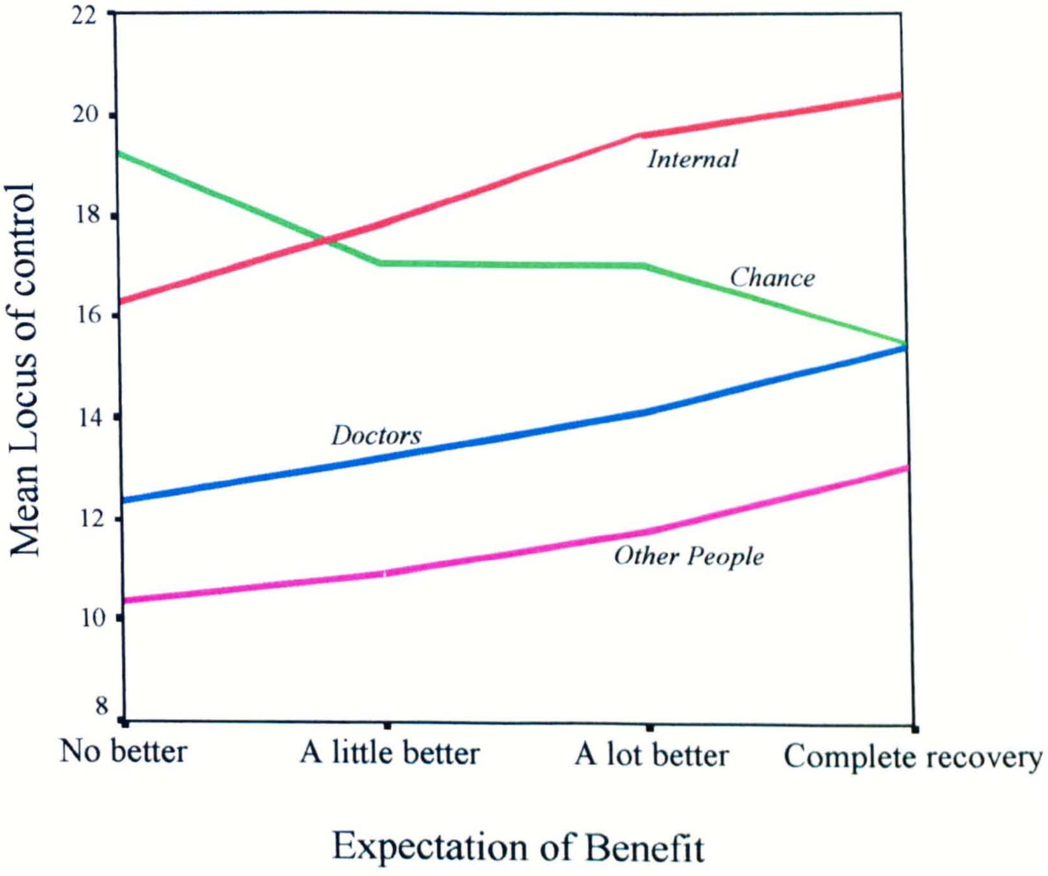
Table 8.6 Baseline Locus of Control Sub-scales for each level of expectation of benefit rating.

Locus of Control Sub-scales		Expectation of Benefit Rating			
		No better n = 16	A little better n = 63	A lot better n = 124	Complete recovery n = 68
Internal	Mean	16.25	17.78	19.62	20.40
	(SD)	(4.49)	(5.10)	(5.49)	(5.97)
	Range	10 – 24	10 – 33	8 – 36	6 – 34
Doctors	Mean	12.34	13.23	14.12	15.41
	(SD)	(3.16)	(2.21)	(2.30)	(1.89)
	Range	7 – 18	7 – 18	7 – 18	11 – 18
Other People	Mean	10.38	10.92	11.78	13.07
	(SD)	(3.67)	(2.84)	(2.76)	(3.03)
	Range	4 – 18	4 – 18	4 – 16	3 – 18
Chance	Mean	19.24	17.01	17.04	15.47
	(SD)	(7.2)	(5.93)	(5.56)	(5.72)
	Range	7 – 31	6 -30	6 – 31	6 -30

The mean locus of control sub-scale scores for each expectation of benefit rating are shown by the line graph in Figure 8.5. This illustrates the relationship between the locus of control sub-scales and expectation of benefit rating, showing that mean locus of control increases as expectation of benefit increases for all but the '*Chance*' sub-scale, which decreases.

Classification into locus of control 'types' (Wallston and Wallston, 1981) revealed a highly significant relationship between expectation of benefit and locus of control 'type'. For example, those responders classified as 'type 7' (i.e. low *Internal*, low *Others* and high *Chance* locus of control), were more than twice as likely to expect little or no benefit ($\chi^2 = 46.2$, df = 7, $p < 0.001$). Those responders who expected a complete recovery were twice as likely to be 'type 3' (high *Internal*, high *Others* and low *Chance*) locus of control ($\chi^2 = 73.6$, df = 21, $p < 0.001$). None of the other psychological measures were correlated with expectation rating.

Figure 8.5 Mean locus of control sub-scales scores by expectation of benefit rating.



All the LOC sub-scales were poorly, but statistically significantly correlated with age (correlation coefficients ranging from -0.12 to 0.17; $p < 0.05$), but gender differences were only found with the *Internal* LOC sub-scale (Wilcoxon test, $p < 0.02$). Women had lower internal locus of control scores than men.

Interestingly, the *internal* and *doctors* locus of control dimensions were dependent on the type of condition ($p < 0.001$), with responders with traumatic conditions scoring higher than those with degenerative conditions. Generalised self-efficacy was not associated with gender, age, type or duration of condition or limb involved.

8.3.3.2 Health status and functional disability

The main measures of outcome were the health status (SF-36 physical component summary (PCS) score) and functional disability measures (Lower Extremity Functional Score (LEFS) and Disabilities of the Arm Shoulder and Hand (DASH) score). To assess the concurrent validity of these measures, correlations were carried out. It was anticipated that both functional disability measures (LEFS and DASH) and the severity of condition score (SoCS) would be significantly correlated with the SF-36 PCS score. Also there would be correlations between the SoCS and both functional disability measures. The SF-36 PCS score was significantly correlated with the LEFS ($r = 0.767$, $p < 0.001$), the DASH ($r_s = -0.662, p < 0.001$) and, to a lesser extent, the SoCS ($r_s = -0.283, p < 0.001$). The SoCS also correlated fairly well with the LEFS ($r_s = -0.326, p < 0.002$), but not with the DASH ($r_s = 0.233, p < 0.06$).

Correlations and tests of association were also carried out between the psychological measures, responders' demographic details, and the main outcome measures. A summary of the significant correlations found between the main outcome measures and the psychological measures at baseline is shown in Table 8.7.

With regard to the responders' characteristics, the main variables of interest were gender, age, site of problem, type of condition, referral source, previous experience of physiotherapy and expectations of benefit. Age was significantly correlated with SF-36 PCS score ($r = -0.303, p < 0.001$), LEFS baseline score ($r = -0.358, p < 0.001$) and DASH baseline score ($r_s = 0.408, p < 0.001$). No relationship was found between expectations of benefit and the baseline outcome measures. The mean/median outcome scores at baseline by responder characteristics are shown in Table 8.8. These data show that no differences were found regarding gender and any of the main outcome measures. However, upper limb responders had significantly higher mean SF-36 PCS scores than lower limb responders, GP referrals had significantly higher mean SF-36 PCS and LEFS scores than consultant referrals and responders with no previous experience of physiotherapy had significantly higher mean SF-36 PCS scores than responders with previous experience. In addition, responders with traumatic conditions had significantly higher median DASH scores than those with degenerative conditions. These differences may prove to be of importance in later analyses.

Table 8.7 Summary of significant correlations found between main outcome measures and psychological measures at baseline.

Main outcome measure	Psychological measure	Correlation coefficient r_s
SF-36 PCS baseline score	Internal (LOC) subscale	0.24**
	General Self-efficacy score	0.21**
	HADS anxiety score	-0.32**
	HADS depression score	-0.49**
LEFS baseline score	Internal LOC subscale	0.21**
	HADS anxiety score	-0.27**
	HADS depression score	-0.44**
DASH baseline score	*Other People* LOC subscale	0.26*
	HADS anxiety score	0.27**
	HADS depression score	0.37**
	Attitude towards physiotherapy score	-0.28*

*r_s=Spearman's rank correlation coefficient; * significant at the 5% level; ** significant at the 1% level.*

Table 8.8 Mean/median outcome scores at baseline by responder characteristics.

Responder characteristic		SF-36 PCS baseline score - mean	LEFS baseline score - mean	DASH baseline score - median
Gender:	Male	34.67	39.95	35.83
	Female	32.19	37.41	44.17
Site of problem:	Lower	30.95 **	N/A	N/A
	Upper	37.23		
Type of condition:	Traumatic	32.51	35.64	47.50 **
	Degenerative	33.78	40.87	33.33
Referral source:	Consultant	31.77 **	36.03 **	37.50
	GP	36.45	45.96	36.20
Previous experience of physiotherapy:	Yes	31.78 *	37.22	36.20
	No	35.41	40.58	39.16

** significant at the 5% level; ** significant at the 1% level.*

8.3.4 Follow-up data

At follow-up, 239 (82.7%) had completed the course of treatment, 48 (16.6%) had self-discharged (including one who never attended for treatment) and two responders were transferred out of the area (data for these two responders and the responder who did not attend have not been analysed). Follow-up questionnaires were received from 231 responders (80.5%). Data collected at discharge included number of treatments given, number of missed appointments, intensity of treatment, number of physiotherapy input units, treatment given, discharge status, health status outcome, functional disability outcome and patient satisfaction.

8.3.4.1 Treatment details

The median number of treatments received was 5 (range 0 to 83). One third of the responders (33.3%, n = 97) missed at least one appointment, with the majority of these missing only one (n = 57, 59%) and 16 (16.5%) missing between three and eight appointments. The intensity of treatment was calculated by dividing the number of treatments by the duration of treatment in days, then multiplying by 7 to get the number of treatments per week. The mean intensity of treatment was 2.17 (SD = 1.97, range 0 - 7), however, the distribution is skewed due to the number of responders who received only one treatment (n = 38, 13.1%) and therefore had an intensity of 7. The median and mode intensity of treatment were 1.44 and 7 respectively. Physiotherapy input units (PIU's) (see 7.2.2), also gives an indication of the intensity of treatment. The mean number of PIU's was 31.08 (SD = 24.1), which equates to approximately 2 hours of total treatment time provided by a Senior I grade physiotherapist or 3 hours from a junior grade physiotherapist.

The treatment given was classified into active or passive treatment. Active treatment required full participation by the responder with advice and instruction from the physiotherapist, e.g. exercises and advice. Passive forms of treatment included any form of electrotherapy or manual treatment, e.g. ultrasound, soft tissue or joint mobilisation. Just under half the responders (42.8%, n = 121) had active treatment only, 151 (53.4%) had a combination of active and passive treatments, but only 11 (n = 3.9%) had passive treatment alone.

8.3.4.2 Discharge Status

Two hundred and thirty-nine patients (83.6%) completed the course of treatment and 47 (16.4%) self-discharged. The medians, interquartile ranges and ranges of departmental variables and the significance of each to discharge status are shown in Table 8.9. These data show that responders who ceased to attend received fewer treatments (and subsequently less units) and missed more appointments, but had the same intensity of treatment. Discharge status was not associated with the type of treatment given.

Table 8.9 Medians, interquartile ranges and ranges of departmental variables and the significance of each to discharge status (n = 286).

Variable	Treatment complete (DC) n = 239			Self-discharge (SD) n = 47			
	Median	IQR	Range	Median	IQR	Range	p^a
No. of treatments ^{b}	6	3 - 8	1 - 26	3	1 - 4	1 - 11	<0.001**
No. of missed appointments	0	0 - 0	0 - 8	1	1 - 2	0 - 6	<0.001**
No. of physiotherapy input units ^{c}	27	17 - 43	2 - 89	17	12 - 30	5 - 50	<0.001**
Intensity of treatment ^{d} (treatments/wk)	1.31	1 - 1.74	0.47 - 3.21	1.56	1 - 2.12	0.01 - 3.5	<0.17

a = Mann-Whitney U-test; *b* = excludes 1 outlier (DC); *c* = excludes 2 outliers (DC); *d* = excludes 38 'one offs' (26 DC, 12 SD). ** significant at the 1% level.

Although discharge status (i.e. whether the responder completed treatment or self-discharged) was not associated with pre-treatment expectations, it was significantly associated with (1) perceived benefit at follow-up ($\chi^2 = 11.79$; df = 1; $p < 0.001$), (2) expectations of benefit met ($\chi^2 = 6.51$; df = 1; $p < 0.04$), and (3) satisfaction with improvement at follow-up ($\chi^2 = 12.91$; df = 3; $p < 0.006$). Responders who ceased to attend for treatment were more likely to perceive no benefit from treatment, not achieve the benefit they expected and be more dissatisfied with the improvement in their condition.

8.3.4.3 Health status and functional disability at follow-up.

Follow-up SF-36, LEFS and DASH questionnaires were administered within two weeks of discharge. Improvement was taken as an increase in SF-36 PCS or MCS score, an increase in LEFS score and a decrease in DASH and SoCS score. The health status and functional disability scores at baseline and follow-up, including significance testing of the score changes are shown in Table 8.10. These data show that all measures, with the exception of the SF-36 mental component summary (MCS) score, had statistically significant changes.

Table 8.10 Health status and functional disability scores at baseline and follow-up, including significance testing of the score changes.

	Baseline			**Follow-up**			***p***
Measure	**n**	**Mean**	**SD**	**n**	**Mean**	**SD**	**Sig. of change (*a*)**
SF-36 PCS score	252	33.17	11.17	216	40.07	9.73	<0.001**
SF-36 MCS score	252	46.78	11.03	216	47.04	9.16	<0.9
Lower Extremity Functional Scale (LEFS)	180	38.40	18.40	138	49.83	20.19	<0.001**
Disabilities of the Arm, Shoulder & Hand (DASH)	96	41.74	18.74	83	28.60	18.80	<0.001**
Severity of Condition score (SoCS)	175	17.95	7.98	169	6.61	6.14	<0.001**

a = Paired samples t-test; (number of subjects used for t-test are based on follow-up numbers)

** significant at the 1% level.

Correlations and regression techniques were used to explore the correlations and associations between baseline variables and follow-up outcome measures and are shown in Table 8.11.

Table 8.11 Correlations and associations between baseline variables and follow-up outcome measures.

	Baseline Variables	Main outcome measures (follow-up scores)		
		SF-36 PCS	**LEFS**	**DASH**
Continuous variables	**Baseline SF-36 PCS**	$r_s = 0.78^{**}$	$r_s = 0.68^{**}$	$r_s = -0.58^{**}$
	Baseline SF-36 MCS	$r_s = 0.18^{*}$	$r_s = 0.26^{**}$	$r = -0.28^{**}$
	Baseline LEFS	$r_s = 0.56^{**}$	$r_s = 0.68^{**}$	N/A
	Baseline DASH	$r_s = -0.51^{**}$	N/A	$r_s = 0.62^{*}$
	Internal LOC	$r_s = 0.32^{**}$	$r_s = 0.38^{**}$	$r_s = -0.04$
	Chance LOC	$r_s = -0.19^{**}$	$r_s = -0.12$	$r_s = 0.33^{**}$
	HADS anxiety score	$r_s = -0.24^{**}$	$r_s = -0.29^{**}$	$r_s = 0.27^{*}$
	HADS depression score	$r_s = -0.40^{**}$	$r_s = -0.46^{**}$	$r_s = 0.34^{**}$
	Age	$r_s = -0.35^{**}$	$r_s = -0.41^{**}$	$r_s = 0.39^{**}$
Ordinal variables	**Expectation of benefit**	$\tau = 0.24^{**}$	$\tau = 0.26^{**}$	$r_s = -0.22^{*}$
	Duration of condition	$\tau = -0.15^{**}$	$\tau = -0.26^{**}$	$r_s = -0.15$
	Pre-morbidity activity level	$\tau = -0.10^{*}$	$\tau = -0.18^{**}$	$r_s = 0.19$
Dichotomous variables	**Gender**	$p < 0.03^{a*}$	$p < 0.14^{a}$	$p < 0.08^{b}$
	Previous experience of physiotherapy	$p < 0.02^{a*}$	$p < 0.02^{a*}$	$p < 0.03^{b*}$
	Type of condition	$p < 0.3^{a}$	$p < 0.05^{a*}$	$p < 0.18^{b}$

r = Pearson's correlation coefficient; r_s = Spearman's rank-order correlation coefficient;
*τ = Kendall's rank correlation. * significant at 5% level; ** significant at 1% level.*
a = Mann-Whitney U-test; b = t-test (shading highlights significant associations).
N/A = not applicable, region specific functional outcome available for upper or lower limb.

Based on the results of the correlations, regression analyses were carried out using the general linear model. Prediction models for each of the outcome measures at follow-up were formed and the amount of variation attributable to each baseline variable was assessed. The twelve baseline variables that correlated significantly with LEFS follow-up score were able to account for 93% of the variation in the LEFS follow-up score. However, by removing variables that contributed less than 5% to the model, three baseline variables emerged as the main contributors to the model: age, LEFS baseline score and expectations of benefit. These three achieved a coefficient of determination value (adjusted R^2) of 0.664, indicating that a large proportion of variation in the LEFS follow-up score could be explained by these three variables. The general linear model for LEFS follow-up and related baseline variables is shown in Table 8.12. These data show that each variable independently accounted for between 6.3% and 53.7% of the variation in the LEFS follow-up score; LEFS baseline score accounting for the greatest amount and age accounting for the least. Expectations accounted for 28% of the LEFS follow-up score.

Table 8.12 General Linear Model for LEFS follow-up and related baseline variables.

Source	df	F	Sig.	R Squared
LEFS baseline	1	142.58	< 0.001**	0.537
Expectation of benefit	3	15.95	< 0.001**	0.280
Age	1	148.23	< 0.006**	0.063
Overall model	5, 123	51.64	< 0.001**	0.677

Adjusted R Squared = 0.664 *** significant at 1% level.*

The same procedure was carried out for the regression model for DASH follow-up. The initial model based on the significant correlations accounted for 64.0% of the variation in the DASH follow-up score. The general linear model for DASH follow-up and related baseline variables is shown in Table 8.13. These data show that three baseline variables were able to account for a total of 58.2% of the variation in the DASH follow-up score, each one independently accounting for more than 5%. The adjusted R^2 value for this model was 0.552, indicating moderate 'goodness of fit'. The DASH baseline score independently accounted for the greatest proportion of variation in the DASH follow-up score (22.8%), with expectations of benefit independently accounting for 9.8%. However, only the SF-36 PCS baseline and DASH baseline scores retained a statistically significant relationship with DASH follow-up score.

Table 8.13 General Linear Model for DASH follow-up and related baseline variables.

Source	df	F	Sig.	R Squared
DASH baseline	1	20.34	< 0.001**	0.228
SF-36 PCS baseline	1	9.75	< 0.004**	0.124
Expectation of benefit	3	2.49	< 0.07	0.098
Overall model	5, 70	19.23	< 0.001**	0.582

Adjusted R Squared = 0.552 *** significant at 1% level.*

Because there were two regional specific disability scales (LEFS and DASH), and both were significantly correlated with the SF-36 PCS score at follow-up, two separate regression models were needed for lower and upper limb responders. Initial models, including all associated variables, accounted for 94.6% and 92.8% of the variation in the SF-36 follow-up score for lower and upper limb respectively. For the lower limb responders, 62.1% of the variation in the SF-36 PCS follow-up score could be explained by three baseline variables: SF-36 PCS baseline, LEFS baseline and expectation of benefit, with a 'goodness of fit' value $R^2 = 0.604$. The general linear model for the SF-36 PCS follow-up and related baseline variables - lower limb only are shown in Table 8.14. These data show that expectations accounted for the largest proportion of SF-36 PCS follow-up score (22.5%).

Table 8.14 General Linear Model for SF-36 PCS follow-up and related baseline variables – lower limb only.

Source	df	F	Sig.	R Squared
Expectation of benefit	3	10.73	< 0.001**	0.225
SF-36 PCS baseline	1	21.46	< 0.001**	0.162
LEFS baseline	1	10.21	< 0.003**	0.084
Overall model	5, 109	36.34	< 0.001**	0.621

Adjusted R Squared = 0.604 *** significant at 1% level.*

For the upper limb responders, four variables accounted for 74% of the variation in the SF-36 PCS follow-up score; SF-36 PCS baseline score, age, pre-morbidity activity level and expectation of benefit. The General Linear Model for SF-36 PCS follow-up and related baseline variables – upper limb only is shown in Table 8.15. These data show that expectation of benefit and pre-morbidity level independently accounted for only 8% and 7.3% respectively of the variation in the SF-36 PCS follow-up score and were no longer significantly related to it. The model had moderate 'goodness of fit' (adjusted $R^2 = 0.653$).

Table 8.15 General Linear Model for SF-36 PCS follow-up and related baseline variables – upper limb only.

Source	df	F	Sig.	R Squared
SF-36 PCS baseline	1	42.20	< 0.001**	0.439
Age	1	12.88	< 0.002**	0.193
Expectation of benefit	3	1.57	< 0.3	0.080
Pre-morbidity activity level	5	0.85	< 0.6	0.073
Overall model	18, 54	8.54	< 0.001**	0.740

Adjusted R Squared = 0.653 *** significant at 1% level.*

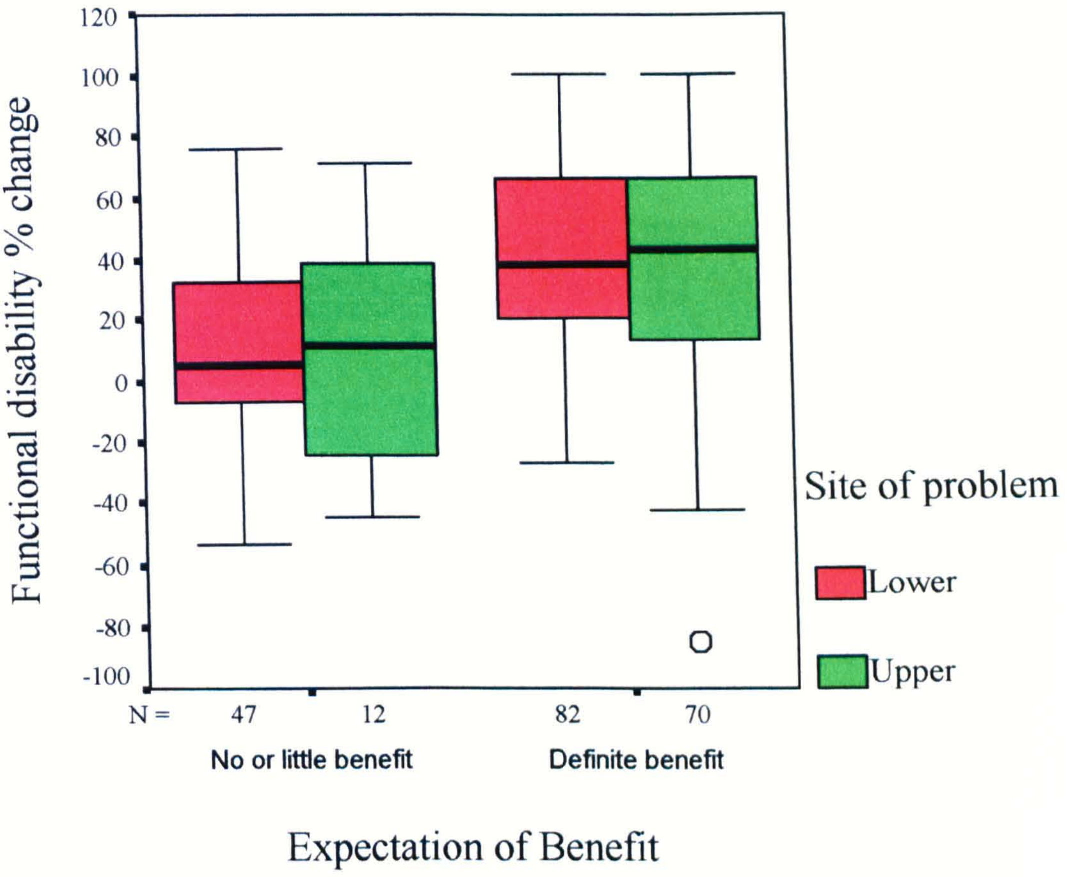
8.3.4.4 Change in functional disability

As explained in Chapter 6, the magnitude of change for the LEFS and DASH scales was calculated as the percentage change in relation to the baseline score and an overall functional disability percentage change score produced. Two-hundred and sixteen pairs of baseline and follow-up data were available to create the functional disability percentage change score. On examination of the distribution, four outliers (i.e. value is > 1.5 and < 3 SD from the mean) or extremes (i.e. value is > 3 SD from the mean) were found, which could not be attributed to data entry errors and whose change scores did not correspond to either their perceived change or their change in health status. The data from these four responders have been excluded from the analyses. The remaining 212 responders had a mean percentage change in functional disability of 30.25% (SD = 35.9).

To check the relationship between the new functional disability change score and health status (SF-36 PCS) change, a percentage change for each based on baseline scores was calculated. Correlations showed that functional disability percentage change had a statistically significant relationship with SF-36 PCS percentage change for both upper and lower limb conditions, but the strength of the relationship was much stronger for lower limbs ($r_s = 0.60, p < 0.001$ compared to $r_s = 0.23, p < 0.05$ for upper limbs).

The relationships between the functional disability percentage change scores and expectations of benefit were assessed, using Kendall's or Spearman's rank correlation coefficient as appropriate. Expectations were positively correlated with both LEFS percentage change ($\tau = 0.368, p < 0.001$) and DASH percentage change ($r_s = 0.286, p < 0.02$). The amalgamated functional disability score was also positively correlated with expectation of benefit rating ($r_s = 0.407, p < 0.001$). The percentage change in functional disability by expectation of benefit rating for lower and upper limb responders is shown in the box plot in Figure 8.6.

Figure 8.6 Percentage change in functional disability by expectation of benefit rating for lower and upper limb responders.

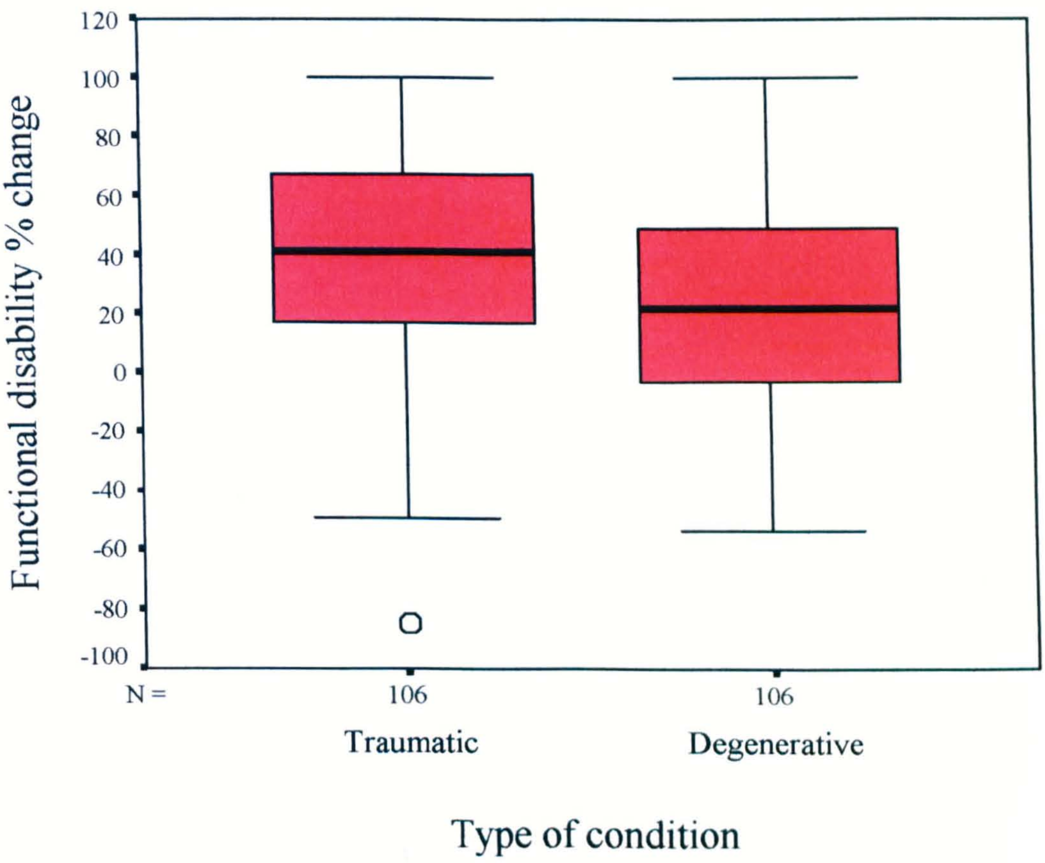


NB: *Expectation of benefit ratings were combined (no benefit + a little benefit; a lot of benefit + complete recovery) to account for small numbers in the 'no benefit' category for upper limb responders (n = 2).*

These data illustrate the relationship between functional disability percentage change and expectation of benefit rating. It also demonstrates the difference between lower and upper limb responders, although this was not statistically significant.

The mean percentage change in functional disability for traumatic and degenerative conditions is shown in the box plot in Figure 8.7. These data show a highly significant difference between traumatic and degenerative conditions with regard to mean percentage change in functional disability (Mann Whitney U-test, $p < 0.002$). A similar difference was found in health status ($t = 2.85$, $p < 0.006$, CI 1.44 to 7.90).

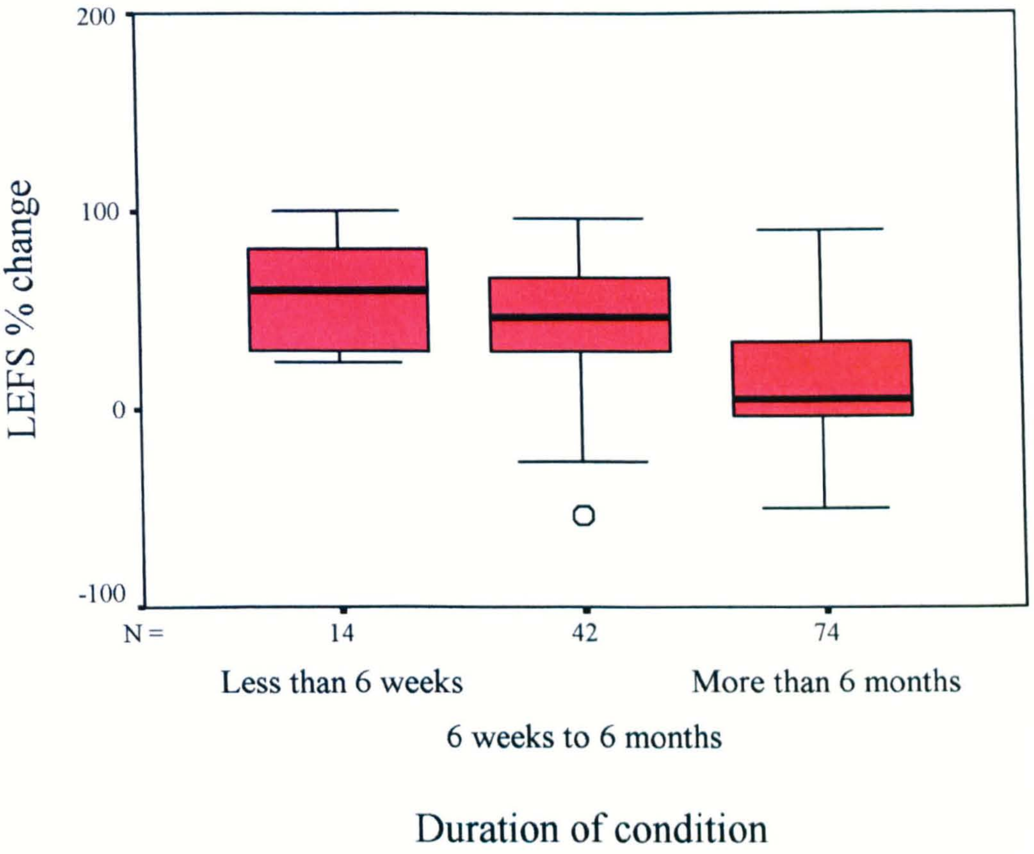
Figure 8.7 Mean percentage change in functional disability for traumatic and degenerative conditions.



No relationship was found between responders' who had positive/negative experiences on which to base their expectations with regard to functional disability change. Also no relationship between functional disability change and the number, intensity or type of treatments was found, so no 'dose' effect was shown.

For the lower limb responders, health status and functional disability change were significantly related to the duration of the condition. The LEFS percentage change by duration of condition is shown in the box plot in Figure 8.8. These data illustrate a consistent trend of lower percentage change with increasing duration (SF-36 PCS: F = 5.82, {df = 2,113} $p < 0.005$; LEFS: Kruskal Wallis test, $p < 0.001$).

Figure 8.8 LEFS percentage change by duration of condition.



Also, those responders who were waiting for surgery (n = 15) had statistically significantly lower percentage change in functional disability; mean = 9.5 for those waiting for surgery compared to 31.83 for those not waiting, $p < 0.03$). However, the numbers were very small.

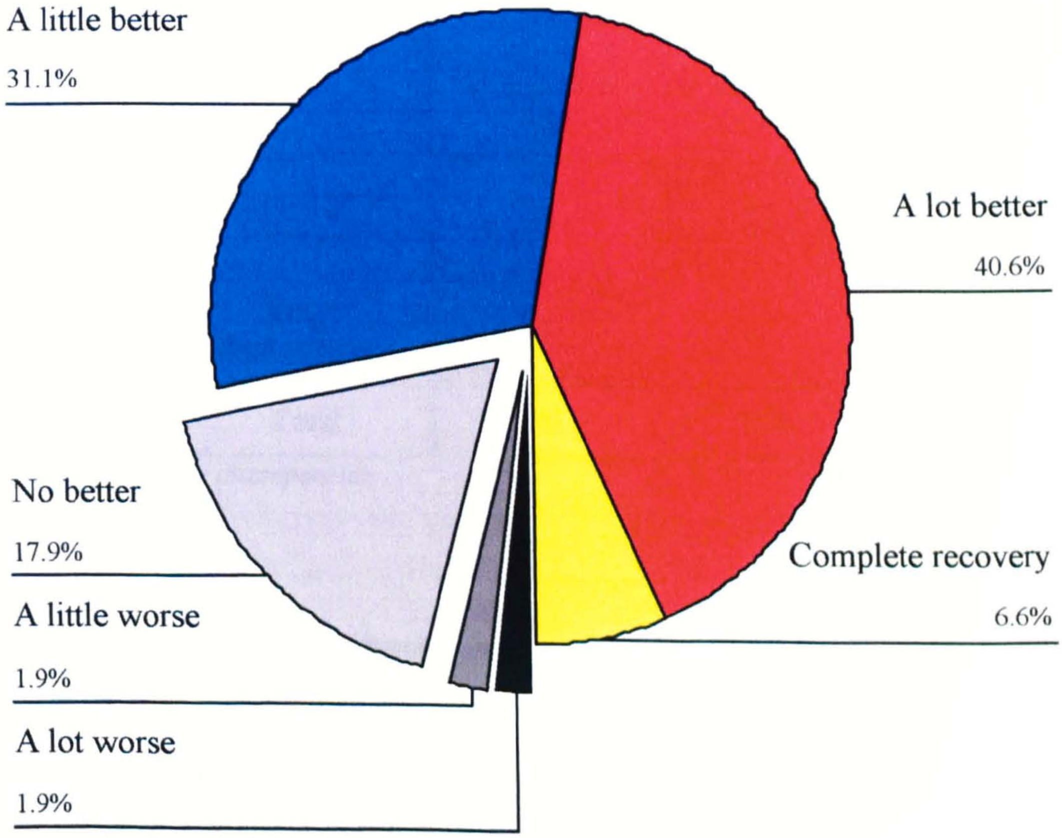
Interestingly, satisfaction with health care received so far also had an effect on two of the main outcome measures. Greater percentage change was found in the SF-36 PCS ($t = -2.06$, $p < 0.05$) and LEFS (Mann-Whitney U-test, $p < 0.04$) when responders were satisfied with their previous care. No relationship was found between satisfaction and percentage change in DASH.

8.3.4.5 Responders' perceptions of outcome

At follow-up, a number of additional questions were asked to determine the extent to which responders rated the improvement in their condition, whether their expectations had been met, and whether overall satisfaction with care and outcome had been achieved. These were designed to compliment the Patient Expectations Questionnaire (PEQ) section of the baseline questionnaire.

Responders rated their perceived benefit on a similar scale to the expectations rating scale, i.e. 1 = a lot worse, 2 = a little worse, 3 = no change, 4 = a little better, 5 = a lot better and 6 = complete recovery. The responders' perceptions of benefit are illustrated by the pie chart in Figure 8.9.

Figure 8.9 Responders' perceptions of benefit.



These data show that the large majority (78.3%) perceived their condition to have improved at least a little. The exploded portions represent those responders who felt that they were no better or worse after physiotherapy (n = 52, 21.7%).

The correlation between perceived benefit and percentage change in functional disability was moderate ($\tau = 0.39$, $p < 0.001$). Further exploration of the relationship between perception of benefit and actual improvement, demonstrated by their answers to the functional disability questionnaires, found that approximately 30% of responders' perceived benefit that did not match their reported change in functional disability. The discrepancies between perceived benefit and functional status change are shown in Table 8.16.

Table 8.16 Discrepancies between perceived benefit and functional status change.

		Perceived Benefit		
		No benefit or worse	At least some benefit	Total
Functional status change	No change or worse	18	35	53
	Some improvement	28	131	159
	Total	46	166	212

Grey areas indicate the discrepancies.

Agreement between perceived benefit and reported functional status percentage change was estimated by using 50% change as a cut off point for improvement: 50% and above = improvement; below 50% = no improvement. For those who expected little or no change there was 76.3% agreement, while for those who expected more improvement there was 66.4% agreement between perceived and reported change. This difference was not statistically significant.

Responders' expectation of benefit rating was significantly associated with their rating of perceived benefit at follow-up ($\chi^2 = 28.78$, df = 1, $p < 0.001$) and with functional disability improvement ($\chi^2 = 19.95$, df = 1, $p < 0.001$). The cross-tabulations of number of responders perceived benefit rating and improvement in functional disability by expectation of benefit rating are shown in Table 8.17.

Table 8.17 Cross-tabulations of number of responders perceived benefit rating and improvement in functional disability by expectation of benefit rating.

Expected numbers in parentheses.

		Expectation of Benefit		
		Little or no benefit	Some benefit	Total
Perceived Benefit	No benefit or worse	49 (31)	62 (80)	111
	At least some benefit	10 (28)	90 (72)	100
	Total	59	152	211
Improvement in functional disability	Less than 50% improvement	43 (28)	57 (72)	100
	At least 50% improvement	16 (31)	95 (80)	111
	Total	59	152	211

Grey areas indicate main differences.

These data show that those responders who expected little or no benefit were more likely to perceive little or no benefit and nearly three times less likely to perceive any level of benefit. Also those who expected little or no benefit were more likely to achieve less than 50% improvement in functional disability.

8.3.4.6 Perceived symptom improvement

Before treatment, improvement in *function* and *pain* were rated as the most important symptoms that responders wanted physiotherapy to achieve. More than half (52.3%) the responders stated that treatment had improved their *function* only a little or not at all and 60.3% felt that there had been little or no improvement in their *pain*. Similar results were found for all the other symptoms, with the proportion of responders stating that there had been little or no improvement ranging from 44.4% for *understanding of their problem* to 59.5% for *returning to work*. The proportion of responders stating that there had been either a lot or a complete improvement ranged from 39.7% for *pain* to 55.6% for *understanding*. Not surprisingly, there was a highly significant relationship between overall perceived benefit and the level of improvement for each symptom (r_s range 0.80 to 0.62; $p < 0.001$).

Correlations between perceived improvement in specific symptoms and functional disability percentage change (as measured by the LEFS or DASH) provided some interesting results. For those responders with lower limb problems, the correlation coefficients ranged from 0.21 for *pain* to 0.42 for *function*. All correlations were statistically significant ($p \leq 0.003$). However, for the upper limb responders, the correlations ranged from 0.10 for *understanding* to 0.33 for *movement*. The correlations between DASH percentage change and perceived improvement in *understanding*, *stiffness* and *pain* were not statistically significant and the significance of the other correlations ranged from $p < 0.04$ to < 0.001. These results suggest a possible deficiency with the DASH as an outcome measure.

For each of the perceived symptom improvements, there was a highly significant relationship with expected benefit (r_s range 0.43 to 0.26, $p < 0.001$), with responders who expected little or no benefit more likely to perceive little or no improvement in symptoms.

8.3.4.7 Expectations met

Expectations of what the physiotherapist would do were met for 46.2% (n = 98) of the responders, although 45.8% (n = 97) felt that they didn't know what to expect the physiotherapist to do. Similarly, 41.5% (n = 88) of responders felt that the treatment given had been as expected, but again a large proportion (45.3%, n = 96) felt that they didn't know what to expect the treatment to involve. The proportion of those responders with no expectations of the physiotherapist or the treatment agrees to some extent with the data collected for these responders at baseline (46.2% knew what the physiotherapist would do and 52.4% knew what the treatment would involve). Expectations met in terms of the physiotherapist's actions, the treatment given and perceived benefit were all associated with previous experience. The associations between variables assessing whether expectations had been met and previous experience are shown in Table 8.18.

Table 8.18 Associations between variables assessing whether expectations had been met and previous experience.

	Previous experience	
Expectations met:	**χ^2 (df)**	**p**
The physiotherapist did what was expected	12.09 (2)	< 0.003**
The treatment was as expected	5.69 (2)	< 0.06
Perceived benefit as expected	8.69 (2)	< 0.02*

** = significant at the 5% level, ** = significant at the 1% level.*

These data show a strong relationship between previous experience and responders perceptions that their expectations had been met in terms of the physiotherapist doing what was expected and benefit gained was as expected, but a less significant relationship with treatment as expected.

Two methods were used to determine whether expectations of benefit had been met. First, the responders expectation of benefit at baseline was matched to their perceived benefit at discharge, and second responders were asked whether they had achieved as much benefit as they had expected. Using the first method, 104 responders (45.8%) had their expectations met in terms of achieving at least the outcome that they had expected, if not better. Only 27 (11.9%) exceeded their expectations of benefit, and more than half (54.2%, n = 123) failed to achieve the benefit that they had expected. The cross-tabulation of expectations of benefit by expectations met is shown in Table 8.19. These data show that expectations of benefit were more likely to be met when the expected benefit was for little or no benefit ($\chi^2 = 42.41$; df = 1; $p < 0.001$).

Table 8.19 Cross-tabulation of expectations of benefit by expectations met. (expected numbers in parentheses)

	Expectations		
Expectation of Benefit	**Not met**	**Met**	**Total**
No better	1 (8.1)	14 (6.9)	15
A little better	21 (27.6)	30 (23.4)	51
A lot better	50 (56.9)	55 (48.1)	105
Complete recovery	51 (30.3)	5 (25.7)	56
	123	104	227

n = 227, based on paired data, therefore 59 pairs missing.

However, these results are contradicted by the results of the second method, i.e. the responder's perception that they had gained the benefit that they had expected. Although more than one quarter (27.4%, n = 58) admitted at discharge that they did not know how much benefit to expect, 93 (43.9%) felt that they had gained the benefit that they had expected and only 59 (27.8%) had not. The cross-tabulation of expectations of benefit by perceived expectations of benefit actually met is shown in Table 8.20.

Table 8.20 Cross-tabulation of expectations of benefit by perceived expectations of benefit met. (expected numbers in parentheses)

	Perceived Expectations		
Expectation of Benefit	**Not met**	**Met**	**Total**
No better	6 (3.5)	3 (5.5)	9
A little better	20 (12.4)	12 (19.6)	32
A lot better	25 (28.3)	48 (44.7)	73
Complete recovery	8 (14.8)	30 (23.3)	38
	59	93	152

n = 152, based on paired data (58 did not know what to expect and 76 pairs missing).

These data revealed the reverse relationship, i.e. those who expected a lot of benefit or complete recovery were more likely to perceive that their expectations had been met. Whether expectations were met or not was significantly associated with discharge status since expectations were more likely to be met when treatment was completed. This was the case for perceived expectation of benefit met ($\chi^2 = 6.96$, df = 2, $p < 0.04$) and expectations met by pairing expectations of benefit at baseline and perceived improvement at discharge ($\chi^2 = 4.61$, df = 1, $p < 0.04$).

8.3.4.8 Satisfaction

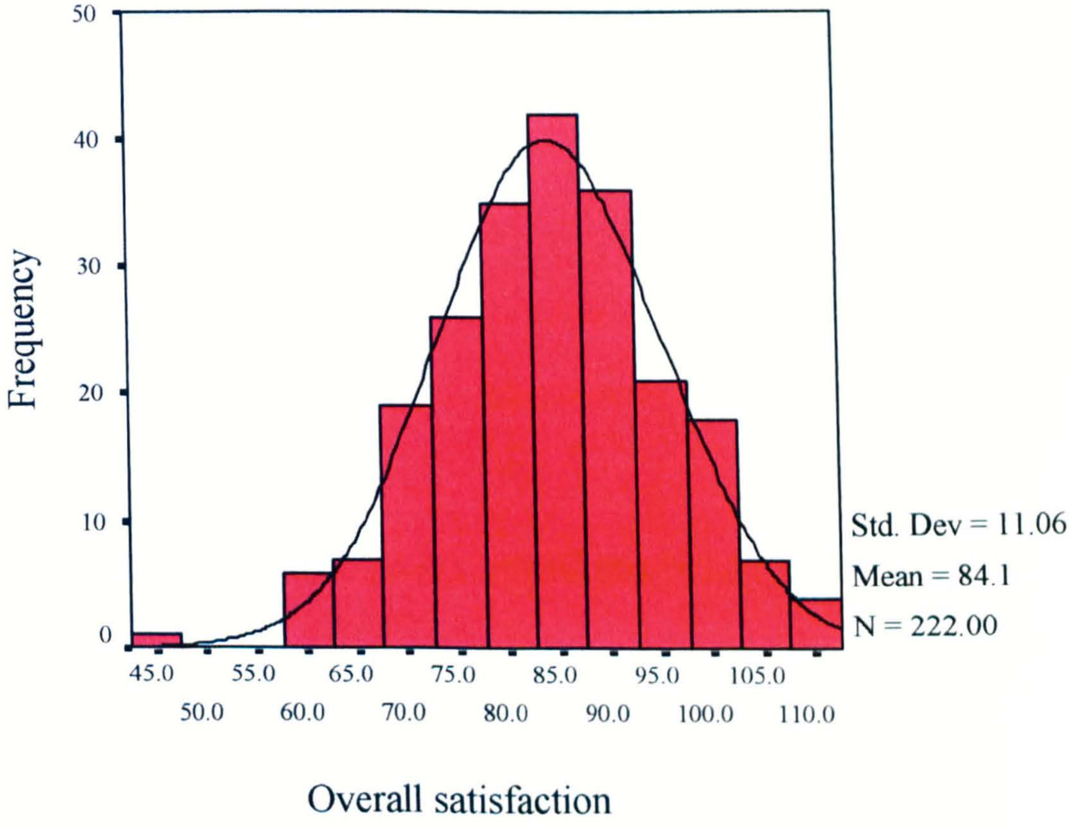
Satisfaction was measured in two ways: (1) global satisfaction with overall improvement and overall care and (2) using three sub-scales of the satisfaction section of the follow-up questionnaire: access and environment, quality of care and efficacy of treatment; higher scores indicating greater satisfaction. For the global satisfaction questions, responders were asked to rate their satisfaction from very dissatisfied to very satisfied on a four-point Likert scale. Over two-thirds (68.9%) were either satisfied or very satisfied with the overall improvement in their condition, and nearly all responders (92.6%) were satisfied or very satisfied with the care given by the physiotherapy department. Only satisfaction with the overall improvement in their condition was associated with expectation of benefit ($\chi^2 = 21.85$, df = 1, $p < 0.001$). Responders who expected either a lot of benefit or a complete recovery were more likely to be satisfied with the overall improvement in their condition, but there was no relationship between expectations of benefit and satisfaction with physiotherapy care.

Satisfaction with overall improvement was significantly related to percentage change in functional disability (Kendall's $\tau = 0.37$, $p < 0.001$) and, to a much less extent, health status (Kendall's $\tau = 0.12$, $p < 0.04$).

The satisfaction section of the follow-up questionnaire contained 22 statements with which the responder indicated their level of agreement on a five-point Likert scale from strongly disagree (1) to strongly agree (5). Thus overall satisfaction and the three sub-scales were measured on a continuous scale, with a low score indicating low satisfaction.

The distribution of overall satisfaction is illustrated by the histogram in Figure 8.10. These data show that overall satisfaction was high with a mean score of 84.1 (SD 11.1).

Figure 8.10 Distribution of overall satisfaction scores.



The median, interquartile range, number of items and possible range for each satisfaction sub-scale score, with a test of association with expectation of benefit rating are shown in Table 8.21. These data show that expectation of benefit was significantly related to satisfaction with efficacy and access/environment, but not with care.

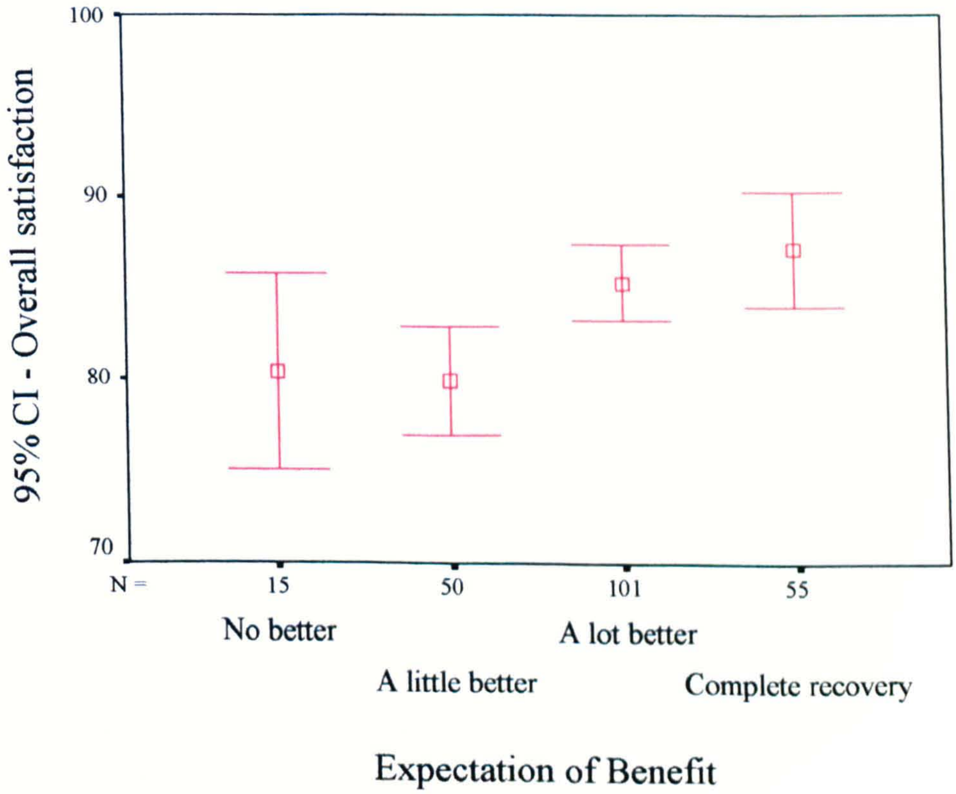
The relationship between overall satisfaction and responders' expectation of benefit rating is shown in the error bar chart in Figure 8.11. These data show that overall satisfaction was significantly associated with expectations of benefit (F = 4.98; {df = 3,206}; $p < 0.003$), with dissatisfaction tending to occur with responders who expected little or no benefit from treatment.

Table 8.21 Median, interquartile range, number of items and possible range for each satisfaction sub-scale score, with a test of association with expectation of benefit rating.

	Satisfaction sub-scale		
	Access and environment	Quality of care	Efficacy of treatment
n	223	223	225
Median	32	40	14
Interquartile range	29 - 34	36 - 43	10.5 - 16
Number of Items	8	10	4
Possible range of scores	8 - 40	10 - 50	4 – 20
Association with expectation of benefit rating (*p)**	0.011	0.679	< 0.001

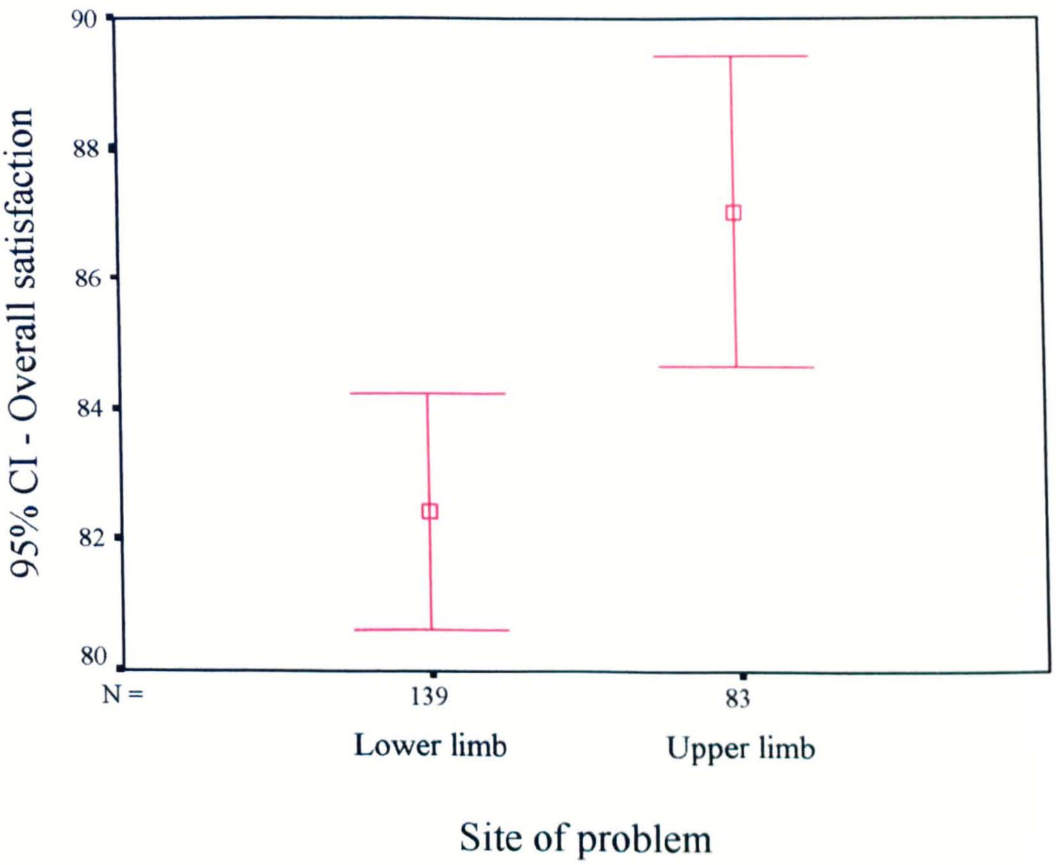
* = Kruskal Wallis test. Incomplete questionnaires account for the reduced numbers.

Figure 8.11 The relationship between overall satisfaction and responders' expectation of benefit rating.



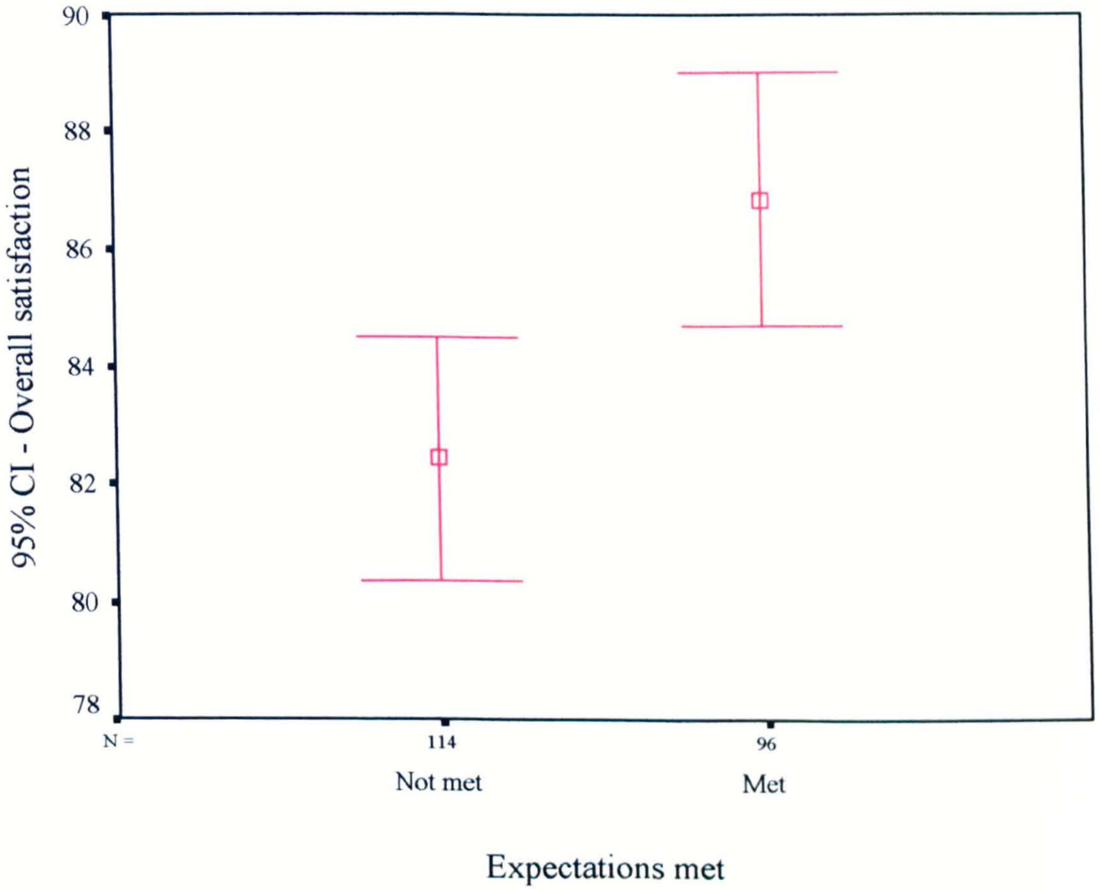
The relationship between overall satisfaction and limb involved is shown in the error bar chart in Figure 8.12. These data show that responders with lower limb problems were more likely to be dissatisfied than those with upper limb problems ($t = -3.05$; 95% CI –7.57 to –1.63; $p < 0.004$). Duration of condition did not influence satisfaction.

Figure 8.12 The relationship between overall satisfaction and limb involved.



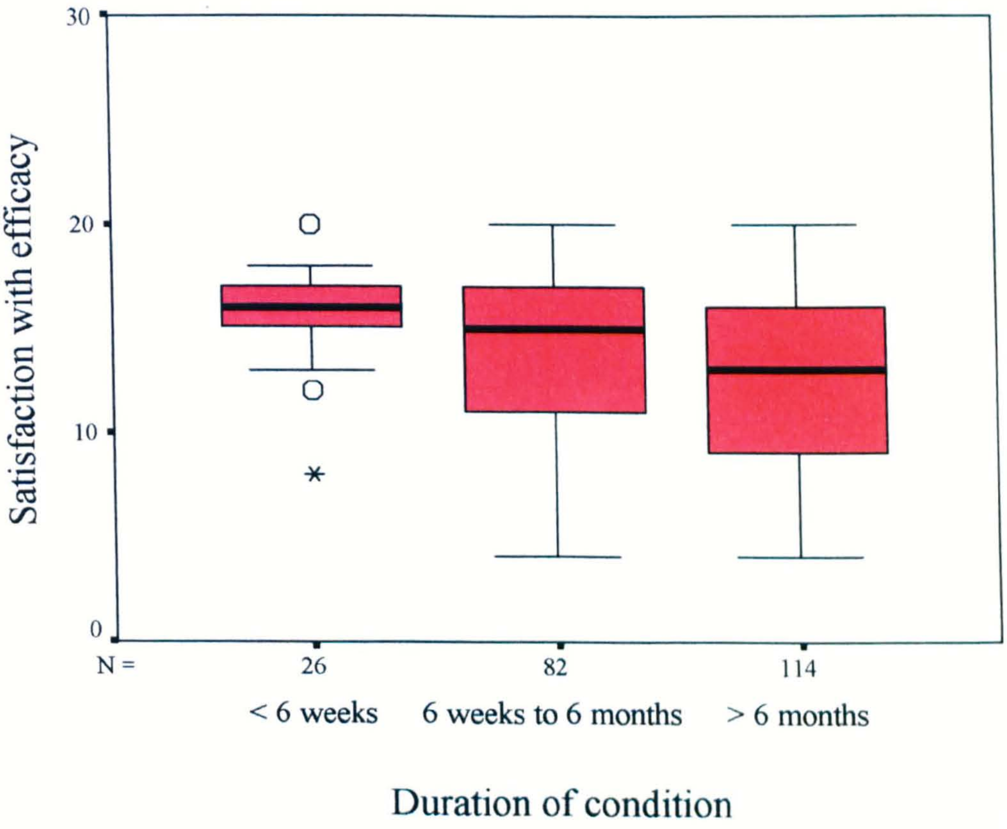
Overall satisfaction was significantly correlated with perceived benefit ($r_s = 0.491$, $p < 0.001$), number of units ($r_s = 0.250$, $p < 0.001$), number of treatments ($r_s = 0.306$, $p < 0.001$) and age ($r_s = 0.189$, $p < 0.006$). The relationship between overall satisfaction and expectations met is shown by the error bar chart in Figure 8.13. These data show that greater satisfaction with overall improvement was found when expectations were met, i.e. perceived improvement met or exceeded pre-treatment expectations of benefit ($p < 0.003$, Mann-Whitney U-test).

Figure 8.13 The relationship between overall satisfaction and expectations met.



Satisfaction with the efficacy of treatment demonstrated the same, but stronger, associations with expectation rating and limb involved. In addition, dissatisfaction with efficacy was found from responders whose condition was degenerative in nature (Mann-Whitney U-test; $p < 0.001$) and those whose duration of condition was longer (Kruskal Wallis test; $p < 0.001$). The relationship between satisfaction with efficacy and the duration of condition is illustrated by the box plot in Figure 8.14. Not surprisingly, satisfaction with the efficacy of treatment was moderately well correlated with percentage change in functional disability ($r_s = 0.472$, $p < 0.001$).

Figure 8.14 The relationship between satisfaction with efficacy and duration of condition.



8.3.5 Effect of physiotherapist characteristics

The majority of responders (n = 190, 66.4%) were treated by experienced physiotherapists, 54 (18.9%) by staff grade physiotherapists and 42 (14.7%) by student physiotherapists. Slightly more responders were treated by female physiotherapists (n = 164, 57.3%). However, there was no correlation between physiotherapist and any of the outcome variables (health status, functional disability, perceived benefit and satisfaction) and there was no relationship between responders' discharge status and the physiotherapist responsible for treatment. However, males physiotherapists tended to give fewer treatments (Mann-Whitney U-test, $p < 0.02$ (excluding outlier)) and subsequently used fewer physiotherapy input units (Mann-Whitney U-test, $p < 0.03$ (excluding outliers)).

8.4 Summary of results

The results fall into two sections (1) factors associated with expectations of benefit before treatment and (2) the relationship between expectations and outcome.

8.4.1 Expectation of benefit and pre-treatment factors

Higher expectations of benefit were associated with the following pre-treatment factors:

- Traumatic condition ($p < 0.001$)
- Upper limb problem ($p < 0.001$)
- Shorter duration of condition ($p < 0.001$)
- Shorter waiting time for physiotherapy ($p < 0.001$)
- Greater awareness / knowledge of what physiotherapy is ($p < 0.001$)
- Lower awareness of alternative treatment ($p < 0.001$)
- Higher locus of control ($p < 0.001$)
- Greater satisfaction with the health care received so far ($p < 0.001$)
- No anticipation of surgery ($p < 0.002$)
- No previous experience of physiotherapy ($p < 0.002$)
- Female ($p < 0.004$)

8.4.2 Expectation of benefit and outcome

Higher expectations of benefit were shown at follow-up to be related to:

- More change in functional disability ($p < 0.001$)
- More perceived improvement ($p < 0.001$)
- Expectations met ($p < 0.001$)
- More change in health status ($p < 0.004$)
- Greater satisfaction ($p < 0.01$)

8.5 Hypotheses Testing

To conclude this chapter, the following section focuses on the hypotheses stated at the beginning of the chapter.

Hypothesis 1: Expectations will be positively correlated with outcome.

Expectation of benefit was significantly correlated with both functional disability scales and SF-36 at follow-up (LEFS $\tau = 0.27, p < 0.01$; DASH $r_s = -0.22, p < 0.05$; SF-36 $\tau = 0.24, p < 0.01$). Expectation was also strongly associated with perceived benefit ($\chi^2 = 28.78, p < 0.001$), and satisfaction with the overall outcome of treatment ($\chi^2 = 21.85, p < 0.001$). In addition, greater satisfaction with overall improvement was found when expectations were met ($p < 0.003$, Mann-Whitney U-test).

The main outcome measure was change in functional disability, which was measured in two ways:

1. **Follow-up functional disability scores** (after adjusting for baseline).

ANCOVA confirmed that, after adjusting for baseline, expectations were significantly associated with LEFS follow-up score ($p < 0.001$), but failed to maintain a statistically significant relationship with the DASH follow-up score ($p < 0.07$).

2. **Percentage change in functional disability.**

Correlation coefficients (Kendall's tau) between expectation of benefit rating and percentage change in functional disability were 0.368 ($p < 0.001$) for the LEFS and 0.286 ($p < 0.02$) for the DASH. Although the correlations are at the lower end of acceptability, both are statistically significant, the LEFS more so than the DASH.

With these outcomes in mind, hypothesis 1 is strongly supported for lower limb responders, but tentatively rejected for upper limb responders.

Hypothesis 2: Expectation of benefit will be associated with previous experience of physiotherapy.

Previous experience of physiotherapy was strongly associated with expectation of benefit rating ($\chi^2 = 11.02$, df = 1, $p < 0.002$), with a tendency for those <u>without</u> previous experience to have greater expectation of benefit. Hypothesis 2 is supported.

Hypothesis 3: Responders who have positive experiences on which to base their expectations will achieve better than average outcomes.

Hypothesis 3 is rejected since the relationship between responders' who had positive experiences on which to base their expectations and those who had negative experiences with regard to the main outcome measures was weak.

Hypothesis 4: There will be differences in expectations between responders with comparable upper and lower limb conditions.

Expectation of benefit rating was highly significantly associated with type of condition ($\chi^2 = 37.59$, df = 1; $p < 0.001$) and limb involved ($\chi^2 = 12.48$, df = 1, $p < 0.001$). Also, responders with upper limb degenerative conditions tended to be more optimistic about their outcome than their lower limb counterparts ($\chi^2 = 10.16$; df = 1; $p < 0.002$), but no differences in expectation of benefit were found between upper and lower limb responders with a traumatic condition ($\chi^2 = 2.02$; df = 1; $p < 0.2$). Hypothesis 4 is supported for degenerative conditions but rejected in traumatic conditions.

Hypothesis 5: Responders with degenerative conditions will have lower expectations of benefit than responders with traumatic conditions.

Hypothesis 5 is supported. Responders with degenerative conditions had lower expectations of benefit than responders with traumatic conditions ($\chi^2 = 37.59$, df = 1; $p < 0.001$).

Hypothesis 6: Responders with degenerative conditions will achieve lower than average outcomes compared to responders with traumatic conditions.

The mean percentage change in health status (SF-36 PCS) and functional disability was much greater for traumatic conditions ($t = 2.85$; $p < 0.006$; 95% CI 1.44 to 7.90 and Mann Whitney U-test; $p < 0.002$, respectively). Hypothesis 6 is supported.

8.6 Conclusion

The results presented in this chapter indicate that patients' expectations of benefit are associated with a number of pre-treatment factors. In addition, the outcome of treatment, in terms of functional disability, health status and satisfaction, was found to be strongly related to patients' pre-treatment expectations of benefit.

Most of the hypotheses proposed at the outset of the survey appear to have been supported, suggesting that patients' expectations of benefit are an important factor in the outcome of physiotherapy and warrant further study. However, the survey had a low response rate, possibly due to the length of the questionnaire (16 sides). The responders were not typical of the patients usually attending for physiotherapy with musculoskeletal problems in terms of age and gender, possibly as a result of social circumstances. A full discussion of these findings in the context of the research within this thesis is provided in chapter 11.

Chapter 9

CAN ALTERING PATIENTS' EXPECTATIONS OF BENEFIT IMPROVE THE OUTCOME OF PHYSIOTHERAPY FOR NON-TRAUMATIC KNEE CONDITIONS?

A randomised controlled trial – background and method.

9.1 Introduction

The previous chapters have shown that most patients attending for musculoskeletal outpatient physiotherapy have expectations regarding the treatment they are about to receive and the likely benefit of that treatment. In the results of the survey presented in chapter eight there appeared to be a number of factors that were associated with higher expectations of benefit before treatment, such as:

- Traumatic condition
- Upper limb problem
- Shorter duration of condition
- Shorter waiting time for physiotherapy
- Greater awareness / knowledge of what physiotherapy is
- Lower awareness of alternative treatment
- Higher locus of control
- Greater satisfaction with the health care received so far
- No anticipation of surgery
- No previous experience of physiotherapy
- Female

In addition, there may be a relationship between higher expectations of benefit and treatment outcome in terms of:

- Greater change in functional disability
- More perceived improvement
- Expectations met
- Greater change in health status
- Greater satisfaction

This chapter describes a randomised, controlled trial, in which expectations were manipulated via written information before physiotherapy out-patient treatment for non-traumatic knee conditions. The purpose of this trial was to determine whether written information about what to expect from physiotherapy could (a) alter patients' expectations of benefit, (b) alter their recovery locus of control and, ultimately (c) improve the outcome of treatment.

This particular group of patients was chosen for several reasons. Firstly, a typical course of physiotherapy for non-traumatic knee conditions consists of assessment, education, advice and an exercise programme, which needs to be continued at home long after discharge from physiotherapy. Occasionally additional treatments such as electrotherapy, manual therapy or strapping techniques are used. Expectations of a 'quick fix' by the physiotherapist are misconceived, particularly since these are typically chronic conditions. Assuming that the correct diagnosis has been made and the treatment plan is appropriate, recovery from, and coping with a non-traumatic knee problem relies heavily on the patient's ability and commitment to follow the advice of the physiotherapist and take control of their condition. Secondly, a recent audit of local musculoskeletal out-patient physiotherapy department records (n = 1864) showed that this group of patients (non-traumatic knee problems) tended to have a high proportion of 'DNA's, i.e. patients who did not attend for treatments and/or ultimately ceased treatment prematurely (n = 690; 37%). While it is acknowledged that there are many reasons why patients fail to attend or cease treatment, this phenomenon is a huge drain on resources. For example, a local audit undertaken in one musculoskeletal out-patient department of Hull and East Yorkshire Hospitals NHS Trust found that during one month 138 patients were unable or failed to attend for treatment. This equated to 69 hours of a qualified health professional's time. If extrapolated to one year, this equated to 0.78 of a whole time equivalent senior II grade physiotherapist (Williams, 1991). It is possible that patients whose expectations are unmet may account for a large number of 'DNA's'.

9.1.1 Aims and objectives of the trial

The aim of this trial was to determine if the intervention (a letter sent to the patient prior to the first appointment with the physiotherapist) could alter patients' expectations of benefit and perceived recovery locus of control and also improve functional outcome of treatment for non-traumatic conditions of the knee. The primary objective of the trial was to improve the outcome of physiotherapy for patients with non-traumatic or degenerative knee problems. However, the proposed mediating factor was changing patients' expectations of benefit and/or increasing their recovery locus of control. Thus, secondary objectives of the trial were to assess whether the intervention (a) changed patients' expectations and (b) increased patients' perceived recovery locus of control. The primary hypothesis was that patients who receive the intervention would achieve more improvement in their functional disability than patients who did not receive the intervention.

9.2 Method

Before commencement of the trial ethical approval was sought from and granted by both Trusts Research and Development Quality Groups, as well as the Local Research Ethics Committee.

9.2.1 Subjects

The sampling frames for the trial were the waiting lists at ten out-patient physiotherapy departments in Hull and East Yorkshire. Five of these departments were from an acute health care setting (Hull & East Yorkshire Hospitals NHS Trust) and five from a community health care setting (Hull & East Riding Community Health NHS Trust). Both consultant and general practitioner referrals were accepted in both settings.

Since there was no previous research on which to base any power calculations, departmental statistics were used to gauge how many subjects would be eligible for recruitment to the study. In addition, a realistic time-frame for the study had been set at 12-months, thus limiting the recruitment period to 6-months. Nevertheless, departmental records appeared to suggest that 120 patients could be recruited to and maintained throughout the trial, allowing for a 33% uptake and 10% dropout rate as found in the survey in chapter eight.

Inclusion criteria:

All patients aged 16 years and over, referred for physiotherapy with a non-traumatic condition of the knee joint. The term 'non-traumatic knee condition' was agreed upon by all participating departments and defined as:

> *Knee pain and/or disability, with no history of recent (within 3 months) trauma or surgery.*

Typically this definition would be applied to the following conditions:

- Osteoarthritis
- Rheumatoid arthritis
- Anterior knee pain (including chondromalacia patella, patello-femoral syndrome)
- Knee pain of unknown aetiology (no specific diagnosis given)

While this is a heterogeneous group, the physiotherapy management is very similar, i.e. assessment, advice on self-management and exercises, with additional manual treatment or electrotherapy if necessary. All participating physiotherapy departments agreed that this was typical physiotherapy management for non-traumatic knee conditions.

Exclusion criteria:

- Under 16 years of age.
- Recent history of trauma – within 3 months.
- Recent joint replacement surgery – within 1 year.
- Any significant other problem responsible for a large proportion of disability.

- Multiple joint involvement, i.e. hip and knee problems.
- Concurrent upper limb or spinal problems.
- Unable to understand, read or write in English.

No upper age limit was placed on the selection of subjects, mainly because patients aged 65 years and over, represent a sizeable proportion of non-traumatic knee referrals for physiotherapy (22.8%; based on survey data, chapter eight). Although recent trauma was an exclusion criterion, minor injuries such as a slip or fall without any indication of significant tissue or joint damage, leading to flare-up of existing degenerative joint disease were accepted. Similarly, patients with a history of joint replacement surgery could still be referred if the physiotherapy management was likely to be assessment, advice on self-management and exercises. It appears that such patients are occasionally referred when muscle weakness and functional disability persist or recur more than one year post-replacement surgery. The decision to label these patients as eligible for the study lay with the senior physiotherapist at each department who prioritised the referrals into acute/urgent or waiting list cases. Only waiting list (non-urgent) cases were eligible for the trial.

9.2.2 The Intervention

The intervention in the present trial was a letter that explained what the patient should expect from physiotherapy and the physiotherapist, including paragraphs designed to increase patients' perceived control over their recovery, and an eye-catching plaque with the key messages for patients to keep in a prominent place as a reminder about their physiotherapy (Boxes 9.1 - 9.3).

This intervention was based on previous work by (Johnston *et al.*, 1992), who simply added paragraphs to a standard letter confirming a physiotherapy appointment (Box 9.4).

Box 9.1 Excerpt from the intervention giving details of what the physiotherapist would do and what the treatment would involve.

Firstly, your physiotherapist will examine you thoroughly to find out what the problem is. Then they will explain your knee problem to you and discuss the best way to deal with it. Physiotherapy treatment for knee problems like yours usually involves doing exercises. Sometimes the exercises are uncomfortable or painful, but this does not mean that they are doing your knee any harm. If your knee is very painful or swollen, other treatments may be used such as ultrasound, heat, electrical treatment or strapping. You will also be given a lot of advice about ways in which you can manage your knee problem yourself.

Box 9.2 Excerpt from the intervention aimed at increasing the patient's perceived control over their recovery.

Physiotherapy is about helping you to help yourself. The advice that the physiotherapist gives will help you to take control of your knee problem and return to your usual activities as quickly as possible. The key to coping with your knee problem is you. Research has shown that when people get better by their own efforts, the effects last longer.

Box 9.3 Key Messages Plaque

- Physiotherapy is about helping you to help yourself.
- Take control of your knee problem - follow the physiotherapist's advice.
- HURT does not always mean HARM
- You are the key to your recovery.

Box 9.4 Intervention used by Johnston *et al* (1992)

Information sheet for patients attending physiotherapy

This is to let you know that you are now being offered physiotherapy at the Royal Free Hospital to help you overcome your particular health problem. By concentrating on your difficulties, you will be shown how you can control your symptoms and problems as quickly and as effectively as possible.

You may be offered advice and instruction about your symptoms and problems and given a home programme. It will be up to you to follow these if you want to recover quickly.

Experience has shown that the more effort you can put in, the more quickly results will be achieved. The therapists are there to help you to resolve your problem.

You may find it helpful to enlist friends and relatives to help you to follow any home programme you are given. May we wish you a speedy recovery.

9.2.3 Trial Procedures

Eligible patients were identified by the senior physiotherapist responsible for prioritisation of referrals at each participating physiotherapy out-patient department. Identified subjects were sent an initial contact pack (Appendix 6, sections 1-5), which informed them that their referral had been received and placed on a waiting list, and invited them to participate in a research project. The initial contact package also contained a brightly coloured flyer asking for help with the study, patient information sheet, consent form, short questionnaire and an addressed, FREEPOST envelope.

Careful consideration was given to the patient information sheet (Appendix 6, section 3), which was designed using a template recommended by the Local Research Ethics Committee. It was important to ensure that the participants would have enough information to make an informed decision about whether or not to participate, but not too much detail about the study, thereby influencing their understanding of and beliefs about physiotherapy.

Subjects wishing to participate returned the completed questionnaire and consent form. On receipt of these, the subject was given a unique identification number and randomised. The randomisation process had been determined *a priori* using a computer generated table of random numbers in blocks of two to ensure equal numbers in each arm of the study (Pocock, 1983). Subjects allocated to group 'A' received the intervention (Appendix 6, section 8) plus standard departmental information, while group 'B' received standard departmental information only. Typically, the departmental information provided details of the date and time of appointment, name of physiotherapist, procedures for cancellation, transport and car parking issues, how to find the department, and information about the presence of students. In addition, advice was given about what to wear, the level of undress required and how long the treatment was likely to last. Specific details of the treatment tended to be vague and limited.

None of the documentation sent to the subject or the physiotherapy department contained information about group allocation, therefore the subject and the physiotherapists were blind to randomised allocation. Following randomisation, the baseline questionnaire pack was sent (Appendix 6, sections 6-7) to the relevant physiotherapy department. When an appointment became available, a member of staff from the physiotherapy department added the appointment details to the baseline questionnaire pack and posted it to the patient. Follow-up was carried out three months after commencement of treatment, again by postal questionnaire (Appendix 6, sections 9-10). Process data were collected from each physiotherapist treating each participating patient. On discharge, the physiotherapists completed a form detailing the patient's diagnosis, start and discharge dates, number of treatments, discharge status (i.e. treatment completed or self-discharge) and the treatment modalities used (Appendix 6, section 15). All data were entered into a computer software package – Statistical Package for the Social Sciences (SPSS/PC+ Version 10.0.5 1989 –1999).

9.2.3.1 Maximising recruitment rates

Targets for recruitment were determined from departmental records, which indicated the number of eligible patients likely to be referred for physiotherapy over six months. Recruitment to the trial was monitored daily. All departments were contacted on a regular basis to remind them about the study and ensure co-operation.

Every effort was made to maximise recruitment to the study. A number of strategies were considered to increase the recruitment rate. However, following advice from the local ethics committee, and consideration of practical issues, only two methods for dealing with non-response were possible. Referring consultants were contacted asking for their support. They agreed to posters (Appendix 6, section 6) about the study being placed in their patient waiting areas and distributing information leaflets to eligible patients. In addition, a second letter (Appendix 6, section 7) was sent to the patient's home as a reminder to those still considering participation and in case the first questionnaire had gone astray in the post.

At follow-up, if the follow-up questionnaire was not returned within two weeks, a reminder letter (Appendix 6, section 14) and replacement questionnaire were sent and a further reminder letter and questionnaire two weeks after that.

9.2.4 Data collection

Basic socio-demographic details of age and gender were collected for all eligible patients, and the postcode was used to derive a deprivation score based on the Townsend Index (MIMAS, 2000). This deprivation score ranged from −10 to +10, with a higher score indicting higher deprivation. In addition, three separate sets of data were collected from all participants at initial contact, baseline and follow-up.

Initial contact data consisted of three sections:

Section 1 – five closed questions regarding expectations, including expectation of benefit rating, previous experience of physiotherapy, and an open question asking the participant to write down what they expected to happen.

Section 2 – Tampa Scale of Kinesiophobia (TSK) (Miller *et al.*, 1991)
Section 3 – RLOC (Partridge and Johnston, 1989)

The TSK is a seventeen-item questionnaire that measures beliefs about fear of movement, exercise and re-injury. Subjects are asked to indicate how much they agree with each of the seventeen statements using a four-point Likert scale from strongly disagree to strongly agree. The TSK has both criterion and construct validity and has been shown to have good internal consistency (Cronbach's alpha = 0.77). The TSK has been primarily used in studies of chronic low back pain (Vlaeyen *et al.*, 1995b; Vlaeyen *et al.*, 1995a; Vlaeyen and Crombez, 1999; Vlaeyen *et al.*, 1999; Crombez *et al.*, 1999b; Crombez *et al.*, 1999a; Vlaeyen and Linton, 2000). The scale is scored by summation of the answers following reversal of four items deliberately written with negative wording to avoid acquiescence. With a possible range of 17 to 68; a high score indicates more fear. A small pilot study of the TSK was carried out on 20 patients with non-traumatic knee problems. This found that internal consistency was good (Cronbach's alpha = 0.82).

The RLOC is a nine-item scale that measures perceived control over recovery using internal and external locus of control constructs. Internal consistency has been established and it has construct and predictive validity for patients in physiotherapy (Partridge and Johnston, 1989). It is scored in the direction of internality after reversal of the external items. The items are summed to give a range between 9 and 45; a high score indicates strong internal locus of control.

Baseline data consisted of six sections:

Section 1 – duration of condition and waiting issues, plus the expectation of benefit question repeated.

Section 2 – Knee injury and Osteoarthritis Outcome Score (KOOS) questionnaire (Roos *et al.*, 1998).

Section 3 – Self-efficacy, using a modified version of the Pain Self-Efficacy Questionnaire (PSEQ) (Nicholas, 1988).

Section 4 – RLOC (Partridge and Johnston, 1989).

Section 5 – Mood Rating Scale (Anderson *et al.*, 1999)

Section 6 – Demographic details, including age, gender, occupation, work status, educational level and pre-morbidity level of physical activity.

The Knee injury and Osteoarthritis Outcome Score (KOOS) questionnaire (Roos *et al.*, 1998), measures five patient-relevant outcomes; pain, symptoms, activities of daily living, sport/recreation function, and knee-related quality of life. It was developed to extend and compliment the Western Ontario and MacMaster Universities Osteoarthritis Index (WOMAC) (Bellamy *et al.*, 1988), which does not have the sport and recreation or quality of life dimensions. The KOOS has high test-retest reliability (ICC > 0.75), moderate to high construct validity and effect sizes ranging from 0.84 (pain dimension) to 1.65 (quality of life dimension). It is scored on a five-point Likert scale (0 to 4), then normalised and transformed to provide a score from 0 (extreme problems) to 100 (no problems).

The self-efficacy scale used was a modified version of the Pain Self-Efficacy Questionnaire (PSEQ) (Nicholas, 1988). The PSEQ asks how confident the respondent is that they can do things despite their pain, e.g. How confident are you that you can still enjoy things, despite the pain? A line marked with the numbers 0 to 10, with the extremities labelled: 0 = not at all confident and 10 = completely confident. The modified version used in this trial simply replaced the word *pain* with *knee problem*. This rewording was felt to be more appropriate to the patients in the study, since the most troubling symptom from their knee problem may not be pain, but instability for example. This modification did not appear to alter the high internal consistency of the scale as tested in a small pilot study with musculoskeletal out-patient physiotherapy patients ($n = 43$; Cronbach's $\alpha = 0.95$).

The Mood Rating Scale (MRS) (Anderson *et al.*, 1999) measures six bipolar dimensions of mood using visual analogue scales with defined anchor points. These include relaxed-tense, happy-sad, energetic-tired, clearheaded-confused, easygoing-irritable and confident-unsure. The MRS is based on the Profile of Mood States (Lorr and McNair, 1984), but is briefer and more acceptable to patients. The overall MRS has good internal consistency (Cronbach's $\alpha = 0.77$).

Follow-up data consisted of five sections:

Section 1 – Perceived benefit, satisfaction with outcome and care, extent of expectations met, plus an open question to explore how the patient felt about unmet expectations.

Section 2 – Knee injury and Osteoarthritis Outcome Score (KOOS) questionnaire (Roos *et al.*, 1998).

Section 3 – Self-efficacy, using the modified pain self-efficacy scale (Nicholas, 1988).

Section 4 – RLOC (Partridge and Johnston, 1989).

Section 5 – Reasons for self-discharge from treatment.

An additional page was also available for any other comments about the study or the treatment.

Finally, information was collected from the physiotherapists, which included diagnosis, length of treatment, number of treatments, discharge status and treatment modalities used.

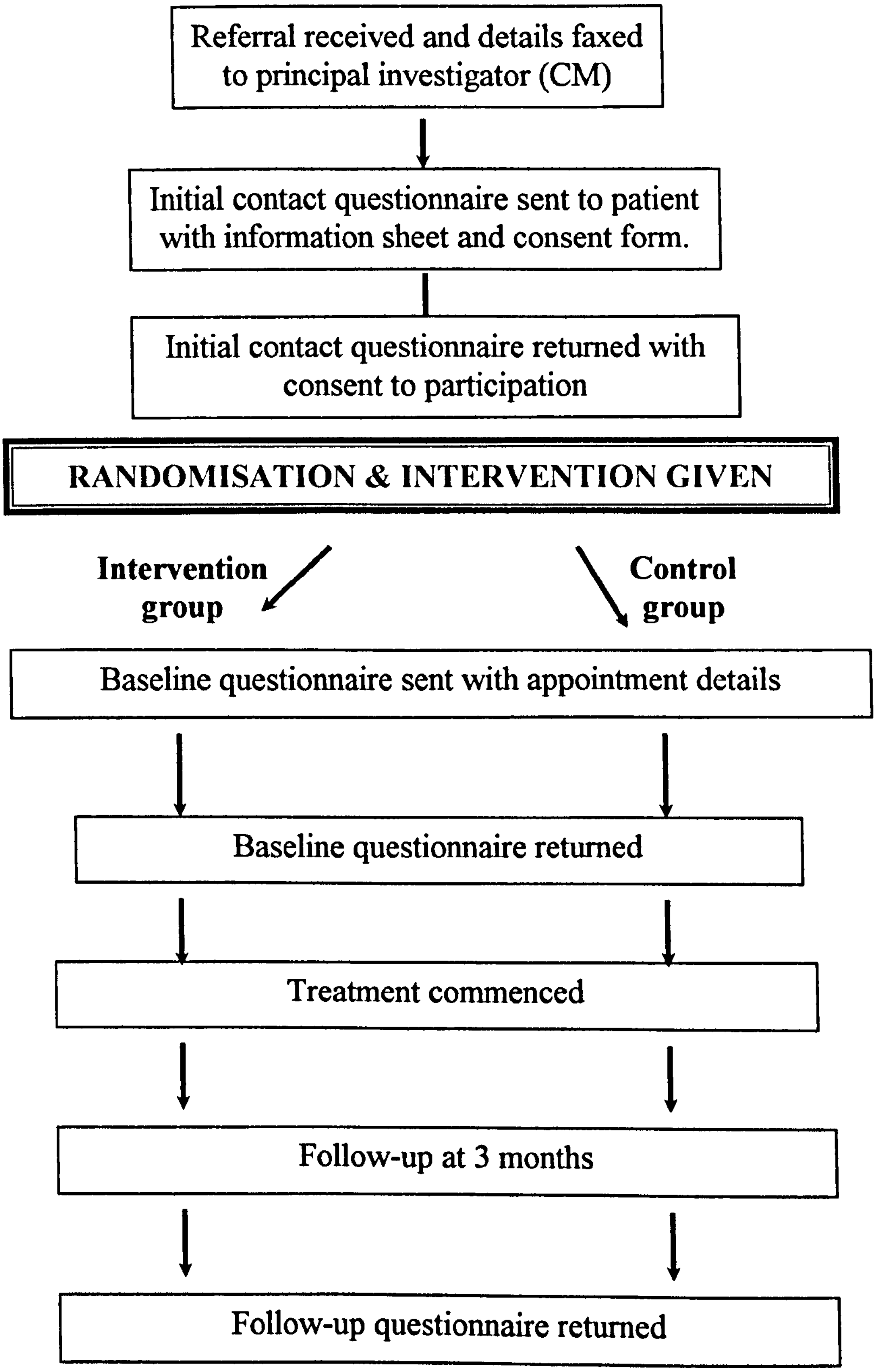
The TSK, KOOS, Knee self-efficacy, RLOC, MRS questionnaires and treatment statistics generated interval data. All other data were either categorical or ordinal.

9.2.5 Data Analysis

All variables were tested for normality of distribution prior to statistical analysis. Normally distributed variables were analysed using parametric tests such as Pearson's correlation, analysis of variance (ANOVA) or t-test. Relationships between non-normal data were calculated using non-parametric tests such as Spearman's rank correlation, Pearson's chi-squared (χ^2) test, the Kruskal Wallis test or Mann-Whitney U-test depending on the level of data involved. Where appropriate different interpretations of Pearson's χ^2 were used, such as continuity correction when both variables were binary and linear by linear association if the data of either variable was ordinal.

Figure 9.1 shows the patient's progress through the trial.

Figure 9.1 Flow chart of patient's progress through the trial.



Chapter 10

CAN ALTERING PATIENTS' EXPECTATIONS OF BENEFIT IMPROVE THE OUTCOME OF PHYSIOTHERAPY FOR NON-TRAUMATIC KNEE CONDITIONS?

A randomised controlled trial – results.

10.1 Introduction

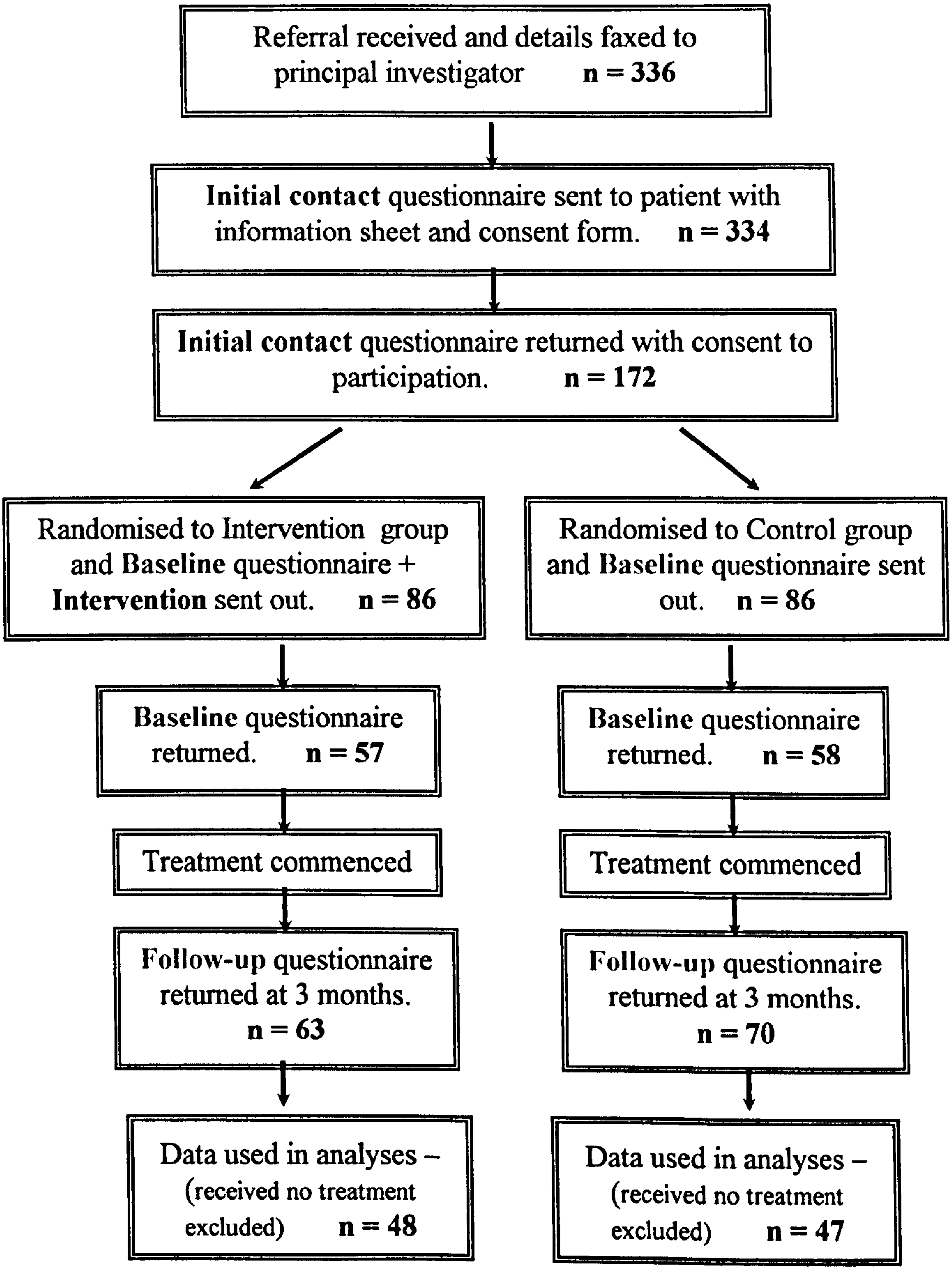
This chapter presents the results of a randomised, controlled trial, in which expectations were influenced via written information before physiotherapy out-patient treatment for non-traumatic knee conditions. The purpose of this trial was to determine whether written information about what to expect from physiotherapy could (a) alter patients' expectations of benefit, (b) alter their recovery locus of control and (c) improve the outcome of treatment.

The trial pathway with the numbers of participants at each stage is illustrated by the flow chart in Figure 10.1.

10.2 Initial contact data

The initial contact data was collected in order to (a) ensure that the two groups were comparable at the start, (b) gather measurements before the intervention (the letter) and (c) compare specific characteristics between participants and non-participants.

Figure 10.1 Flowchart of trial pathway showing number of participants at each stage.



The physiotherapy departments identified 334 patients who appeared to be eligible for the study. Two of these were subsequently found to be less than sixteen years of age and were excluded. The remaining 334 patients were invited to participate in the trial, with 172 consenting (51.5% response rate). Half the patients were randomised to the intervention and half to the control (i.e. 86 in each).

Data collected at initial contact included age, gender and postcode. Of the eligible population (n = 334), 150 were men (mean age = 46; SD 17.6) and 184 were women (mean age = 51; SD 18.7). Two differences were found between the participants and non-participants. First, the participants tended to be older (participants mean age = 52, SD 17.5; non-participants mean age = 45, SD 18.7; $p < 0.002$, 95% CI (difference) = 3.01 to 10.83). Second, the participants were from less deprived areas (MIMAS, 2000) (participants mean Townsend score = -0.08, SD 3.7; non-participants mean Townsend score = 1.06, SD = 4.0; $p < 0.011$, 95% CI (difference) = –2.0 to –0.28). The participants (n = 172) consisted of 89 women and 83 men, mean age 52.1 years (SD = 17.5, range 16 to 91) and mean Townsend Index –0.07 (SD = 3.7, range –5.3 to 7.5).

10.2.1 Differences between randomised groups at initial contact

At initial contact, additional information was gathered including fear and avoidance beliefs using the Tampa Scale of Kinesiophobia (TSK), recovery locus of control (RLOC), previous experience of physiotherapy and knowledge of what the physiotherapist would do and what the treatment would involve. The participants' characteristics, by group, are presented in Table 10.1. These data show that only age was found, in spite of randomisation, to be significantly different between intervention and control group ($p < 0.031$, 95% CI (difference) = –11.04 to –0.56); the intervention group tended to be younger (mean age 49.6 years compared to 55.4 in the control group).

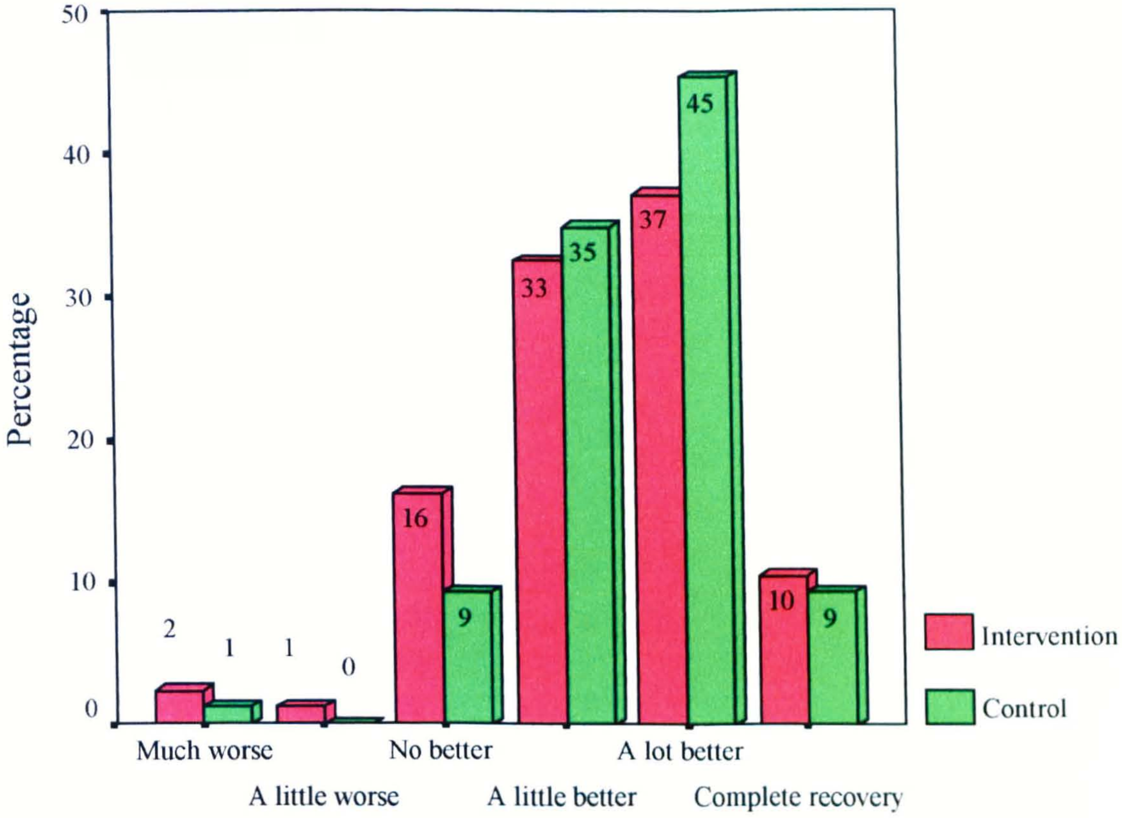
Table 10.1 Participants' characteristics by group.

Characteristic		Intervention n = 86 (%)	Control n = 86 (%)	*p* (95% CI (difference))
Gender:	Male/Female	41/45	42/44	Ns
Age (years):	mean	49.6	55.4	0.03[a] *
	SD	18.5	16.0	(-12.5 to - 0.5)
	range	17 - 91	17 - 88	
Townsend Index:	mean	-0.03	-0.13	
	SD	3.6	3.8	ns
	range	-4.9 - 6.89	-5.3 - 7.49	
TSK:	mean	40.8	38.5	
	SD	8.2	8.2	ns
	range	24 - 65	21 - 61	
RLOC:	mean	34.7	35.4	
	SD	5.2	5.7	ns
	range	19 - 43	19 - 45	
Previous experience of physio:	Yes	55 (64.7%)	57 (66.3%)	ns
Know what physio. will do:	Yes	30 (34.9%)	25 (29.8%)	ns
Know what treatment will involve:	Yes	24 (27.9%)	25 (29.4%)	ns

** = significant difference at 5% level; a = independent samples t-test*

The percentage of participants for each rating of expectation of benefit, by group, is shown in Figure 10.2. The differences were not statistically significant.

Figure 10.2 Percentage of participants at initial contact for each rating of expectation of benefit, by group.



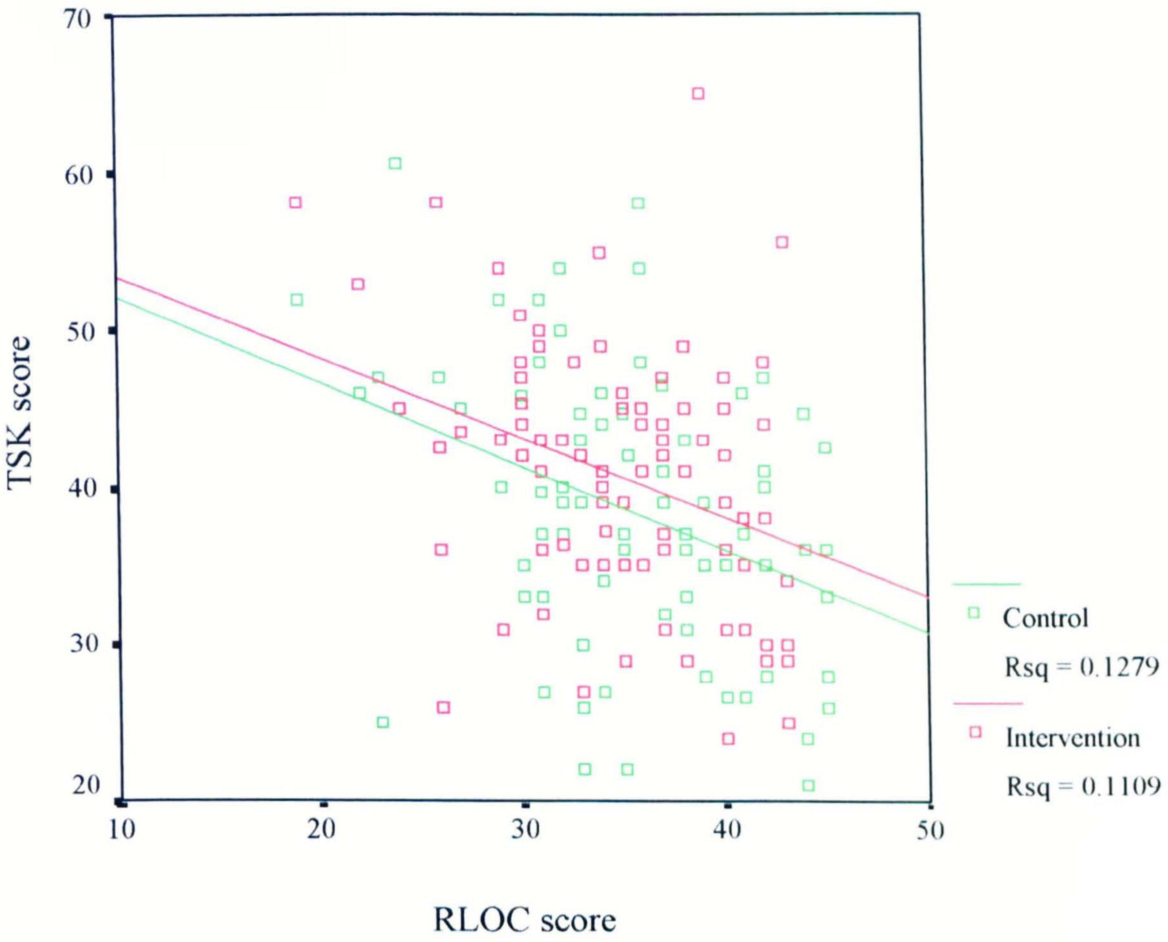
Expectation of Benefit at Initial Contact

10.2.2 Relationships at initial contact

Tests of association (correlation or χ^2) were carried out between all the initial contact variables. Participants who felt that they knew what the physiotherapist would do and/or what the treatment would involve, usually based their knowledge on their own experiences. As anticipated, knowledge and previous experience were significantly associated ($\chi^2 = 6.64$, df = 1, $p < 0.011$). Expectation of benefit was also associated with previous experience of physiotherapy ($\chi^2 = 6.75$, df = 1, $p < 0.010$).

A statistically significant association was also found between the TSK score and RLOC score ($r = -0.32$, $p < 0.004$ for the intervention group and $r = -0.33$, $p < 0.003$ for the control group). This relationship is illustrated by the scatterplot in Figure 10.3.

Figure 10.3 Relationship between TSK score and RLOC score.



These data show a moderate, but statistically significant correlation between TSK score and RLOC score. No relationship was found between previous experience of physiotherapy and either TSK or RLOC scores.

10.3 Baseline data

The baseline data was collected firstly to compare with initial contact data in order to ascertain whether the intervention (letter) had altered either expectations of benefit or perceived control over their recovery (RLOC), and secondly to set the baseline for the outcome data which would be collected at follow-up. Participants were blinded as to their group allocation, as were the physiotherapists treating them.

Of the 172 randomised participants, 115 returned the baseline questionnaires (response rate of 66.9%) leaving 57 in the intervention group and 58 in the control group. There were 52 men and 63 women, mean age 53.6 years (SD 17.1, range 16 to 88).

Data at this stage also included information about education, employment and pre-morbidity activity level. Only 15 (13.0%) had education below secondary level, 47 (40.9%) were working, and 68 (59.1%) considered themselves to be regular exercisers (at least once or twice a week) before this current episode of knee trouble. There was no relationship between education, employment status or activity level with gender or age, other than employment status which was related to age (Mann Whitney U-test, $p < 0.001$). Those in work tended to be younger than those out of work. No significant differences were found between participants and 'drop-outs' on any baseline variables.

10.3.1 Differences between groups at baseline

The participants' characteristics at baseline by group are given in Table 10.2. These data show a statistically significant difference in age between the intervention and the controls groups (95% CI (difference) = -13.8 to -1.45, $p < 0.017$). There were no other significant differences in demographic data between the two groups.

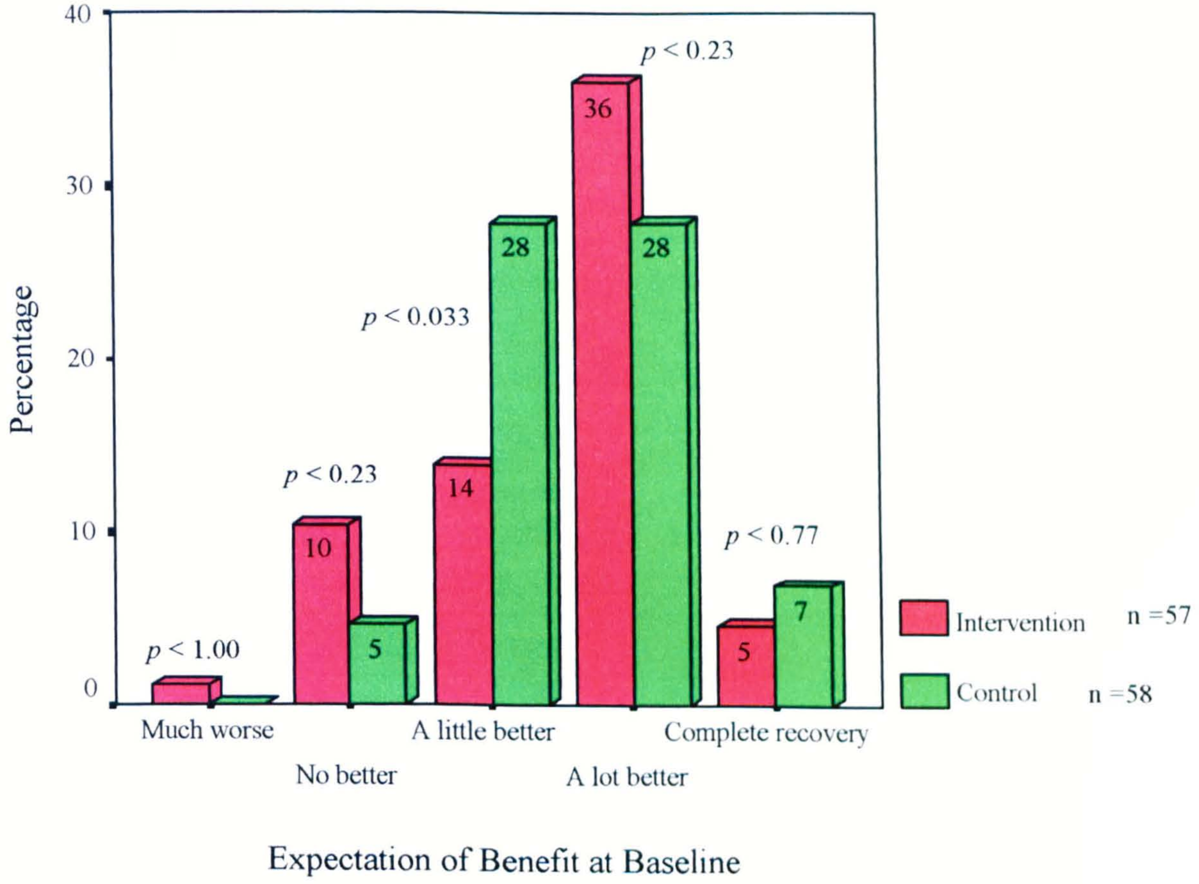
A comparison of the percentage of participants for each expectation of benefit rating by group at baseline is shown in Figure 10.4. These data show some variation in the expectation of benefit rating between the groups. χ^2 test of the two proportions within each category showed a statistically significant difference between groups for participants who expected to gain a little benefit ($\chi^2 = 4.62$, df = 1, $p < 0.033$). No other statistically significant differences within each category were found.

Table 10.2 Participants' characteristics at baseline by group.

Characteristic		Intervention n = 57	Control n = 58
Gender:	Male / Female	25 / 32	27 / 31
Age (years):	mean (SD)	49.8 (17.9)	57.4 (15.5)*
	range	16 - 83	22 - 88
	Working: Yes	26 (45.6%)	21 (36.2%)
Education level:	Primary	5 (8.8%)	10 (17.2%)
	Secondary	45 (78.9%)	40 (70.0%)
	University	7 (12.3%)	6 (10.4%)
	Missing	0	2 (3.4%)
Pre-morbidity activity level:	≥ 1/week	38 (66.7%)	30 (52.6%)
	Other health problems: Yes	26 (45.6%)	38 (65.5%)
Relevant other health problems:	Yes	8 (14.0%)	6 (10.3%)
	Diagnosis:	32 (56%)	35 (61%)
	Osteoarthritis	14 (25%)	10 (17%)
	Anterior knee pain	2 (3%)	2 (3%)
	Instability	9 (16%)	11 (19%)
	Other		
Duration of condition:	< 6 weeks	0	0
	6 weeks – 6 months	10 (17.9%)	7 (12.1%)
	> 6 months	46 (82.1%)	51 (87.9%)
Days waiting for physio:	mean (SD)	45.4 (19.1)	39.7 (22.9)
Waiting for surgery:	Yes	6 (10.5%)	6 (10.3%)
Waiting for other investigation:	Yes	14 (24.6%)	15 (25.9%)
Waiting for settlement of claim:	Yes	3 (5.3%)	2 (3.4%)

*Independent samples t-test. * significant difference at 5% level.*

Figure 10.4 Percentage of participants for each expectation of benefit rating by group at baseline.



The participants' functional disability (as measured by the Knee Osteoarthritis Outcome Scale - KOOS) and psychological measures at baseline by group are shown in Table 10.3. These data show that there were no statistically significant differences between the two groups in any of these measures at baseline.

Table 10.3 Participants' functional disability and psychological measures at baseline by group.

Measure		Intervention n = 57	Control n = 58
KOOS Pain dimension:	mean (SD)	52.6 (18.7)	50.4 (23.1)
	Range	11.1 - 97.2	0 - 100
KOOS Symptoms dimension:	mean (SD)	45.2 (13.1)	49.1 (14.6)
	Range	10.7 - 71.4	17.9 - 100
KOOS Sport dimension:	mean (SD)	34.9 (27.0)	34.4 (28.6)
	Range	0 - 100	0 - 90
KOOS ALD dimension:	mean (SD)	61.3 (21.2)	59.7 (24.8)
	Range	7.4 - 100	1.5 - 100
KOOS QoL dimension:	mean (SD)	35.7 (18.8)	33.9 (21.8)
	Range	0 - 75	0 - 81.25
Self-efficacy:	mean (SD)	36.5 (13.4)	36.0 (15.5)
	Range	5 - 60	2 - 60
Baseline RLOC:	mean (SD)	35.1 (5.8)	33.8 (6.6)
	Range	19 - 45	18 - 45
Overall Mood score:	mean (SD)	49.5 (15.7)	53.7 (17.0)
	Range	15 - 83.8	18.9 – 90

10.3.2 Relationships at baseline

Across all participants, no significant relationships were found between expectation of benefit rating at baseline and the KOOS dimensions, self-efficacy, or mood scores. However, there was a statistically significant relationship between expectations of benefit and baseline RLOC. The correlation was found to be statistically significant for the intervention group only ($r_s = 0.38$, $p < 0.003$, compared to $r_s = 0.17$, $p < 0.20$ for the control). No significant relationships were found between previous experience of physiotherapy and any of the psychological or functional disability scores at baseline.

Correlation testing was used to explore the relationships between functional disability and psychological measures taken at initial contact and baseline. Table 10.4 presents the results of the correlations between baseline RLOC and KOOS dimensions by group.

Table 10.4 Correlations between RLOC and KOOS dimensions by group.

	Baseline RLOC	
KOOS Dimension	**Intervention (n = 50)**	**Control (n = 55)**
Pain	$r_s = -0.11$, $p < 0.47$	$r_s = -0.40$, $p < 0.01$**
Symptoms	$r_s = -0.21$, $p < 0.14$	$r_s = -0.32$, $p < 0.02$*
Sport/recreation	$r_s = -0.17$, $p < 0.25$	$r_s = -0.26$, $p < 0.06$
ADL	$r_s = -0.14$, $p < 0.32$	$r_s = -0.36$, $p < 0.01$**
QoL	$r_s = -0.32$, $p < 0.03$*	$r_s = -0.28$, $p < 0.04$*

*r_s = Spearman's rank correlation coefficient. * significant at 5% level; ** significant at 1% level.*

These data show that for the control group statistically significant correlations were found between baseline RLOC and all but the sport/recreation dimension of the KOOS. However, the only statistically significant correlation found between baseline RLOC and KOOS for the intervention group was the quality of life (QoL) dimension.

A similar pattern was found between total mood scores and KOOS dimensions for the control group, but no significant relationship was found for the intervention group. Table 10.5 shows the correlations between Total Mood scores and KOOS dimensions by group.

Table 10.5 Correlations between Total Mood scores and KOOS dimensions by group.

KOOS Dimension	Total Mood score	
	Intervention (n = 49)	Control (n = 53)
Pain	$r_s = -0.04$, $p < 0.77$	$r_s = -0.53$, $p < 0.001$**
Symptoms	$r_s = 0.07$, $p < 0.64$	$r_s = -0.22$, $p < 0.13$
Sport/recreation	$r_s = 0.07$, $p < 0.64$	$r_s = -0.42$, $p < 0.01$**
ADL	$r_s = -0.05$, $p < 0.74$	$r_s = -0.47$, $p < 0.001$**
QoL	$r_s = -0.18$, $p < 0.23$	$r_s = -0.57$, $p < 0.001$**

*r_s = Spearman's rank correlation coefficient. ** significant at 1% level.*

Significant relationships between TSK (taken at initial contact) and KOOS dimensions were also found, although not again consistently across groups. The correlations between TSK score and KOOS dimensions by group are shown in Table 10.6.

Table 10.6 Correlations between TSK scores and KOOS dimensions by group.

KOOS Dimension	TSK	
	Intervention (n = 50)	Control (n = 55)
Pain	$r_s = 0.17$, $p < 0.24$	$r_s = 0.39$, $p < 0.01$**
Symptoms	$r_s = -0.05$, $p < 0.73$	$r_s = 0.22$, $p < 0.11$
Sport/recreation	$r_s = 0.10$, $p < 0.48$	$r_s = 0.38$, $p < 0.01$**
ADL	$r_s = 0.27$, $p < 0.06$	$r_s = 0.32$, $p < 0.02$*
QoL	$r_s = 0.38$, $p < 0.01$**	$r_s = 0.44$, $p < 0.01$**

*r_s = Spearman's rank correlation coefficient. * significant at 5% level, ** significant at 1% level.*

These data again show only one significant relationship between TSK scores and KOOS QoL dimension for the intervention group, while all but the KOOS symptoms dimension had a strong correlation with TSK score for the control group.

Table 10.7 shows the correlations between baseline self-efficacy, TSK at initial contact, RLOC and total mood score at baseline and all the KOOS dimensions. These data show that there are strong relationships between self-efficacy and the other psychological measures as well as the KOOS dimensions for both the intervention and control groups

Table 10.7 Correlations between Self-efficacy, TSK scores, RLOC, Total Mood scores and KOOS dimensions by group.

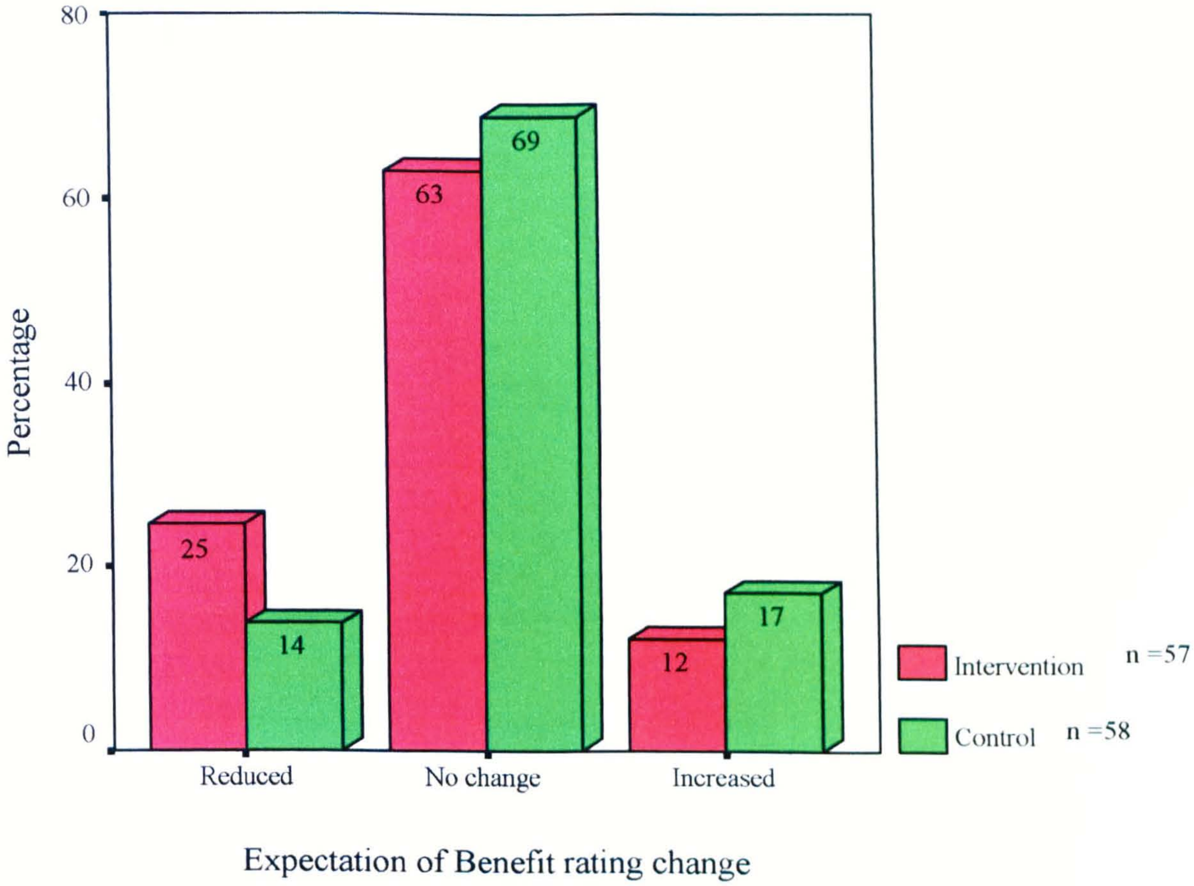
Variable	**Self-efficacy**	
	Intervention (n = 50)	**Control (n = 55)**
TSK	$r_s = -0.40$, $p < 0.01$**	$r_s = -0.44$, $p < 0.01$**
RLOC	$r_s = -0.39$, $p < 0.01$**	$r_s = 0.44$, $p < 0.01$**
Total Mood	$r_s = 0.38$, $p < 0.01$**	$r_s = 0.56$, $p < 0.001$**
KOOS - Pain	$r_s = -0.49$, $p < 0.001$**	$r_s = -0.76$, $p < 0.001$**
KOOS - Symptoms	$r_s = -0.28$, $p < 0.06$	$r_s = -0.45$, $p < 0.01$**
KOOS - Sport/recreation	$r_s = -0.36$, $p < 0.02$*	$r_s = -0.61$, $p < 0.001$**
KOOS - ADL	$r_s = -0.51$, $p < 0.001$**	$r_s = -0.70$, $p < 0.001$**
KOOS - QoL	$r_s = -0.68$, $p < 0.001$**	$r_s = -0.77$, $p < 0.001$**

*r_s = Spearman's rank correlation coefficient. * significant at 5% level, ** significant at 1% level.*

10.3.3 Change between initial contact and baseline

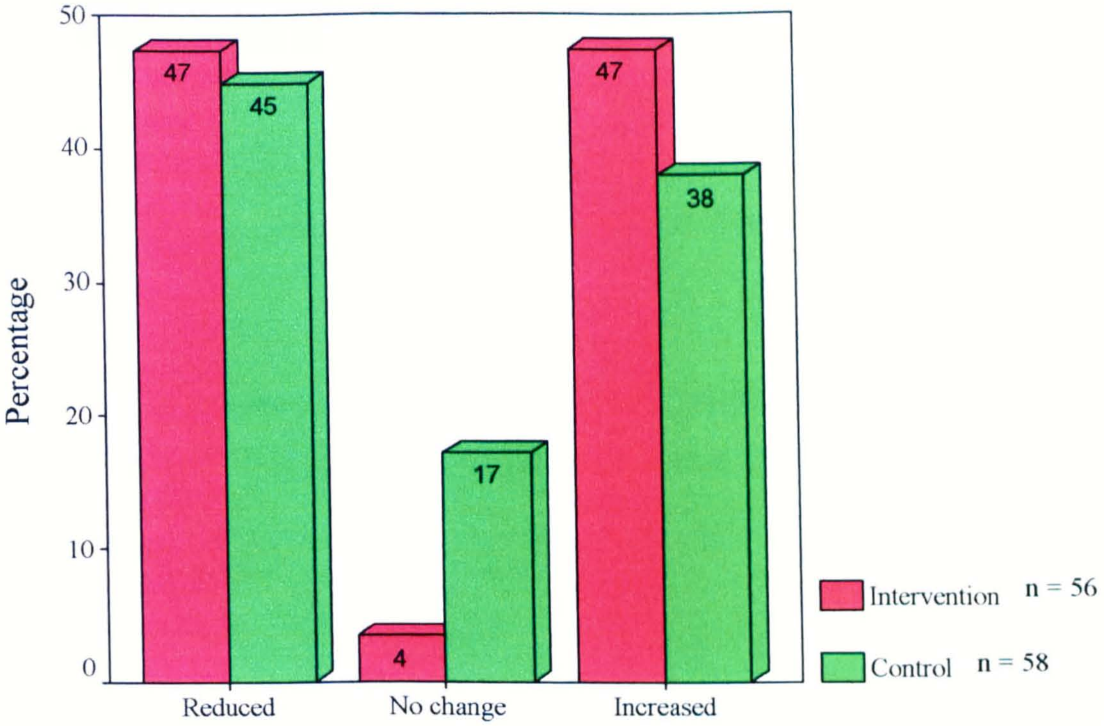
Two variables were measured at both initial contact and baseline: expectation of benefit and recovery locus of control (RLOC). For each group, the percentage of participants who changed their expectations of benefit are illustrated in Figure 10.5. These data show that for the majority of participants their expectation of benefit did not change and any changes between groups were not statistically significantly different.

Figure 10.5 Percentage of participants' who changed their expectation of benefit rating, by group.



There was a mean RLOC change of 1.15 (SD = 5.9) from initial contact to baseline for the control group, compared to 0.19 (SD = 5.2) for the intervention group, but this difference was not statistically significant. The percentage of participants who changed their RLOC score by group is shown in Figure 10.6. These data show that all but 4 participants in the intervention group and all but 17 in the control group changed their RLOC scores. The differences between groups across all categories only reached borderline significance ($\chi^2 = 5.83$, df = 2, $p = 0.054$).

Figure 10.6 Percentage of participants' who changed their RLOC score by group.



RLOC change - initial contact to baseline

Details of the change in RLOC total against the change in expectation of benefit rating for the two groups are given in Table 10.8.

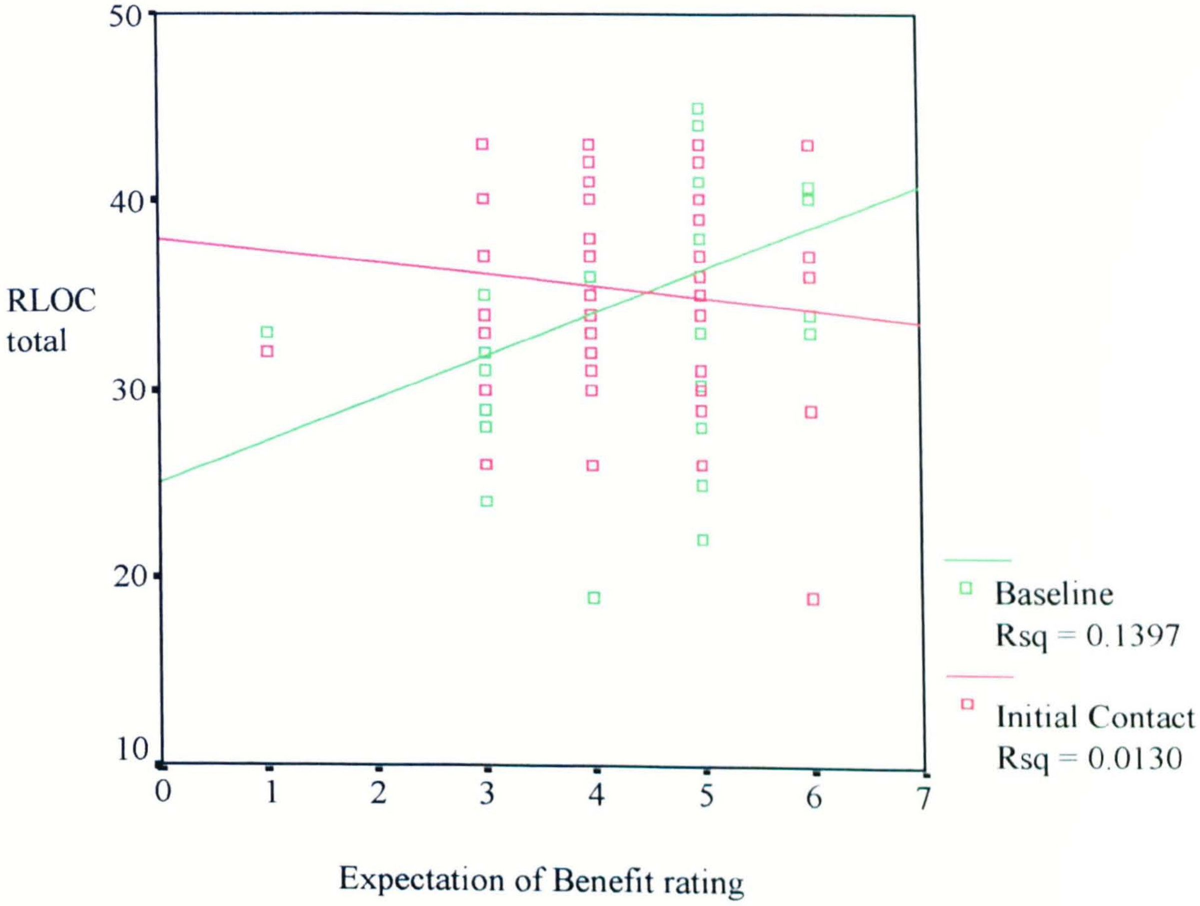
Table 10.8 Number (%) of participants reporting change in RLOC total against change in expectation of benefit rating.

		RLOC reduced	RLOC unchanged	RLOC increased
Expectation reduced	**Intervention**	6 (10.5)	1 (1.8)	7 (12.3)
	Control	4 (6.9)	2 (3.4)	2 (3.4)
Expectation unchanged	**Intervention**	19 (33.3)	1 (1.8)	16 (28.1)
	Control	20 (34.5)	6 (10.3)	14 (24.1)
Expectation increased	**Intervention**	2 (3.5)	0	5 (8.8)
	Control	2 (3.4)	2 (3.4)	6 (10.3)

These data show that despite some differences between groups, they were not statistically significantly different.

Further exploration of the relationship between expectation of benefit and RLOC was carried out using regression techniques and scatterplots, revealing an interesting anomaly. The relationship between the intervention group's RLOC and expectation of benefit rating at initial contact compared to baseline is illustrated by the scatterplot in Figure 10.7.

Figure 10.7 Relationship between RLOC and Expectation of Benefit rating at Initial Contact compared to Baseline – Intervention Group only.



These data show that for the intervention group at initial contact the correlation between expectation of benefit and RLOC for both groups was not significant ($r_s = -0.14$, $p < 0.308$). However, at baseline expectation of benefit and baseline RLOC were significantly correlated ($r_s = 0.38$, $p < 0.003$). The corresponding values for the control group were $r_s = -0.001$, $p < 0.998$ at initial contact and $r_s = 0.17$, $p < 0.199$ at baseline. The R squared values for the two regression lines in Figure 10.7 show that at initial contact the expectation of benefit rating explained about 1% of the RLOC score, while at baseline nearly 14% of the RLOC score could be explained by the respondent's expectation rating. The corresponding R squared values for the control group were 0.01 at initial contact and 0.03 at baseline.

Analysis of covariance revealed that, after accounting for the difference in mean age at baseline, expectation of benefit was still a significant predictor of RLOC at baseline for the intervention group (F = 3.02, {df = 4,51} $p < 0.027$), but not for the control group (F = 0.88, {df = 3,53} $p < 0.46$). The adjusted R squared values for the two models (RLOC dependent on age and expectation of benefit rating) were 0.12 for the intervention group and 0.003 for the control group.

10.4 Follow-up data

Follow-up data was available for 133 participants (63 intervention and 70 control), and was collected approximately three months after the start of treatment (mean = 15.02 weeks, SD = 1.85). These data included follow-up information from 31 participants (13 intervention and 18 control) who consented to the study, but failed to return their baseline questionnaires. Although the main outcome measures for these participants could not be compared, their data was still useful for comparisons between initial contact and follow-up. The data from seven participants who failed to attend or cancelled their appointment have not been included in the analysis, leaving 48 in the intervention group and 47 in the control group. At follow-up, the baseline measures were repeated and additional information (i.e. number of treatments, length and type of treatment, and discharge status) gathered from the physiotherapists. Details of the treatment variables by group are given in Table 10.9.

Table 10.9 Treatment variables by group.

Measure		Intervention	Control	p values
Number of treatments:	median	5	5	
	(IQR)	(3 - 8)	(2 - 9)	0.697^{a}
	range	1 - 18	1 - 20	
	n =	48	47	
Intensity of treatment:	mean	1.39	2.14	
(treatments/week)	(SD)	(1.37)	(2.37)	0.271^{a}
	range	0.26 - 7	0.46 - 7	
	n =	44	43	
Type of treatment:	Active	12 (26.9%)	18 (37.5%)	0.358^{b}
	Passive/Combination	32 (73.1%)	25 (62.5%)	
Discharge status:	Treatment complete*	37 (76.9%)	42 (87.6%)	0.156^{b}
	Self discharge	10 (23.1%)	5 (10.4%)	

a = Mann Whitney U-test; b = χ^2 **1 inappropriate referral excluded*

The data shows that no significant differences were found between the intervention and control groups for any of the treatment variables.

10.4.1 Change in functional disability

The participants' functional disability scores at follow-up for the two groups are presented in Table 10.10. These data show that, although the mean scores for the Sport, ADL and QoL dimensions were higher for the intervention group, the differences between the two groups were not statistically significant.

Table 10.10 Participants' functional disability scores at follow-up.

Measure		Intervention	Control	*p* value^a
KOOS Pain sub-scale:	mean (SD)	57.27 (23.09)	56.05 (24.74)	0.807
	range n =	16.67 - 100 47	4.17 - 100 45	
KOOS Symptoms sub-scale:	mean (SD)	47.24 (13.44)	47.00 (18.76)	0.822
	range n =	17.86 - 67.86 47	4.18 - 100 46	
KOOS Sport sub-scale:	mean (SD)	44.86 (30.30)	34.17 (32.55)	0.110
	range n =	0 - 100 45	0 - 100 45	
KOOS ADL sub-scale:	mean (SD)	66.76 (21.35)	61.37 (25.71)	0.271
	range n =	28.32 - 100 48	10.44 - 100 46	
KOOS QoL sub-scale:	mean (SD)	41.06 (20.51)	38.68 (25.61)	0.619
	range n =	6.25 – 87.5 48	0 - 100 46	

a = Student's t-test. NB: partially incomplete questionnaires account for reduced numbers

Details of the mean KOOS scores at baseline and follow-up, with mean change and statistical significance for each KOOS dimension by group are provided in Table 10.11. and illustrated in Figure 10.8.

Table 10.11 Mean KOOS scores at baseline and follow-up, with mean change and statistical significance for each KOOS dimension by group.

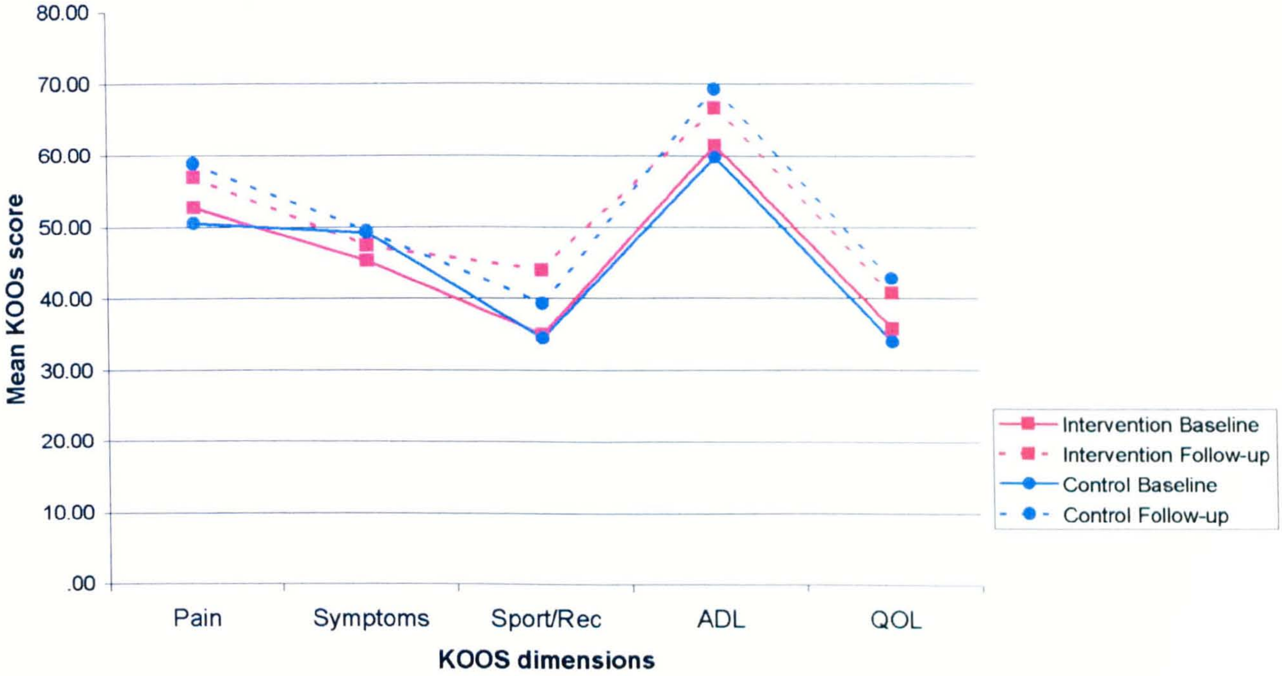
		Pain	Symptoms	Sport / Recreation	ADL	QoL
Intervention	n	44	45	42	47	47
	Baseline (SD)	54.1 (16.7)	46.2 (11.3)	33.8 (24.1)	61.3 (20.0)	35.9 (16.8)
	Follow-up (SD)	57.4 (23.0)	46.8 (13.5)	44.9 (31.2)	66.3 (21.4)	41.3 (20.7)
	Change (SD)	3.3 (17.5)	0.5 (12.0)	11.1 (19.8)	5.0 (15.2)	5.4 (16.3)
	p[a]	0.221	0.776	0.001**	0.028*	0.029*
Control	n	43	46	44	45	46
	Baseline (SD)	47.9 (23.9)	48.4 (15.1)	31.8 (28.7)	56.6 (24.3)	32.1 (21.3)
	Follow-up (SD)	55.9 (25.0)	48.0 (18.8)	34.5 (32.9)	61.5 (26.0)	38.7 (25.6)
	Change (SD)	8.0 (20.7)	-0.4 (15.8)	2.6 (20.7)	5.0 (15.4)	6.6 (15.9)
	p[a]	0.015*	0.849	0.401	0.036*	0.007**

[a] *= paired t-test. * = significant at 5% level, ** = significant at 1% level.*

NB: partially incomplete questionnaires account for reduced numbers.

These data show that in all cases the follow-up scores were greater than baseline indicating improvement, with the largest changes occurring in the sport/recreation dimension for the intervention group and the pain dimension for the control group. Statistically significant changes were found in the sport/recreation, ADL and QoL dimensions for the intervention group and the pain, ADL and QoL dimensions for the control group. However, there were no statistically significant differences in KOOS dimension change scores between the intervention and control groups, although the sport/recreation dimension reached borderline statistical significance ($p < 0.06$, 95% CI – 0.21 to 17.18).

Figure 10.8 Change in KOOS dimension scores from baseline to follow-up for the intervention and control groups.



Paired t-tests comparing baseline to follow-up KOOS scores showed that across all participants, there were statistically significant changes in four of the five KOOS dimensions ($p \leq 0.006$). Only the symptoms dimension was unaffected ($p < 0.86$). No relationship was found between the change in KOOS dimension scores and the number of treatments, intensity or type of treatment, or diagnosis.

There were no statistically significant correlations between KOOS dimension change scores and baseline expectations of benefit or baseline RLOC. However, when separated into intervention or control groups, the correlations between baseline RLOC and the pain and sport/recreation dimensions changes were found to be statistically significant, **but only for the intervention group** ($r_s = 0.42$, $p < 0.004$ and $r_s = 0.32$, $p < 0.038$ respectively). The relationship between KOOS pain and sport/recreation dimensions change and baseline RLOC for the intervention group are illustrated in Figures 10.9 and 10.10.

Figure 10.9 Relationship between KOOS pain dimension change and baseline RLOC – Intervention group only.

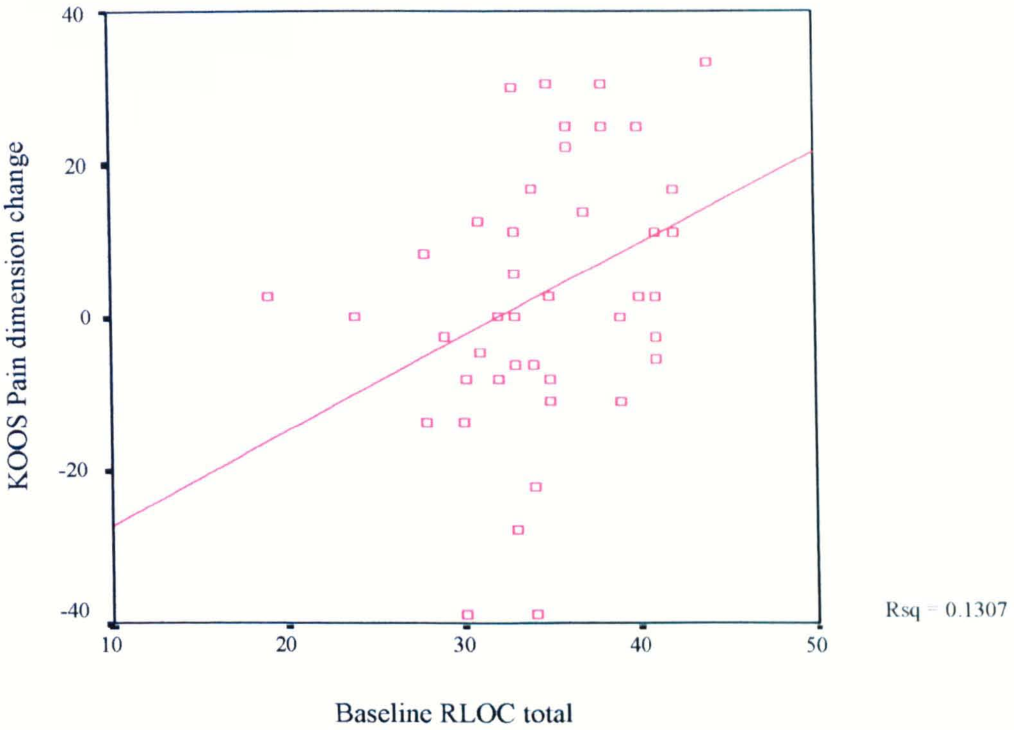
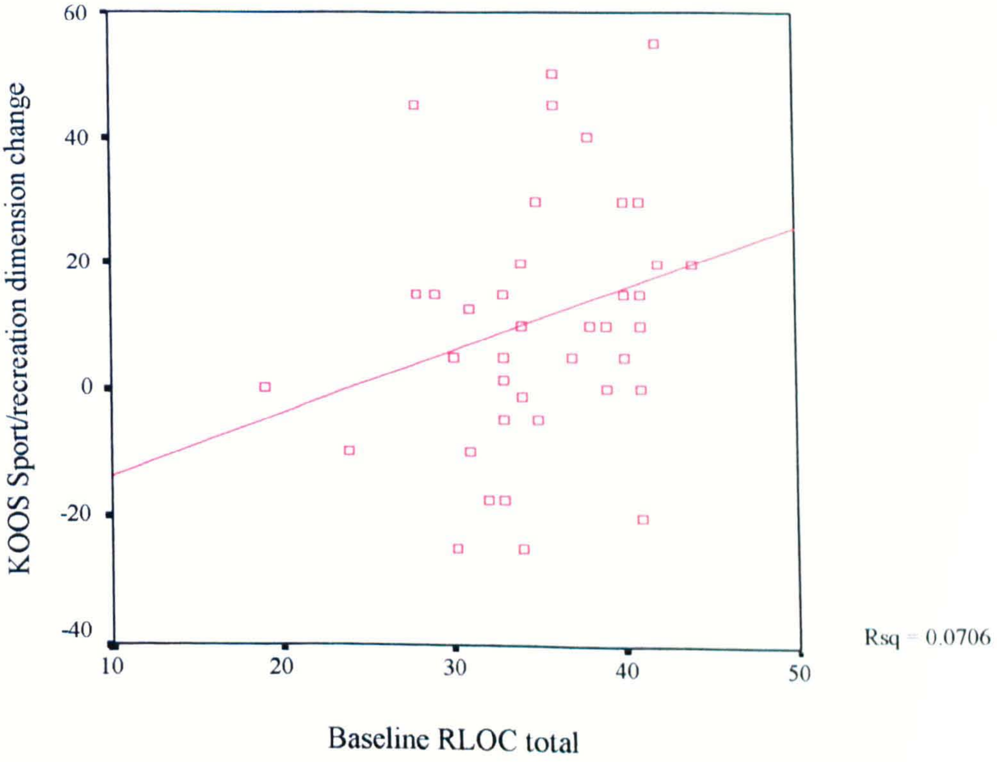


Figure 10.10 Relationship between KOOS sport/recreation dimension change and baseline RLOC – Intervention group only.



Despite the large amount of scatter and obvious outliers, the R squared values demonstrate that a small, but statistically significant, amount of variation in each of the KOOS dimension changes can be explained by the baseline RLOC score (pain dimension change $R^2 = 0.13$, sport/recreation dimension change $R^2 = 0.07$).

Other variables which were significantly related to KOOS follow-up scores were self-efficacy for the intervention group, and type of treatment for the control group. After accounting for baseline KOOS score, baseline RLOC score independently accounted for 13.4% of the variance in the pain dimension at follow-up (F = 6.53, {df = 1,42} $p < 0.014$) for the intervention group. Baseline self-efficacy score independently accounted for 15.4% of the variance in the sport/recreation dimension at follow-up (F = 7.1, {df = 1,43} $p < 0.011$) for the intervention group. For the control group, the type of treatment (active, passive or combined) independently accounted for 21.2% of the variance in the symptoms dimension at follow-up (F = 5.1, {df = 2,39} $p < 0.011$).

10.4.2 Change in psychological variables

Mean self-efficacy and RLOC scores at follow-up, with mean change from baseline and statistical significance for the intervention and control groups are shown in Table 10.12. These data show that there were no significant differences between the intervention and control groups for either the self-efficacy or RLOC variables at follow-up. However, a statistically significant difference between mean baseline and follow-up RLOC scores was found, but only in the intervention group (95% CI (difference) = 0.22 to 3.19, $p < 0.025$).

Table 10.12 Mean self-efficacy and RLOC scores at follow-up, with mean change from baseline and statistical significance for the intervention and control groups.

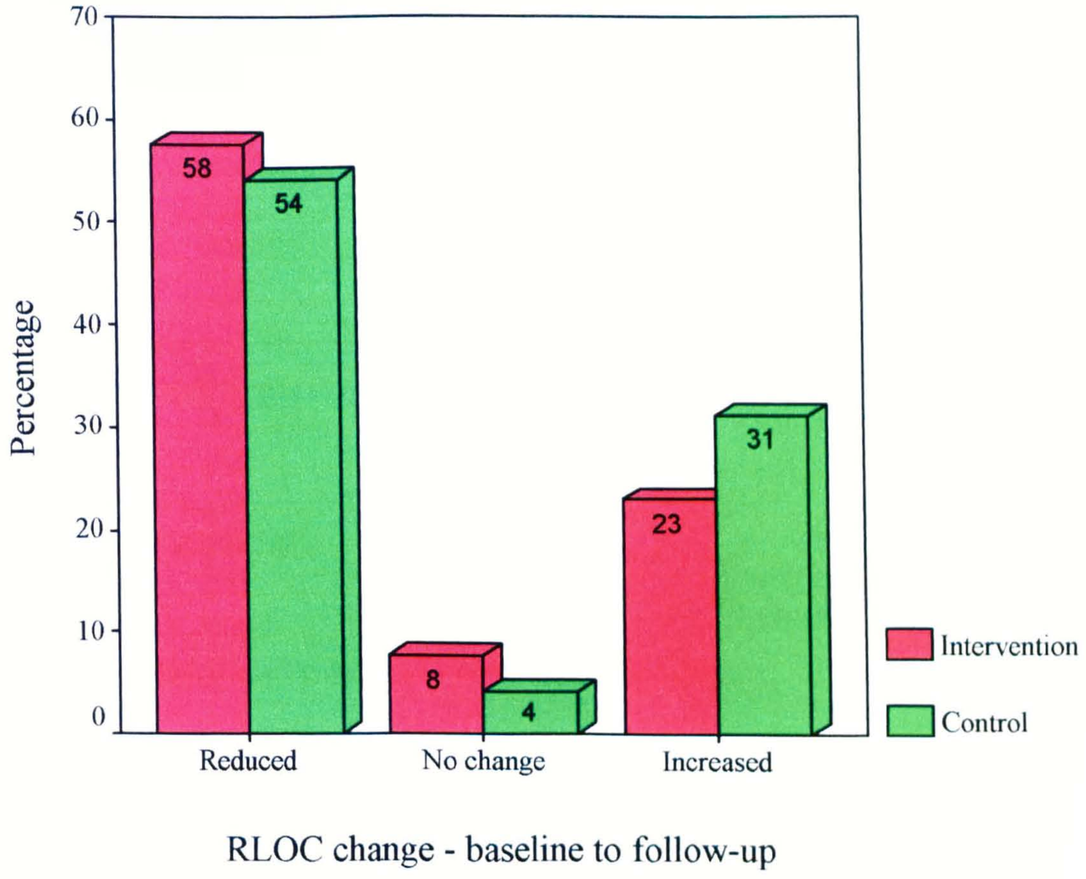
Measure	Intervention	Control
Follow-up Self-efficacy: mean	40.10	38.78
(SD)	(14.60)	(14.80)
range	11 – 60	0 - 60
n =	47	47
Mean change from baseline	2.28	3.61
Statistical significance* (*p*)	0.191	0.065
Follow-up RLOC: mean	33.20	33.12
(SD)	(5.71)	(4.31)
range	19 – 42	23 - 41
n =	46	43
Mean change from baseline	1.64	0.69
Statistical significance[a] (*p*)	0.035*	0.507

[a] *paired t-test* NB: partially incomplete questionnaires account for reduced numbers

* = significant at 5% level

The number of participants whose RLOC scores changed from baseline to follow-up by group is illustrated by the bar chart in Figure 10.11. These data show some fluctuations in RLOC score from baseline to follow-up, with the majority of participants (58% of the intervention group and 54% of the control group) reducing their RLOC scores. However, the differences between the intervention and control groups were not statistically significant.

Figure 10.11 Percentage of participants whose RLOC scores changed from baseline to follow-up by group.



10.4.3 Perceived improvement and satisfaction

Participants were asked to rate their perceived improvement on the same six-point scale used for expectations, i.e. from a lot worse to complete recovery. In addition, global satisfaction with care and overall improvement were rated on a four-point Likert scale (very dissatisfied to very satisfied). The number of participants' for each rating of perceived improvement and satisfaction are given in Table 10.13. These data show that 64.6% of the intervention group and 68.1% of the control group perceived at least some improvement, although no significant differences were found between groups for these three variables.

Table 10.13 Number of participants for each rating of perceived improvement and satisfaction.

Measure		Intervention n = 48 (%)	Control n = 47 (%)
Perceived improvement:	Complete recovery	1 (2.1)	3 (6.4)
	A lot better	13 (27.1)	12 (25.5)
	A little better	17 (35.4)	17 (36.2)
	No change	13 (27.1)	12 (25.5)
	A little worse	1 (2.1)	0
	A lot worse	3 (6.3)	1 (2.1)
Satisfaction with improvement:		n = 47	n = 44
	Satisfied	32 (68.1)	31 (70.5)
	Dissatisfied	15 (31.9)	13 (29.5)
Satisfaction with care:		n = 47	n = 46
	Satisfied	40 (85.1)	40 (87.0)
	Dissatisfied	7 (14.9)	6 (13.0)

N.B. partially incomplete questionnaires account for reduced numbers.

To assess the relationship between perceived improvement and actual change in functional disability, correlations between perceived improvement and KOOS dimension change were carried out. The correlations between perceived improvement and KOOS dimension change for each group are shown in Table 10.14. These data show that for the intervention group, perceived improvement was significantly correlated with change in KOOS pain, sport/recreation and QoL dimensions, while for the control group perceived improvement was significantly correlated with all the KOOS dimensions except sport/recreation.

Table 10.14 Correlations between perceived improvement and KOOS dimension change for each group.

KOOS dimension change		Perceived improvement Intervention n = 42	 Control n = 43
Pain	τ	0.33**	0.33**
	p	0.005	0.006
Symptoms	τ	-0.07	0.26*
	p	0.544	0.026
Sport/recreation	τ	0.29*	0.17
	p	0.017	0.152
ADL	τ	0.11	0.37**
	p	0.322	0.001
QoL	τ	0.26*	0.36**
	p	0.025	0.003

τ = Kendall's tau rank correlation

* significant at 5% level; ** significant at 1% level.

Across the entire sample, expectation of benefit at baseline was found to be significantly associated with perceived improvement at follow-up ($\chi^2 = 4.40$, df = 1, $p < 0.015$), with participants who expected to be worse / gain no benefit being more likely to perceive their improvement as worse / no better.

The relationship between expectations of benefit and satisfaction with overall improvement revealed differences between the intervention and control groups. For the intervention group there was a weak statistically significant relationship ($\chi^2 = 4.15$, df = 1, $p < 0.042$), but this was not seen in the control group ($\chi^2 = 0.02$, df = 1, $p < 0.883$). Those intervention participants who had higher expectations were more likely to be satisfied with the overall improvement in their condition.

A relationship was also found between satisfaction with overall improvement and KOOS dimension changes. The correlations between satisfaction with overall improvement and KOOS dimension change for each group are shown in Table 10.15.

Table 10.15 Correlations between satisfaction with overall improvement and KOOS dimension change for each group.

KOOS dimension change		Satisfaction with overall improvement	
		Intervention n = 43	Control n = 42
Pain	τ	0.39**	0.37**
	p	0.001	0.003
Symptoms	τ	-0.07	0.30*
	p	0.581	0.013
Sport/recreation	τ	0.24	0.27*
	p	0.054	0.033
ADL	τ	0.20	0.35**
	p	0.084	0.004
QoL	τ	0.38**	0.39**
	p	0.002	0.002

τ = Kendall's tau rank correlation

* significant at 5% level; ** significant at 1% level.

These data show that for the intervention group, only the pain and QoL dimension changes were statistically significantly correlated with satisfaction with overall improvement, while the correlation with the sport/recreation change reached borderline statistical significance. However, for the control group there were statistically significant correlations between satisfaction with overall improvement and all the KOOS dimension changes.

The correlations between baseline psychological measures and perceived improvement and satisfaction are shown in Table 10.16. These data show that for the intervention group satisfaction with overall improvement and perceived benefit were associated with baseline self-efficacy and baseline perceived control over recovery (RLOC).

Table 10.16 Correlations between baseline psychological measures and perceived benefit and satisfaction with overall improvement.

Psychological measures	Group	Perceived benefit	Satisfaction with overall improvement
Baseline self-efficacy	Intervention	$\tau = 0.32$ $p < 0.005$**	$\tau = 0.27$ $p < 0.03$*
	Control	$\tau = 0.06$ $p < 0.64$	$\tau = 0.02$ $p < 0.86$
Baseline RLOC	Intervention	$\tau = 0.34$ $p < 0.004$**	$\tau = 0.39$ $p < 0.001$**
	Control	$\tau = -0.03$ $p < 0.80$	$\tau = 0.09$ $p < 0.44$

τ = Kendall's tau correlation coefficient; * significant at 5% level; ** significant at 1% level.

No statistically significant relationship was found between expectations of benefit and satisfaction with overall outcome.

10.5 Summary

The purpose of this trial was to determine whether written information about what to expect from physiotherapy could (a) alter patients' expectations of benefit, (b) alter their recovery locus of control and (c) improve the outcome of physiotherapy. The main limitation of the trial was a low recruitment rate. Nevertheless, the trial procedures appeared to work well with similar numbers in both the intervention and control groups throughout the various stages of the study and minimal differences in demographic characteristics between the two groups.

Despite some interesting findings, the results of this study do not appear to support the hypothesis that written information can be used to alter patients' expectations. Recovery locus of control, however, did change with participants more likely to change their recovery locus of control if they had received the intervention.

There is also no support that the intervention, through changes in expectations or locus of control, significantly improved the outcome of physiotherapy. It is likely that the small numbers involved in the trial reduced the power of the study, thereby reducing the likelihood of detecting a difference.

Other findings of interest include:

- A negative association between the fear and avoidance measure (TSK) and RLOC at initial contact ($r = -0.32$, $p < 0.004$ for the intervention group and $r = -0.33$, $p < 0.003$ for the control group).
- Inconsistent correlations between RLOC and KOOS dimensions at baseline, depending on randomisation group.
- Inconsistent correlations between TSK and KOOS dimensions at baseline, depending on randomisation group.
- A change in the relationship between expectations and recovery locus of control from not statistically significant ($r_s = -0.14$, $p < 0.308$) to statistically significant ($r_s = 0.38$, $p < 0.003$), but only for the intervention group.
- Inconsistent correlations between perceived improvement rating and KOOS dimensions, depending on randomisation group.
- Strong correlations between baseline psychological scores (Self-efficacy and RLOC) and perceived improvement and satisfaction at follow-up, but only for the intervention group.

The next chapter contains a discussion of these results in the context of the entire research described within this thesis.

Chapter 11

Discussion, implications and conclusions

11.1 Introduction

The research described in this thesis has used a variety of methods to investigate specific issues related to patients' expectations and the outcome of physiotherapy for peripheral musculoskeletal conditions. This chapter provides a discussion of the entire research project, from its conception to the end results. The implications raised for physiotherapy practice are outlined and conclusions drawn.

11.2 Summary

11.2.1 The research questions

The impetus for the research in this thesis came from a perception that patients' expectations of benefit played an important role in the outcome of physiotherapy for musculoskeletal conditions. From personal clinical experience it appeared that, for some patients, the outcome of treatment relied more on psychological variables such as individual characteristics than the actual treatment given. To investigate this perception, a number of research questions were posed:

a) Is there any evidence from the literature to support the notion that patients' expectations of benefit are important to the outcome of physiotherapy?

b) Do patients usually have expectations regarding physiotherapy and treatment outcome, and if so, where do these expectations come from?

c) What factors are associated with patients' expectations of benefit from physiotherapy?

d) Is there a relationship between patients' expectations of benefit and physiotherapy outcome?

e) Can patients' expectations of benefit be altered to improve the outcome of physiotherapy?

To answer these questions a number of investigations, using a variety of methodologies were carried out. First, a conceptual framework was developed to gain a better understanding of expectations and how they may affect outcome. Second, the evidence base related to patients' expectations of physiotherapy was explored. Third, the relationship between patients' expectations of benefit and the outcome of physiotherapy was examined, and finally a randomised controlled trial was carried out to determine whether manipulation of patients' expectations of benefit influenced treatment outcome.

11.2.2 The research methodology

The methodology used to investigate whether patients' expectations affect the outcome of physiotherapy was multifaceted. An exploration of literature on the concepts and theories surrounding expectations (Chapter 2) and a review of the research literature (Chapter 3) suggested that there was a strong link between cognitions, such as expectations, and behaviour, which may impact on the outcome of treatment. Some evidence identified cognitions, based on previous experiences, acquired knowledge and individual differences that might affect the outcome of treatment in other aspects of health care. However, it appeared that no research had been carried out to investigate the role of patients' expectations of the outcome of physiotherapy for peripheral musculoskeletal conditions.

Following the literature review, it was important to develop a list of factors that may influence patients' expectations of benefit from physiotherapy. This would assist in the development of a questionnaire to gather information from patients, and establish whether the perception that patients' expectations do impact on the outcome of physiotherapy was widely held amongst physiotherapists. The Delphi technique was chosen to gather ideas and achieve a consensus of opinion amongst physiotherapists working in several musculoskeletal out-patient physiotherapy departments in one National Health Service (NHS) Trust. In addition, the views of patients were sought. Patients' experiences, knowledge and expectations of physiotherapy were explored via semi-structured interviews. The results of the Delphi study, patient interviews and expert opinion were together used in the development of a questionnaire. A longitudinal survey based on the questionnaire was then carried out by post to determine whether the was a relationship between patients' expectations of benefit and treatment outcome. Finally, a randomised-controlled trial was carried out to test whether a simple intervention could alter patients' expectations of benefit and result in improved outcomes following physiotherapy.

11.2.3 Summary of the Results

The literature review revealed evidence to support the importance of patients' expectations on the process and outcome of health care; a number of *patient variables* were identified that might influence patients' expectations of benefit from physiotherapy. These included the patient's first hand knowledge from previous personal experiences, second hand or acquired knowledge, socio-demographics and psychological variables, such as beliefs, perceptions and attitudes, and personality. However, no research appeared to have been carried out to explore the source, nature and strength of patients' expectations of benefit from physiotherapy, nor the effect that such expectations may have on the outcome of physiotherapy for musculoskeletal conditions.

Data collected using the Delphi technique also provided support for the original suggestion that physiotherapists are aware of a number of psychological factors that might influence patients' expectations and ultimately impact on the outcome of physiotherapy. A ranked list of factors was compiled. The results of the Delphi study were consistent with the findings reported in the literature.

Themes generated by semi-structured interviews with patients suggested that they have a limited knowledge of what physiotherapy is and what physiotherapists do. The sources of patient knowledge about physiotherapy came mainly from direct personal experience of physiotherapy, but also anecdotal information, which is consistent with the literature review and Delphi study data. In general, these patients appeared to have a positive view of physiotherapy and understood why they needed to have physiotherapy, but they lacked knowledge of what to expect regarding the treatment (other than exercises). Most patients reported that they were happy to follow whatever course of care the physiotherapist chose. However, lack of knowledge prevented these patients from appreciating how much involvement they would have in their treatment. Triangulation of the data collected through the literature review, the Delphi study and the patient interviews formed the basis for the next stage, a postal questionnaire survey.

The survey generated a huge amount of data from 287 patients. Relationships were found between patients' expectations of benefit and other pre-treatment variables, including the type and duration of condition, limb involved, waiting time for physiotherapy, previous experience of physiotherapy, locus of control, satisfaction with the health care received so far, anticipation of surgery, and gender. At follow-up, patients' expectations of benefit were shown to be related to change in functional disability and health status, perceived improvement, whether expectations were met and patient satisfaction. Most of the hypotheses proposed at the outset of the survey were supported, suggesting that patients' expectations of benefit are an important factor in the outcome of physiotherapy. Thus, the final stage of this research was to test the influence of patients' expectations on the outcome of treatment through a randomised controlled trial.

An intervention was designed based on previous work by Partridge and Johnston (1989). The intervention consisted of a letter containing information about what the physiotherapist would do, what the treatment would involve and passages to raise the patient's awareness of their role in the treatment and locus of control. The aim of the intervention was to alter patients' expectations of benefit and, as a consequence, improve the outcome of physiotherapy. Unfortunately, insufficient subjects were recruited during the available time, leaving the trial under-powered. No differences were detected between the intervention and control groups regarding expectations of benefit or the outcome of treatment.

11.3 Discussion of Findings

The following sections provide a discussion of the findings from the research within this thesis based on each research question.

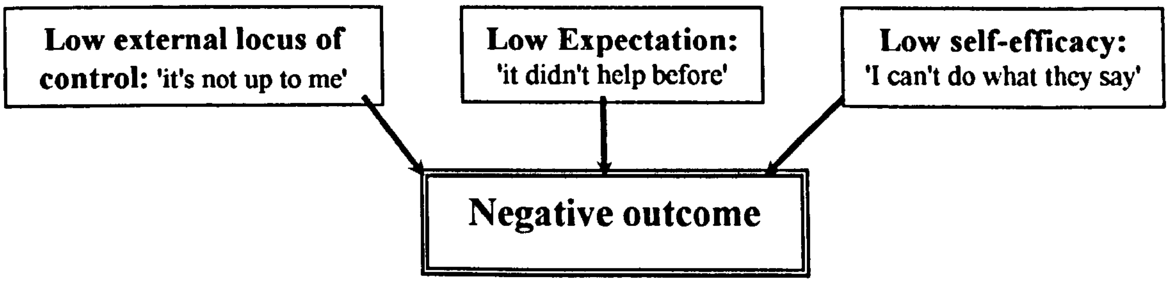
11.3.1 Is there any evidence in the literature to support the notion that patients' expectations of benefit are important to the outcome of physiotherapy?

This question was posed at the outset to determine whether there was any theoretical or empirical evidence to support perceptions gathered from clinical experience regarding the role of patients' expectations in the outcome of physiotherapy. The majority of the theoretical evidence came from the field of psychology and was followed by a wider review of the research literature incorporating medicine, dentistry, nursing and the therapies.

From the literature, expectations appeared to be directly linked to health beliefs, self-efficacy, locus of control, attitudes and schemata and a substantial amount of evidence suggested that expectations play an important role in health behaviour (Becker and Rosenstock, 1974; Fishbein and Ajzen, 1975; Bandura, 1977; Ajzen, 1985). Evidence from the research literature also supported the notion that expectations are important in the outcome of treatment, both medical (Skargren and Oberg, 1998; Mondloch *et al.*, 1999; Koller *et al.*, 2000; Kalauokalani *et al.*, 2001) and surgical (Burton *et al.*, 1979; Haworth *et al.*, 1981; Flood *et al.*, 1993; Iversen *et al.*, 1995; Tielsch *et al.*, 1995; Lindsay *et al.*, 2000). However, the exact mechanism behind the relationship remains largely unexplained.

In social cognitive theory, expectation is described as '*anticipatory outcomes of a behaviour*' and it has been suggested that expectations might influence behaviour and consequently, the outcome of any treatment (Baranowski *et al.*, 1997). This was consistent with the Theory of Reasoned Action (Fishbein and Ajzen, 1975) and the Theory of Planned Behaviour (Ajzen, 1985), in which a negative attitude is likely to lead to behaviour that achieves the anticipated negative outcome. Thus, if a patient anticipates a negative outcome (low expectation), based on their belief that nothing helped before, believes that they have no control over their recovery (low internal locus of control), and perceives they are not able to carry out the physiotherapist's instruction (low self-efficacy), then their behaviour is more likely to lead to a negative outcome. The regression modelling carried out in the survey showed that of these three constructs (expectations, control and self-efficacy), expectations had the strongest influence on functional outcome. Patients with lower expectations achieved worse outcomes in terms of functional disability. Figure 11.1 illustrates how negative cognitions may lead to a negative outcome.

Figure 11.1 Negative cognitions ⇒ negative outcome.



Several of the theories described in Chapter 1 (Health Belief Model, Social Cognitive Theory, Theories of Reasoned Action & Planned Behaviour), that attempt to explain health behaviour, suggested that previous experiences would be likely to impact on a patient's locus of control and self-efficacy. In contrast, the research in this thesis did not find a direct link between previous experience and locus of control, self-efficacy, attitude, or mood. However, previous experience was associated with expectations of benefit, and expectations were directly related to three of the locus of control sub-scales in the survey and the recovery locus of control score at baseline in the trial. This suggested that expectations of benefit may be more closely linked to locus of control than previous experiences.

11.3.2 Do patients have expectations regarding physiotherapy and treatment outcome, and if so, where do these expectations come from?

Cognitive theory suggests that expectations develop from the perceptions that a person has of the world and his interaction with the world, based on knowledge or information gained irrespective of the nature and accuracy of the source (Strecher and Rosenstock, 1997, Thompson and Suñol, 1995). However, there are likely to be several types of expectation, depending on the previous experiences of the individual. *Ideal* expectations might be most prevalent for those without previous experience, whereas those with experience are more likely to have *predicted* expectations based on previous encounters. The latter are probably more *realistic*, although each episode will be unique, with variations in the patient's condition and the availability of different treatments, for example, which may impact on the outcome of treatment. There may also be some patients who have no idea what to expect (*unformed* expectations). Thus, expectations of some kind will exist irrespective of previous experience (Thompson and Suñol, 1995).

These different types of expectations as described by Thompson and Suñol (1995) have been demonstrated throughout this research. The semi-structured interviews revealed that many interviewees had *unformed* expectations about physiotherapy and its likely benefit. This was further supported by the results of the survey and the trial. In the survey, about half the responders stated that they did not know what the physiotherapist would do or what the treatment would involve. This proportion was much higher for the trial participants (approximately 70% did not know what the physiotherapist would do or what the treatment would involve). This discrepancy may be due to different inclusion criteria. The survey included patients with upper and lower limb problems, while the trial included only non-traumatic knee conditions.

From the survey data, patient knowledge of physiotherapy was generally based on previous experiences, but interestingly, knowledge was not associated with expectation of benefit rating. This suggests that patients may be open-minded about the benefits of physiotherapy regardless of their knowledge. On the other hand, it may reflect a basic lack of understanding of the aims of physiotherapy. It is possible that patients may have a good idea about what the physiotherapist will do and what the treatment will involve, but are unable to synthesise this knowledge to predict an outcome. It is also possible that previous experience of physiotherapy leads some patients to realise that physiotherapists' aims of treatment may not concur with their own. This would support the findings of Partridge (1984), that showed that differences between physiotherapists' and patients' perceptions of the patients' problems resulted in discrepancies between therapists' and patients' perceptions of progress. Cedraschi (1996) also found that non-congruence regarding treatment plan between patient and therapist resulted in lower expectations of benefit from treatment for low back pain. This discordance could ultimately be an important factor in influencing the outcome of treatment.

The patient interviews found that sources of these expectations were mainly from previous experiences, supporting the findings of Staniszewska (1996) and Kravitz *et al.*, (1996), and affirmed by data from both the survey and the trial in this thesis. The results of the survey showed a strong relationship between patients' expectations of benefit and previous experience, which suggested that those with *unformed* expectations anticipated greater improvement. This finding supported those of Grimmer *et al* (1999), who found that 'naïve' low back pain patients had higher expectations of a complete recovery. It also agreed with the physiotherapists' rating of previous experience of physiotherapy as the most important factor to influence patients' expectations of benefit. Interestingly, responders in the survey who had already had physiotherapy for the same problem were less likely to expect to be referred again. Reasons for this may include failed previous treatment, or a perception that physiotherapy had already achieved all that it could. Previous experience, therefore, was used by patients to inform their expectations of future benefit with, in some situations, negative experiences leading to negative expectations. Negative experiences of physiotherapy may be related to the ineffectiveness of 'passive' forms of treatment given previously or the patient's inability to carry out the required activities/exercises, lifestyle changes etc. However, the interviews, survey and trial all demonstrated that, even without previous experience, patients were still able to quantify their expectations of benefit.

The strong relationship between expectation of benefit and previous experience suggested that previous experiences act to moderate expectations. However, in the survey when the same condition was being treated, the expectation of benefit did not match previous benefit gained. This discrepancy may be due to the patient's perception of their problem. If the problem was degenerative in nature, they may perceive their condition to have progressed to a point where physiotherapy may not be successful this time. Another explanation may be that the patient did not feel that they had benefited from physiotherapy previously. Even for a non-degenerative condition, if further treatment is needed, the patient may perceive the problem to be more serious because it had recurred or 'flared up', thus their expectation of benefit may be tempered by the belief that the problem will continue to recur. This contrasted with Staniszewska's (1996) research with cardiac patients, which suggested that worse health status was associated with higher expectations of benefit from treatment, i.e. the worse they perceived themselves to be, the more benefit they expected to gain from treatment. It is possible that patients may perceive a musculoskeletal problem to be a natural and inevitable result of every day life, age and activities, and something that they have to 'live with'. By contrast, cardiac conditions might be seen as disease driven and should be treatable by medical treatment, if not curable.

Interestingly, the survey showed that responders with a *traumatic* condition (either upper or lower limb) expected more benefit if they had no experience of physiotherapy. Responders with *degenerative* lower limb conditions with previous experience were the only group more likely to have lower expectations of benefit. This suggests that previous experience of physiotherapy may alter a person's perception of physiotherapy and its likely benefit for traumatic conditions, but not for degenerative conditions. The patient's perception of degenerative conditions may be one of irreversible damage, while broken bones usually heal. This may encourage a more tempered and realistic expectation of recovery for degenerative conditions, while quite rationally, the likelihood of recovery following trauma may be perceived as higher. To some extent this difference in expectation of recovery between type of condition is consistent with Beeson's (1981) research, where expectations of recovery were higher for elective surgery than traumatic. A patient's perception of recovery may be linked to the amount of damage, which would usually be less for elective surgery than following a traumatic injury.

11.3.3 What factors are associated with patients' expectations of benefit from physiotherapy?

This question was posed to investigate whether the author's belief that patients' expectations were important to the outcome of physiotherapy was widely held by other physiotherapists working in the same field. The Delphi study described in Chapter 4 provided an insight into the perceptions of physiotherapists working with out-patient musculoskeletal patients, regarding individual differences that may influence patients' expectations of benefit from physiotherapy.

Agreement was reached by the physiotherapists' responses on the list of patient variables that could influence patients' expectations of physiotherapy. But wide variation regarding the importance of each variable was found. Anonymity prevented associations from being examined between physiotherapist characteristics and their ranking of particular variables, so it is possible that physiotherapist age, gender, length of experience or other individual differences may have accounted for some of the differences in ranking. For example, previous experience of physiotherapy for a different complaint was ranked second overall, but some physiotherapists ranked it 19th out of 24. This may indicate that some physiotherapists ignore previous history of unrelated conditions, since they consider them to be of little relevance to the current problem. However, others may recognise that previous experiences of physiotherapy could be useful to the current course of treatment in terms of compliance, understanding of treatment aims etc. Many of the factors suggested by the physiotherapists were subsequently shown in the survey to be associated with patients' expectations of benefit and are discussed below.

11.3.3.1 Satisfaction related to expectations

There has been a trend in recent years to evaluate health care in terms of patient satisfaction and to incorporate patients' perspectives into service management (DHSS, 1984; McIver, 1991). A number of reviews of the literature on patient satisfaction have been carried out (e.g. (Linder-Pelz, 1982b; Williams, 1994; Sitzia and Wood, 1997; Keith, 1998; May, 2001). The results suggested that patient satisfaction could be used to describe health care from the patient's perspective, to measure the process of health care, identifying problems etc., and to evaluate health care. However, several authors have raised concerns over the interpretation of satisfaction as an evaluation of the outcome of treatment (Carr-Hill *et al.*, 1989; Williams, 1994; Avis *et al.*, 1997; Williams *et al.*, 1998). From clinical experience and research, many patients report high levels of satisfaction irrespective of improvement in their condition (Keith, 1998). This may be due to the patient's reluctance to complain, or the fact that pre-treatment expectations are modified over time, so that satisfaction with a poor outcome becomes inevitable. Therefore, caution is recommended when interpreting patient satisfaction survey results, since poor questionnaire design and methodology can also distort the findings. Nevertheless, there appears to be a link between expectations and satisfaction (Bessette *et al.*, 1995; Iversen *et al.*, 1995; Thompson and Suñol, 1995; Hakestam, 1998; Greenhow *et al.*, 1998; Staniszewska and Ahmed, 1998; Staniszewska and Ahmed, 1999).

The results from the survey in this thesis demonstrated a strong link between patients' expectations of benefit and satisfaction with health care received so far. Those responders who had already had some kind of treatment (not physiotherapy) for this problem were more likely to be dissatisfied with their health care so far, and less likely to expect much benefit from physiotherapy. This finding also supported the results from the Delphi study (Chapter 4). The physiotherapists rated the '*outcome of other treatment*' number seven in the top ten most important factors that they felt might influence patients' expectations of benefit from physiotherapy. Furthermore, both the change in health status and change in lower limb functional disability were dependent on satisfaction with health care received so far. Patient satisfaction with previous treatment is likely to have important ramifications for physiotherapy. If expectations of benefit are predictive of outcome, then any intervention prior to physiotherapy has the potential to undermine the patient's confidence regarding the outcome of physiotherapy, irrespective of their previous experience of physiotherapy. It is perhaps unfortunate that patients are not seen sooner by physiotherapists. However, since the efficacy of many physiotherapy interventions remains to be demonstrated, the physiotherapy profession must strive towards a stronger evidence base, so that referrers can be more confident about referring to physiotherapy earlier.

Another element of satisfaction relates to waiting time for treatment. The results of the survey did not show any direct relationship between waiting time for physiotherapy and the outcome of treatment. However, the psychological effects of sitting on a waiting list for weeks or months may contribute to the development of negative attitudes and behaviours. A long wait for treatment may involve taking time off work or having to stop usual activities / hobbies. This is likely to cause depression or lowered mood (Grossi *et al.*, 1999). These factors have been shown to be associated with poor outcomes (Maeland and Havik, 1987b; Hildebrandt *et al.*, 1997).

11.3.3.2 Patient preferences and knowledge

Awareness of alternative treatment was also associated with expectation of benefit. Responders who were aware of other treatments were more likely to expect little or no benefit from physiotherapy and three times less likely to expect a complete recovery. This knowledge may have been related to previous personal or vicarious experiences of alternative treatments, with or without positive outcome and expectation of benefit was not related to preference for the alternative treatment. This may indicate that those responders who were aware of other treatments may have already tried other methods without success, in which case physiotherapy may be seen as a 'last resort'.

Expectation of benefit from physiotherapy was also strongly associated with the patient's anticipation of surgery where this was relevant. Again, this effect on expectations may have been grounded in previous failed treatment and surgery may be the only remaining option. However, it is unknown whether the responders in this survey had actually been told that they would need surgery or whether that was simply their perception. It is feasible that those responders who were waiting for surgery were more likely to have had negative experiences of physiotherapy or other treatment, although no support was found in this survey. In the case of severe osteoarthritis, surgery such as total joint replacement (TJR) is often the ultimate solution. However, physiotherapy treatment prior to TJR may still be beneficial (Marks, 1997; Newman, 1990). In the survey, despite low numbers (n = 15), those waiting for surgery reported less improvement in functional disability. This may be due to the severity of the condition, but no significant differences were found in SoCS (severity of condition score) at baseline.

This negative effect of anticipated surgery on outcome is consistent with Klaber Moffett *et al*'s (1996) research into the effectiveness of pulsed short-wave diathermy for osteoarthritic hips and knees. These researchers found that patients on the waiting list for surgery faired significantly worse with physiotherapy than those not on the waiting list, despite similar levels of pain at baseline, although no direct relationship was drawn between expectations and outcome. It is likely that patients anticipating surgery would perceive their condition to be worse than someone not waiting for surgery. Surgery is perceived to be a dramatic treatment that is certainly invasive and potentially hazardous, which would only be applied if the condition were seen to be serious or threatening. If perceived health status is worse, patients' expectations of surgery may be high (Staniszewska, 1996). Physiotherapy is often referred to as *conservative* treatment. Hence, for conditions that will ultimately require surgery, the aims of physiotherapy would be rather different, i.e. symptom relief and improved muscle strength, increasing range of movement, prevention of deformity, education of joint care etc. Before treatment the patient may be unaware of the different aims for surgery and physiotherapy. With this knowledge their expectation of benefit may have altered.

The open answer section of the survey discovered that anticipation of surgery was closely related to expectation of benefit, with those waiting for surgery less likely to expect benefit from physiotherapy. Those preferring to have surgery perceived surgery to be a more permanent solution to their problem than physiotherapy. It is possible that such patients have low internal locus of control, thereby believing that any improvement is beyond their control and that it is up to the surgeon to 'fix' the problem. Alternatively, the concept may be explained by cognitive dissonance. As discussed in Chapter 2

(2.3.5), cognitive dissonance may occur when patients are unable to justify their behaviour. If a patient is preparing to submit themselves to surgery, they would need to believe that their condition was too serious for a low impact intervention such as physiotherapy, thereby justifying their preference for surgery over physiotherapy. Unfortunately insufficient numbers of subjects in the survey prevented any conclusions being drawn about the relationship between locus of control or cognitive dissonance and patients either wanting or anticipating surgery. Further research is needed to clarify if such a relationship exists. Meanwhile, physiotherapists should encourage their patients to communicate their beliefs about surgery. Any misconceptions about the need for surgery or the role that physiotherapy can play before surgery can then be corrected.

Patients' knowledge of physiotherapy, whether it was based on personal experience or not, was strongly associated with their expectations. It is often this knowledge or experience that alerts the physiotherapist to the patient's attitude or beliefs towards physiotherapy. Physiotherapists need to be aware of the various sources of information that patients use to develop a schema for physiotherapy. Some of these sources may be easily dealt with. For example, comparisons between the patient's own and a neighbour's condition that may or may not have improved with physiotherapy, or previous physiotherapy which failed to be of benefit. A fresh, and arguably more critical view of previous physiotherapy may in some cases identify deficiencies in the management of the patient's condition. However, the clinician needs to avoid open criticism of previous management. It may not only reduce the patient's faith in an individual practitioner and their profession, but may also cause further uncertainty and confusion.

11.3.3.3 Condition characteristics

The nature and duration of the patient's condition were not surprisingly found to be associated with expectation of benefit. Physiotherapists will, during the course of their initial assessment, ask the patient what happened, how it happened and how long ago it happened, thereby establishing the nature and duration of the patient's condition. The interpretation that the physiotherapist puts on these factors may not adequately reflect their importance from a psychosocial point of view. It is likely that the physiotherapist will rely on their training and use the medical model when considering the importance of the nature and duration of the condition. The psychosocial aspects may not be considered. The nature and duration of a patient's condition may have far reaching consequences on their beliefs, expectations and attitudes. Degenerative conditions may be perceived as irreversible, with little or no chance of improvement, and if a condition persists for longer than a few days or weeks, it may be perceived as more serious and needing more long-term or radical treatment, e.g. surgery. Such perceptions need to be dealt with early on in the management of the patient, otherwise as time goes by the length of treatment will only add credence to these perceptions.

Expectation of benefit was strongly related to both *duration of condition* and *waiting time* for physiotherapy ($p < 0.001$), although the two variables are not independent. No universal agreement on the definition of acute or chronic exists and the cut-off points are in many respects arbitrary. A musculoskeletal condition with a duration of up to 6 weeks is often referred to as acute; sub-acute is often used for between 6 weeks and 6 months, and more than 6 months tends to be termed chronic. However, considerable variability in the use of these terms exists that is often dependent on the diagnosis. For example, in low back pain the term chronic is often applied at 3 months, while the Quebec Task Force defines acute as less than 7 days (Atlas *et al.*, 1996). The patient may perceive the chronicity of the condition in a similar way to degenerative versus traumatic. It is worth noting that a British colloquialism of the word 'chronic' is *severe* (New Oxford Dictionary of English, 1998). Thus a patient may perceive a chronic condition in terms of severity or intensity rather than duration. In this survey, half the responders had had the problem for more than 6 months (i.e. chronic), although only 7% rated their pain level as severe or very severe. Previous research has shown that different approaches are required for acute and chronic musculoskeletal conditions (van Tulder *et al.*, 1997; Mao *et al.*, 1997; Katavich, 1998). From the patient's perspective, he may feel that the longer a problem exists the harder it will be to resolve, and at some point there may be doubt that it will ever get better. The Delphi study with the physiotherapists also suggested that the duration of condition might be an influential factor. In an out-patient physiotherapy department, prioritisation often means that sub-acute and chronic conditions are placed on a waiting list, thus the waiting time for physiotherapy is likely to be longer for those with chronic conditions. In terms of positive and negative experiences, having to wait for treatment would not foster a positive outlook towards the health care system in general, but particularly the treatment referred for. Patients on a waiting list may have a reduced level of activity and see themselves in a passive role. This may lead to feelings of helplessness and depression, with the development of a negative attitude towards their health care more likely. Furthermore, for the lower limb responders, the results of the survey showed that the percentage change in health status and functional disability was significantly dependent on the duration of condition. For some, time can be a great healer, but for others it can have a detrimental effect on expectations of benefit, as this survey has demonstrated. From clinical experience, physiotherapists are aware that early intervention is more likely to result in better outcomes for most conditions referred for musculoskeletal physiotherapy. Unfortunately, the demand usually outstrips the resources available and waiting lists develop.

11.3.3.4 Site of condition

Upper limb responders with a degenerative condition tended to be more optimistic than those with a degenerative lower limb condition. No previous research appears to have compared the expectations of patients based on different parts of their body affected, therefore one can only hypothesise why this difference exists. It is possible that patients perceive lower limb degenerative conditions as more problematic than upper limb because of the weight-bearing aspect. Disability from a lower limb injury may involve mobility restrictions, while an upper limb disability can to some extent be compensated for by use of the unaffected arm. Thus, the perception of disability and disruption to lifestyle is likely to be greater for lower limb conditions. The health status measure (SF-36 PCS score) used in the survey adds weight to this argument, since a highly significant difference was found in baseline health status between upper and lower limb responders ($p < 0.001$), with lower limb responders reporting worse health status at baseline. In addition to better health status, upper limb responders tended to have less depression and anxiety, and shorter duration of condition than lower limb responders. These factors may explain why upper limb responders had higher expectations than lower limb responders, although no relationship was found between expectations of benefit and anxiety or depression.

11.3.3.5 Gender

The relationship between gender and expectation of benefit was interesting. Men appeared to have higher expectations than women. This may be explained by findings from sociology where British housewives were found to suffer from poor health related to low self-esteem from living an isolated and monotonous life (Arber and Lahelma, 1993). However, women were more likely to have a degenerative condition, thus their expectation of benefit may have been moderated by their beliefs regarding their condition. When analysed, taking type of condition into account, the gender differences maintained only borderline significance, and only for those with traumatic problems. A larger study would be needed to clarify this relationship. This finding is consistent with those of Con *et al* (1999), whose investigation of the differences between men and women following coronary artery bypass surgery suggested that psychosocial variables affect the recovery process in different ways for men and women. Physiotherapists need to give consideration to gender when communicating with the patient and planning treatment. For example, physiotherapists need to bear in mind that men and women may have different home situations, availability of time, motivational drives etc.

11.3.4 Is there a relationship between patients' expectations of benefit and physiotherapy outcome?

In the survey, the outcome of treatment was assessed using a variety of measures: functional disability at discharge (LEFS or DASH), health status at discharge (SF36), change in functional disability, change in health status, self-rated perceived benefit and patient satisfaction. Data from the survey clearly showed a strong relationship between patients' expectations of benefit and the outcome of physiotherapy. The results of the trial did not confirm this, possibly due to deficiencies in its design (i.e. small sample size).

11.3.4.1 Functional disability and health status at discharge

Expectation of benefit was significantly correlated with the scores on both Lower Extremity Functional Scale (LEFS) and the Disabilities of the Arm, Shoulder and Hand (DASH) scale at follow-up, despite a poor correlation at baseline. Regression modelling showed that expectation of benefit independently accounted for 28% of the variance in the LEFS score at follow-up, but only 8% of the DASH score at follow-up. Expectations also accounted for the largest proportion of variation in the SF-36 Physical Component Summary (PCS) follow-up score for the lower limb (22.5%), but very little (8%) for the upper limb. These differences between upper and lower limb conditions have already been discussed (11.3.3.4) and might explain the different R^2 values in the regression models.

11.3.4.2 Change in functional disability

A change in functional disability is a primary, although not the sole, aim of physiotherapy treatment. A list of factors most likely to influence change in functional disability might include the duration and type of condition, and the treatment given in terms of modality, duration and intensity. However, the results of the survey showed the number of treatments, intensity or type of treatment (passive, active or a combination) were not associated with a change in functional disability. In addition, the duration of condition, although significantly associated with the LEFS follow-up score, did not maintain statistical significance when analysed within the regression model. This finding supports the author's original postulation that psychological factors might be more influential to the outcome of treatment than physical or treatment factors. This is consistent with evidence from the literature (Burton *et al.*, 1994; Partridge and Johnston, 1989; Maeland and Havik, 1987b).

Expectation of benefit, previous experiences etc., may be factors that some physiotherapists believe could influence the outcome of physiotherapy. Most research into the effectiveness of physiotherapy has concentrated on tangible, measurable, controllable factors such as duration of the condition or type of treatment. The results of the survey support the findings of Skargren and Oberg (1998), Mondloch *et al* (1999) and Koller *et al* (2000), that expectations of benefit are strongly associated with the outcome of treatment in terms of functional disability (see Chapter 3). If expectations can be altered and the outcome of treatment is therefore enhanced, physiotherapists may need to give greater consideration to the information (verbal and written) given to patients referred for treatment.

To investigate this issue further, the final stage of the research in this thesis aimed to determine whether written information designed to alter patients' expectations could enhance the outcome of treatment. The results of the trial showed that patients' expectations were not changed by the intervention, and no differences in outcome were found between intervention and control groups.

11.3.4.3 Perceived Benefit

Another measure of outcome, and arguably more important to the patient, was *perceived benefit*. Both the survey and the trial showed that the link between expectation of benefit and perceived benefit was significant, with those who expected little or no benefit, more likely to perceive no benefit or worse. This finding supports those of Kalauokalani *et al* (2001) and suggests that the patient's perception of benefit is influenced by pre-determined expectations. However, it would be important to determine whether such expectations came from direct or indirect information. In the survey, the responders' awareness of what physiotherapy is significantly correlated with their expectations of benefit. The level of awareness was ascertained through the use of a list of words or phrases that they could agree with, or not. Although crude in its design, this provided an interesting variety of responses. Those with higher expectations of benefit agreed with more terms, suggesting that increasing the patient's awareness of physiotherapy may enhance their expectation of benefit.

11.3.4.4 Satisfaction as an outcome

As discussed earlier (11.3.3.1), satisfaction may not be a useful measure of clinical effectiveness. In both survey and trial, the majority of participants (92.6% in the survey and 84.2% in the trial) were satisfied with their care from the physiotherapist and with overall improvement (68.9% in the survey and 66.3% in the trial). In the survey and for the intervention group in the trial, satisfaction was associated with expectation of benefit. Participants who expected either a lot of benefit or a complete recovery were more likely to be satisfied with the overall improvement in their condition. In addition, greater satisfaction with overall improvement was found when expectations of benefit were met, confirming unmet expectations can lead to reduced satisfaction (Kravitz *et al.*, 1996; Marple *et al.*, 1997; Rao *et al.*, 2000; Jackson and Kroenke, 2001).

However, the relationship between expectations of benefit and expectations met was not consistent depending on the method used to determine whether expectations had been met. By measuring the gap between expectations of what might happen against perceptions of what actually happened, as suggested by Parasuraman *et al* (1988), Babakus and Mangold (1992) and Chaston (1994), it appeared that if patients attended with low expectations, their satisfaction was likely to be high. But if the questioning was more direct (i.e. *Did you achieve the benefit that you expected?*), then satisfaction was likely to be highest for patients attending with high expectations. The use of a pre-treatment expectation measurement may explain this discrepancy. Nevertheless, the difference raises an important issue with regard to the evaluation of physiotherapy. A number of patient satisfaction tools are available and there is always the temptation to develop a new one to fit local needs, but the measurement of satisfaction is problematic, as seen in this research. Care is needed when choosing the right tool. If an inappropriate patient satisfaction tool is used, and satisfaction scores are high, there may be a danger that striving to raise the quality of care may appear to clinicians and managers as unnecessary. A ceiling effect is a common deficiency with satisfaction questionnaires (Williams *et al.*, 1998; Avis *et al.*, 1997; Fitzpatrick and White, 1997; Sitzia and Wood, 1997).

In both the survey and the trial, global satisfaction with overall improvement was strongly related to functional disability change. However, differences in the relationship between global satisfaction and KOOS dimension change scores were found between intervention and control groups in the trial. The KOOS (Knee Injury and Osteoarthritis Outcome Score) measures functional disability in five dimensions: pain, symptoms, sport/recreation, activities of daily living (ADL) and quality of life (QoL). For the intervention group, satisfaction was only correlated with the pain and QoL KOOS dimension change scores, but for the control group, satisfaction was correlated with all dimension change scores. This suggested that the intervention may have altered the control group's appreciation of the concept of satisfaction for specific aspects as measured by the KOOS. Further research is needed to explore how the relationship between satisfaction and functional disability change is altered when information is given about what to expect.

11.3.5 Can patients' expectations of benefit be altered to improve the outcome of physiotherapy?

The primary objective of the trial was to determine whether written information could alter patients' expectations of benefit and improve the functional outcome of physiotherapy treatment. The outcome tool used was the Knee Injury and Osteoarthritis Outcome Score (KOOS).

The intervention (a simple letter explaining what the physiotherapist would do and what the treatment may involve, including the responsibilities of the participants) was applied at baseline. No treatment had taken place at this stage and the participants were unlikely to have had any contact with the physiotherapy department, therefore any alterations to patients' expectations at this stage should be attributable to the intervention. Although expectations did change, the changes were not statistically significant between the two groups, but the trend seemed to suggest that the intervention might act to moderate expectations. It is possible that replication of this trial with larger numbers would be more conclusive.

The results across all participants showed that functional disability, in terms of four of the five KOOS dimensions, improved significantly from baseline to follow-up, with slightly different patterns emerging according to group allocation. Only the symptoms dimension failed to improve significantly. Despite the lack of improvement in the symptoms dimension, the other dimensions of functional disability did improve. However, functional disability improvement appeared to be unrelated to the type, intensity and duration of treatment. This begs the question *"what was the cause of the improvement in functional disability?"* However, regression to the mean is another likely explanation. Patients involved in trauma are likely to improve with or without treatment. Further studies are required to determine how or why these patients improved.

For the intervention group significant improvements were seen in the sport/recreation, ADL and QoL dimensions, while the control group had significant improvements in the pain, ADL and QoL dimensions. Between groups there were no statistically significant differences for these variables, although the sport/recreation dimension reached borderline statistical significance ($p < 0.06$). The small sample size (n = 86) increased the chances of a type II error. It is possible that with greater numbers this trend towards significance may have continued beyond borderline.

Otherwise, the results of this trial provided no evidence that a simple intervention of written information prior to treatment can ultimately lead to an improved outcome in terms of activities of daily living or quality of life. This lack of evidence may be due to short falls in the design of the intervention. The intervention in this trial was based on work by Partridge and Johnston (1989), but differed in several aspects. First, Partridge and Johnston used a standard patient appointment and information letter adding additional paragraphs providing patients with minimal information about the treatment ahead and emphasising the amount of effort required by the patient if a speedy recovery is desired. In the trial reported in this thesis, the intervention contained quite specific information about the anticipated treatment as well as emphasising the amount of effort and responsibility required by the patient. Second, the trial intervention reported here also included a visual reminder about the key messages from the letter, Partridge and Johnston's letter did not. Third, the length of the letter in this trial was one side of A4, while Partridge and Johnston used only four short paragraphs. Finally, the aim in Partridge and Johnston's study was to alter patients' perceived control over their recovery, while the aim of the intervention reported here was to alter patient's expectations of benefit as well as their perceived control over their recovery. In addition, the patient group investigated was not the same (i.e. non-traumatic knee problems rather than Colles fractures). It might be useful to develop the intervention further through qualitative research methods, for example in-depth interviews, or focus groups with patients.

11.4 Other interesting findings

Although not directly related to the questions posed at the start of this research, a number of other interesting findings emerged. These were specifically related to the psychological variables measured in the survey and trial, and provided a better understanding of how psychological factors may impact on the outcome of physiotherapy.

11.4.1 Locus of Control

Chapter 2 gave a brief description of the concept of locus of control and its relationship with expectations. The results of the survey confirmed the strong relationship between expectations and locus of control. In the survey four dimensions of locus of control were explored: *Internal, Doctors, Other People* and *Chance*. All except the *Chance* sub-scale, were significantly and positively correlated with expectation of benefit rating. Thus, as locus of control increased, expectation of benefit increased. These results were consistent with Rotter's (1966) theory of locus of control and the findings of Partridge (1985), Partridge and Johnston (1989) and Johnston *et al* (1992).

Depending on the limb involved, different dimensions of locus of control appeared to be important to recovery. The percentage change in lower limb functional disability was significantly dependent on the *internal* and *doctors* sub-scales scores accounting for just under 10% of the variance in LEFS percentage change. For upper limb functional disability, the other two sub-scales (*chance* and *other people)* accounted for 12.7% of the variance in DASH percentage change. However, when type of condition was taken into account the most important locus of control dimensions were *internal* for lower limbs and *chance* for upper limbs. This suggested that different dimensions of locus of control were important in the recovery of patients with upper or lower limb conditions. Recovery from a lower limb problem, irrespective of the type of condition appeared to be dependent on how much control the patient felt that they had over events, while upper limb patients appeared much more reliant on chance factors. Further research is needed to clarify why such a difference was found.

Partridge and Johnston (1989) and Johnston *et al* (1992) were able to demonstrate significant differences in RLOC scores between intervention and control groups after the intervention had been given. However, the results reported in this thesis showed no differences in RLOC at initial contact or baseline between the two groups. This apparent disagreement with the findings of Partridge and Johnston (1989) and Johnston *et al* (1992) may be due to problems with the design of the intervention. It is possible that the intervention used in the present study was not as effective as that used by Partridge and Johnston. On the other hand, it may be that the shortfalls (see Chapter 3; 3.3.2.4) about Partridge and Johnston's research explain the contrary findings. Recovery Locus of Control was not measured before the intervention, therefore we cannot determine how similar the two groups were before the intervention. Thus, it is impossible to know if the intervention used by these authors did alter patients' locus of control at all. The small numbers included in the present study may have led to a type II error. A larger study might overcome this.

The test-retest reliability of the RLOC has not been examined, since presumably it was not designed to be used in longitudinal studies, and it may not be sufficiently sensitive to changes over time. The results of the present trial found no statistically significant differences in RLOC from initial contact to baseline in either group. However, a statistically significant difference was found in RLOC from baseline to follow-up for the intervention group. This suggests that the RLOC may be stable in the short term, but may change over time. Further testing of the RLOC is recommended.

11.4.1.1 RLOC and expectations

Despite the apparent lack of effect of the intervention on recovery locus of control, it is worth noting that the relationship between RLOC and expectations altered from initial contact (before randomisation) to baseline (when the intervention was introduced), but only for the intervention group. The correlation between expectations of benefit and RLOC changed from –0.14 to 0.38 in the intervention group, and the amount of variance in the RLOC score explained by expectations of benefit increased from 1% to 14%. In essence, the intervention appeared to have altered the relationship so that those with higher locus of control had higher expectations of benefit. This is consistent with the concept of locus of control (Rotter, 1966; Wallston and Wallston, 1978) and subsequent work by Partridge and Johnston (1989) and Johnston *et al* (1999), which suggested that increasing internal locus of control fosters more positive beliefs and behaviours.

Although the intervention used to increase expectations in the trial failed, there appears to be some evidence that, given a more effective intervention to increase expectations, patients' internal locus of control might be increased and may improve outcome. However, as with many cognitive constructs, it is difficult to determine which is the dependent and which is the independent variable. In Partridge and Johnston's work, the intervention (i.e. the letter) was the independent variable acting upon locus of control, the dependent variable. In the present trial, expectations of benefit were the dependent variable. The lack of correlation between expectation rating and RLOC at initial contact appears to suggest that the two are actually independent of each other. However, following the intervention, a relationship was found, albeit weak. It is possible that the intervention, which included passages aimed at increasing internal locus of control may have impacted on both expectations and locus of control, thereby creating a relationship. Although no statistically significant correlations were found between expectations and improvement in functional disability, the results of the trial demonstrated statistically significant correlations between two of the KOOS dimension change scores (pain and sport/recreation) and recovery locus of control at baseline, but only for the intervention group. This suggests that locus of control may have been influenced by the intervention, which may in turn have impacted on pain and sport/recreation functional disability. This would concur with the findings of Johnston *et al* (1999) in their study of stroke patients receiving rehabilitation. Recovery locus of control was found to predict recovery from stroke, arguably a far more debilitating condition than a non-traumatic knee problem.

Locus of control can be shifted by good patient-therapist communication (Johnston *et al.*, 1992; Fisher and Johnston, 1996). Indeed, from clinical experience, much of the encouragement and motivational techniques that physiotherapists employ are aimed at increasing locus of control and self-efficacy.

11.4.2 Self-efficacy

Despite the evidence supporting the role of self-efficacy in health (Bandura, 1977; Schwarzer and Fuchs, 1996; Strecher and Rosenstock, 1997), the survey failed to demonstrate a relationship between self-efficacy and any of the baseline or follow-up variables. This may have been due to deficiencies in the instrument chosen, for example, lack of sensitivity. In the absence of a valid and reliable tool to measure self-efficacy in musculoskeletal patients, Schwarzer's (1993) generalised self-efficacy scale was chosen. As its name suggests, the scale is intended to measure generalised self-efficacy and a more specific tool, such as Nicholas' (1994) pain self-efficacy scale, may have been more suited to the purpose of the survey. A modified version of Nicholas' pain self-efficacy scale was used in the trial and found to be more useful, with statistically significant correlations found between self-efficacy and TSK, RLOC and Mood score at baseline and all the KOOS dimensions.

11.4.3 Fear and avoidance

Another finding of interest from the trial included the relationship between the Tampa Scale of Kinesiophobia (TSK - see 9.2.3), which was measured at initial contact (i.e. before randomisation and the intervention) and functional disability at baseline (measured after the intervention, but before physiotherapy). Despite no differences between the two groups for any of the psychological measures or KOOS dimensions, some of the correlations between some of the psychological measures and KOOS dimensions were strikingly different between groups. Strong correlations were found between TSK scores and the pain and sport/recreation dimensions, but only for the control group. This suggests that the intervention may have altered the intervention group's fear and avoidance beliefs, thereby removing the relationship between fear and pain or fear and avoidance of sport/recreational activities. Although the intervention was not designed to alter fear and avoidance beliefs, it is possible that the information about what to expect, explaining that the *'key to coping with your knee problem is you'* and that *'hurt does not mean harm'* was sufficient to reduce their fear. This is consistent with the work of Vlaeyen *et al* (1995a, 1995b), Vlaeyen (1999) and Crombez *et al* (1999a, 1999b), who have provided compelling evidence that reduction of fear of pain leads to reduction in pain related disability. Unfortunately, the TSK was not repeated at baseline (prior to treatment), therefore further work is needed to determine whether the intervention used in this trial can alter fear and avoidance beliefs.

11.5 Limitations of this thesis

Both the survey and the trial used postal questionnaires as the data collection method and consequently suffered from the associated limitations of low response rate and questionable representativeness. The advantages of postal questionnaires over interviewing, such as cost, ease of administration and larger sample size, may be outweighed by the limitations unless precautions are taken to minimise these adverse factors. The limitations of postal questionnaires include non-response, inability to check understanding, inability to ensure the correct person completes the questionnaire and inability to check or clarify responses (Moser and Kalton, 1971). Non-response is by far the greatest problem.

11.5.1 Response rate

The survey's response rate (43%), although low, was encouraging considering the length of the questionnaire (14 sides of A4) and despite efforts to improve it, the response rate for the trial was 51.5% at initial contact, dropping to 34.4% at baseline. The response rate for the piloting of the Patient Expectation Questionnaire and SF-36 was also poor, therefore it was recognised that strategies would need to be employed to prevent a problem in the larger study. Unfortunately, the timing of the questionnaire distribution meant that it was not feasible to chase up non-responders to encourage participation. Patients were sent the questionnaire pack with their appointment for physiotherapy, which was usually scheduled within the following two weeks, thus by the time non-response could be established, the patient may have already started physiotherapy. One possible method of improving the response rate might have been a telephone call a few days after mailing, to check on receipt of the questionnaire pack and encourage participation. However, since the patients were under no obligation to participate, a telephone call might have been construed as coercion and therefore unethical. In addition, this encouragement would need to have been carried out by the reception staff in the departments, since they sent out the baseline packs. These people were already busy and additional work may have reduced their co-operation with the studies.

Another method of improving response rate would have been through piloting the questionnaire, since its length and complexity may have been off-putting to some patients (May, 1996; Moser and Kalton, 1971). Piloting also helps to ensure the content, readability and validity of the questionnaire (Jack and Clarke, 1998; Oppenheim, 1992; Bork and Francis, 1985) and steps can be taken to check or clarify responses. The PEQ and SF-36 portions of the survey were piloted, comments sought and amendments made. The other questionnaires in the survey and those in the trial had already been tested for reliability, validity, applicability and practicality, therefore piloting was considered unnecessary. In hindsight, this may have been an error of judgement, but the quality of the information gathered appeared adequate for the majority of responders/participants. Missing responses were dealt with in accordance with each section of the questionnaire as appropriate and if whole sections were missing, the patient was sent a polite letter asking for completion of the missing sections. In an attempt to overcome the problem of poor response rate, as much relevant information as possible was gathered about the non-responders, in the hope that despite a low response rate, the sample would still be representative of the population.

In the survey, a high proportion (37.3%) of eligible patients were ‘missed’ (i.e. patients who should have been identified for the survey, but were not for whatever reason), while the eligible pool of patients for the trial appeared lower than expected. This suggests that more should have been done to encourage departments to forward patients’ details. However, in the survey, more than half of ‘missed’ patients had traumatic conditions, which may have necessitated urgent appointments. The design of the survey precluded any patient needing an urgent appointment. To reduce the number of missed patients and improve the response rate for the survey, patients could have been approached directly by the receptionist for consent either on presentation of the referral at reception or over the telephone. This would have enabled the receptionist to arrange for the patient to attend half an hour earlier for their appointment in order to complete the questionnaires prior to treatment. However, this design may have over-burdened the busy receptionists, who possibly would have withdrawn from their role in the study.

Nevertheless, the participation of individual physiotherapy departments was disappointing. Some departments were clearly keen to help with the studies and provided many eligible patients. However, the majority of the nine departments agreeing to help with the trial only managed to identify a few patients and required constant reminding about the study. This led to fewer patients identified as eligible, incomplete and inaccurate details faxed to the investigator and, most damaging of all, memory lapses when baseline packages needed to be sent out. This highlights the need for greater involvement of study personnel with the physiotherapy departments, but in this case there was only one person organising, managing and evaluating the trial. Departments were contacted on a regular basis and given feedback on progress throughout both studies, but even this contact did not encourage the less motivated departments to co-operate fully. Staffing changes and shortages during the survey and trial periods, rather than complicated trial procedures, were the usual explanation for poor participation. Any future studies using similar procedures would need to take into account the difficulties encountered here and possibly offer some kind of incentive for participation.

11.5.2 Representativeness of the research subjects

A comparison of the responders and non-responders in the survey and between the participants and non-participants in the trial did find differences. Age and gender were significantly different between responders and non-responders in the survey, with a bias towards older females responding. Age was also significantly different between trial participants and non-participants, as well as socio-economic status. The non-participants tended to be younger and from more deprived areas, therefore caution is needed in generalising the findings of the results of the survey and the trial. Details of socio-economic status were also collected in the survey showing that Hull is 26th from lowest on the Townsend Deprivation scores. No differences were found between responders and non-responders. This contrasts with the findings of Britton *et al* (1998). In their review of participation in clinical trials, participants tended to be male, younger than average, less educated, of lower socio-economic status and have inadequate social support. However, the trials that Britton *et al* (1998) reviewed were primarily drug trials, which may explain why their description of trial participants appears to be the opposite of the participants in these studies. Another explanation for the large proportion of older people who participated, particularly women, may be the sociodemography of the area. The survey results showed that more women tended to be retired, while more men were on sick leave. Thus older women may be more likely to participate because they were retired or in homemaking occupations, which may mean that they would have more time to complete the questionnaires than younger women who may be working or busy with young children, or older men still working full-time. No differences were found between men and women in the trial, mainly due to small sample size.

In the survey, another significant difference between the three patient groups (responders, non-responders and missed) was diagnostic category. There were fewer traumatic upper limb problems amongst the responders. This may explain why so many eligible patients were missed. Traumatic conditions are more likely to require an urgent appointment and, due to the staff skill mix and departmental organisation in this particular NHS Trust, musculoskeletal hand conditions tend to be seen quicker, with less notice of appointment allocation than lower limb problems. In both situations there would have been little or no time in which to send out the questionnaire pack by post. In addition, an upper limb problem may have meant that the patient was unable to write, which would make it difficult for them to complete the questionnaires, particularly if they lived alone.

In the trial, an age difference was also found between the two groups (the control group had a slightly greater mean age), which may explain the presence of more *other health problems* in the control group. The increased presence of other health problems in the control group may have affected the control group's perceptions of their health status and disability. Although this had the potential to reduce their locus of control, no differences in locus of control were found between groups. Therefore it is unlikely that this difference affected the results.

Another important factor that may have reduced the representativeness of the sample is the concept of self-selection. Participation was voluntary, thus it is likely that individuals who participated were more highly motivated than those who chose not to participate. Ethical considerations would not allow for an alternative method of recruitment and it was not possible to evaluate patients' motivation levels, therefore the results should be considered with this limitation in mind. However, based on the Townsend Index rating (26th from bottom), it is likely that most patients who participated would have been more deprived than the national average.

11.5.3 Blinding

The trial was designed to be a double blind study, with neither the subjects nor the physiotherapists aware of group allocation. Group B (control) subjects received some written information other than questionnaires, so it was unlikely that they would realise that they had not received the intervention. However, it was possible that the group A subjects would realise that they had received the intervention, since the intervention material was obviously more elaborate than a simple letter. To overcome this potential bias, the intervention material could have been 'toned down', but this may have reduced its effectiveness – written information is usually more effective if it uses plain language, is well laid out making it easy to read and eye catching (Boyd, 1987; Weinman, 1990; Kitching, 1990; Arthur, 1995; Charnock, 1998; Tutty and O'Connor, 1999; Frost *et al.*, 1999).

11.5.4 Heterogeneity of subjects

In addition to the differences demonstrated in section 11.4 .2 above, it is likely that the heterogeneity of the subjects in the trial contributed significantly to the inability of the trial to find a difference. Although the physiotherapy management of the condition would have been fairly standard, the subjects varied enormously in a number of variables including age, duration of condition and type of condition. With such a large variation, the likelihood of finding a difference was greatly reduced. Future studies should aim for greater homogeneity and much larger samples.

11.5.5 Statistical significance

Finally, statistical significance throughout the research in this thesis was set at the 5% level. In view of the number of variables in both the survey and the trial, it may have been more prudent to set the level at 1%. Although this would have taken a more conservative view of the statistical significance of some of the findings, it may have reduced the likelihood of highlighting associations that may have occurred by chance. Nevertheless, the majority of findings were statistically significant at the 1% level.

11.6 Implications for physiotherapy practice

This research has provided some evidence to support physiotherapists' beliefs that patients' expectations of benefit are associated with the outcome of treatment. These expectations are strongly related to previous experiences, knowledge of physiotherapy, type of condition, duration of condition, locus of control, anticipation of surgery, satisfaction with health care received so far, and gender. Some of these aspects are beyond the control of the physiotherapist, but many of them are not. However, all of them need to be considered by the physiotherapist when initiating care. The implications for physiotherapy practice are twofold. First, what do qualified physiotherapists need to do to ensure that patients' expectations and related issues are considered? (1) Improved communication between patient and physiotherapist and (2) raised awareness through further publications and research are needed. Second, what changes are required to the undergraduate programme to ensure that newly qualified physiotherapists are adequately aware of psychosocial issues and their impact on the effectiveness of physiotherapy? Undergraduate education programmes vary between institutions, therefore further research is needed to investigate how, and in what depth, psychosocial aspects of physiotherapy are taught (Scudds *et al.*, 2001).

11.6.1 Communication

Good communication, particularly at the initial assessment, can provide the physiotherapist with a wealth of information. A standard musculoskeletal out-patient assessment should gather all relevant information, including past medical history and details of the current complaint. However, the extent to which the physiotherapist explores and uses this information will depend on their awareness of the issues that have been raised in this thesis. For example, how much consideration is given to the gender of the patient when communicating and planning treatment. Physiotherapists need to bear in mind that men and women may have different home situations, availability of time, motivational drives etc., which may affect their ability to attend for treatment and carry out any lifestyle changes that may be required.

All patients are individuals who require care tailored to their unique situation. An understanding of each individual's unique situation can only be gained if the right questions are asked. Questions about social circumstances may need to include availability of time and space at home and at work, and may require some lateral thinking by the physiotherapist and patient to reach a solution that enables the patient to carrying out the required treatment or lifestyle changes. Physiotherapists need to recognise the importance of good communication skills, particularly demonstrating empathy and using sensitive probing to clearly understand each patient's circumstances and the effect that these circumstances may have on the outcome of treatment. The use of open-ended questions such as "What is it about your condition that particularly concerns you?" can be useful.

Better communication can help to correct misconceptions, resolve dissonance, and educate patients about the aims and benefits of physiotherapy, but physiotherapists also need to be more aware of the various sources of information that patients use to develop a schema for physiotherapy. Not all patients will know what physiotherapy is or what benefit it can provide. However, they will have a mental map of some kind helping them to make sense of the situation. This mental map may be full of misconceptions that might hinder their progress. Patients may often believe that their condition is worse than it is, causing them to lower their expectations of improvement and reduce their ability to manage their condition. Such misconceptions reduce (a) motivation, (b) adherence to treatment plans and (c) the power of positive thinking. All these can lead to poor outcomes of treatment.

11.6.2 Awareness of the impact of psychosocial variables

Do physiotherapists recognise the consequences of psychosocial differences that may exist between traumatic and degenerative conditions, or between comparative upper or lower problems? Can they recognise and deal with a patient's perceptions of severity or their need for more radical or longer treatment? These are skills that require a greater awareness of how such cognitions may affect the progress and outcome of treatment. Physiotherapists need to ensure that they have this knowledge and skill. Motivational interviewing techniques (Rollnick *et al.*, 1992; Miller, 1996) are tools that physiotherapists use when assessing a patient's readiness for change. Such techniques have been shown to resolve dissonance and increase internal locus of control (Draycott and Dabbs, 1998). Physiotherapists may not be aware of this process.

The evidence base supporting the impact of beliefs and perceptions on behaviour is substantial, although the evidence related specifically to physiotherapy is limited. Nevertheless, there appears to be more theoretical basis to the psychological effectiveness of physiotherapy than many of the physical modalities currently in use. There is an urgent need to strengthen the evidence base in physiotherapy through further research.

11.6.3 Service issues

One issue that remains problematic for most out-patient physiotherapy departments is lengthy waiting lists. The findings in this thesis have reinforced the need for physiotherapy managers to recognise the impact of waiting lists on patients from a psychosocial aspect and hence the outcome of treatment, although more research is necessary to fully appreciate the problems that waiting lists create.

The effect of previous health care and untimely use of physiotherapy have also been highlighted in this thesis. Satisfaction with previous health care received is beyond the control of the physiotherapist, but the influence of this variable on expectations of benefit from physiotherapy needs to be explored and dealt with by the physiotherapist if expectations are to be raised. Those patients in the survey who had already had some kind of treatment (other than physiotherapy) for their condition were more likely to be dissatisfied with health care already received and more likely to have low expectations of benefit from physiotherapy. It is probable that these are complex cases that are unlikely to respond to physiotherapy. If this is true, then how much of the limited resources available in the NHS should be spent on such cases? Possibly, physiotherapists need to be prepared to turn down referrals, which they believe to be inappropriate. In some cases the patient's problem may have been mismanaged and physiotherapy should have been the first line treatment. Unfortunately, there is very little evidence to support many of the treatments currently used by physiotherapists, so it is understandable that physiotherapy may be used as a last resort. If physiotherapists believe that they can and do help these complex cases, then they must provide the evidence to back up their beliefs. Further research into many aspects of physiotherapy is urgently needed. The introduction of patient information systems and the use of valid and reliable outcome measures would be the first essential steps towards gathering useful information routinely about patients and the treatment they receive in the usual clinical setting.

11.7 Conclusion

This research reported in this thesis has explored a hitherto unresearched aspect of physiotherapy. The characteristics that patients demonstrate in terms of their beliefs, perceptions and cognitions appear to have some influence on the course of their physiotherapy. They may fail to attend, cease treatment prematurely, achieve minimal, if any, benefit from treatment or exceed all expectations. In the absence of more compelling evidence, the research findings in this thesis suggest that physiotherapists need to be more aware of the psychological attributes of their patients as well as the effect that their intervention (communication, handling and therapeutic) has on their patients' beliefs, perceptions and cognitions. The term 'patient centred care' implies that all interventions should be tailored to the individual rather than the diagnosis. All patients are unique despite the similarities of their conditions. To be able to deliver patient centred care, physiotherapists must adapt their interventions so that all aspects of the patient's problem are taken into account. A physical injury may need physical intervention, but an underlying concomitant social or cognitive problem may prevent the full benefit of that intervention from being realised. Further research is needed to provide a greater understanding of the issues raised by this thesis.

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Appendices

Appendix 1

Delphi Study Questionnaires

Letter 1

Dear Colleague,

As part of my PhD, I am investigating the effect that patients' expectations have on the outcome of physiotherapy for musculoskeletal conditions.

I will be interviewing several patients to gain their perspective, but I also need to find out what physiotherapists working in the musculoskeletal field think. To this end, I have devised this short questionnaire and I would be very grateful if you could take a few minutes to complete it.

Please indicate from your experience, how much you agree or disagree that each of the issues listed below is important, in relation to its effect on a patient's expectations of physiotherapy treatment and/or outcome.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Previous personal experience of physiotherapy for the **same** complaint					
Previous personal experience of physiotherapy for a **different** complaint					
Anecdotal experiences from a relative					
Anecdotal experiences from a friend					
Anecdotal experiences from a neighbour					
What the doctor said					
Knowledge about physiotherapy from the media					
Fear of hospitals					
Trust in the ability of the physiotherapist					
Anxiety about their condition					

P.T.O

If you can think of anything else that might influence patients' expectations of physiotherapy please note them below and indicate how important they might be.

	Minimally important	Moderately important	Extremely important

Thank you very much for your help with this research.

Letter 2

Dear Colleague,

This is the second questionnaire regarding physiotherapists' perceptions of the important factors which may influence patients' expectations of physiotherapy. Only those items which achieved consensus from the first questionnaire have been included, plus any new suggestions.

Please indicate from your experience, how much you agree or disagree that each of the issues listed below is important, in relation to its effect on a patient's expectations of physiotherapy treatment and/or outcome.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Previous personal experience of physiotherapy					
Anecdotal experiences from others					
What the other health professionals have said					
Knowledge about physiotherapy from life experiences (reading, media etc)					
Fear of hospitals					
Trust in the ability of the physiotherapist					
Anxiety about their condition					
Duration of condition					
Number of different treatments already given					
Outcome of other treatments already given					
Patient on waiting list for surgery					
Patient awaiting further investigations					
Patients general health					
Personal experience of other practices (e.g. osteopathy)					
Negative results of investigations					
Waiting time for treatment					
Patient already had surgery					

If you can think of anything else that might influence patients' expectations of physiotherapy please note them below and indicate how important they might be.

	Minimally important	Moderately important	Extremely important

Thank you very much for your help with this research.

Letter 3

Dear Colleague,

This is the third questionnaire regarding physiotherapists' perception of factors that may influence patients' expectations of physiotherapy. Please find enclosed feedback from the previous questionnaires showing the level of agreement with each of the factors identified. The purpose of this type of survey is to reach a consensus of opinion and further rounds of questionnaire will continue until this objective is achieved. Only items that have not yet reached consensus are included here.

In the light of your colleagues' responses (see feedback), please indicate how much you agree or disagree that each of the issues listed below is important, in relation to its effect on a patient's expectations of physiotherapy treatment and/or outcome.

	Disagree	Agree
Anecdotal experiences from others		
What the other health professionals have said		
Knowledge about physiotherapy from life experiences (media etc)		
Fear of hospitals		
Duration of condition		
Number of different treatments already given		
Patient awaiting further investigations		
Patients general health		
Patient's intelligence/understanding		
Patient's attitude (towards life)		
Insurance, litigation or other monetary implications		

If any of your responses from previous rounds still appear to be against the general consensus, it would be very helpful if you could give me some indication of why you have this opinion. Please do so on the back of this sheet.

I would also welcome your views on the usefulness of this type of survey compared to face-to-face meetings either on a one-to-one basis or as a group. Please comment overleaf.

Thank you very much for your help with this research.

Letter 4

Dear Colleague,

You may remember filling in a series of questionnaires about factors that you felt might influence a patient's expectations of physiotherapy treatment and/or outcome. In the next phase of this study I need to know how important you feel each of the factors listed below are.

Please indicate how important you think each one is by giving each factor a rank. 1 = most important then 2 etc….. to 24. Please try to avoid equal ranking.

	RANK
Previous personal experience of physiotherapy for the **same** complaint	
Previous personal experience of physiotherapy for a **different** complaint	
Anecdotal experiences from a relative	
Anecdotal experiences from a friend	
Anecdotal experiences from a neighbour	
What the doctor said	
Knowledge about physiotherapy from the media	
Fear of hospitals	
Trust in the ability of the physiotherapist	
Anxiety about their condition	
What the other health professionals have said	
Duration of condition	
Number of different treatments already given	
Outcome of other treatments already given	
Patient on waiting list for surgery	
Patient awaiting further investigations	
Patients general health	
Personal experience of other practices (e.g. osteopathy, chiro)	
Negative results of investigations	
Waiting time for treatment	
Patient already had surgery	
Patient's intelligence/understanding	
Patient's attitude (towards life)	
Insurance, litigation or other monetary implications	

Thank you very much for your help, please return to Caroline.

Table A1. **First round questionnaire and frequency of responses.**

	Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
Trust in the ability of the physiotherapist				1	7
Previous personal experience of physiotherapy for the **same** complaint				3	5
What the doctor said				4	4
Anxiety about their condition		1		5	2
Previous personal experience of physiotherapy for a **different** complaint			2	4	2
Fear of hospitals			3	4	1
Anecdotal experiences from a relative		2		6	
Anecdotal experiences from a friend		3		5	
Anecdotal experiences from a neighbour		3	2	3	
Knowledge about physiotherapy from the media	1	2	2	3	

Table A2. Second round questionnaire and frequency of responses.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Previous personal experience of physiotherapy				7	6
Trust in the ability of the physiotherapist				8	5
Outcome of other treatments already given				9	4
What other health professionals have said		1		10	2
Duration of condition		1		12	
Patient on waiting list for surgery			2	8	3
Anxiety about their condition			2	9	2
Number of different treatments already given			3	7	3
Anecdotal experiences from others			3	10	
Personal experience of other practices (e.g. osteopathy)		1	2	9	1
Negative results of investigations		1	3	7	2
Patient awaiting further investigations		1	4	8	
Knowledge from life experiences (reading, media etc.)		2	3	8	
Fear of hospitals		1	5	5	2
Waiting time for treatment		3	3	7	
Patient's general health		2	5	6	
Patient already had surgery		2	5	6	

Table A3. **Third round questionnaire and frequency of responses.**

	Disagree	**Agree**
Anecdotal experiences from others	0	11
What the other health professionals have said	0	10*
Knowledge about physiotherapy from life experiences (media etc.)	3	8
Fear of hospitals	3	8
Duration of condition	0	11
Number of different treatments already given	0	11
Patient awaiting further investigations	3	8
Patients general health	3	8
Patient's intelligence/understanding	2	9
Patient's attitude (towards life)	0	11
Insurance, litigation or other monetary implications	2	9

(* 1 missing response)

Appendix 2

Semi-Structured Patient Interviews.

Interview Schedule.

1) Can you tell me what you think physiotherapy is?
    a) How do you know this?
        i) Previous physiotherapy personally – When, what for, what treatment given, did it help? Would you be happy to have the same treatment or would you prefer something else?
        ii) Anecdotal – from friends etc. - When, what for, what treatment given, did it help? Would you be happy to have the same treatment or would you prefer something else?
        iii) Media, etc.?
2) Do you know why you have been sent for physiotherapy?
    a) Asked to have it?
    b) Recommended by doctor?
3) What do you think the <u>physiotherapist</u> will do?
    a) Give information, explain condition, know exactly what to do?
    b) Do what the doctor said?
4) Is there any particular treatment that you would like?
    a) Why?
5) Are you aware of any treatment other than physiotherapy for your problem?
    a) What?
    b) Would you have preferred if it were available on the NHS?
    c) Why?
6) What do you think that <u>you</u> will have to do?
    a) Exercises, nothing?

7) Do you think physiotherapy will be able to help your problem?
   a) Why do you think that?
   b) On this scale how much overall benefit do you think you will get from physiotherapy?

1	2	3	4	5	6
much worse	a little worse	no better	a little better	a lot better	complete cure

8) Are there any aspects about having physiotherapy, that concern you or make you feel anxious?
   a) Which aspects?
   b) Why?

Appendix 3

Parallel Studies

Contents

1) Survey of Patient Diagnostic Category and Previous Experience of Physiotherapy (summary)

2) Patient Expectation Questionnaire (PEQ) pilot documentation

3) Ethnicity data from 1991 census

4) Adaptation and testing of Marteau's attitudes towards doctors and medicine scale (summary)

5) Development and testing of the Severity of Condition score (SoCS) (summary)

1) Survey of Patient Diagnostic Category and Previous Experience of Physiotherapy.

Aims:

1. To determine the distribution of patients with degenerative or traumatic conditions.
2. To determine the distribution of patients with and without previous experience of physiotherapy.
3. To determine the distribution of upper and lower limb conditions.

Methodology.

A tick sheet (see below) was provided for reception staff at three physiotherapy departments to record for each new patient, whether they were having physiotherapy for an upper or lower limb problem, whether the problem was degenerative or traumatic, and whether or not they had had physiotherapy treatment before. Data were collected over a 4-week period; spinal problems were excluded.

Tick sheet

Please ask each new patient if they have had physiotherapy before and tick the appropriate boxes:

Site of Injury		Type of Condition		Previous Physiotherapy	
Upper	Lower	Trauma	Degen.	Yes	No

etc

Results.

The tick sheet allowed eight categories of patient to be identified. Table A4 provides details of the frequency of patients in each category.

Table A4. **Frequency of patients in each category. (N = 245)**

Cat.	Site	Classification	Experience	Number	Percentage
1	Upper limb	Trauma	Previous physiotherapy	20	8.2%
2	Upper limb	Trauma	No physiotherapy	41	16.7%
3	Lower limb	Trauma	Previous physiotherapy	22	9%
4	Lower limb	Trauma	No physiotherapy	32	13.1%
5	Upper limb	Degenerative	Previous physiotherapy	30	12.2%
6	Upper limb	Degenerative	No physiotherapy	30	12.2%
7	Lower limb	Degenerative	Previous physiotherapy	36	14.7%
8	Lower limb	Degenerative	No physiotherapy	34	13.9%

Table A5 shows the frequency of patient characteristics by site, diagnostic classification and previous experience of physiotherapy.

Table A5. **Frequency of site, classification and experience. (N = 245)**

Variable		Number	Percentage
Site	Upper	121	49.4%
	Lower	124	50.6%
Classification	Trauma	115	46.9%
	Degenerative	130	53.1%
Experience	None	137	55.9%
	Had previous physiotherapy	108	44.1%

Conclusion.

This survey has revealed that, for these physiotherapy departments, roughly half the new patients have lower limb problems, half are degenerative in nature and slightly more than half have not had physiotherapy before.

2) Patient Expectation Questionnaire (PEQ) pilot documentation

Covering letter

HEADED PAPER

Dear Sir/Madam, Date:

My name is Caroline Metcalfe and I am a research physiotherapist undertaking a research degree. My project is investigating patients' expectations of physiotherapy. I understand that you have been referred for physiotherapy and I would like to ask you for your help with this research.

My project is currently at the 'piloting' stage, which means that I have devised a questionnaire, but I need to test it to see if it is acceptable to patients. The questionnaire must have the following attributes:

- It must be easy to read and understand,
- Instruction should be clear on how to complete it,
- It should avoid asking any questions which might be upsetting or controversial.

With these things in mind, I would be very grateful if you could complete all parts of the enclosed questionnaire, writing down any comments as you go through it. I have also included a page for your views on specific aspects of the questionnaire and for any additional comments.

Your treatment will not be affected at all by helping with this research and you are not obliged to complete the questionnaire if you don't want to.

Please bring the questionnaire with you when you come for your physiotherapy appointment and give it to the receptionist who will then pass it on to me. Thank you very much for your help.

Caroline Metcalfe
Research Physiotherapist

Patient Expectations Questionnaire.

We want to find out what you expect physiotherapy to do for you, and whether or not you have any preferences regarding your treatment. It is very important that you answer all the questions in this questionnaire as fully and as honestly as you can. All the information will be kept strictly confidential and will only be used for the purpose of this study.

Please tick the appropriate box for each question and write your answers to the other questions in the large boxes provided.

Section 1:

1. Below is a list of words or activities that other people have linked with the words: 'PHYSIOTHERAPY' or 'PHYSIOTHERAPIST'? Please put a tick next to those that you also link with physiotherapy and add any others that you can think of.

Exercises	☐	Rehabilitation	☐
Manipulation	☐	Helping you recover	☐
Pain relief	☐	Strengthening	☐
Releasing stiffness	☐	Restoring confidence	☐
Restoring movement	☐	Teaching self help	☐
Massage	☐	Motivating	☐
Restoring function	☐	Reducing anxiety	☐
	☐		☐
	☐		☐

2. Did you **expect** to be sent for physiotherapy?

Yes ☐ **No** ☐

P.T.O.

3. Has anyone told you what the physiotherapist will or may do?

Yes ☐ **No** ☐

IF YES, <u>who</u> told you?

and <u>what</u> did they say the physiotherapist might do?

4. Have you had physiotherapy treatment for this **<u>present</u>** problem before?

Yes ☐ **No** ☐

<u>IF YES</u>, how much did it help?

No help	**A little help**	**Quite a bit of help**	**A lot of help**	**Complete recovery**
☐	☐	☐	☐	☐

a) Would you prefer to have the same or a different treatment this time?

Same ☐ **Different** ☐ **Don't mind** ☐

5. Have you had physiotherapy for **<u>any</u>** other problem?

Yes ☐ **No** ☐

<u>IF YES</u>, did the physiotherapy help?

Never	**Sometimes**	**Usually**	**Always**
☐	☐	☐	☐

P.T.O.

6. Have you had any <u>other</u> kind of treatment for your <u>present</u> problem?

Yes ☐ **No** ☐

If yes, how much benefit did you get?

(Please tick the appropriate boxes)

	None	**A little**	**Quite a bit**	**A lot**	**Complete recovery**
Tablets/medicine					
Surgery					
X-ray or Scan					
Injections					
Splintage / plaster cast					
Other, please state:					

7. How satisfied are you with the health care that you have received so far for your <u>present</u> problem?

Very dissatisfied ☐ **Dissatisfied** ☐ **Satisfied** ☐ **Very Satisfied** ☐

8. How much better do you realistically **expect** (<u>not</u> 'HOPE') to get from physiotherapy treatment?

No better ☐ **A little better** ☐ **A lot better** ☐ **Complete recovery** ☐

P.T.O.

9. How important is it <u>to you</u> that physiotherapy improves the following things? (Please tick one box on each line)

	Not important	**Quite important**	**Very important**
Pain			
Stiffness			
Movement			
Overall use/ function			
Ability to cope despite your arm/leg problem			
Understanding of your arm/leg problem			
Return to work			
Anything else - please write it below:			

10. Is there anything about having physiotherapy that concerns you or makes you anxious?

Yes ☐ **No** ☐

IF YES, please write down your concerns or anxieties:

P.T.O.

11. Are you aware of any other treatment(s), other than physiotherapy, for your condition?

Yes ☐ **No** ☐

IF YES, what other treatment(s) are you aware of?................................

....

....

a) Where did you find out about this other treatment?

Doctor	Family / Friends	TV / books	Personal experience
☐	☐	☐	☐

Other (please state) ....

b) Would you have preferred this other treatment?

Yes ☐ **No** ☐

IF YES, please give your reasons for preferring it:

P.T.O.

Section 2:

Could you please give us a little information about yourself:

This section asks for details that will help us better understand the different needs of all the different sorts of people who come for physiotherapy. Information about your background will help us to improve our services by identifying areas of our present system which are not meeting your needs.

12. Are you: (please circle) Male Female

13. Which age group are you in? (please tick the appropriate box)

Under 16 years old	☐	31 – 45	☐	61 – 75	☐
16 – 30	☐	46 – 60	☐	And over	☐

14. How long have you had this problem with your arm or leg?

Less than 6 weeks ☐
Between 6 weeks and 6 months ☐
More than 6 months ☐

15. How long have you been waiting for physiotherapy for this problem?

Less than 6 weeks ☐
Between 6 weeks and 6 months ☐
More than 6 months ☐

P.T.O.

16. Are you waiting for any of the following? (please tick the appropriate box)

Other treatment ☐ Please state:
Surgery ☐
Investigations (x-rays, scans, tests) ☐
Settlement of a compensation claim ☐

17. What sort of work do you do? If you are not in work at the moment, please think of the last job that you had. (Please tick the appropriate box)

Professional/Management ☐
Skilled Manual ☐
Unskilled Manual ☐
Full-time housewife/homemaker ☐
Student ☐
Other* ☐

*Please state what your occupation is: ☐

18. What is your work status at the present time? (Please tick the appropriate box)

At work ☐
Retired ☐
Unemployed ☐
On sick leave ☐
Unable to work - receiving disability benefits ☐

19. How many people (child or adult) rely on you being fit and well? ☐

P.T.O.

20. What level of education have you <u>completed</u>? (please tick the appropriate box)

No formal education ☐
Primary School ☐
Secondary School ☐
College ☐
University ☐
Post-graduate Education ☐

21. How often do you or did you participate in sports or other physical activities, before you had this problem with our arm or leg? (please tick the appropriate box)

Daily ☐
More than 3 times a week ☐
1 – 2 times a week ☐
Every other week ☐
Once a month ☐
Hardly ever ☐

Please check that you have answered every question.

Thank you very much for your help.

Evaluation Form

To help me improve the questionnaire, please could you answer the following questions:

	YES	NO
Did you find the questionnaire easy to read?		
Was the print large enough?		
Did you like the way it was laid out?		
Would you have preferred it to be on coloured paper?		
Did you find any of the questions confusing?		
Where the instructions clear on how to complete it?		
Did you feel awkward about filling in any of the personal questions?		
Were any of the questions upsetting to you?		
Was is convenient to complete the questionnaire at home?		
Would you have preferred to complete it in the physiotherapy department before your first appointment?		

Please feel free to add any other comments.

Thank you very much for your help.

Please bring this form and the questionnaire with you when you come for your first physiotherapy appointment and give it to the receptionist.

3) Ethnicity data from 1991 census

Table A6 provides a breakdown of the Hull and British population by ethnic group, as provided by the 1991 census.

Table A6 Ethnic groups as a percentage of the Hull and British population, 1991

Ethnic Group	Hull Area	British Population
Black, Caribbean	0.1	0.9
Black, African	0.1	0.4
Black, other	0.1	0.3
Indian	0.1	1.5
Pakistani	0.1	0.9
Bangladeshi	0.1	0.3
Chinese	0.2	0.3
Other Asian	0.1	0.5
Other ethnic minorities	0.3	0.4
All ethnic minority groups	**1.2**	**5.5**
White	**98.8**	**94.5**

(Source: OPCS, 1991)

4) Adaptation and testing of Marteau's attitudes towards doctors and medicine scale (summary)

Aims:

1. To adapt Marteau's 'Attitudes towards doctors and medicine scale' for use with patients attending for physiotherapy.
2. To re-test its internal consistency

Method:

The original 19-item scale was reworded replacing doctor with physiotherapist and medicine with physiotherapy. Question 3 was reworded to replace 'if I am at death's door' with 'if I am unable to move'. 'Physical conditions' replaced 'diseases' (question 10); 'fit' replaces 'healthy' (question 11); 'telling them to exercise more' replaces 'prescribing tranquilisers' (question 14). Questions 6, 15 and 18 were removed (The improved health of the nation is due to effective medicine; Often the only purpose of tests is to make the doctor feel less anxious; Most test and investigations are done routinely rather than for a particular reason). 'The physiotherapist should do what the doctor suggests' and 'Doctor's know all about physiotherapy treatments' were added. This left an 18-item questionnaire as shown below.

The questionnaire (see below) was then distributed to all new patients attending for physiotherapy at one of three departments.

Attitudes Towards Physiotherapists and Physiotherapy Scale

Below are written a series of statements concerning attitudes towards physiotherapists. Please read through them carefully, and put a circle round one of the numbers alongside each statement to show how strongly you agree or disagree with it. There are no wrong or right answers. It is your opinion that we are interested in.

(Please circle one number only on each line)

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1. All physiotherapists are good physiotherapists.	1	2	3	4	5
2. Physiotherapy is based on scientific principles.	1	2	3	4	5
3. I would only go to see a physiotherapist if I were unable to move.	1	2	3	4	5
4. Physiotherapy can do as much harm as good.	1	2	3	4	5
5. I have absolute faith and confidence in all physiotherapists.	1	2	3	4	5
6. Physiotherapists blame their patients if their treatment doesn't work.	1	2	3	4	5
7. The advice of physiotherapists is mainly common sense.	1	2	3	4	5
8. No matter how long you wait to see a physiotherapist, it's worth it.	1	2	3	4	5
9. Physiotherapy has cures for most physical conditions.	1	2	3	4	5
10. Physiotherapists are important in keeping us fit.	1	2	3	4	5
11. No two physiotherapists will agree on what is wrong with a person.	1	2	3	4	5
12. The physiotherapist should do what the doctor suggests.	1	2	3	4	5
13. Many physiotherapy treatments are just placebos.	1	2	3	4	5
14. Physiotherapists are too ready to solve patient's problems by telling them to exercise more.	1	2	3	4	5
15. Physiotherapists know what's best for you.	1	2	3	4	5
16. I don't like medical people.	1	2	3	4	5
17. Doctor's know all about physiotherapy treatments.	1	2	3	4	5
18. Physiotherapy is an excellent profession for a person to have.	1	2	3	4	5

Results:

52 patients completed the questionnaire; mean overall score 54.87 (SD = 7.17, range 38 to 71). Statistical testing revealed that the scale achieved internal consistency of Cronbach's alpha = 0.77. Factor analysis identified 2 factors: (1) positive attitudes towards physiotherapists and physiotherapy and (2) negative attitudes towards healthcare.

Conclusion:

The questionnaire appeared acceptable to patients since no patients refused to complete it or had problems completing it. The range of scores indicated a generally positive attitude towards physiotherapists and physiotherapy. However, factor analysis revealed that there were no clear distinctions between attitudes towards *physiotherapists* and attitudes towards *physiotherapy*, unlike Marteau's 'doctor and medicine' scale. Most of the variance in the scale (28%) was accounted for by the first factor; positive attitude towards physiotherapists and physiotherapy. Internal consistency remained high despite the modifications made.

5) Development and testing of the Severity of Condition score (SoCS)

Background Information

Outcome measurements in out-patient physiotherapy departments to date, have been developed both for specific conditions e.g. the Arthritis Impact Measurement Scales, and for more generic purposes. These range from simple Likert scales to much more complex tools involving codes and computer software. However, the practical application of many outcome measures is often limited by time, cost, and reluctance of clinicians to adopt new non-clinical procedures.

Purpose of a new outcome measure

Currently the physiotherapy department of Royal Hull Hospitals NHS Trust uses an outcome measurement based on a 5 point scale. At the end of treatment the patient scores their perceived outcome between 1 = worse to 5 = better or nearly better, and the physiotherapist scores their perception of the outcome from 1 = no objectives achieved to 5 = all objectives achieved. It is recognised that such a system can be misused. In addition, it was recognised that the content of physiotherapists patient records was inconsistent and often poor, making audit virtually impossible. Thus, the purpose of developing this assessment format and outcome measure was:

1. To improve standards of assessment and record keeping.
2. To have a more accurate measure of outcome.

Basis for the assessment format.

Documentation standards from the CSP and locally agreed standards (Out-patient Physiotherapy Assessment Standards, 1998) were combined to set standards for the minimum data required for subjective and physical assessment in (1) spinal and (2) peripheral conditions. Initially, standardised forms were devised to incorporate all aspects of the previously used assessment forms, but these were not acceptable to the majority of the physiotherapists. Subsequently it was agreed to continue with written records, so that each physiotherapist could maintain their own style, but based on our locally agreed standards. This would ensure basic standards of content for all physiotherapy patient records.

Basis for the outcome tool.

Currently, no rating is given to any subjective symptom except pain (VAS) and that is not universally used. Physical signs are either described or measured in degrees of movement. Outcomes can only be described in terms of altered physical signs and symptoms. No indication of the extent of change overall is possible.

The outcome tool.

All staff agreed that any items recorded in an assessment which were likely to change could be scored on a basic 4 point scale (0 = unaffected, 1 = minimally affected, 2 = moderately affected, 3 = maximally affected) or visual analogue scale for pain. This scale (without the numbers) is already used to describe the effect that a patient's condition has on range of spinal movement in a McKenzie type assessment. Adding a number merely quantifies the description. Any gross changes are readily seen and are of more significance to the patient's function. Scores are summed at initial assessment and discharge. The total final score is subtracted from the total initial score to reach a difference, recorded as a percentage of the initial score. This would give the percentage improvement in signs and symptoms overall, both subjective and physical. See protocol below:

Protocol for scoring and recording the Severity of Condition Scale (SoCS)

- Every assessment should contain all the items identified as standards by each speciality.
- All **subjective** reports and **physical** findings of importance and relevance should be recorded and as many of these as possible scored.
- Every assessment should contain a record of the scoring of **all** scoreable items, both the standards and any additional items that are recorded during the assessment.
- Scores for each item should be recorded in the physiotherapy record - if possible adjacent to the written item - with the total scores recorded on **both** the costing sheet and on the front of the physiotherapy record.

- Scoring should, where possible, keep to the following 4 point scale:

  0 = no problem or not present

  1 = minimal problem or minimally present

  2 = moderate problem or moderately present

  3 = maximum problem or maximally present

- Other scales which have been shown to be more accurate can be used (e.g. 0 - 10 pain scale), so long as the same method of scoring is used at initial and final assessment and it is clearly stated what scale has been used.
- For items of assessment which <u>will</u> be assessed on discharge, but which <u>cannot</u> be scored on initial assessment should be scored as a 4:

Examples: patient still in plaster/dressings assessment contraindicated at initial assessment e.g. tendon repairs, gait assessment, but patient non-weight-bearing initially

- For instances where final assessment cannot be carried out, the usual codes apply:

  A = patient discharged by doctor before treatment completed

  B = medical problem deteriorated or another medical problem intervened

  (C = unable to set objectives with patient) - not applicable to SoCS

  (D = objectives exceeded) - not applicable to SoCS

  E = Patients who are seen as a 'one-off', e.g. given advice only, equipment etc

  F = Patient improved enough to discharge, but unable to do outcome score e.g. discharged over the phone, or told to contact department if needs further treatment & discharged if no contact made.

***** N.B. In most cases scoring should be carried out on last attendance in anticipation of discharge.**

Concurrent Validity.

Concurrent validity was tested by using three already established outcome measurement tools: Lower Extremity Functional Scale (LEFS) (Binkley *et al.*, 1999); Disabilities of the Arm, Shoulder and Hand (DASH) (Hudak *et al.*, 1996); and the Roland Disability Questionnaire (RDQ) (Roland and Morris, 1983). All three have been tested for reliability and validity.

The LEFS is a 20-item questionnaire consisting of list of activities that people with lower limb problems may have difficulty with. Similarly, the DASH consists of 21 activities that people with upper limb problems may have difficulty with, plus an additional 9 questions regarding severity of symptoms and social/quality of life issues. The RDQ consists of 24 sentences that people have used to describe themselves when they have back pain. Items are selected if they apply the patient's condition when they are completing the form.

Patients were asked to complete whichever questionnaire corresponded to their condition at initial assessment and again at discharge. Correlations between each of the scales and the SoCS scores at initial assessment and discharge were then carried out. One hundred and thirteen lower limb patients, 119 upper limb patients and 155 spinal patients completed the questionnaires. The correlations at initial assessment and on discharge are given in Table A7.

Table A7. Correlation scores between SoCS and LEFS, DASH and RDQ scores

	SoCS initial score	**SoCS final score**
LEFS initial score	$r = 0.55$*	
LEFS final score		$r = 0.60$*
DASH initial score	$r = 0.40$**	
DASH final score		$r = 0.39$**
RDQ initial score	$r = 0.43$**	
RDQ final score		$r = 0.79$**

Reliability testing.

Inter-rater reliability was tested for using two methods. First, assessment documentation was scored by the original and a second physiotherapist at a later date with the level of agreement measured for initial and final scores only. Agreement was reached only if the second assessor reached a total within ± 1 or the original score. Second, two physiotherapists (each senior physiotherapist (n=6) and the author) were present during the initial assessment, both scoring the findings independently. Each score was checked for agreement and was considered agreed only if an exact match was made. Post-assessment discussions also took place to identify any disagreement in scoring.

The results of the first reliability testing showed agreement in 83% of notes (40 sets of notes were assessed). The second reliability testing found agreement in 75% of scores.

Conclusion.

The SoCS was developed in response to local needs for standardisation and measurement of outcome. It was developed to be as unobtrusive as possible to both patient and clinician, i.e. not to add to paperwork, easy to use and provide an indication of the change in a patient's condition from initial assessment to discharge. It appears to be easy to use, reflects both subjective and physical findings and has moderate to good reliability.

Appendix 4

Experts.

Jennifer Klaber Moffett - Reader, Deputy Director, Institute of Rehabilitation, Hull, UK

Peter Clough - Deputy Head, Psychology, University of Hull, Hull, UK

Steve Wisher - Director, Hull University Statistical Support Unit, Hull, UK

Margaret Potter – Lecturer, School of Physiotherapy, Curtin University of Technology, Perth, Western Australia

Keith Meadows - Senior Lecturer, The Centre for Primary Health Care Education, Research and Development, University of Hull, Hull, UK

Peter Campion - Head of the Centre for Primary Health Care Education, Research and Development, University of Hull, Hull, UK

Katrina Bannigan - Research and Development Occupational Therapist, Hull & East Yorkshire Hospitals NHS Trust, Hull, UK

Appendix 5

Patient Expectations Survey Documentation

Contents

Baseline Documentation

1. Help Flyer
2. Information Letter
3. Consent Form
4. Baseline Questionnaires:
    - Patient Expectation Questionnaire (PEQ)
    - SF-36
    - Health Value Scale
    - Lower Extremity Function Scale (LEFS) or Disabilities of the Arm, Shoulder and Hand (DASH) scale
    - MLOC Scale (Form-C)
    - Perceived Self-efficacy Scale
    - HADS
    - Attitudes towards Physiotherapists and Physiotherapy Scale
    - Patient Details - demographics, time related factors

Follow-up Documentation

5. Follow-up letter
6. Follow-up Questionnaires:
    - PEQ follow-up
    - SF-36
    - Lower Extremity Function Scale (LEFS) or Upper Limb Function Scale (ULFS)
    - Patient Satisfaction Questionnaire

Non-response to follow-up Documentation

7. Questionnaires - as for follow-up
8. Prompting letter

Documentation from Physiotherapists

9. Physiotherapy discharge form
10. Departmental statistics form

Baseline Documentation

1. **Help Flyer**

Physiotherapy Research Project.

Can you help?

I understand that you have been given an appointment to start your physiotherapy treatment. This research is being carried out in the physiotherapy department that you will be attending.

Please read the information leaflet which accompanies this letter and if you think that you can help me, just follow the instructions.

Thank you very much for taking the time to read this letter and I hope you will help me with my research.

2. Information Leaflet

HEADED PAPER

RESEARCH PROJECT

THE EFFECT OF PATIENTS' EXPECTATIONS ON THE OUTCOME OF OUT-PATIENT PHYSIOTHERAPY.

INFORMATION LEAFLET

This research is being carried out within the physiotherapy departments of Hull and East Yorkshire Hospitals NHS Trust.

Investigator: *Caroline Metcalfe*
Institute of Rehabilitation
215, Anlaby Road, Hull

I am a physiotherapist currently studying for a PhD. This research project is a very important part of my PhD studies and I need your help.

Why is the research project needed?

I believe that there are many things that can affect how well people do with physiotherapy treatment. Two particular things that might affect outcome are peoples' expectations and preferences. I need to gain a better understanding of how peoples' expectations and preferences might affect the outcome of their physiotherapy treatment, so that physiotherapy services can be improved to the benefit of every patient. In order to do this I need as many people as possible like yourself to participate in this study.

What does it involve?

I need you to complete the questionnaire accompanying this letter, before you come for your first physiotherapy appointment and send it back to me before you come for physiotherapy, or bring it with you and give it to the receptionist. I will also need you to do another much shorter questionnaire once you have been discharged from treatment, so that I can see how much your condition has changed. Otherwise, there is nothing else required of you. It may take up to 30 minutes to complete this first questionnaire, which is why I have enclosed it with this letter - in the hope that you will help me with my research.

The questionnaire will not be seen or used by your physiotherapist and this project does not form any part of your physiotherapy treatment. All the information given will be regarded as confidential and will only be used for the purposes of this study.

What do you have to do now?

If you feel that you can help me with my research, you need to:

1. Sign the consent slip attached to this letter.
2. Complete all sections of the questionnaire.
3. Send the consent slip and the completed questionnaire to me in the envelope provided before you attend the physiotherapy department for your first appointment - no stamp is needed.
4. If you prefer you can bring the completed questionnaire with you when you come for physiotherapy and give it to the receptionist, who will pass it on to me.

I would be very pleased if you would participate in this study, but you are free to decline or drop out at any time if you wish. Current and future treatment will not be affected by your decision.

If you would like to know more about the study before deciding whether to participate, or you need help to complete any of the questions, please feel free to contact me - **Caroline Metcalfe** - on **(01482) 675602**.

Thank you for taking the time to read this letter and I hope you will help me with my research.

Caroline Metcalfe
Research Therapist

3. Consent Form

Confidential

RESEARCH PROJECT

THE EFFECT OF PATIENTS' EXPECTATIONS ON THE OUTCOME OF OUT-PATIENT PHYSIOTHERAPY.

CONSENT SLIP

Investigator: *Caroline Metcalfe, Research Therapist,*
Institute of Rehabilitation, 215, Anlaby Road, Hull

Consent to take part in the study

I have read the information sheet and I understand what is involved in taking part in this study. I have had the opportunity to ask questions and I would like to participate.

Name ....

Signed...

Date.....................

4. Baseline Questionnaires

Study participant ID:

NAME:

ADDRESS:

CONFIDENTIAL

Patient Expectations and Preferences Research Project.

Study Participant Baseline Questionnaire

Investigator: **Caroline Metcalfe**

University of Hull
Institute of Rehabilitation
215, Anlaby Road
Hull

PLEASE READ ALL THE INSTRUCTIONS BEFORE COMPLETING THE QUESTIONNAIRE.

Thank you for agreeing to take part in this research project.

The responses you give in this questionnaire will help me to find out how much effect your expectations and preferences have on the outcome of your physiotherapy treatment. All the information will be kept strictly confidential and will only be used for the purpose of this study.

I am sorry that there are so many pages for you to fill in, but each section asks about different things, helping me to get a better understanding of you and your problem. I need answers to all the sections so that my investigation can be as thorough as possible.

Please answer **ALL** the questions. Although it may seem that questions are asked more than once, it is still important that you answer every one. If you find it difficult to answer a question, do the best you can. If you need help just give me a call on 675643 or 675602.

Please follow the instructions for each section carefully.

For each section, if you are asked to put a tick in the box, or circle one number, please do so clearly. If you make a mistake, simply cross out the wrong answer and tick the correct box or circle the correct number.

For example, in the following question you are asked if you drive a car. If you answer 'No' by mistake, just cross out that answer and put a tick in the 'Yes' box thus:

Do you drive a car? Yes ☑ No ☒

Your help with this research project is very much appreciated.

Expectations and Preferences Research Project.

We want to find out what you expect physiotherapy to do for you, and whether or not you have any preferences regarding your treatment. It is very important that you answer all the questions as fully and as honestly as you can.

Section 1:

1 . Below is a list of words or activities that other people have linked with the words: 'PHYSIOTHERAPY' or 'PHYSIOTHERAPIST'?

Please put a tick next to those that you also link with physiotherapy and add any others that you can think of.

Exercises ☐
Manipulation ☐
Pain relief ☐
Releasing stiffness ☐
Restoring movement ☐
Massage ☐
Restoring function ☐
☐

Rehabilitation ☐
Helping you recover ☐
Strengthening ☐
Restoring confidence ☐
Teaching self help ☐
Motivating ☐
Reducing anxiety ☐
☐

2. Did you expect to be sent for physiotherapy? **Yes** ☐ **No** ☐

3. Has anyone told you what the physiotherapist will or may do?

Yes ☐ **No** ☐ Please go to question 4

IF YES, who told you? ☐

and what did they say the physiotherapist might do?

4. Do you know (or have a good idea) what the physiotherapist will do?

Yes ☐ **No** ☐

5. Do you know (or have a good idea) what the treatment will involve?

Yes ☐ **No** ☐

6. Have you had physiotherapy treatment for this **<u>present</u>** problem before?

Yes ☐ **No** ☐ Please go to question 7

<u>IF YES</u>, how much did it help?

No help	**A little help**	**Quite a bit of help**	**A lot of help**	**Complete recovery**
☐	☐	☐	☐	☐

a) Would you prefer to have the same or a different treatment this time?

Same ☐ **Different** ☐ **Don't mind** ☐

7. Have you had any <u>other</u> kind of treatment for your <u>present</u> problem?

Yes ☐ **No** ☐ Please go to question 8

If yes, how much benefit did you get? (Please tick the appropriate boxes)

	None	**A little**	**Quite a bit**	**A lot**	**Complete recovery**
Tablets/medicine					
Surgery					
X-ray or Scan					
Injections					
Splintage / plaster cast					
Other, please state:					

8. Have you had physiotherapy for <u>any</u> other problem?

Yes ☐ No ☐ Please go to question 9

<u>IF YES</u>, did the physiotherapy help?

Never	**Sometimes**	**Usually**	**Always**
☐	☐	☐	☐

9. How satisfied are you with the health care that you have received so far for your <u>present</u> problem? (Please tick one box only)

Very dissatisfied	**Dissatisfied**	**Satisfied**	**Very Satisfied**
☐	☐	☐	☐

10. How much change in your condition do you expect (<u>not</u> 'HOPE') to get with physiotherapy treatment? (Please tick one box only)

A lot worse	**A little worse**	**No better**	**A little better**	**A lot better**	**Complete recovery**
☐	☐	☐	☐	☐	☐

11. How important is it <u>to you</u> that physiotherapy improves the following things? (Please tick one box on each line if applicable)

	Not important	**Quite important**	**Very important**
Pain			
Stiffness			
Movement			
Overall use/ function			
Ability to cope despite your leg problem			
Understanding of your leg problem			
Return to work			
Anything else - please write it below:			

12. Which of the above is the single <u>most important</u> thing that you want to improve?

Please write down your answer.

13. Is there anything about having physiotherapy that concerns you or makes you anxious?

☐ **Yes** ☐ **No** Please go to question 14

IF YES, please write down your concerns or anxieties:

14. Are you aware of any other treatment(s), other than physiotherapy, for your condition?

Yes ☐ **No** ☐ Please go to Section 2

IF YES, what other treatment(s) are you aware of?...........................

a) How did you find out about this other treatment?

Doctor	Family / Friends	TV / books	Personal experience
☐	☐	☐	☐

Other (please state) ....

b) Would you have preferred this other treatment?

Yes ☐ **No** ☐ Please go to Section 2

IF YES, please give your reasons for preferring it:

Section 2:

This section asks for your views about health and how you feel about life *in general*. If you are unsure about how to answer a question try and think about your overall health and give the best answer you can.

1. **In general, would you say your health is:** (Please tick one box)

Poor	Fair	Good	Very good	Excellent
☐	☐	☐	☐	☐

2. **<u>Compared to one year ago</u>, how would you rate your health <u>now</u>?** (Please tick one box)

Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago
☐	☐	☐	☐	☐

3. **The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?**(circle one number on each line)

ACTIVITIES	**Yes, limited a lot**	**Yes, limited a little**	**No, not limited at all**
a. **Vigorous activities**, such as running, lifting heavy objects, participating in strenuous sports.	1	2	3
b. **Moderate activities**, such as moving a table, pushing a vacuum cleaner, bowling or playing golf.	1	2	3
c. Lifting or carrying groceries	1	2	3
d. Climbing **several** flights of stairs	1	2	3
e. Climbing **one** flight of stairs	1	2	3
f. Bending, kneeling, or stooping	1	2	3
g. Walking **more than a mile**	1	2	3
h. Walking **half a mile**	1	2	3
i. Walking **one hundred yards**	1	2	3
j. Bathing or dressing yourself	1	2	3

4. **During the <u>past 4 weeks</u>, how much of the time have you had any of the following problems with your work or other regular daily activities <u>as a result of your physical health</u>?** (circle one number on each line)

	All of the time	**Most of the time**	**Some of the time**	**A little of the time**	**None of the time**
a. Cut down on the **amount of time** you spent on work or other activities	1	2	3	4	5
b. **Accomplished** less than you would like	1	2	3	4	5
c. Were limited in the **kind** of work or other activities	1	2	3	4	5
d. Had **difficulty** performing the work or other activities (for example, it took extra effort)	1	2	3	4	5

5. **During the <u>past 4 weeks</u>, how much of the time have you had any of the following problems with your work or other regular activities <u>as a result of any emotional problems</u> (such as feeling depressed or anxious)?** (circle one number on each line)

	All of the time	**Most of the time**	**Some of the time**	**A little of the time**	**None of the time**
a. Cut down on the **amount of time** you spent on work or other activities	1	2	3	4	5
b. **Accomplished** less than you would like	1	2	3	4	5
c. Didn't do work or other activities as **carefully** as usual	1	2	3	4	5

6. **During the <u>past 4 weeks</u>, to what extent have your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours, or groups?** (Please tick one box)

Not at all	Slightly	Moderately	Quite a bit	Extremely
☐	☐	☐	☐	☐

7. **How much <u>bodily</u> pain have you had during the <u>past 4 weeks</u>?** (Please tick one box)

None	Very mild	Mild	Moderate	Severe	Very severe
☐	☐	☐	☐	☐	☐

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)? (Please tick one box)

Not at all	A little bit	Moderately	Quite a bit	Extremely
☐	☐	☐	☐	☐

9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks ....? (circle one number on each line)

	All of the time	**Most of the time**	**Some of the time**	**A little of the time**	**None of the time**
a. Did you feel full of life?	1	2	3	4	5
b. Have you been a very nervous person?	1	2	3	4	5
c. Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5
d. Have you felt calm and peaceful?	1	2	3	4	5
e. Did you have a lot of energy?	1	2	3	4	5
f. Have you felt downhearted and low?	1	2	3	4	5
g. Did you feel worn out?	1	2	3	4	5
h. Have you been a happy person?	1	2	3	4	5
i. Did you feel tired?	1	2	3	4	5

10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (e.g. visiting with friends, relatives, etc.)? (Please tick one box)

All of the Time	Most of the time	Some of the time	A little of the time	None of the time
☐	☐	☐	☐	☐

11. How TRUE or FALSE is each of the following statements for you?
(circle one number on each line)

	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
a. I seem to get ill more easily than other people	1	2	3	4	5
b. I am as healthy as anybody I know	1	2	3	4	5
c. I expect my health to get worse	1	2	3	4	5
d. My health is excellent	1	2	3	4	5

12. How much pain from your leg/arm problem have you had during the past 4 weeks? (Please tick one box)

None	Very mild	Mild	Moderate	Severe	Very severe
☐	☐	☐	☐	☐	☐

Section 3:

In this section, the statements below ask about your views on health.

Health includes any physical problems like the one you are going to have physiotherapy for, any emotional problems like anxiety or depression and any medical problems like breathing or heart trouble. Think about all these things when you decide on your answer. Indicate how much you agree or disagree with the following four statements, by **circling one number on each line.**

	Strongly agree	Moderately agree	Moderately disagree	Strongly disagree
a) There is nothing more important than good health.	1	2	3	4
b) Good health is only of minor importance in a happy life.	1	2	3	4
c) If you don't have your health, you don't have anything.	1	2	3	4
d) There are many things I care about more than my health.	1	2	3	4

Section 4: Lower limbs

In this section, we want to know if you are having any trouble with any of the activities listed below because of your leg/knee/foot problem/injury. Please answer for EACH activity. **Today, would you have trouble with:** (Please circle one number on each line)

Activities	**Severe trouble or not able to do at all**	**Quite a bit of trouble**	**Moderate trouble**	**A little bit of trouble**	**No trouble**
1. Any of your usual work, housework, or school activities	0	1	2	3	4
2. Your usual hobbies or sporting activities	0	1	2	3	4
3. Getting into or out of the bath	0	1	2	3	4
4. Walking between rooms	0	1	2	3	4
5. Putting on your shoes or socks	0	1	2	3	4
6. Squatting down	0	1	2	3	4
7. Lifting a bag of shopping from the floor	0	1	2	3	4
8. Doing light jobs around your home	0	1	2	3	4
9. Doing heavy jobs around your home	0	1	2	3	4
10. Getting into or out of a car	0	1	2	3	4
11. Walking 200 yards	0	1	2	3	4
12. Walking 1 mile	0	1	2	3	4
13. Going up or down 10 steps (1 flight of stairs)	0	1	2	3	4
14. Standing for 1 hour	0	1	2	3	4
15. Sitting for 1 hour	0	1	2	3	4
16. Running on even ground	0	1	2	3	4
17. Running on uneven ground	0	1	2	3	4
18. Making sharp turns while running fast	0	1	2	3	4
19. Hopping	0	1	2	3	4
20. Rolling over in bed	0	1	2	3	4

Section 4: Upper limbs

In this section, we want to know if you are having any difficulty with any of the activities listed below because of your arm, shoulder or hand problem/injury. Please answer for EACH activity. **Today, would you have trouble with:**

Activities	**No difficulty**	**Mild difficulty**	**Moderate difficulty**	**Severe difficulty**	**Unable**
1. Open a tight or new jar	1	2	3	4	5
2. Write	1	2	3	4	5
3. Turn a key	1	2	3	4	5
4. Prepare a meal	1	2	3	4	5
5. Push open a heavy door	1	2	3	4	5
6. Place an object on a shelf above your head	1	2	3	4	5
7. Do heavy household chores (e.g. wash walls, wash floors)	1	2	3	4	5
8. Garden or do yard work	1	2	3	4	5
9. Make a bed	1	2	3	4	5
10. Carry a shopping bag or briefcase	1	2	3	4	5
11. Carry a heavy object (over 10 lbs.)	1	2	3	4	5
12. Change a light bulb	1	2	3	4	5
13. Wash or blow dry your hair	1	2	3	4	5
14. Wash your back	1	2	3	4	5
15. Put on a pullover sweater	1	2	3	4	5
16. Use a knife to cut food	1	2	3	4	5
17. Activities which require little effort (e.g. card playing, knitting, etc.)	1	2	3	4	5
18. Activities in which you take some force or impact through your arm, shoulder or hand (e.g. golf, hammering, tennis, etc.)	1	2	3	4	5
19. Activities in which you move your arm freely (e.g. playing frisbee, badminton, etc.)	1	2	3	4	5
20. Manage transportation needs (getting from one place to another)	1	2	3	4	5
21. Sexual activities	1	2	3	4	5

22. During the past week, to what extent has your arm, shoulder or hand problem interfered with your normal social activities with family, friends, neighbours or groups?

Not at all	Slightly	Moderately	Quite a bit	Extremely
1	2	3	4	5

23. During the past week, were you limited in your work, or other regular daily activities as a result of your arm, shoulder or hand problem?

Not limited at all	Slightly limited	Moderately limited	Very limited	Unable
1	2	3	4	5

Please rate the severity of the following symptoms in the last week. (Circle number)

	None	Mild	Moderate	Severe	Extreme
24. Arm, shoulder or hand pain	1	2	3	4	5
25. Arm, shoulder or hand pain when you performed any specific activity	1	2	3	4	5
26. Tingling (pins and needles) in your arm, shoulder or hand.	1	2	3	4	5
27. Weakness in your arm, shoulder or hand.	1	2	3	4	5
28. Stiffness in your arm, shoulder or hand	1	2	3	4	5

29. During the past week, how much difficulty have you had sleeping because of your arm, shoulder or hand?

No difficulty	Mild difficulty	Moderate difficulty	Severe difficulty	So much difficulty that I can't sleep
1	2	3	4	5

30. I feel less capable, less confident or less useful because of my arm, shoulder or hand problem.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

Section 5:

Please answer the following questions according to what YOU believe, there are no right or wrong answers. Please consider your specific problem (for which you are attending for treatment) as the "condition" in the following questions. Please answer by circling ONE number for each question:

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1. If my condition worsens it is my own behaviour which determines how soon I will feel better again.	1	2	3	4	5	6
2. As to my condition, what will be, will be.	1	2	3	4	5	6
3. If I see my doctor/physiotherapist regularly, I am less likely to have problems with my condition.	1	2	3	4	5	6
4. Most things that affect my condition happen to me by chance.	1	2	3	4	5	6
5. Whenever my condition worsens, I should consult a medically trained professional.	1	2	3	4	5	6
6. I am directly responsible for my condition getting better or worse.	1	2	3	4	5	6
7. Other people play a big role in whether my condition improves, stays the same or gets worse.	1	2	3	4	5	6
8. Whatever goes wrong with my condition is my own fault.	1	2	3	4	5	6
9. Luck plays a big part in determining how my condition improves.	1	2	3	4	5	6
10. In order for my condition to improve, it is up to other people to see that the right things happen.	1	2	3	4	5	6
11. Whatever improvement occurs with my condition is largely a matter of good fortune.	1	2	3	4	5	6
12. The main thing which affects my condition is what I myself do.	1	2	3	4	5	6
13. I deserve the credit when my condition improves and the blame when it gets worse.	1	2	3	4	5	6
14. Following doctor's/physio's orders to the letter is the best way to keep my condition from getting any worse.	1	2	3	4	5	6
15. If my condition worsens, it's a matter of fate.	1	2	3	4	5	6
16. If I am lucky, my condition will get better.	1	2	3	4	5	6
17. If my condition takes a turn for the worse, it is because I have not been taking proper care of myself.	1	2	3	4	5	6
18. The type of help I receive from other people determines how soon my condition improves.	1	2	3	4	5	6

Section 6:

This section will help us know how you feel. Read each item and place a tick in the box opposite the reply which comes closest to how you have been feeling in the past week.

I feel tense or 'wound up':

Most of the time	☐	3
A lot of the time	☐	2
Time to time, Occasionally	☐	1
Not at all	☐	0

I get a sort of frightened feeling as if something awful is about to happen:

Very definitely and quite badly	☐	3
Yes, but not too badly	☐	2
A little, but it doesn't worry me	☐	1
Not at all	☐	0

I still enjoy the things I used to enjoy:

Definitely as much	☐	0
Not quite as much	☐	1
Only a little	☐	2
Hardly at all	☐	3

I can laugh and see the funny side of things:

As much as I always could	☐	0
Not quite so much now	☐	1
Definitely not so much now	☐	2
Not at all	☐	3

Worrying thoughts go through my mind:

A great deal of the time	☐	3
A lot of the time	☐	2
From time to time but not too often	☐	1
Only occasionally	☐	0

I feel cheerful:

Not at all	☐	3
Not often	☐	2
Sometimes	☐	1
Most of the time	☐	0

I can sit at ease and feel relaxed:

Definitely	☐	0
Usually	☐	1
Not often	☐	2
Not at all	☐	3

I feel as if I am slowed down:

Nearly all the time	☐	3
Very often	☐	2
Sometimes	☐	1
Not at all	☐	0

I get a sort of frightened feeling like 'butterflies' in the stomach:

Not at all	☐	0
Occasionally	☐	1
Quite often	☐	2
Very often	☐	3

I have lost interest in my appearance:

Definitely	☐	3
I don't take so much care as I should	☐	2
I may not take quite as much care	☐	1
I take just as much care as ever	☐	0

I feel restless as if I have to be on the move:

Very much indeed	☐	3
Quite a lot	☐	2
Not very much	☐	1
Not at all	☐	0

I look forward with enjoyment to things:

As much as ever I did	☐	0
Rather, less than I used to	☐	1
Definitely less than I used to	☐	2
Hardly at all	☐	3

I get sudden feelings of panic:

Very often indeed	☐	3
Quite often	☐	2
Not very often	☐	1
Not at all	☐	0

I can enjoy a good book or radio or TV programme:

Often	☐	0
Sometimes	☐	1
Not often	☐	2
Very seldom	☐	3

Section 7:

Below are written a series of statements concerning attitudes towards physiotherapists. Please read through them carefully, and put a circle round one of the numbers alongside each statement to show how strongly you agree or disagree with it. There are no wrong or right answers. It is your opinions that we are interested in.

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
1. All physiotherapists are good physiotherapists.	1	2	3	4	5
2. Physiotherapy is based on scientific principles.	1	2	3	4	5
3. Physiotherapy can do as much harm as good.	1	2	3	4	5
4. I have absolute faith and confidence in all physiotherapists.	1	2	3	4	5
5. Physiotherapists blame their patients if their treatment doesn't work.	1	2	3	4	5
6. The advice of physiotherapists is mainly common sense.	1	2	3	4	5
7. No matter how long you wait to see a physiotherapist, it's worth it.	1	2	3	4	5
8. Physiotherapy has cures for most physical conditions.	1	2	3	4	5
9. Physiotherapists are important in keeping us fit.	1	2	3	4	5
10. No two physiotherapists will agree on what is wrong with a person.	1	2	3	4	5
11. The physiotherapist should do what the doctor suggests.	1	2	3	4	5
12. Many physiotherapy treatments are just placebos.	1	2	3	4	5
13. Physiotherapists are too ready to solve patient's problems by telling them to exercise more.	1	2	3	4	5
14. Physiotherapists know what's best for you.	1	2	3	4	5
15. Doctor's know all about physiotherapy treatments.	1	2	3	4	5
16. Physiotherapy is an excellent profession for a person to have.	1	2	3	4	5

Section 8:

Please read each of the following statements carefully and then indicate how much each one applies to you by circling the appropriate number in the right-hand columns. (Please circle one number only on each line)

	Not at all true	Barely true	Moderately true	Exactly true
1. I always manage to solve difficult problems if I try hard enough	1	2	3	4
2. If someone opposes me I can find means and ways to get what I want	1	2	3	4
3. It is easy for me to stick to my aims and accomplish my goals	1	2	3	4
4. I am confident that I could deal efficiently with unexpected events	1	2	3	4
5. Thanks to my resourcefulness I know how to handle unforeseen situations	1	2	3	4
6. I can solve most problems if I invest the necessary effort	1	2	3	4
7. I remain calm when facing difficulties because I rely on my coping abilities	1	2	3	4
8. When I am confronted with a problem I can usually find several solutions	1	2	3	4
9. If I am in a bind I can usually think of something to do	1	2	3	4
10. No matter what comes my way I'm usually able to handle it	1	2	3	4

Section 9:

This section asks for details that will help us better understand the different needs of all the different sorts of people who come for physiotherapy. Information about your background will help us to improve our services by identifying areas of our present system that are not meeting your needs.

1. **In which part of your leg/arm is the problem?** (Please tick all that apply)

Hip/shoulder	Thigh/arm	Knee/elbow	Calf/forearm	Ankle/wrist	Foot/hand
☐	☐	☐	☐	☐	☐

2. **How long have you had <u>this problem</u>?** (Please tick one box)

Less than 6 weeks ☐
Between 6 weeks and 6 months ☐
More than 6 months ☐

3. **How long have you been waiting for physiotherapy for <u>this problem</u>?** (Please tick one box)

Less than 6 weeks ☐
Between 6 weeks and 6 months ☐
More than 6 months ☐

4. **Are you waiting for any of the following?** (Please tick all that apply)

Other treatment ☐ Please state:
Surgery ☐
Investigations (x-rays, scans, tests) ☐
Settlement of a compensation claim ☐

5. **How many people (child or adult) rely on you being fit and well?** ☐

6. **What sort of work do you do? If you are not in work at the moment, please think of the last job that you had.** (Please tick one box only)

Professional/Management	☐	Full-time housewife/homemaker	☐
Skilled Manual	☐	Student	☐
Unskilled Manual	☐	Other	☐

Please write down what your occupation is: ☐

7. **What is your work situation at the moment?** (Please tick one box only)

At work	☐	Unemployed	☐
Retired	☐	On sick leave	☐
		Unable to work - receiving benefits	☐

Other (please state):

8. **What level of education have you <u>completed</u>?** (Please tick all that apply)

No formal education	☐	College	☐
Primary School	☐	University	☐
Secondary School	☐	Post-graduate Education	☐

Other (please state):

9. **How often do you or did you take part in sports or other physical activities, before you had <u>this problem</u>?** (Please tick one box only)

Daily	☐	Every other week	☐
More than 3 times a week	☐	Once a month	☐
1 – 2 times a week	☐	Hardly ever	☐

Thank you very much for your help.

It is very important that you have answered <u>every</u> question and written your name and address on the front page - please check it before you send it back to me.

Please return this questionnaire and the <u>signed</u> consent form to me in the envelope provided - no stamp is needed - or give it to the receptionist when you go for physiotherapy.

You can keep the letter, the information leaflet and the other consent form.

Thank you very much for your help. It is greatly appreciated.

5. Follow-up letter **HEADED PAPER**

RESEARCH PROJECT

THE EFFECT OF PATIENTS' EXPECTATIONS ON THE OUTCOME OF OUT-PATIENT PHYSIOTHERAPY.

Dear

Thank you for helping me with my research. You were kind enough to fill out my questionnaire before you came for your physiotherapy treatment.

You have now finished your physiotherapy and I need to know how your condition has changed. The questionnaire with this letter is very similar to the one that you completed before, so I will be able to compare your answers and see how you have changed. This time there are not as many questions, so I hope you will continue to help me with my research.

As before, the questionnaire will not be seen or used by your physiotherapist. All the information given will be regarded as confidential and will only be used for the purposes of this study.

What do you have to do now?

- Complete all sections of the questionnaire.
- Seal it in the envelope provided - no stamp is needed, and post it back to me.

If you need help to complete any of the questions, please feel free to contact me - **Caroline Metcalfe** - on **(01482) 675602**.

Thank you again for helping me with my research.

Caroline Metcalfe,
Research Therapist

6. Follow-up Questionnaires

Section 1:

In this section we want to know how you think you have improved with the physiotherapy treatment that you received.

1. How much change did you get from physiotherapy treatment? (Please tick one box only)

A lot worse	**A little worse**	**No better**	**A little better**	**A lot better**	**Complete recovery**
☐	☐	☐	☐	☐	☐

2. How much did physiotherapy help the following things? (Please tick one box on each line, as appropriate)

	Not at all	**A little**	**A lot**	**Complete recovery**
Pain				
Stiffness				
Movement				
Overall use/ function				
Ability to cope despite your arm/leg problem				
Understanding of your arm/leg problem				
Return to work				
Anything else? Please write it below:				

3. Did the physiotherapist do what you expected them to do?

Yes ☐ No ☐ Didn't know what to expect ☐

4. Was the treatment what you expected?

Yes ☐ No ☐ Didn't know what to expect ☐

5. Did you get as much benefit from the treatment as you expected?

Yes ☐ No ☐ Didn't know what to expect ☐

6. How satisfied are you with the overall improvement in your condition?

Very dissatisfied	**Dissatisfied**	**Satisfied**	**Very satisfied**
☐	☐	☐	☐

7. How satisfied are you with the overall care received from your physiotherapist?

Very dissatisfied	**Dissatisfied**	**Satisfied**	**Very satisfied**
☐	☐	☐	☐

Section 2:

SF-36 as for baseline questionnaire

Section 3:

LEFS or DASH as for baseline questionnaire

Section 4:

Below are written a series of statements concerning different aspects of the physiotherapy services that you received. Please read through them carefully, and put a circle round one of the numbers alongside each statement to show how strongly you agree or disagree with it. There are no wrong or right answers. It is your opinion that we are interested in. Please give your opinion on every statement and circle one number on each line.

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1. It took a long time to get my first appointment.	1	2	3	4	5
2. It was not convenient having to come for treatment during office hours (9am - 5pm) only.	1	2	3	4	5
3. The physiotherapy department was conveniently located.	1	2	3	4	5
4. Parking / public transportation was available close to the physiotherapy department.	1	2	3	4	5
5. I usually had to wait a long time to be seen by my physiotherapist.	1	2	3	4	5
6. The treatment area was private enough to allow individual assessment and treatment of a personal nature.	1	2	3	4	5
7. The treatment area seemed very small to me.	1	2	3	4	5
8. The physiotherapist took time to examine me thoroughly.	1	2	3	4	5
9. The physiotherapist showed an interest in me as well as my condition.	1	2	3	4	5
10. The physiotherapist displayed a good knowledge of my condition.	1	2	3	4	5
11. The physiotherapist explained my condition in terms that I could understand.	1	2	3	4	5

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
12. I did not understand the physiotherapist's explanation of the treatment that I was given.	1	2	3	4	5
13. The time I spent with the physiotherapist was too short.	1	2	3	4	5
14. I felt that I had a choice over the treatment that I was given.	1	2	3	4	5
15. The equipment needed to treatment my condition was always available.	1	2	3	4	5
16. The exercises that I was given to do at home were explained clearly to me.	1	2	3	4	5
17. The physiotherapist did not explain my responsibility in the management of my problem to me.	1	2	3	4	5
18. I did not find the treatment of any benefit to my condition.	1	2	3	4	5
19. The physiotherapist was never too busy to spend time explaining things to me.	1	2	3	4	5
20. I am able to <u>cope</u> better now because of the physiotherapy care received in this department.	1	2	3	4	5
21. I am in <u>better health</u> now because of the physiotherapy care received in this department.	1	2	3	4	5
22. I am in better health now because of the <u>advice and encouragement</u> received from the physiotherapist.	1	2	3	4	5

Please check that you have answered every question.

Thank you very much for your help.

Please return these questionnaires in the envelope provided - no stamp is needed.

5. Questionnaires - as for follow-up

6. Prompting letter **HEADED PAPER**

RESEARCH PROJECT

THE EFFECT OF PATIENTS' EXPECTATIONS ON THE OUTCOME OF OUT-PATIENT PHYSIOTHERAPY.

Dear

Thank you for agreeing to help me with my research.

Now that you have finished your physiotherapy I need to know how your condition has changed. A while ago I sent you the second questionnaire for you to complete and return to me. Unfortunately, I do not seem to have received it - it may be lost in the post. If you have recently returned it, thank you and please ignore this letter. If you have forgotten or mislaid it, I enclose another questionnaire in the hope that you will continue to help me with my research. Once I receive this questionnaire, I should not need to bother you again.

As before, the questionnaire will not be seen or used by your physiotherapist. All the information given will be regarded as confidential and will only be used for the purposes of this study.

Please complete all sections of the questionnaire and post it back to me in the envelope provided - **no stamp is needed.**

If you need help to complete any of the questions, please feel free to contact me - **Caroline Metcalfe** - on **(01482) 675602.**

Thank you again for helping me with my research.

Caroline Metcalfe,
Research Physiotherapist

9. Physiotherapy Discharge Form

Confidential

Treatment Discharge Form

Patient's name: ……………………………………………………………………………………

Please indicate in the table below, which treatments were used and which seemed to be most beneficial (tick all that apply).

Treatment	Used	Beneficial
Exercises		
Exercise/gym equipment		
Thermal modalities		
SWD		
Ultrasound		
Interferential Therapy		
TENS		
Laser		
Manual therapies		
Strapping		
Acupuncture		
Other please state:		

10. Departmental Statistics Form

ROYAL HULL HOSPITALS				
DAILY PHYSIOTHERAPY INPUT RECORD				
PATIENTS DETAILS:			*REFERRAL DETAILS*	
Surname:			Referral Sent	Ward:
Forename:			Received	
Address:			Consultant/GP	
Post Code:			Referrer Address if GP/Clinic non RHH:	
Date of Birth:	Sex:	M/F		
Unit No:			Post Code	
NHS	IP	MONTH:	Diagnosis Codes:	
Section Codes:				

PIU'S				Ward/Change		*ON CALL AND WEEKENDS*			Ward/
DATE	A.M.	P.M.	EVENING			DATE	8am-8pm	8pm-8am	Section Change
1st									
2nd									
3rd									
4th									
5th									
6th									
7th									
8th									
9th						*DISCHARGE DETAILS*			
10th						Final Discharge Date			
11th						Final Discharge Code			
12th						DC (DO OUTCOME) DD. SD. TH. IR.			
13th									
14th						APPLIANCE			
15th									
16th						OUTCOME			
17th						Initial	Final		
18th									
19th									
20th									
21st									
22nd									
23rd									
24th									
25th									
26th									
27th									
28th									
29th									
30th									
31st									

Appendix 6

Non-traumatic Knee RCT Documentation

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Initial Contact Documentation

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Documentation from Physiotherapists

15. Physiotherapy Discharge Form

1. Introductory letter - example

Physiotherapy Department
Alfred Bean Hospital
Bridlington Road
Driffield
East Yorkshire
YO25 5JR

Tel: 01377 241124 x7274

Dear

You are due to commence your physiotherapy shortly. In the meantime, we would like to let you know that there is a research project currently underway that involves patients with knee problems such as yours. This research is being done with our co-operation and we would like to invite you to participate.

Please read the enclosed information, which will explain what the research is about and, if you would like to help, just follow the instructions. This research will not affect your physiotherapy treatment in any way.

Thank you and we look forward to seeing you at the physiotherapy department.

Yours sincerely

Superintendent Physiotherapist

2. Help flyer

Physiotherapy Research Project.

Can you help?

I understand that you have been referred by your G.P. or hospital specialist for physiotherapy treatment to your knee. There is a research project being carried out in the physiotherapy department that you will be attending.

Please read the information sheet that accompanies this letter and if you think that you can help, just follow the instructions.

Thank you very much for taking the time to read this letter and I hope you will help with this research.

PATIENT INFORMATION SHEET

Research Title: IMPROVING THE OUTCOME OF
PHYSIOTHERAPY FOR KNEE CONDITIONS.

I would like to invite you to take part in a research project, which is being carried out within the physiotherapy departments of Hull and East Yorkshire Hospitals NHS Trust and Hull & East Riding Community Health NHS Trust. The aim of this research is to improve the outcome of physiotherapy treatment for knee conditions.

Investigator: Caroline Metcalfe
Institute of Rehabilitation
215, Anlaby Road, Hull

Why is this research project needed? The physiotherapy department is always looking for ways to improve its services, so that patients get the best treatment and the best recovery that they can. We believe that there are many things that can affect how well people do with physiotherapy treatment. Research has shown that recovery from and coping with an injury are not necessarily linked to how bad the injury is at the start of treatment. Your life experiences and personality probably play a much bigger role than we realise. This research is needed to see if we can improve the outcome of physiotherapy for people with knee problems such as yours.

What do you have to do? Your physiotherapy treatment will not be affected if you decide to participate in this research or not. If you do take part I would need to collect some information from you about yourself and how your knee problem is affecting your life. I may also need to look at your physiotherapy records when you have finished treatment. I would need you to complete the questionnaire accompanying this letter and send it back to me as soon as possible. I would also need you to complete two more questionnaires - one just before you start your treatment and the other about 3 months later. This will help me to see how much your condition has changed. Otherwise, there is nothing else required of you.

Who will see the information? All the information that you give me would be kept strictly confidential and would only be used by me for the purposes of this study. It would not be seen or used by the physiotherapist treating you and this project does not form any part of your physiotherapy treatment.

What does the research involve? The research involves reading the information that the physiotherapy department sends you when you are given your first appointment. You should read this information carefully, discuss it with your family and friends if you wish, and keep it handy so that you can read it again later. You must also complete and return all the questionnaires that you are sent, which will take about 20 to 30 minutes each time. Otherwise, your physiotherapy treatment will be exactly the same, whether you take part in this study or not.

What are the benefits to you? If you take part in this research, you may not get any additional benefit from it, but the information that we will get from this research will help us to improve the service that we provide to patients in the future.

Do you have to take part? I would be very pleased if you would participate in this study, but you are free to decline or drop out at any time if you wish. Current and future treatment will not be affected by your decision.

What do you have to do now? If you feel that you can help with this important research, you need to:

- Complete and sign the consent form.
- Complete ALL sections of the questionnaire.
- Send the consent form and the completed questionnaire to me in the envelope provided - no stamp is needed.

If you would like to know more about the study before deciding whether to participate, or you need help to complete any of the questions, please feel free to contact me - **Caroline Metcalfe** - on **(01482) 675602**. I am a physiotherapist currently studying for a PhD and this research project is a very important part of my PhD studies.

Thank you for taking the time to read this letter and I hope you will help with this important research.

4. Consent form

Confidential

RESEARCH PROJECT

IMPROVING THE OUTCOME OF PHYSIOTHERAPY FOR KNEE CONDITIONS

CONSENT FORM

Investigator: Caroline Metcalfe, Research Therapist,
Institute of Rehabilitation, 215, Anlaby Road, Hull

Please initial box

1. I confirm that I have read and understand the information sheet dated 02/09/03 for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐
3. I understand that sections of my physiotherapy records may be looked at by responsible individuals from the Institute of Rehabilitation. I give permission for these individuals to have access to my records. ☐
4. I agree to take part in the above study. ☐

Name .... Date .... Signature ....

Researcher.......................... Date .... Signature ....

5. Initial Contact Questionnaire

Study Title: Improving the outcome of physiotherapy for non-traumatic conditions of the knee - a randomised controlled trial.

If you would like to help with this research, please complete this questionnaire. It is important that you answer EVERY question. If you find it difficult to answer a question, do the best you can. If you need help just give me (Caroline Metcalfe) a call on 675643 or 675602.

For each section, if you are asked to put a tick in the box, or circle one number, please do so clearly. If you make a mistake, simply cross out the wrong answer and tick the correct box or circle the correct number.

For example, in the following question you are asked if you drive a car. If you answer 'No' by mistake, just cross out that answer and put a tick in the 'Yes' box thus:

Do you drive a car? Yes ☑ No ☒

Your help with this research project is very much appreciated.

Please write your name and full postal address here:

Name:

Address:

Section 1:

This section is asking about your expectations of physiotherapy. It is **very important** that you answer these questions based on what you **EXPECT** to happen not what you hope will happen.

1. How much change in your knee do you EXPECT (not 'hope') to get with physiotherapy treatment? (Please tick one box only)

A lot worse	**A little worse**	**No better**	**A little better**	**A lot better**	**Complete recovery**
☐	☐	☐	☐	☐	☐

2. Do you know what the physiotherapist will do? Yes ☐ No ☐

3. Do you know what the treatment will involve? Yes ☐ No ☐

4. What you **EXPECT** (not hope) the physiotherapist to do for your knee problem? Please write your answer here.

5. On what do you base your expectations (how do you know what to expect)? (Please tick all applicable boxes)

Nothing (don't know) ☐
My own knowledge and experiences ☐
What other people have told me ☐
Other, please state:

6. Have you ever had physiotherapy before?
(Please tick the appropriate box and circle Yes or No if applicable)

No, never	☐	Circle Yes or No
Yes, for this knee problem	☐	Did it help? Yes No
Yes, for a different problem	☐	Did it help? Yes No

Section 2:

This is a list of phrases that other people have used to express how they feel about their condition. Please indicate how much you agree or disagree with <u>each</u> statement by placing a circle in the appropriate box. ***Only circle one number for each question.***

		Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
1	I'm afraid that I might re-injure myself if I exercise.	1	2	3	4
2	If I were to try to overcome it, my pain would get worse.	1	2	3	4
3	My body is telling me I have something dangerously wrong.	1	2	3	4
4	My pain would probably get better if I were to exercise.	1	2	3	4
5	People aren't taking my knee condition seriously enough.	1	2	3	4
6	My knee condition has put my body at risk for the rest of my life.	1	2	3	4
7	Pain always means I have injured my body.	1	2	3	4
8	Just because something aggravates my pain does not mean it is dangerous.	1	2	3	4
9	I'm afraid that I might injure myself accidentally.	1	2	3	4
10	Simply being careful that I do not make any unnecessary movements is the safest thing I can do to prevent my pain from worsening.	1	2	3	4
11	I wouldn't have this much pain if there wasn't something potentially dangerous going on in my body.	1	2	3	4
12	Although my knee condition is painful, I would be better off if I were physically active.	1	2	3	4
13	Pain lets me know when to stop exercises so that I don't injure myself.	1	2	3	4
14	It's really not safe for a person with a condition like mine to be physically active.	1	2	3	4
15	I can't do all the things normal people do because it's too easy for me to get injured.	1	2	3	4
16	Even though something is causing me a lot of pain, I don't think it's actually dangerous.	1	2	3	4
17	No one should have to exercise when he/she is in pain.	1	2	3	4

Section 3:

Please answer the following questions according to what YOU believe, there are no right or wrong answers. **Please answer by circling ONE number for each question.**

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
1. How I manage in the future depends on me not what other people can do for me	1	2	3	4	5
2. It's what I do to help myself that's really going to make all the difference	1	2	3	4	5
3. It's up to me to make sure I make the best recovery possible under the circumstances	1	2	3	4	5
4. Getting better now is a matter of my own determination rather than anything else	1	2	3	4	5
5. It doesn't matter how much help you get – in the end it's your own efforts that count	1	2	3	4	5
6. It's often best to just wait and see what happens	1	2	3	4	5
7. My own efforts are not very important, my recovery really depends on others	1	2	3	4	5
8. My own contribution to my recovery doesn't amount to much	1	2	3	4	5
9. I have little or no control over my progress from now on	1	2	3	4	5

It is very important that you have answered every question and written your name and address on the first page - please check it before you send it back.

Please return this questionnaire and the signed consent form to me in the envelope provided - no stamp is needed.

Thank you very much for your help. It is greatly appreciated.

6. Poster

Improving the outcome of physiotherapy for non-traumatic knee conditions.

We need **YOUR** help with this important research?

If you have a knee problem, you may be able to participate in a research project being carried out in the physiotherapy departments in this area.

If you would like to know more about this research:

- Ask the doctor that you see today for an information sheet.

OR

- Call Caroline Metcalfe on (01482) 675602 for more details.

7. Reminder letter

HEADED PAPER

Dear

About a week ago your local physiotherapy department sent you some information asking for your help with a research study. If you have already returned a questionnaire regarding this study, please accept my thanks and ignore this letter.

My name is Caroline Metcalfe and I am the researcher carrying out this research on behalf of your physiotherapy department. I have received replies from several patients, but as yet I have not received yours. I realise that you must be very busy, but the questionnaire that you were sent should only take a few moments to complete and it will go some way to helping the physiotherapy department treat people who have sufferer similar knee problems to yourself better in the future. Every response adds more information to the department's study and I am sure that you would want to assist it in this matter.

I have found that some people are unsure if the research applies to them and they have spoken to me over the telephone to make sure. Everyone that I have spoken to has been reassured and gone on to help with the study. I am more than happy to answer your questions or worries, and help you to complete the questionnaire over the telephone. I have enclosed a second copy of the questionnaire and hope that you can help with this important research. Please feel free to contact me on (01482) 675602 if you have any questions about taking part in the study or completing the questionnaire.

Once again, we would like to ask for your help in this matter so that your physiotherapy department can help others in the future.

A stamped addressed envelope is enclosed if you feel you could complete the questionnaire and return it to me.

I look forward to your reply or phone call and thank you in anticipation.

Yours sincerely

Caroline Metcalfe
Research Physiotherapist

8. Baseline letter **HEADED PAPER**

RESEARCH PROJECT

Study Title: Improving the outcome of physiotherapy for non-traumatic conditions of the knee - a randomised controlled trial.

Dear

Thank you for helping me with my research. I understand that you are due to start your physiotherapy shortly and I need to know how you are now, before you have had any treatment. Please read all the information carefully before completing the questionnaire.

The questionnaire consists of five sections. Each section is asking about different things to do with your knee problem. You may have already answered some of these questions in the last questionnaire, but because some time has passed, it is important that they are asked again. Also, there are some questions about you personally, such as your age, sex, work situation and education. You may wonder what these questions have to do with your knee problem, but your answers will help me to understand your situation as clearly as possible.

As before, the questionnaire will not be seen or used by your physiotherapist. All the information will be regarded as confidential and will only be used for the purposes of this study. If you need help to complete any of the questions, please feel free to contact me - **Caroline Metcalfe** - on **(01482) 675602**.

What do you have to do now?

- Please read all the information carefully before completing the questionnaire.
- Complete ALL sections of the questionnaire.
- Seal it in the envelope provided - no stamp is needed, and post it back to me.

Thank you again for helping with this important research.

Caroline Metcalfe,
Research Physiotherapist

9. Baseline Questionnaires

Study participant ID:

NAME: ADDRESS:

CONFIDENTIAL

Improving the outcome of physiotherapy for non-traumatic conditions of the knee - a randomised controlled trial.

Study Participant Baseline Questionnaire

Investigator: **Caroline Metcalfe**

University of Hull
Institute of Rehabilitation
215, Anlaby Road
Hull

PLEASE READ ALL THE INSTRUCTIONS BEFORE COMPLETING THE QUESTIONNAIRE.

Thank you for agreeing to take part in this research project.

All the information will be kept strictly confidential and will only be used for the purpose of this study.

There are seven pages of questions for you to fill in, which should take you no more than 30 minutes. Each section asks about different things, helping me to get a better understanding of you and your knee problem. I need answers to ALL the sections so that my investigation can be as thorough as possible.

Please answer ALL the questions. Although it may seem that questions are asked more than once, it is still important that you answer every one. If you find it difficult to answer a question, do the best you can. If you need help just give me (Caroline Metcalfe) a call on 675643 or 675602.

Please follow the instructions for each section carefully.

For each section, if you are asked to put a tick in the box, or circle one number, please do so clearly. If you make a mistake, simply cross out the wrong answer and tick the correct box or circle the correct number.

For example, in the following question you are asked if you drive a car. If you answer 'No' by mistake, just cross out that answer and put a tick in the 'Yes' box thus:

Do you drive a car? Yes 4 No ~~4~~

Your help with this research project is very much appreciated.

Section 1.

Please answer ALL the questions.

1. How long have you had this problem? (Please tick one box)

Less than 6 weeks ☐
Between 6 weeks and 6 months ☐
More than 6 months ☐

2. How long have you been waiting for physiotherapy for this problem? (Please tick one box)

Less than 6 weeks ☐
Between 6 weeks and 6 months ☐
More than 6 months ☐

3. Are you waiting for any of the following? (Please tick all that apply)

Surgery to your knee ☐
Investigations (x-rays, scans, tests) on your knee ☐
Settlement of a compensation claim to do with your knee ☐

4. Do you have any other health problems? (Please tick one box)

Yes ☐ **No** ☐

If YES, please give details:

5. How much change in your knee do you EXPECT (not 'hope') to get with physiotherapy treatment? **(Please tick one box only)**

A lot worse	A little worse	No better	A little better	A lot better	Complete recovery
☐	☐	☐	☐	☐	☐

Section 2.

This section is asking about your knee problem. For each of the questions below, there are five choices of answer. Please indicate which one best describes your knee problem by ticking one of the choices for each question.

PAIN

P1. How often is your knee painful? (please tick one box)

Never	Monthly	Weekly	Daily	Always
☐	☐	☐	☐	☐

How much pain have you had during the past week when....? (please tick one box on each line)

		None	Mild	Moderate	Severe	Extreme
P2	**twisting/pivoting on your knee.**	☐	☐	☐	☐	☐
P3	**straightening your knee fully.**	☐	☐	☐	☐	☐
P4	**bending your knee fully.**	☐	☐	☐	☐	☐
P5	**walking on a flat surface.**	☐	☐	☐	☐	☐
P6	**going up or down stairs.**	☐	☐	☐	☐	☐
P7	**at night while in bed.**	☐	☐	☐	☐	☐
P8	**sitting or lying.**	☐	☐	☐	☐	☐
P9	**standing upright.**	☐	☐	☐	☐	☐

SYMPTOMS

How severe is your knee stiffness .... ? (please tick one box on each line)

		None	Mild	Moderate	Severe	Extreme
Sy1	**when you first get out of bed.**	☐	☐	☐	☐	☐
Sy2	**after sitting, lying or resting later in the day.**	☐	☐	☐	☐	☐
		Never	Rarely	Sometimes	Often	Always
Sy3	**Do you have any swelling in your knee?**	☐	☐	☐	☐	☐
Sy4	**Do you feel grinding, hear clicking or any other type of noise when your knee moves?**	☐	☐	☐	☐	☐
Sy5	**Does your knee catch or lock when moving?**	☐	☐	☐	☐	☐
Sy6	**Can you straighten your knee fully?**	☐	☐	☐	☐	☐
Sy7	**Can you bend your knee fully?**	☐	☐	☐	☐	☐

SPORTS & RECREATION

What difficulty have you had <u>during the past week</u> .... ? (please tick one box on each line)

		None	Mild	Moderate	Severe	Extreme
Sp1	**squatting down**	☐	☐	☐	☐	☐
Sp2	**running**	☐	☐	☐	☐	☐
Sp3	**jumping**	☐	☐	☐	☐	☐
Sp4	**turning/twisting on your knee**	☐	☐	☐	☐	☐
Sp5	**kneeling**	☐	☐	☐	☐	☐

ACTIVITIES

What difficulty have you had <u>during the past week</u> .... ? (please tick one box on each line)

		None	Mild	Moderate	Severe	Extreme
A1	**going down stairs**	☐	☐	☐	☐	☐
A2	**going up stairs**	☐	☐	☐	☐	☐
A3	**getting up from sitting**	☐	☐	☐	☐	☐
A4	**standing**	☐	☐	☐	☐	☐
A5	**bending to pick up an object**	☐	☐	☐	☐	☐
A6	**walking on a flat surface**	☐	☐	☐	☐	☐
A7	**getting in/out of a car**	☐	☐	☐	☐	☐
A8	**going shopping**	☐	☐	☐	☐	☐
A9	**putting on socks or stockings**	☐	☐	☐	☐	☐
A10	**getting up from bed**	☐	☐	☐	☐	☐
A11	**taking off socks or stockings**	☐	☐	☐	☐	☐
A12	**lying in bed (turning over, keeping your knee comfortable)**	☐	☐	☐	☐	☐
A13	**getting in/out of the bath**	☐	☐	☐	☐	☐
A14	**sitting**	☐	☐	☐	☐	☐
A15	**getting on/off the toilet**	☐	☐	☐	☐	☐
A16	**doing heavy domestic duties (scrubbing floors, mowing the lawn, sweeping the yard, etc.)**	☐	☐	☐	☐	☐
A17	**doing light domestic duties (cooking, dusting, etc.)**	☐	☐	☐	☐	☐

QUALITY OF LIFE

Q1. How often are you aware of your knee problems?

Never	Monthly	Weekly	Daily	Always
☐	☐	☐	☐	☐

Q2. Have you changed your lifestyle to avoid activities that may damage your knee?

Not at all	A little	Moderately	A lot	Totally
☐	☐	☐	☐	☐

Q3. How troubled are you with lack of confidence in your knee?

Not at all	A little	Moderately	A lot	Extremely
☐	☐	☐	☐	☐

Q4. In general, how much difficulty do you have with your knee?

None	Mild	Moderate	Severe	Extreme
☐	☐	☐	☐	☐

Section 3.

Please rate **how confident** you are that **you can do** the following things at present, **despite your knee problem.** To answer, circle one of the numbers on the scale under each item, where 0 = "Not at all confident" and 6 = "Completely confident"

1) I can still enjoy things, despite my knee problem.

0 1 2 3 4 5 6

Not at all Confident — Completely Confident

2) I can still do most of the household chores (e.g. tidying up, washing dishes etc.) despite my knee problem.

0 1 2 3 4 5 6

Not at all Confident — Completely Confident

3) I can socialise with my friends or family members as often as I used to, despite my knee problem.

0 1 2 3 4 5 6

Not at all Confident — Completely Confident

4) I can cope with my knee problem in most situations.

0 1 2 3 4 5 6

Not at all Confident — Completely Confident

5) I can do some sort of work, despite my knee problem. ("Work" includes housework, paid or unpaid work)

0 1 2 3 4 5 6

Not at all Confident — Completely Confident

6) I can still do many of the things I enjoy doing, such as hobbies or leisure activities, despite my knee problem.

0 1 2 3 4 5 6

Not at all Confident	Completely Confident

7) I can cope with my knee problem without medication.

0 1 2 3 4 5 6

Not at all Confident	Completely Confident

8) I can still accomplish most of my goals in life, despite my knee problem.

0 1 2 3 4 5 6

Not at all Confident	Completely Confident

9) I can still live a normal lifestyle, despite my knee problem.

0 1 2 3 4 5 6

Not at all Confident	Completely Confident

10) I can gradually become more active, despite my knee problem.

0 1 2 3 4 5 6

Not at all Confident	Completely Confident

Section 4.

RLOC - as for initial contact questionnaire

Section 5.

This section is asking questions to find out how you have been feeling over the past 24 hours. Please indicate on each of the scales below the description which best fits how you have felt in the last 24 hours. For example if you have felt slightly tense put a cross on the line above 'slightly tense'. If you have felt somewhere between slightly tense and very tense, put a cross on the line between 'slightly tense' and 'very tense'.

Very relaxed	Slightly relaxed	Neither relaxed nor tense	Slightly tense	Very tense
Very sad	Slightly sad	Neither sad nor happy	Slightly happy	Very happy
Very tired	Slightly tired	Neither tired nor energetic	Slightly energetic	Very energetic
Very clear headed	Slightly clear headed	Neither clear headed nor confused	Slightly confused	Very confused
Very Irritable	Slightly irritable	Neither irritable nor easy	Slightly easy	Very easy
Very Confident	Slightly confident	Neither confident nor unsure	Slightly unsure	Very unsure

Section 6.

This section asks for details that will help us better understand the different needs of all the different sorts of people who come for physiotherapy. Information about your background will help us to improve our services by identifying areas of our present system that are not meeting your needs. It is important that you answer <u>ALL</u> the questions.

1. **What is the date of your first physiotherapy appointment?**

2. **Are you:** Male ☐ Female ☐

3. **How old are you?** .... years

4. **What is your work situation at the moment?** (Please tick one box only)

At work ☐
Retired ☐
Student ☐
Unemployed ☐
On sick leave ☐
Unable to work - receiving benefits ☐

Other (please state):

5. **What sort of work do you do?**

6. **What level of education have you <u>completed</u>?** (Please tick all that apply)

No formal education ☐
Primary School ☐
Secondary School ☐
College ☐
University ☐
Post-graduate Education ☐

Other (please state):

7. **How often do you or did you take part in sports or other physical activities, before you had <u>this problem</u>?** (Please tick one box only)

Daily ☐
More than 3 times a week ☐
1 – 2 times a week ☐
Every other week ☐
Once a month ☐
Hardly ever ☐

Thank you very much for your help.

It is very important that you have answered <u>every</u> question and written your name and address on the front page - please check it before you send it back to me.

Please return this questionnaire to me in the envelope provided - no stamp is needed.

Thank you very much for your help. It is greatly appreciated.

HEADED PAPER

Dear

Your doctor / hospital specialist has referred you to the physiotherapy department for treatment to your knee. Before you start treatment, you might find it helpful to know what the physiotherapist will do, what the treatment will involve and what the physiotherapist will expect you to do.

Firstly, your physiotherapist will examine you thoroughly to find out what the problem is. Then they will explain your knee problem to you and discuss the best way to deal with it. Physiotherapy treatment for knee problems like yours usually involves doing exercises. Sometimes the exercises are uncomfortable or painful, but this does not mean that they are doing your knee any harm. If your knee is very painful or swollen, other treatments may be used such as ultrasound, heat, electrical treatment or strapping. You will also be given a lot of advice about ways in which you can manage your knee problem yourself.

Physiotherapy is about helping you to help yourself. The advice that the physiotherapist gives will help you to take control of your knee problem and return to your usual activities as quickly as possible. The key to coping with your knee problem is <u>you</u>. Research has shown that when people get better by their own efforts, the effects last longer.

We hope this information will help to prepare you for the physiotherapy treatment ahead.

Keep this section in a prominent place, so that you will see it regularly. This will help to remind you about your physiotherapy.

Key Messages

- Physiotherapy is about helping you to help yourself.
- Take control of your knee problem - follow the physiotherapist's advice.
- HURT does not always mean HARM
- You are the key to your recovery.

11. Follow-up Letter

HEADED PAPER

RESEARCH PROJECT

Study Title: Improving the outcome of physiotherapy for non-traumatic conditions of the knee - a randomised controlled trial.

Dear

Thank you for helping me with my research. It is now about three months since you were given your first appointment for physiotherapy. To complete this study I need to find out how your condition has changed.

You need to complete this questionnaire even if you are still having treatment. It doesn't matter whether you had quite a few treatment sessions, or just one or two, you should still fill in the questionnaire. Even if you never actually had any physiotherapy, it is still important for you to complete the questionnaire.

The questionnaire is very similar to the one you completed before treatment. It consists of five sections. It is very important that you answer ALL the questions, so that I can compare these answers to those that you gave me before treatment. This will help me to measure how your condition has changed from several different aspects.

As before, the questionnaire will not be seen or used by your physiotherapist. All the information will be regarded as confidential and will only be used for the purposes of this study. If you need help to complete any of the questions, please feel free to contact me - **Caroline Metcalfe** - on **(01482) 675602**.

What do you have to do now?

- Please read all the information carefully before completing the questionnaire.
- Complete ALL sections of the questionnaire.
- Seal it in the envelope provided - no stamp is needed, and post it back to me.

Thank you again for helping with this important research.

Caroline Metcalfe,
Research Physiotherapist

12. Follow-up questionnaire

Section 1.

This section is asking how you are after the physiotherapy treatment. Please answer ALL the questions.

1. How much change did you get from physiotherapy treatment?
(Please tick one box only)

A lot worse	**A little worse**	**No better**	**A little better**	**A lot better**	**Complete recovery**
☐	☐	☐	☐	☐	☐

2. Was the physiotherapy treatment what you EXPECTED (not hoped)?

Not at all	**Yes, mostly**	**Yes, exactly**
☐	☐	☐

If the treatment was not as you expected, how did you feel about that? Please write your answer below:

3. How satisfied are you with the overall care that you received from the physiotherapy department?

Very dissatisfied	**Dissatisfied**	**Satisfied**	**Very satisfied**
☐	☐	☐	☐

4. How satisfied are you with the overall improvement in your knee problem?

Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
☐	☐	☐	☐

5. Were you given any exercises to do at home?

Yes ☐ **No** ☐

If YES, how many different exercises were you given to do? ☐

and how often did you do the exercises at home?

(N.B. Please be honest with me, your physiotherapist will never know!)

Once a week ☐
Twice a week ☐
Every other day ☐
Every day ☐
More than once, every day ☐
Other, please give details:

6. Were you given a sheet of exercises? **Yes** ☐ **No** ☐

If YES, was the sheet:

Hand written ☐
A printed list ☐
A list specially printed for you ☐
Other, please give details:

Section 2.

KOOS - as for baseline questionnaire

Section 3.

Self-efficacy - as for baseline questionnaire

Section 4.

RLOC as for initial contact questionnaire

Section 5:

As you may have found, physiotherapy for knee problems such as yours usually involves self-help in the form of exercises to be done at home. Many people find this difficult for a variety of reasons, which sometimes means that they stop coming treatment If you stopped coming for treatment we need to know the reasons why, so that we can adapt our services if appropriate. Please be honest with us. Even though you may be embarrassed to give the truthful answer, we cannot change our services if we don't know how things need to change.

1. **Did you stop coming for treatment before the physiotherapist discharged you?**

Yes ☐ No ☐ Please go to the next page

If YES, please answer the next question.

2 **Below is a list of reasons why people stop coming for treatment. If your reason is there, please tick it, otherwise please write your reason in the box below.**

Another health problem meant I couldn't come anymore	
It was too expensive to keep coming	
I forgot to come	
The physiotherapist told me that I was discharged	
I couldn't be bothered	
The treatment was too painful	

My knee got better, so I didn't need any more treatment	
The treatment/exercises were not helping	
I was too busy to attend	
Didn't realise that I needed to come back	
I didn't like the physiotherapist	
I felt it was a waste of time	

Other reason(s):

If you have any other comments that you would like to make about this research or the physiotherapy treatment, please feel free to do so here. (space provided)

Thank you very much for your help.

It is very important that you have answered <u>every</u> question - please check it before you send it back to me.

Please return this questionnaire to me in the envelope provided - no stamp is needed.

Thank you very much for your help. It is greatly appreciated.

13. Questionnaires - as for follow-up

14. Prompting letter **HEADED PAPER**

RESEARCH PROJECT

Study Title: Improving the outcome of physiotherapy for non-traumatic conditions of the knee - a randomised controlled trial.

Dear

As yet, I have not received the follow-up questionnaire I recently sent you for the above study. If you have recently returned it, thank you and please ignore this letter.

I appreciate that you are very busy, but the information that you give me can make a difference to the physiotherapy care that other patients may receive in the future. As you gave your consent to take part in this research, you are classified as a study participant and, in order for the results to be meaningful, it is important that the follow-up questionnaire is completed and returned.

If you only attended for one or two sessions, or if you had to stop treatment for whatever reason, it is still important for you to complete the questionnaire and return it to me. Even if you never attended for treatment, to complete the study it is important that the follow-up questionnaire is completed and returned.

Therefore, I would be most grateful if you would complete the enclosed questionnaire and send it back to me in the envelope provided - **no stamp is needed**.

If you need help to complete any of the questions, please feel free to contact me - **Caroline Metcalfe** - on **(01482) 675602**.

Thank you again for helping me with my research.

Caroline Metcalfe,
Research Physiotherapist

15. Physiotherapy Discharge Form

Confidential

ID number:

Physiotherapy Discharge Form

Patient's name: ....

Diagnosis: ....

How many treatments given? ☐

Date first treatment? ☐ **Date last treatment?** ☐

What was the patient's discharge status?	**DC**	Discharged treatment complete
(Circle one)	**SD**	Self-discharged
	TH	Transferred outside Trust
	IR	Inappropriate referral

Please indicate in the table below, which treatments were used (tick all that apply)

Treatment		Treatment	
Exercises		Ultrasound	
Exercise/gym equipment		SWD	
Thermal modalities		Laser	
Manual therapies		Interferential Therapy	
Strapping		TENS	
Advice		Acupuncture	

Other please state:

Was an exercise sheet given?	**Yes - standard exercises**
(circle one)	**Yes - personalised exercises**
	No

Appendix 7

Abbreviations.

ADL	Aids to Daily Living
AMED	Allied and Complementary Medicine
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
BIDS	Bath Information and Data Services
CABG	Coronary Artery Bypass Graft
COOP	Dartmouth Primary Care Cooperative Information Project
CRD	Centre for Reviews and Dissemination
CSP	Chartered Society of Physiotherapy
DARE	Database of Abstracts of Reviews of Effectiveness
DASH	Disability of the Arm, Shoulder and Hand
DHSS	Department for Health and Social Security
DNA	Did Not Attend
DoH	Department of Health
GP	General Practitioner
HADS	Hospital Anxiety and Depression Score
HAQ	Health Assessment Questionnaire
HBM	Health Belief Model
ICC	Intraclass Correlation Coefficient
IQR	Inter Quartile Range
KOOS	Knee injury and Osteoarthritis Outcome Score
LEFS	Lower Extremity Functional Scale
LOC	Locus of Control
MCS	Mental Component Summary
MI	Myocardial Infarction
MIMAS	Manchester Information and Associated Services
MLOC	Multidimensional Locus of Control

MRS	Mood Rating Scale
NHP	Nottingham Health Profile
NHS	National Health Service
OPCS	Office of Population, Census and Surveys
PCS	Physical Component Summary
PEQ	Patient Expectation Questionnaire
PIU	Physiotherapy Input Units
PSEQ	Pain Self-Efficacy Questionnaire
PTOPS	Physical Therapy Outpatient Satisfaction Survey
RCGP	Royal College of General Practitioners
RCT	Randomised Controlled Trial
RDQ	Roland Disability Questionnaire
RLOC	Recovery Locus of Control
SD	Standard Deviation
SF-36	Short form 36
SIP	Sickness Impact Profile
SoCS	Severity of Condition Score
SPSS	Statistical Package for the Social Sciences
TENS	Transcutaneous Electrical Nerve Stimulation
TJR	Total Joint Replacement
TSK	Tampa Scale for Kinaesiophobia
UK	United Kingdom
VF	Visual Function
WOMAC	Western Ontario and MacMaster Universities Osteoarthritis Index
WONCA	World Organisation of Family Doctors