A systematic exploration of a perinatal wellbeing framework through women's experiences of lumbo-pelvic pain.

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Background: Women's wellbeing during the perinatal period has received increasing attention in research, policy and practice, but is often poorly defined and conceptualised. We have developed a framework of perinatal wellbeing (PWB) which we will refine further in this review, using the example of lumbo-pelvic pain (LPP). Perinatal LPP, which includes lower back pain (LBP) and pelvic girdle pain (PGP), is common and can significantly affect women's wellbeing.

Aim: The aims of this review are (1) to synthesise research into women's experiences of LPP and (2) to use these findings to contribute further to developing our framework of PWB.

Designs and methods: A systematic search of online databases was conducted for qualitative studies exploring women's experiences of LPP linked to the perinatal period; 15 papers describing 11 studies were identified. A framework synthesis approach (Carroll et al., **2011**; Carroll et al., 2013) was used to synthesise studies, using the PWB framework as the *a priori* framework.

Findings: The review highlights the impact of LPP on all areas of women's lives and their functioning at every level, as well as the impact of a range of factors on women's experiences. Only one study explored women's experiences of LBP, all others focused on PGP. Findings illustrate how multi-faceted women's wellbeing is in the context of LPP, particularly the importance of relationships and support, but also the role played by wider socio-cultural discourses of pregnancy and motherhood and by women's individual circumstances and characteristics. Findings underline the interconnectedness of physical, emotional and psychological experiences. The review largely confirmed, and further elaborated, the domains of the original framework, but also led to some changes, notably the inclusion of an 'individual factors' domain describing women's individual circumstances and characteristics. The limited discussion of LPP during labour and birth was notable.

Conclusions and implications: Findings support the framework, but also provide evidence for some changes, thus further refining the framework. Women's wellbeing in the perinatal period (with regards to LPP, other issues, or generally) should not be considered in isolation, but needs to take account of women's life context. The perinatal period should be considered a continuum, rather than seeing each part in isolation. For clinical practice, the review underlines the importance of distinguishing between PGP and LBP and offering appropriate, individualised support.

Key words: maternal wellbeing; perinatal wellbeing; back pain; pelvic girdle pain; systematic review

Introduction and background

There has been an increasing acknowledgement that the wellbeing of women during the perinatal period is important, not just for women themselves, but also for their babies and families, both in the short- and long-term. Consequently, perinatal wellbeing (PWB) has become an important concept within research, policy, and clinical practice. However, PWB is frequently poorly defined and often relates to only physical and/or psychological wellbeing, rather than taking a more

comprehensive, multidimensional approach. If we want to be able to explore, assess, or support PWB we need to be clear about what exactly we mean by it (Ayers and Olander, 2013). In a review of theoretical discussions of PWB (Wadephul et al., 2020), we proposed a tentative conceptual framework of perinatal wellbeing (Figure 1) consisting of domains pertaining to society and culture, community, immediate environment, and individual factors, and encompassing physical, emotional, and cognitive experiences of wellbeing. As this framework was largely based on theoretical discussion, we consider it important to explore how well it fits with women's lived experiences. This review aims to do this by examining women's experiences of a specific condition, lumbo-pelvic pain, within the context of the original framework. As LPP is a relatively common problem in the perinatal period and can have a serious and often long-lasting impact on women's wellbeing, it is a pertinent example to use to further explore the original PWB framework.

[Figure 1: Original PWB framework]

Lumbo-pelvic pain (LPP) includes lower back pain (LBP) and pelvic girdle pain (PGP). Women in the perinatal period are particularly vulnerable to LPP due to hormonal and physiological changes, problems arising from birth, and the often demanding conditions of new motherhood. About 50% of pregnant women (Vleeming et al., 2008; Wu et al., 2004) and 25% of postpartum women experience postpartum LPP (Wu et al., 2004). Globally, non-specific lower back pain is the leading cause of disability (Buchbinder et al., 2013). It is a complex condition defined by the location of pain; in the majority of cases no specific cause can be identified (Hartvigsen et al., 2018).

LBP usually refers to pain between the twelfth rib and the gluteal fold (Vleeming et al., 2008); intensity varies considerably, but can have a considerable impact on women's wellbeing and functioning. PGP is characterised by often severe pain between the posterior iliac crest and the gluteal fold, particularly around the sacroiliac joint (Vleeming et al., 2008; Wu et al., 2004). Women have described PGP as an intense, often stabbing pain (Wu et al., 2004). PGP can severely limit mobility and may necessitate the use of crutches or a wheelchair (Gutke et al., 2018). Even moderate PGP has a negative impact on women's quality of life and daily functioning, and plays a large role in sick leave. PGP often resolves with birth, but continues postnatally in approximately a third of women (Gutke et al., 2011).

Two recent papers have reviewed women's experiences with pregnancy-related pelvic girdle pain (Mackenzie et al., 2018; Varley and Hunter, 2019). The primary aim of this review is not to synthesise women's experiences of LPP as such, but to explore the utility of the framework in this context. Applying the PWB framework to a specific condition experienced by many women in the perinatal period allowed us to 'test' the framework's fit with women's experiences. It also enabled elaboration of the domains and subdomains, which were relatively abstract in the original framework. In this review, through a synthesis of women's experiences of LPP, we aim:

- to evaluate how well the initial framework fits with women's lived experience of lumbo-pelvic pain,
- to refine the initial framework and add detail to the domains, and
- to explore how domains and sub-domains are related.

Methods

Search and selection of papers

Online databases (Academic Search Premier, CINAHL, Medline, PsycINFO) were searched using the search terms in Table 1. Reference lists were searched for additional papers. Figure 2 shows the number of papers retrieved and retained at each stage. Papers were included if they used a qualitative methodology and focused on women's experiences of lower back pain or pelvic girdle

pain arising during the perinatal period. Papers which focused predominantly on women's experiences of treatment for LPP, such as osteopathy or physiotherapy, were excluded. The search was carried out in December 2019. It was repeated in September 2019; no new papers were identified.

[Table 1: Search terms]

[Figure 2: PRISMA diagram]

Quality assessments

The quality of included papers was assessed using the CASP checklist for qualitative research (Critical Appraisal Skills Programme, 2017). This was carried out by the first author, with additional checks by another author (LG). Ratings were broadly similar between the two assessors; any divergences were discussed and mutually agreed. No papers were excluded; quality ratings are available in supplementary files.

Synthesis

The synthesis of the included papers was based on framework synthesis (Carroll et al., 2011; Carroll et al., 2013), a deductive approach which uses an *a priori* framework against which to map and code extracted data. This allows the existing framework to act 'as the basis for the synthesis and could be built-upon, expanded upon, reduced or added to by these new data' (Carroll et al., 2011, p. 4). Data extracts from the results sections of included papers were coded, using the domains and sub-domains of the original PWB framework as the *a priori* framework. Themes, and where necessary sub-themes, were developed for each domain or sub-domain. Data which did not fit into the existing framework was coded into additional themes. Coding and the initial development of themes was carried out in NVivo by two of the authors (FW and LG).

After completion of data mapping and coding, the fit of the initial framework with the coded data from the review studies was examined to establish to what extent the initial framework was supported by the data. Changes were then made to the original framework, leading to the development of the revised framework.

Findings

Included studies

The search identified 15 papers, describing 11 studies, which met the inclusion criteria (Table 2). Studies originated in Norway, Sweden, Ireland, and the UK. Even though the search terms included lower back pain and lumbo-pelvic pain in general, all studies, with one exception (Close et al., 2016), focused exclusively on the experiences of women with PGP. Close et al studied the experiences of women with pregnancy-related LPP, including PGP, LBP, and combined pain.

Almost all used interviews to gather qualitative data; one (Close et al., 2016) used focus groups and Fredriksen et al. (2008) analysed women's contributions to an online discussion forum. Data were analysed using a range of qualitative approaches (Table 2). While some studies included only pregnant women (Clarkson and Adams, 2018; Elden et al., 2013, 2014; Persson et al., 2013) or only postnatal women (Elkins-Bushnell and Boyle, 2019; Engeset et al., 2014; Gutke et al., 2017; Shepherd, 2005; Wuytack et al., 2015a, 2015b), two included both (Close et al., 2016; Fredriksen et al., 2008). In a longitudinal study (Crichton and Wellock, 2008; Wellock and Crichton, 2007a, 2007b) women were interviewed in pregnancy and postnatally. Shepherd (2005) interviewed postnatal women at two time points. For postnatal participants, the length of time at interview was not always specified. Crichton and Wellock interviewed women soon after birth (6 weeks); several other studies also included women with more persistent postnatal LPP, up to, or more than, ten years (Elkins-

Bushnell and Boyle, 2019; Engeset et al., 2014; Gutke et al., 2017). One study (Wuytack et al., 2015a, 2015b) only included primiparous women. The other studies either did not specify or included both primi- and multiparous women.

[Table 2: Overview of included studies]

Themes within the original framework

Table 3 shows how the themes and sub-themes were mapped with the domains and sub-domains of the original framework. Examples illustrating each theme and sub-theme are provided in the supplementary files. These themes and sub-themes further elaborate many of the domains and sub-domains which were less well defined and more abstract in the original framework.

[Table 3: Themes and sub-themes mapped within the domains and sub-domains of the original framework]

There was some explicit evidence for the *society and culture* domain in the included papers. Support for this domain, however, was largely implicit and was commonly found in other domains, particularly other people's and women's own attitudes to LPP, pregnancy, and motherhood, for example in terms of what is considered normal. Discourses of normality in the perinatal period, particularly when used by health care professionals, work colleagues or those close to them, significantly affected women's psychological and emotional experiences and availability of care.

In the *community* domain, which in the original framework was concerned with areas of women's lives reaching beyond immediate family and friends, the review identified three elements: work or study, health professionals, and other people, including strangers and other women with LPP.

Within the *immediate environment* domain, the review identified relationships with partners, the baby and older children, other family members, and friends as relevant for women's wellbeing. These relationships could be both supportive and unsupportive, and their nature often changed due to LPP. The findings of this review highlight that the *individual* domain in the original framework had not been sufficiently clearly defined. The review identified themes relating to women's daily lives, but considerable changes have been made to this domain as a result of this review (see below).

Women's *physical experiences* of LPP were dominated by pain and the impact on mobility and functioning, which tended to affect many aspects of women's lives as well as how women view and relate to their bodies. Their *emotional experiences* were characterised by worry and concern about their condition and its impact on their lives, as well as sadness, disappointment and frustration. However, there were also positive experiences of joy, hope, and reassurance. LPP affected women's *psychological experiences* in a number of ways, most notably their sense of control, identity and purpose.

The dimension of *time* was very evident. Women described both day-to-day and longer-term changes in wellbeing linked to LPP. The review also confirmed the importance of considering the perinatal period as a continuum, and the importance of events prior to pregnancy and the impact of perinatal experiences on wellbeing afterwards. In the theoretical review (Wadephul et al., 2020) we have suggested that space and/or the environment may be another significant aspect of wellbeing. This review provides some supporting evidence, especially in terms of the extent to which LPP restricts women's ability to move around.

A number of themes which did not appear to fit within the original framework were included in the 'additional themes' category. These included: women's expectations, attitudes, knowledge, and understanding of pregnancy, birth, motherhood, and LPP; and how women adapted to and coped with LPP. These were subsequently integrated into the refined framework (see below).

Refined PWB framework

Societal and cultural discourses and Structures, policies, and laws

The original domain 'culture and society' has been expanded and elaborated in the revised framework (Figure 3). The new *culture and society* domain comprises two sub-domains: *societal and cultural discourses* and *structures, policies, and laws*. The former relates to the wider socio-cultural influences on women's wellbeing which underlie many other themes within the framework. For example, discourses around what a 'normal pregnancy' is (e.g. Elden et al 2013) and assumptions around LPP as a normal part of pregnancy (e.g. Wellock and Crichton 2007b, Wuytack et al 2015b) affect not only women's experiences, attitudes, and expectations, but also the availability of help and support from others, including health professionals and employers. They are also likely to influence the availability and type of treatments. Socio-cultural discourses underpin women's own attitudes and expectations of what is normal in pregnancy and what they 'should' be feeling or able to do, which can induce feelings of guilt and self-blame due to physical limitations. Not only were women sometimes told by health professionals that backpain was 'part of pregnancy … just get on with it' (Close et al., 2016, p.5), but some women also seemed to have internalised these expectations: '… pregnancy is not a disease. Everything ought to be as before the pregnancy' (Persson et al., 2013, p. 6).

Women's experiences of wellbeing are also affected by wider socio-cultural, political, and economic structures, policies, and laws. In this review, for example, this includes the impact of sick leave, and the availability of health care and treatments. These elements were included in the 'Community' and 'immediate environment' domains in the original framework, under health professions and employment. It became apparent during the review these elements relate to overarching structures like policies and laws, and they were moved to the wider society and culture domain.

[Figure 3: The revised framework]

Relationships

In the original framework, the 'community' and 'immediate environment' domains were about different 'areas' of women's lives, e.g. work and health professionals ('community') and family and friends ('immediate environment'). However, the review suggests that this domain was primarily concerned with the nature and type of relationships with different groups of people and individuals. We have therefore combined 'community' and 'immediate environment' into a *relationship* domain.

The *relationship* domain comprises a wide range of relationships varying in nature and in significance. For example, relationships with immediate family are likely to be more significant for wellbeing than relationships with acquaintances. Consequently, there is a gradient within this domain with respect to the importance and closeness of relationships. Furthermore, the nature and quality of a relationship can change during the perinatal period; for example, friends without children may become less close, whereas those with children (or new friends with babies due at the same time) may become more significant.

Women described a wide range of relationships affecting their wellbeing in positive or negative ways. For example, while some women described relationships with health professionals characterised by trust and feeling safe and listened to, others felt that their feelings and concerns were dismissed. Similarly, relationships with employers and colleagues could be supportive and understanding, or unhelpful and leading to considerable amounts of stress. Many women described support, both practical and emotional, from family members and friends as crucial for their wellbeing. On the other hand, some women also experienced unhelpful relationships and a lack of

support: 'I have been so mad at him as he's not helping me out at home; in some way it's expected that I should manage' (Persson et al., 2013, p. 4). A number of women described how their experience of LPP had negatively affected relationships, particularly with friends, as they were not able to socialise like before: 'It has made me the most miserable anti-social person … cos I'm in too much pain' (Clarkson & Adams, 2018, p. 341).

Individual factors

The 'individual' domain in the original framework was not very clearly defined. The nature of this domain became more apparent with this review; we redefined it as *individual factors* as it concerns women's characteristics and circumstances which are likely to affect wellbeing. Several of the 'additional themes' were also included in this domain, including women's expectations, knowledge and attitudes to LPP, and their coping strategies. Essentially, this domain is about women's characteristics and circumstances, i.e. what they bring with them. In the context of this review, this includes: their knowledge of, and attitude to, LPP; their knowledge and attitudes with regard to pregnancy, birth and motherhood; their domestic situation and whether they are caring for older children; whether they are working (or studying); and how they cope with, and adapt to, LPP. Findings by Gutke et al. (2017) illustrate individual factors and differences between women in terms of how they adapt to, and cope with, PGP: while some women have accepted the condition and adapted to it, others, for a variety of reasons continued to struggle to do so.

Experiences: physical, emotional, psychological

This domain encompasses women's physical, emotional, and psychological experiences of wellbeing. It remains the same as in the original framework, but this review has provided further nuances and richer details and has highlighted the inter-connections between physical, emotional, and psychological experiences. LPP led to considerable physical limitations, affecting activities and daily functioning. Pain stood out in intensity, affecting not only physical, but also emotional and psychological experiences. The impact of sleep also affects all three facets of experiences. Many women felt anxious or concerned about a wide range of issues, including birth and being able to look after the baby and older children. Experiencing LPP also affected women's sense of identity and how they saw themselves, particularly in terms of the maternal role and a sense of dependence on others.

There are many differences in how individual women experience wellbeing, largely depending on their specific characteristics and circumstances, i.e. the individual factors domain. As proposed in the original framework, these experiences can be both positive and negative. However, in this review negative experiences tended to dominate due to the focus on LPP and its symptoms and consequences.

Time

The importance of a temporal dimension was confirmed by this review: fluctuations in wellbeing over time, the perinatal period as a continuum, and the significance of a life course perspective. Perinatal wellbeing is not static but changes over time, both in the short-term and over a longer time period. Changes in wellbeing were often linked to the impact of activity levels on LPP.

Women's experiences of wellbeing with respect to LPP confirm that the perinatal period needs to be considered as a continuum. Wellbeing in each of the different parts of the perinatal period (pregnancy, labour/birth, postnatal period) does not occur isolation, but is affected by the other periods. For example, what happens in pregnancy can affect experiences in labour and postnatally,

and what happens during labour and birth often has consequences postnatally. Furthermore, women think beyond just one period. The most common example of this was women thinking ahead to labour and implications of LPP for birth or postnatally.

What happens before the pregnancy affects wellbeing during the current perinatal period and what happens during the current perinatal period affects women's wellbeing later on in life. This includes how women think ahead to future pregnancies, e.g. not wanting another pregnancy because of concerns about pain.

Space and environment

In the theoretical review (Wadephul et al., 2020) we suggested that space and the environment might be another significant factor in perinatal wellbeing. In the context of this review, space appears to be relevant in terms of restrictions on women's mobility and their ability to go out.

The environment women live in may also be relevant for their wellbeing, for example in how easy it is for them to move around, including the availability of public transport and whether they can walk to work, shops, or their children's school. One woman commented that living in an environment where her young child was safe to go out and play because neighbours would keep an eye made it easier to cope with LPP. On the other hand, issues of the wider environment may be included in the wider society and culture domain.

Discussion

Lumbo-pelvic pain

It is striking that the focus of the included studies is almost exclusively on PGP; only one study explores women's experiences of LBP (Close et al., 2016). While LBP is relatively common, it is also less well defined than PGP and often remains formally un-diagnosed. Furthermore, LBP seems to have been normalised in pregnancy, and possibly postnatally. A key difference between PGP and LBP was identified by the one paper which included LBP (Close et al., 2016): while women expected LBP during pregnancy and therefore had an attitude of normality towards it, they were not aware of PGP, which often seemed to surprise them and was described by one woman as 'frightening'. Pelvic girdle pain tends to be more painful, acute and alarming than LBP and can therefore have a considerable impact on functioning. Given that the majority of studies focused on PGP, overall it is difficult to know to what extent insights from PGP studies are applicable in terms of women's experiences to LBP. It is quite likely that the intense pain and unexpected nature of PGP may have a more significant impact on wellbeing compared to LBP. However, the focus of this review was to explore ways in which a relatively common adverse situation could inform us about women's wellbeing. While there are certainly differences between the conditions as stated above, they both have a considerable impact on wellbeing.

The revised framework: 'fit' with existing research

Pregnancy, birth and early motherhood are not just physical, biological experiences, but experiences which take place within, and are shaped by, the social and cultural context. They are therefore influenced by discourses within this context (Miller, 2007) and, in turn, women's wellbeing is affected by these discourses. Review findings suggest that discourses around what is normal in pregnancy affect women's experiences: several of the included studies report that women were told that back pain in pregnancy is normal and that they would just have to put up with it. Bessett (2010) describes a discourse of maternal sacrifice involving 'cultural pressures to "suffer nobly" the symptoms of pregnancy, no matter how uncomfortable' (Bessett, 2010, p. 370). She suggests that

going against this discourse, for example by complaining about discomfort and pain, threatens women's identity as a 'good mother'. This may have a direct impact on women's emotional wellbeing and a physical impact if women do not seek help and support as needed. This exemplifies how socio-cultural discourses and assumptions around pregnancy and motherhood can affect women's experiences of wellbeing. Other discourses are likely to be pertinent in other contexts.

The 'pregnancy as health' discourse (Fredriksen et al., 2010), which relates to expectations among pregnant women that they will remain healthy, fit, and able to work during pregnancy, is also reflected in findings. This can result in women being reluctant to slow down or take sick leave and may lead to feelings of failure and inadequacy.

Supportive and protective social and employment policies have the potential to increase maternal wellbeing (Tsai and Tai, 2018). This review illustrates how national policies can affect wellbeing during the perinatal period, particularly paid sick leave policies. It is notable that in the included papers discussion of taking sick leave usually referred to pregnancy. All papers originated in countries which have relatively generous policies on maternity leave; in this context, taking sick leave postnatally is less relevant. The extent to which women are able to make adaptations at work, including more flexible working, working part time, or making changes to what they do at work, can also have a significant impact on their wellbeing.

Relationships

The significance for PWB of relationships is evident. What appears to matter is the *quality* of a relationship and whether it is positive, supportive, and understanding, or has a negative impact on wellbeing. The emphasis in research and clinical practice tends to be on relationships with a partner; however, other relationships are also significant, including relationships with children, close family and friends, neighbours, work colleagues, extended family, and health professionals. The quality and relative significance of particular relationships is dynamic and changes throughout the perinatal period. For example, in the included papers many of the women talked about how their relationships with friends changed: as they transition to parenthood, they may become less close to friends without children, while other pregnant women and mothers with children at a similar age become more significant (Jones et al., 2014).

Individual factors

This review highlights individual differences between women and the impact this may have on their experiences of wellbeing, particularly in terms of coping strategies, expectations, attitude, and knowledge, but also their work and family circumstances. There is some research in this area, suggesting, for example, that coping strategies (e.g. George et al., 2013; Lafarge et al., 2013) and expectations (Henshaw et al., 2014) can affect aspects of perinatal wellbeing. However, overall these factors, which may explain how different women experience similar situations in different ways, is under-researched. Other individual factors which may affect wellbeing include women's personality, personal history, and women's environment (where they live and their housing situation).

Experiences of wellbeing

Women's experiences of wellbeing are affected by the outer sections of the framework; these provide the *context* of wellbeing, while the experiences can be considered the *core* of wellbeing. This review demonstrates how closely linked different aspects of experiences of wellbeing are. The distinction between physical, emotional, and cognitive experiences is, to some extent, artificial; it is not always easy to make a clear distinction between these elements. This reflects the mind-body dualism which is so dominant in research and practice. However, while we would argue that it is important to consider the holistic nature of wellbeing, it is arguably difficult to capture this in research.

Time

Both the context and the core of wellbeing have a temporal dimension: they change over time and experiences at different time periods have an impact on other time periods. Studies and clinical assessments of perinatal wellbeing, or aspects of wellbeing, tend to capture only a snapshot of wellbeing at a particular point of in time. However, it is clear that wellbeing is dynamic and fluctuates across the perinatal period (Newham and Martin, 2013) and over shorter periods of time. Capturing the dynamic, fluctuating nature of wellbeing may be enhanced by the use of frequent 'ecological momentary assessments' with the aid of diaries or digital technology (Newham and Martin, 2013). Changes in wellbeing in the perinatal period also mean that it is important to report and take into account the time period to which an assessment of wellbeing refers; for example, there can be considerable differences between early and late pregnancy, or the immediate days after birth or several month postpartum.

This review illustrates several ways in which the different parts of the perinatal period can be related such as women's concerns during pregnancy about giving birth with LPP or about the impact of labour on their postnatal wellbeing. It is notable that discussion of labour and birth was largely absent otherwise. This may be because during labour LPP is less of a focus. However, research into women's experiences, captured retrospectively, of LPP during labour and birth would widen our understanding of the issues around LPP.

The perinatal period does not exist within a vacuum, but needs to be located within the wider temporal context of women's lives. In the studies included in this review, women talked about this with respect to previous or future pregnancies and births. For example, women compared their current experiences of PGP to those in a previous pregnancy. Several women also talked about how the experiences of pain due to PGP affected their decisions about future pregnancies. A life course perspective may provide further insights into women's experiences and needs.

Space/environment

We feel that consideration of the impact of space and environment on wellbeing would benefit from further exploration. Aspects of it may fit in within the experiences of wellbeing and individual factors domain as well as the wider socio-cultural context. It is evident from this review that LPP can restrict women's mobility and therefore ability to travel, including commuting, going shopping, and taking children to school. While this relates to where women live (individual factors) and is part of women's physical experience of wellbeing, it is also linked to the wider infrastructure and facilities at a societal level: the wider environment can make it harder, or easier, for women to deal with their lack of mobility. In this sense, the environment, in its widest sense, can be as disabling as the symptoms of LPP itself.

Using the framework: research, practice, policy

The aim of this review was to explore the utility of the conceptual framework of wellbeing and to develop it by applying it to a particular perinatal situation which challenges wellbeing, i.e. lower back pain. By utilising framework analysis we were able to explore the ways in which women's own experiences fit the framework. Our findings suggest that the proposed multi-dimensional framework has a good fit; women's experiences have allowed us to develop and refine the framework to more closely reflect the actual lived experience of women. It allowed us to understand the challenges to wellbeing as well as those factors which support it. Arguably this gives a fuller understanding of wellbeing and allows a more elaborate development of the framework.

While this review aimed to employ the revised framework with respect to a very specific example, perinatal wellbeing in the context of LPP, the framework can be used more widely. It can be applied to perinatal wellbeing in specific contexts, conditions, or groups of women. On the other

hand, it can also be used to illustrate, explore, and explain perinatal wellbeing in a more general sense. As such, the framework can be used in a practical, applied way, or in a more theoretical way.

Individual research studies are likely to focus on separate aspects of wellbeing; however, awareness of the wider context and the influence of women's individual circumstances is important. This framework enables a comprehensive view of wellbeing during the perinatal period, including contributing factors and how women experience wellbeing. It also addresses the wider socio-cultural context and the importance of women's individual characteristics and circumstances.

Within clinical practice, the framework highlights the importance of an awareness and understanding of the wider context of women's lives and of their specific individual circumstances, characteristics, and needs. This is of significance not just to how health professionals care for women, but also for how maternity care is organised. In terms of policy, an understanding of all factors which can affect women's wellbeing is vital, including sick leave, maternity leave, and health care. Finally, the framework also has the potential to assist in the development of interventions designed to support women's wellbeing, underlining the importance of a comprehensive, holistic approach.

Strengths and limitations

The geographical spread of included studies was limited to north-western Europe. In other countries, particularly lower and middle income countries, other issues are likely to be relevant. However, the aim of the framework is to identify domains rather than specific issues for women so while the content of the domains may vary across contexts and cultures, it is expected that the broad areas will remain the same, although different domains may come to the fore in different contexts.

This review uses a concrete example (LPP) to illustrate conceptual work on PWB. It builds on previous work (Wadephul et al., 2020), using a thorough and methodical approach to further develop and refine the initial framework. The refined framework of PWB is firmly grounded in the research literature. The review moves the development of the framework closer to women's experiences and allows it to be informed by women's voices rather than solely abstract concepts.

Future directions

It is important to evaluate how well the framework applies to other situations or groups of women. Of particular note are the geographical limitations, as noted above; the differences, and similarities, of experiences of women in different cultures and/or less economically developed countries needs to be explored.

While the revised framework builds on the experiences of women who participated in the included studies, this was done within the context of the original framework. We feel it is important to further validate, and potentially revise, the framework using women's experiences and their own conceptualisations of perinatal wellbeing as a starting point. A mixed methods study with a large qualitative element with this aim has recently been completed. This also includes the perspectives of health professionals involved in the care of perinatal women.

Conclusions

Pelvic girdle pain related to the perinatal period can have a profound impact on women's wellbeing in a number of ways; this is affected by a wide range of factors. The review highlights the lack of research into women's experiences of lower back pain, indicating a need for further research.

This review has illustrated the complex nature of wellbeing by using LPP as an example. It has demonstrated the utility and appropriateness of the PWB framework. It has allowed us to add detail to the framework and refine its components. Further work is required to evaluate how well the

framework fits with women's experiences of perinatal wellbeing in general and how appropriate the framework is in contexts which are different from the rather narrow geographical settings of the included studies.

The revised framework can be used to map existing research and guide future research, including issues which need further exploration with respect to how they affect perinatal wellbeing, such as socio-cultural discourses, the role of the environment, and women's past experiences. The framework has the potential to form the basis for further theoretical work on the concept of perinatal wellbeing. We anticipate, and welcome, further changes to the framework based on new and existing research into women's experiences.

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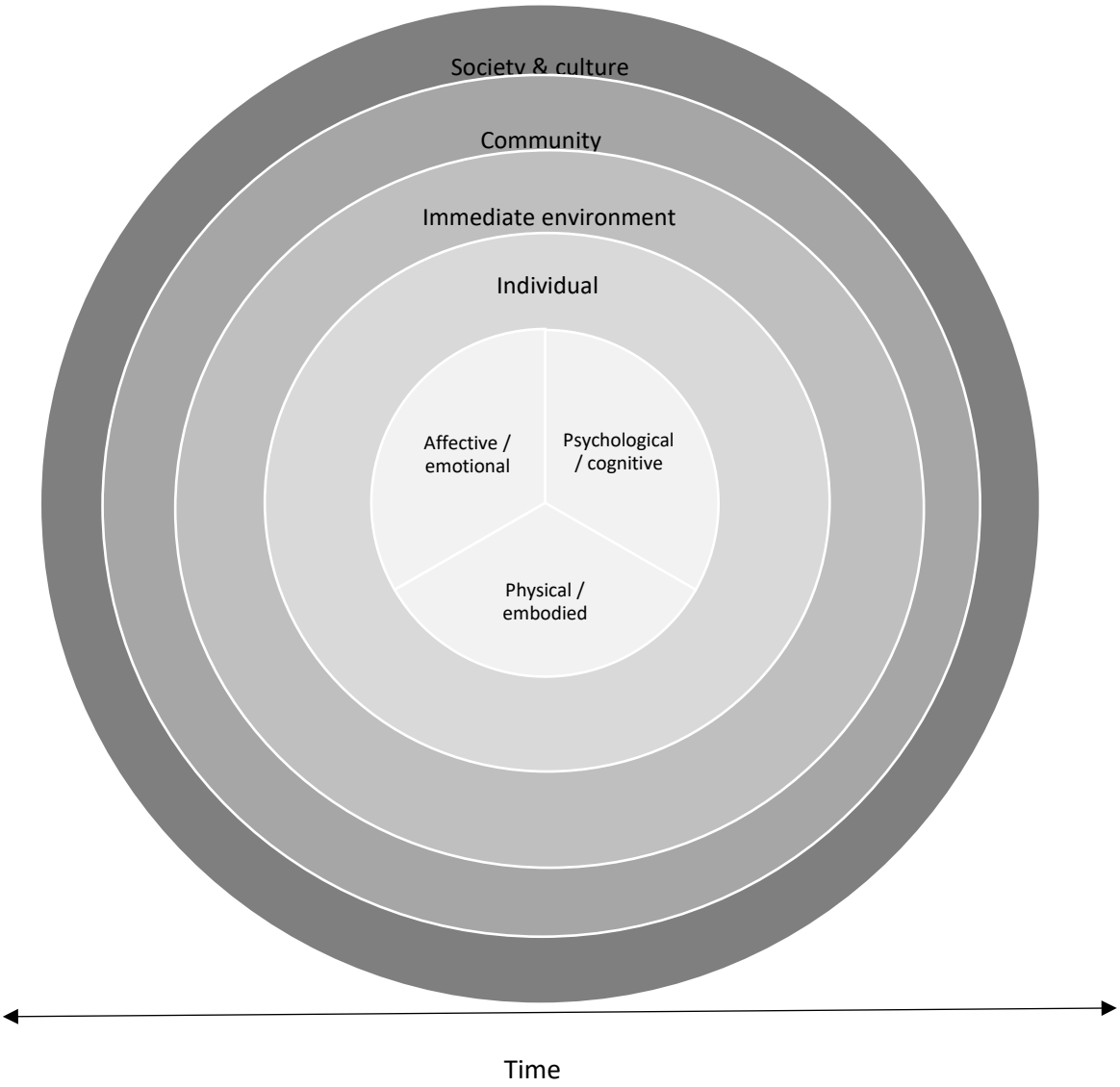
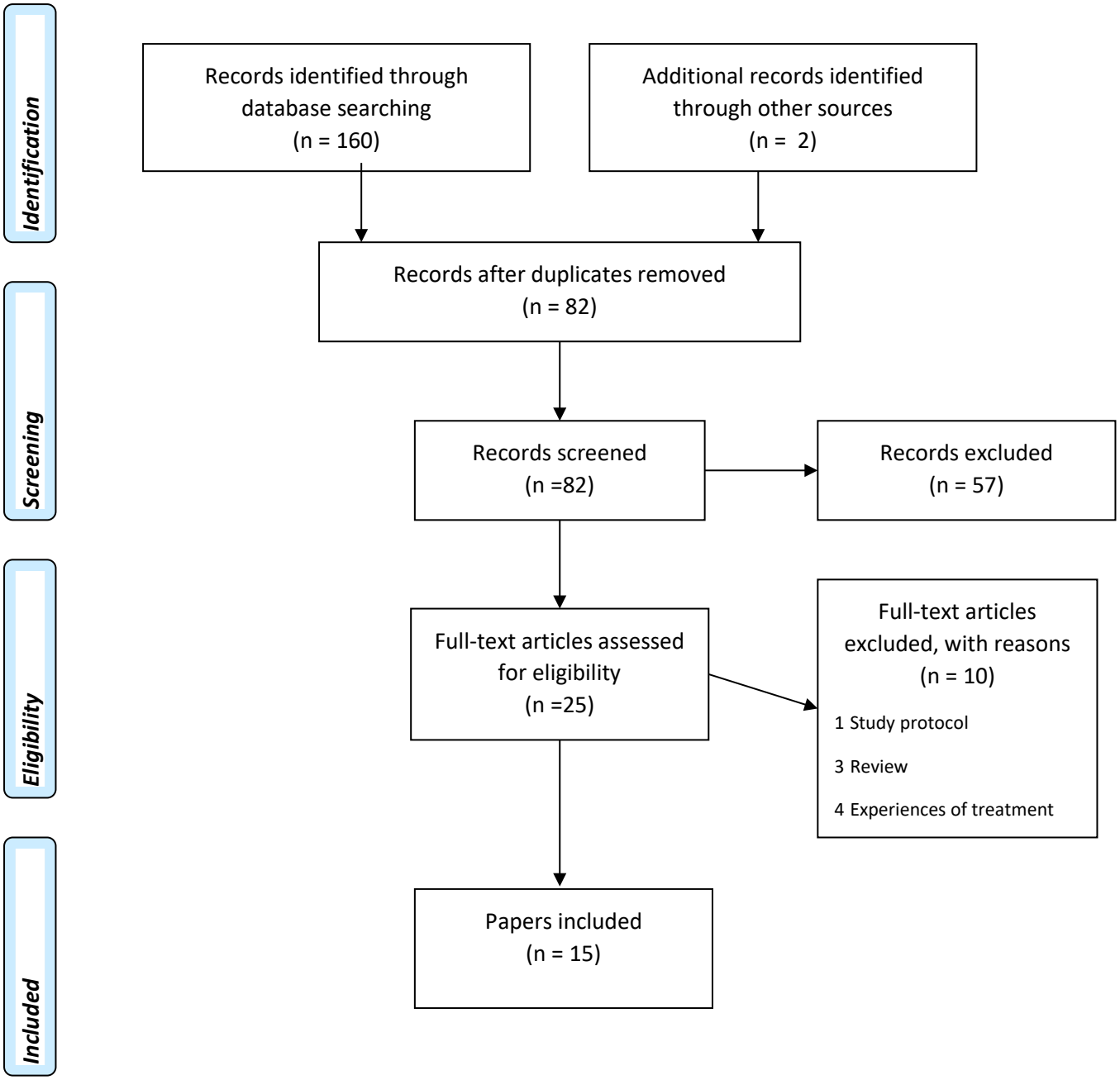
Figure 1: Original perinatal wellbeing framework



PRISMA 2009 Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Figure 3: Revised perinatal wellbeing framework

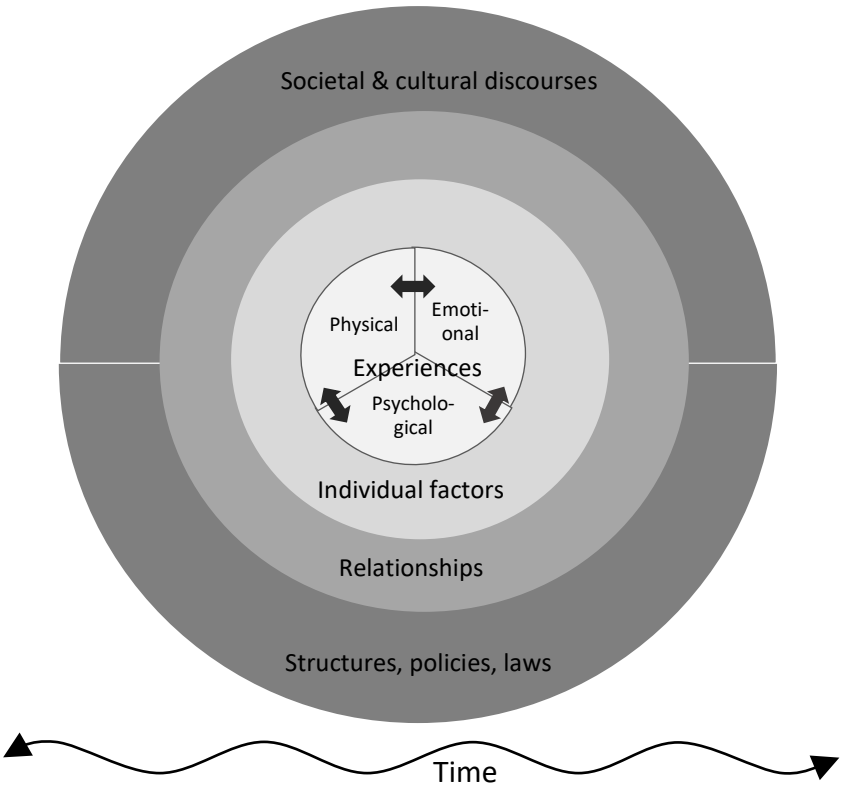


Table 1: Search terms

back pain OR low back pain OR lumbar pain OR lumbar pelvic pain OR lumbo pain OR symphysis pubis dysfunction OR pelvic girdle pain
AND
perinatal OR postnatal OR prenatal OR antenatal OR postpartum OR maternal OR pregnant OR pregnancy OR labour OR birth
AND
qualitative

Table 2: Overview of included studies

Aims	Population	Methods	Key findings
Clarkson & Adams 2018 (UK) Exploring views and experiences of women with pregnancy-related PGP	8 pregnant women diagnosed with PGP	Interviews (at 21 to 30 weeks gestation) Interpretive thematic data analytic approach Focus on experiences and impact of PGP, management of pain, views on treatment	Themes: • Reality of PGP pain • Key mechanisms of support • Impact of knowledge
Close et al 2016 (UK) Exploring experiences of women with pregnancy-related LPP	14 women: 12 postnatal (6 weeks to 9 months), 2 pregnant (36 weeks gestation) Self-selecting from participants who had taken part in reflexology RCT 8 with combination of lower back pain and pelvic pain, 5 LBP only, 1 pelvic pain only	Focus groups (3) Thematic analysis, guided by Newell and Burnard[1] framework Focus on: women's experiences and management of LPP	Themes: • Physical and emotional impact on women's lives • Women's attitudes to, and knowledge of, LPP • Women's use of treatments and dissatisfaction with standard advice and treatment
Crichton & Wellock 2008 (UK) Exploring the impact of PGP on women's lives and relationships during pregnancy and the first six weeks after giving birth (same study as Wellock & Crichton 2007a,b)	28 women with PGP (diagnosed by physiotherapist) Pregnancy until 6 weeks postnatal Primi- and multi-gravida	Interviews (at initial diagnosis, 36 weeks gestation and 6 weeks after birth; not all women took part in 3 interviews) Heidggerian phenomenological approach Focus on impact on women's roles	Themes: • Effects on personal role • Effects on maternal role • Effects on sexual relationship role • Effects on housekeeping role
Wellock & Crichton 2007a (UK)			

To explore women's experiences of PGP in terms of pain, impact on quality of life, and treatment by health professionals (same study as Crichton & Wellock 2008 and Wellock & Crichton 2007b)	28 women diagnosed with PGP (recruited in pregnancy)	Interviews at diagnosis, 36 weeks gestation and 6 weeks after birth (not all women gave 3 interviews) Phenomeological approach, analysis using Colaizzi's framework[2] Focus on women's experiences	• Themes: • Perceptions of pain • Coping with and management of PGP • Living with PGP
Wellock & Crichton 2007b (UK) Explore experiences with health professionals of women with PGP (in pregnancy and soon after birth) (same study as Crichton & Wellock 2008 and Wellock & Crichton 2007a)	28 women diagnosed with PGP (recruited in pregnancy)	Interviews at diagnosis, 36 weeks gestation and 6 weeks after birth (not all women gave 3 interviews) Phenomenological approach, analysis using Colaizzi's framework[2] Focus on women's experiences	Themes: • Interaction with midwives • Interaction with doctors • Interaction with physiotherapists Subthemes: • Pain • Negative labelling • Dismissive staff • Feelings of dissatisfaction
Elden et al 2013 (Sweden) Describing pregnant women's experiences of PGP in daily life (same study as Elden et al 2014)	27 pregnant women with PGP Recruited from participants in craniosacral RCT, all had received craniosacral therapy	Interviews Qualitative content analysis Focus on: PGP in daily life	Categories: • PGP affects ability to cope with everyday life • Coping with motherhood • Relationships between partners often reached breaking point • Questioning one's identity as defined by profession/work • Lessons from living with PGP
Elden et al 2014 (Sweden) Exploring and describing pregnant women's experiences of severe	27 pregnant women with PGP All had craniosacral therapy (part of RCT)	Interviews Qualitative content analysis	Categories: • A strange body • The body on guard

PGP physically and relating to the healthcare system (same study as Elden et al 2013)		Focus on: experiences of PGP during pregnancy	• Relation and support from health care • Acceptance of PGP
Elkins-Bushnell & Boyle 2019 (UK) Exploring the occupational difficulties experienced by women with postnatal PGP and how they participate in activity	5 women with postnatal PGP With diagnosis of PGP or receiving treatment for PGP Between 1 and 9 years after last birth	Interviews Hermeneutic theory, thematic analysis Focus on: women's viewpoints, their everyday experiences	Themes: • Activity affected by PGP • Factors restricting participation in activity • Factors promoting participation in activity • Emotional impact of a change in participation
Engeset et al 2014 (Norway) Exploring how postnatal PGP influences women's daily life	5 women diagnosed with postnatal PGP Between 4 months and 11 years after last birth	Interviews Phenomenological-hermeneutical design	Themes: • Activity and pain • Lack of acknowledgement of pain and disability • Changed roles
Fredriksen et al 2008 (Norway) Exploring women's perspectives on PGP in pregnancy	Women with experience of PGP in pregnancy (contributions to online forum) Number of participants not known; data collected over one year	Women's contributions to an online discussion forum Qualitative text analysis (symbolic interactionist perspective) Focus: perspectives on PGP	Themes: • New bodily sensations • Fear • How much to endure? • Lack of acknowledgement
Gutke et al 2017 (Sweden) Exploring women's experiences of living with long-term pregnancy-related PGP	9 women with persistent pregnancy-related PGP Between 2 and 13 years after birth Self-reported LBP and clinical evaluation of pregnancy-related PGP	Interviews Analysed using empirical phenomenological psychological method Focus on: experiences of living with PGP	Two typologies: • The ongoing struggle against the pain • Adaptation and acceptance Constituents: • Importance of the body for identity • Understanding of pain • Stages of change

Persson et al 2013 (Sweden)
Investigating experiences of women living with PGP during pregnancy
	9 pregnant women with diagnosed PGP
	Primi- and multipara; all on sick leave
	Last trimester
		Interviews
		Analysed using a grounded theory approach
		Focus: experiences of PGP in current pregnancy
			Core category: Struggling with daily life and enduring pain
			• actions caused by PGP:
			  ○ grasping the incomprehensible
			  ○ balancing support and dependence
			  ○ managing the losses
			• consequences of PGP:
			  ○ enduring pain
			  ○ being a burden
			  ○ calculating the risks
			  ○ abdicating as a mother
			• consequences regarding pregnancy / future pregnancy:
			  ○ paying the price and reconsidering the future

Shepherd 2005 (UK) Describe experiences of women with PGP in pregnancy and first 3 months after birth	9 women with PGP, recruited in third trimester Primi- and multi-gravida	Interviews 1 and 3 months after birth Heideggerian phenomenology, analysis using Colaizzi's framework for phenomenological analysis[2] Focus: experiences of pelvic pain	Themes: • Pain • Lifestyle adaptation • Emotions • Health professionals' support and information
Wuytack et al 2015a (Ireland) To explore primiparous women's experiences of persistent PGP and its impact on postpartum lives (same study as Wuytack et al 2015b)	23 primiparous women with PGP (onset in pregnancy, persisting for at least 3 months postpartum)	Interviews (3-12 months after birth) Thematic analysis Focus on experience of living with PGP (for this paper)	Themes: • Putting up with the pain: coping with everyday life • I don't feel back to normal • Unexpected • What next?
Wuytack et al 2015b (Ireland)			

To explore the health-seeking behaviours of primiparous women with persistent PGP (same study as Wuytack et al 2015a)	23 primiparous women with PGP (onset in pregnancy, persisting for at least 3 months postpartum)	Interviews
		Thematic analysis
		Focus on coping strategies, care/support offered, help/advice sought (for this paper)
			Themes:
			• They didn't ask, I didn't tell
			  ○ Lack of follow-up after birth
			  ○ Healthcare professionals ignore it
			• Seeking advice and support
			  ○ Talking to others
			  ○ Triggers to seek help
			  ○ Barriers to getting help
			• Coping strategies
			  ○ Self-management strategies
			  ○ Pain medication

[1] Newell, R., & Burnard, P. (2006). *Research for evidence-based practice*. Oxford: Blackwell.

[2] Colaizzi, P. F. (1978). Psychological research as the phenomenologist views it. In: Valle, R., & King, M. (Eds.) *Existential phenomenological alternatives for psychology*. Oxford: Oxford University Press.

Table 3: Themes and sub-themes mapped against domains and sub-domains of the original framework

Original domains/sub-domains	Themes and sub-themes
Society and culture	Pregnancy as normal/natural
	LPP as part of pregnancy
Community	
Health professionals	Knowledge and information
	Knowledgeable vs not knowledgeable
	Providing information
	Attitudes and relationship
	Feeling listened to
	Feeling dismissed
	Trust, feeling safe
	Health care system
	Routine appointments, support
	Availability of treatment
Work and study	Impact on ability to work
	Difficulties/challenges
	Making changes, sick leave
	Wanting to work/study
	Financial implications
	Relationships with colleagues and employers
	Feeling left out
	Understanding/lack of understanding
Other people / strangers	Feeling judged / lack of understanding
	Helpful
	Other women with LPP
	Giving/receiving advice
	Not feeling alone
Immediate environment	Avoiding social interactions, negative impact
	Changing relationships
	Support from others
	Attitudes
	Baby and older children
Individual	Time for self/leisure
	Daily functioning
Experiences	
Physical/embodied experiences	Awareness of body
	Changed view of body
	Acknowledging physical limitations
	Staying active, exercise, rest
	Pain
	Physical changes
	Sleep, exhaustion
	Physical functioning, immobility
	Recovery
Emotional/affective experiences	Concerns, worries, anxieties, fear
	About the baby, labour/birth, future pregnancy
	About other people's reactions

	About pain and physical impact
	About uncertainty
	Happiness, joy, hope
	Feeling lonely, isolated
	Reassurance, relief
	Feeling sad, depressed, disappointed
	About impact on maternal role, older children
	About pain and loss of functioning
	Because others don't understand
	Depression
	About lack of information or care
	Self-blame, guilt, feeling inadequate or embarrassed
	Short-tempered, frustrated, angry
Psychological/cognitive experiences	Sense of control, self-efficacy
	Self-compassion, accepting help
	Identity, self-perception, self-esteem
	Sense of purpose, attitude to life
	Vulnerability, feeling dependent
Time and change	Perinatal period as a continuum
	Birth as end-point
	Impact of birth
	Impact on birth and postnatal choices
	Life course / pre-/post-perinatal period
	LPP in previous pregnancy
	Future pregnancy
	Body before pregnancy/LPP
	Thoughts about the future
	Changes
	In pain and mobility
	In wellbeing
Additional themes	Space
	Dealing with LPP/adapting
	Adapting, making changes, coping
	Medication, treatment
	Self-care, self-management
	Knowledge of LPP
	Knowing, not knowing
	Information about LPP
	Making sense of LPP
	Uncertainty
	Women's attitudes to LPP

Supplementary file 1: Quality assessments

	Statement of aims	Qualitative methodology	Research design	Recruitment	Data collection	Researcher/ participant relationship	Ethical issues	Data analysis	Findings	Value	
Clarkson & Adams, 2018	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Partly	Partly	Description of analysis not very detailed; quite descriptive. Focus on implications for subsequent feasibility study, rather than women's views & experiences of PGP per se.
Close et al., 2016	Yes	Yes	Partly	Yes	Yes	Unclear	Yes	Unclear	Yes	Yes	Women had different intervention by time of data collection. Limited description of analysis. No information on researcher/participant relationship.
Crichton & Wellock, 2008	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Unclear	Yes	Yes	Limited details on analysis. Findings focus on effects on different roles.
Elden et al., 2013	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes	Limited details on researcher/participant relationship.
Elden et al., 2014	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes	
Elkins-Bushnell & Boyle, 2019	Yes	Yes	Yes	Partly	Partly	Unclear	Yes	Partly	Yes	Yes	Small sample; relatively short interview with some closed questions. Limited description of analysis; appears fairly descriptive.
Engeset et al., 2014	Yes	Yes	Yes	Partly	Yes	Yes	Yes	Partly	Yes	Yes	Relatively small sample. Analysis somewhat descriptive, not always consistent with method.
Fredriksen et al., 2008	Yes	Yes	Yes	Yes	Yes	Unclear	Partly	Unclear	Yes	Partly	Analysis of online discussions: ethical grey area. Limited description of analysis. Less focus on individual women's experiences.
Gutke et al., 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partly	Yes	Yes	Limited information on researcher/participant relationships.
Persson et al., 2013	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Shepherd, 2005	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partly	Yes	Yes	Limited information on researcher/participant relationships.
Wellock & Crichton, 2007a	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	
Wellock & Crichton, 2007b	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Limited description of analysis. Relatively descriptive analysis.
Wuytack et al., 2015a	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Wuytack et al., 2015b	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

	Yes
	Partly
	No
	Unclear

Supplementary material: Themes and sub-themes within the original domains and sub-domains, with extracts as examples

Original domains/sub-domains	Themes and sub-themes	
Society and culture	Pregnancy as normal/natural	The women felt stressed because […] they also had to deal with other people's conceptions of a normal pregnancy. (Elden et al 2013) 'My god, pregnancy is not a disease. Everything ought to be as before the pregnancy, sometimes I cry myself to sleep.' (Persson et al 2013)
	LPP as part of pregnancy	'One of the doctors I went to asked me to remember that it actually was not a disease that I had – I was ONLY pregnant!' (Fredriksen et al 2008) 'The advice I got was very much like … it's part of pregnancy … just get on with it …' (Close et al 2016)
Community		
Health professionals	Knowledge and information	
	Knowledgeable vs not knowledgeable	'Finally I got to meet this wonderful doctor who knew exactly what she was talking about. […] Then I felt really, really happy.' (Elden et al 2014)
	Providing information	'In terms of daily activities there was no information whatsoever, I was just told to rest.' (Elkins-Bushnell & Boyle 2019)
	Attitudes and relationship	
	Feeling listened to	'They (midwives) all seemed really concerned…there wasn't anything like, "don't worry about it, it's just general aches and pains"...I didn't want to be a nuisance.' (Wellock & Crichton 2007b) 'GP very sympathetic, he said if you need a sick note, it's no problem at all.' (Wellock & Crichton 2007b)
	Feeling dismissed	If their pain was mentioned, women felt their complaint was minimised with the most common advice being to 'give it time to settle'. (Wuytack et al 2015b) 'Male GP thought it was part of pregnancy, the female GP was more sympathetic.' (Wellock & Crichton 2007b)
	Trust, feeling safe	The women expressed feeling safe and well taken care of if they had a good relationship with their midwife. (Elden et al 2014)
	Health care system	
	Routine appointments, support	Some women pointed out that they had to suffer longer than necessary due to few visits to the midwife early in pregnancy. (Elden et al 2014) 'Before you have the baby you have so many check-ups and you have scans and everything, there is a fantastic support system, but once you've had

		the baby it's like you're left to your own devices.' (Wuytack et al 2015b)
	Availability of treatment	'… she said she could put me down for it (an appointment) …but there would be no point… by the time it came through…it would be too late.' (Wellock & Crichton 2007b)
		All the women with symptoms of SPD [Symphysis Pubis Dysfunction, an older term for PGP] were referred to the physiotherapy department. This is where the 'pain' was given a label and an explanation of the condition and management was given. (Wellock 2007b)
Work and study	Impact on ability to work	
	Difficulties/challenges	'[At work] I am sat on a chair all day, which is just as problematic as walking. I try and get up and walk around as much as possible, but that can be quite painful in itself, so yes, nothing's simple.' (Elkins-Bushnell & Boyle 2019)
		Although most of the women were employed, they did not report problems associated with work, this may have been as a result of the sedentary nature of their work, which was often from home or in a local office. (Elkins-Bushnell & Boyle 2019)
	Making changes, sick leave	The women who continued to work found that they needed to make adjustments. (Crichton & Wellock 2008)
		The women explained how they failed to use their right to sick leave, while others avoided sick leave as long as possible. (Elden et al 2014)
		… eventually, all informants were on full-time sick leave. (Persson et al 2013)
	Wanting to work/study	All informants had strong professional identities and their work played a significant role in their lives. (Persson et al 2013)
		They said they really wanted to work and study because it was an important part of their life. They missed the stimuli it provided. (Elden et al 2013)
	Financial implications	There were also financial implications for those women who had to give up work because they could not cope physically with the disability and pain (Crichton & Wellock 2008)
	Relationships with colleagues and employers	
	Feeling left out	Some said they didn't feel part of the social life at work. (Elden et al 2013)
		Some experienced vulnerability and losing the sense of coherence and togetherness that comes with being a part of a team at work. (Persson et al 2013)

	Understanding/lack of understanding	In the main, the women found their employers and fellow workers to be supportive, assisting them by finding them different chairs, desks and changing workloads. (Crichton & Wellock 2008) Other women told about workplaces that showed no or very little consideration for pregnant women with PGP. They felt they were considered lazy not putting enough effort into their jobs. It made them feel sad and disappointed. Their employers seemed to have no understanding or sympathy for them. (Elden et al 2013)
Other people / strangers	Feeling judged / lack of understanding	They felt they were being judged by their strange walking patterns or if they had to use crutches. (Elden et al 2013) The lack of awareness of the condition also led to the women feeling misunderstood and frustrated. (Elkins-Bushnell & Boyle 2019)
	Helpful	The lack of awareness of the condition also led to the women feeling misunderstood and frustrated. (Elkins-Bushnell & Boyle 2019)
	Other women with LPP	
	Giving/receiving advice	While some of the experienced advice-givers try to calm fear and worries, others contribute with stories of long-lasting pain, which has often not been taken seriously by healthcare professionals. (Fredriksen et al 2008)
	Not feeling alone	'It's definitely reassuring … to know that your mum went through it … people's forums … friends who have had babies … nothing they can do but just to listen to you moan about it, this helps' (Clarkson & Adams 2018) A woman said that if she had got one [a brochure about PGP] she would have at least known she wasn't alone in experiencing PGP. (Elden et al 2014)
Immediate environment	Avoiding social interactions, negative impact	'It has made me the most miserable anti-social person … cos I'm in too much pain' (Clarkson & Adams 2018) Women expressed how they sadly missed the ability to socialize and meet people (Elden et al 2013)
	Changing relationships	'Some of my friends I tend to keep closer than others. The friends you know you can really talk to. The others I've pushed aside for a while.' (Elden et al 2013) Some women were anxious about their ability to join in with family activities as they were no longer able to walk with the children, play with them or even take the dog for a walk. (Crichton & Wellock 2008) The women told of how their partners had to do most things at home […]. The women felt uneasy and feared that

	these roles were going to become permanent. (Elden et al 2013) Sometimes, this position of increasing dependence resulted in stress both in the relationships with their partner and with other members of the immediate family (Persson et al 2013)
Support from others	'Unless you've got the support of others … it means there's you all day with a baby that you feel you can't look after adequately…' (Crichton & Wellock 2008) Children provided practical support in some cases, such as collecting items from upstairs, and as a result were becoming more independent with household tasks at an earlier age. (Elkins-Bushnell & Boyle 2019) Support from family and friends was considered integral to dealing with PPGP [pregnancy related PGP] (Clarkson & Adams 2018) They said they appreciated partners who understood that their woman could not do everything as before. (Elden et al 2013) 'I have been so mad at him as he's not helping me out at home; in some way it's expected that I should manage.' (Persson et al 2013)
Attitudes	'I think potentially it wouldn't even be taken seriously for someone who had never experienced anything like it before'. (Clarkson & Adams 2018) The constant pain was perceived as invisible to others, a perception that was the source of further anxiety and frustration as some informants experienced scepticism from their surrounding (Persson et al 2013)
Baby and older children	Many women reported that they felt that they had lost this role in many ways. Taking the children to school, for example in the mornings was an ordeal because walking and/or driving was difficult and in some cases impossible: 'Picking up the children … couldn't go to school to pick up the children, so I had to get taxis and everything … so it means I won't be able to do anything … with the children …' (Crichton & Wellock 2008) Older children could make it their job to become "mummy's little helper". […] small children didn't understand why their mothers were in pain and unable to help them anymore. (Elden et al 2013) The informants with young children described how the immobility and the pain contributed to feelings of not being able to be a proper mother. […] These situations made the mothers really sad,

		as they could not satisfy their children's needs (Persson et al 2013) 'Finally [I] got to the stage where I couldn't cope … if I can't look after myself, how will I cope with my son and new baby? I'm a burden on my husband and family and don't want to be looked after.' (Wellock & Crichton 2007a)
Individual	Time for self/leisure	They talked about having little private time, painful movements, and lack of energy and social interaction. (Engeset et al 2014) 'But I still haven't—I still don't run. I did that always before, and that I miss.' (Gutke et al 2017)
	Daily functioning	Pain impacted on all aspects of their life. (Clarkson & Adams 2018) This impacted on their lives and affected them as women, mothers, lovers and in the housekeeping role. In the mundane or important aspects of live, women saw themselves as disabled (Crichton & Wellock 2008) Women said that they had lost control of their everyday lives. 'It was as if your whole life came to a halt, you had to struggle to achieve something.' (Elden et al 2013) 'I'm less active, so when I said that I can walk into town and back, I mean yeah I do, but before I would have walked down into town, then on to a friend's house, then walk to the park, then to town and back home. I don't do that anymore. I drive.' (Elkins-Bushnell et al 2019) All women reported pelvic girdle pain-related problems with functioning, which interfered with their lives and challenged them. (Gutke et al 2017) The core category that evolved from the analysis of experiences of living with PGP in pregnancy was "struggling with daily life and enduring pain". (Persson et al 2013)
Experiences		
Physical/embodied experiences	Awareness of body	
	Changed view of body	The women pointed out that they no longer recognized their bodies, and found it hard to accept. It had changed, their entire body felt strange and different. Their entire bodies became a source of unpleasant sensations, which worried and frightened them. (Elden et al 2014) In the mundane or important aspects of live, women saw themselves as disabled (Crichton & Wellock 2008) The women still struggled with how to relate to their aching and nonfunctioning body, and with their

	identity now that they were unable to do all the things that they wanted to do. (Gutke et al 2017)
Acknowledging physical limitations	'It's just learning to pace myself really and learning that my body can't do what it used to do, which is pretty horrible when you're in your early thirties.' (Elkins-Bushnell & Boyle 2019)
	'I've accepted that I have, that I will live with this the rest of my life. I don't know. I find I try so many different things to get rid of the pain that I have felt— come to that (laughter) insight that I'll have to live with it. It's just to accept, because I want to live. So that's the way it is, I think. That I hurt more or less at different times.' (Gutke et al 2017)
	The women found it difficult psychologically to experience physical inadequacy and to accept that their bodies did not allow them to perform activities to the level they expected (Engeset et al 2014)
Staying active, exercise, rest	They sought knowledge of how the body works as motivation to do their exercises and to be moderately active, which helped them find ways to continue with meaningful activities. (Gutke et al 2017)
	All of them felt a great need to relax, yet they endeavoured to stay active. (Engeset et al 2014)
	Resting did not help, as when they did have to move, mobilising became even more difficult and more painful. (Crichton & Wellock 2008)
Pain	Some of the women experienced significant pain during their pregnancy. (Close et al 2016)
	Women stressed that it could be difficult describing PGP. Firstly, PGP was a diffuse feeling of discomfort which gradually worsened. (Elden et al 2014)
	All participants reported experiencing intense, acute, and enduring chronic, pain (Elkins-Bushnell & Boyle 2019)
	The pain contributed to changes, sometimes disturbing and agonising changes, in many aspects of the informant's life. (Persson et al 2013)
	Pain was described vividly using compelling language that linked it with an actual injury, such as 'throbbing', 'stabbing', 'prodding', 'raw', 'sharp', 'pointy', 'poking'. (Wellock & Crichton 2007a)
	Most used pain relief medication at times but this was generally considered as undesirable. (Elkins-Bushnell & Boyle 2019)
	In the postnatal interview, two women admitted to taking twice the prescribed

		dose of analgesics during pregnancy. (Wellock & Crichton 2007a)
	Physical changes	
	Sleep, exhaustion	PGP disturbed their ability to sleep and left their bodies feeling fatigued. (Elden et al 2014) 'I wake up every time I turn over in bed at night.' (Persson et al 2013) Some of them described days when they felt exhausted because their own disability was more than they could cope with. (Engeset et al 2014) 'I was so tired because one thing is the pregnancy but also you have pain, because I had pain 24 hours… it takes so much of your energy. It really drains your system of resources. (Shepherd 2005)
	Physical functioning, immobility	'constantly feeling your pelvis is going to fall off' (Clarkson & Adams 2018) Women described a "a sudden sensation of immobility". […] This immobility gave them the feeling of being paralyzed. (Elden et al 2014) Five women described their PGP, not only in terms of the pain but also how it made their body feel weaker and more restricted (Wuytack et al 2015) Four women said they were afraid of dropping their baby if they had a sudden pain (Wuytack et al 2015) In the Gap study, women reported that sexual activities did tend to be curtailed, often because of the movement that is required and the pain this caused (Crichton & Wellock 2008) All women reported pelvic girdle pain-related problems with functioning, which interfered with their lives and challenged them. (Gutke et al 2017)
	Recovery	In general, the discussions related to recovery tend to focus on the importance of taking care in pregnancy, and are narratives of how the advicegivers have adapted their activity level in order to control the condition. (Fredriksen et al 2008)
Emotional/affective experiences	Concerns, worries, anxieties, fear	
	About the baby, labour/birth, future pregnancy	Some even expressed concern about how they would feel towards the baby: 'I thought I don't want this baby … and I was frightened of looking at him and saying and thinking … I don't love you, you have caused me all this pain … it's not him … but it was horrible … no more children'. (Crichton & Wellock 2008) Overall, the wellbeing of the foetus was the primary concern and the informants' own wellbeing was of secondary importance. (Persson et al 2013)

	'I didn't even bother taking Paracetamol because it did nothing…For the sake of the baby I couldn't really have taken anything else…I was reluctant to take anything stronger.' (Shepherd 2005)
	They were also anxious about not being able to move and change positions during the approaching delivery. (Elden et al 2014)
	Three women spoke of their desire for another baby but were fearful of the effects of another pregnancy and delivery on their physical and emotional health. (Shepherd 2005)
About other people's reactions	The constant pain was perceived as invisible to others, a perception that was the source of further anxiety and frustration as some informants experienced scepticism from their surroundings. (Persson et al 2013)
	Women reported being worried about how their employers would react to their diminished work capacity. (Elden et al 2013)
About pain and physical impact	Their bodies became a source of unpleasant sensations, which worried and frightened them. (Elden et al 2014)
	'It was scary not being able to walk properly' (Close et al 2016)
	The fear of triggering this sensation [immobility/being paralysed] again made them avoid movement. (Elden et al 2014)
About uncertainty	'… it was quite bad at the beginning not knowing what it was' (Clarkson & Adams 2018)
	The uncertainty related to these new symptoms and pain sensations seems to create a lot of worries and even fear. (Fredriksen et al 2008)
Happiness, joy, hope	'Small things make you smile for the rest of the day.' (Elden et al 2013)
	The 5 women whose pain was improving also expressed feelings of happiness and relief that it was getting better. (Wuytack et al 2015)
	They described hopes for the future with further recovery, reduced pain and increased physical activity (Engeset et al 2014)
	All women strongly hoped their symptoms would go away soon. (Wuytack et al 2015)
Feeling lonely, isolated	'You feel you're on your own. Why hasn't anyone told me when it's so common? You almost feel cheated.' (Elden et al 2014)
	Feelings of isolation were commonly experienced and often connected to limited support networks (Elkins-Bushnell & Boyle 2019)
Reassurance, relief	"… hearing that it was manageable was quite a relief' (Clarkson & Adams 2018)

	They felt most reassured when given a thorough examination, relevant information, and credibility. (Elden et al 2014)
Feeling sad, depressed, disappointed	
About impact on maternal role, older children	The changes that occurred in this role produced tears, painful recollections and sadness in the women. It caused some to have doubts about their ability to be a good mother with this affecting them considerably. (Crichton & Wellock 2008)
	The informants with young children described how the immobility and the pain contributed to feelings of not being able to be a proper mother. (Persson et al 2013)
About pain and loss of functioning	'There were times I cried and times I threw things in pure frustration at not being able to do the simplest things.' (Elkins-Bushnell & Boyle 2019)
	Women described how frustrating it was, to not be able to move about as they wanted. (Elden et al 2014)
Because others don't understand	Other women told about workplaces that showed no or very little consideration for pregnant women with PGP. They felt they were considered lazy not putting enough effort into their jobs. It made them feel sad and disappointed. (Elden et al 2013)
Depression	Some women even thought they were suffering from depression. (Elden et al 2014)
	Some women were diagnosed with depression or experienced depressive symptoms. This was often mentioned while talking about restricted mobility and being unable to leave the house when pain was at its most severe. (Elkins-Bushnell & Boyle 2019)
About lack of information or care	The women were disappointed by not having been informed of the existence of PGP. (Elden et al 2014)
	The overall effect on the women in the Gap Study in relation to the care they received was one of disappointment. (Wellock & Crichton 2007b)
Self-blame, guilt, feeling inadequate or embarrassed	'You blame yourself for not being able to cope.' (Elden et al 2013)
	Being unhappy and discontent made them feel guilty. They couldn't feel the euphoria they felt they were supposed to feel. (Elden et al 2014)
Short-tempered, frustrated, angry	PGP made them frustrated, more sensitive and irritable. They felt their patience was affected and they could easily explode. (Elden et al 2013)
	'When I am in a lot of pain I become grumpy … or more edgy. I do lose my

		temper with the children … if I am in pain … it is not OK.' (Engeset et al 2014)
Psychological/cognitive experiences	Control, self-efficacy	Control over their own lives was also an issue. The concept of being independent was considered important: 'I seem to have lost control over my life…' (Crichton & Wellock 2008) Women said that they had lost control of their everyday lives. "It was as if your life came to a halt, you had to struggle to achieve something". (Elden et al 2013) This change in attitude was associated with more successful coping strategies and higher self-efficacy in relation to their functioning (Gutke et al 2017)
	Self-compassion, accepting help	They emphasized maintaining a slower pace, being more caring toward their bodies. (Elden et al 2014) The women pointed out that it was important to accept that they need help and should not be too hard on themselves. (Elden et al 2013)
	Identity, self-perception, self-esteem	Without exception, the women in the study felt that they lost their identity as a mother, daughter wife or partner and this affected their personal image. (Crichton & Wellock 2008) Participants had developed a change in how they saw themselves. (Elkins-Bushnell & Boyle 2019) Their bodily limitations led to feelings of inadequacy. It was important for their self-esteem that they could be as physically active as they were before the pain, and since this was not possible, they experienced a loss of self. (Gutke et al 2017) 'It's devastating to be a married 27 year old with a family of my own and be dependent of my parents to make my daily life function. It really gnaws my self-esteem.' (Persson et al 2013)
	Sense of purpose, attitude to life	The women stressed that PGP had made them take life more seriously and that their self-perception had changed. (Elden et al 2014) They were engaged in a constant ongoing competition between the body and its signals of pain. In order not to let the pain win, they continued to do the things that were important to them (Gutke et al 2017)
	Vulnerability, feeling dependent	Most of the women said they were dependent on their partner's support (Engeset et al 2014) Some experienced vulnerability. (Persson et al 2013)
Time and change	Perinatal period as a continuum	
	Birth as end-point	The informants just endured and looked forward to the birth of the baby.

	Hopefully, the pain would vanish instantly after birth and life would go back to normal again. (Persson et al 2013)
	'But yeah, I thought it would just go away after the birth. I didn't really know; I guess, 1 didn't think anything different.' (Wuytack et al 2015
Impact of birth	One woman had been told that she had "open joints", while another was informed that "the tailbone suffered a blow during labor". (Gutke et al 2017)
Impact on birth and postnatal choices	For three women, their decisions on infant feeding were influenced by the pain and the practicalities of trying to breastfeed. (Shepherd 2005)
	Another felt driven to draw attention to her problem through an angry and loud threat to self-harm unless the doctors ended her pain by performing a caesarean section. (Wellock & Crichton 2007a)
	… it created worry in relation to their ability to give birth in the presence of pregnancy-related LBPP and concern about issues experienced with not being able to move as normal. (Close et al 2016)
Life course perspective	
LPP in previous pregnancy	Most of the parous informants also noted that the pain was much worse than they could remember from their previous pregnancy. (Persson et al 2013)
Future pregnancy	'I won't be doing this again … that's for sure … I couldn't go through it again … I really couldn't … I'll be adopting in future …' (Crichton & Wellock 2008)
	Three women spoke of their desire for another baby but were fearful of the effects of another pregnancy and delivery on their physical and emotional health. (Shepherd 2005)
Body before pregnancy/LPP	Women expressed that before becoming pregnant they took their bodies for granted. (Elden et al 2014)
	Most women also talked about having to accept a new body that was more restricted than before childbirth. (Elkins-Bushnell & Boyle 2019)
Thoughts about the future	They described hopes for the future with further recovery, reduced pain and increased physical activity (Engeset et al 2014)
Changes in pain and mobility	It felt as if they had a limited number of steps; that walking induced pain, and they had to pay for it in the days that followed. (Elden et al 2014)
	'I, myself, find no pattern of doing something in particular or so when it comes or when the pain escalates. It is so very different from time to time.' (Gutke et al 2017)

		For some, the level of pain increased during pregnancy until it reached a level of almost constant pain (Persson et al 2013) However, most informants feared that the condition might be chronic. (Persson et al 2013)
Additional themes	Space	It also helped to live in a neighbourhood where they could just open the door and let the children out to play. 'There are usually many parents about which means I don't have to run around after E.' (Elden et al 2013) For most, the pain when walking was so intense in the weeks and months after childbirth that they rarely left their home. (Elkins-Bushnell & Boyle 2019) Some adaptations were subtle, such as online shopping (Elkins-Bushnell & Boyle 2019)
	Dealing with LPP/adapting	
	Adapting, making changes	They further expressed that the long-term pain had forced them to adapt in various manners to the bodily changes (Gutke et al 2017) 'It has become more clear about how to prioritize, I believe. Ah, when the body doesn't serve you unconditionally, but sets its own terms. So I—I think it (the pain) has helped me a lot to reflect and to slow down and listen.' (Gutke et al 2017)
	Coping	… the knowledge that many of their friends were in the same situation made PGP easier to cope with. This support helped ease the pressure of maintaining a social life. (Elden et al 2013) 'Sometimes I can handle it but I get pain afterwards. Still, it's my own choice…but constant pain demands a lot of planning and energy.' (Elden et al 2014) [Some women experienced PGP as] an ongoing struggle to adapt to their new situation of living with pain, and to figure out who they were as individuals in relation to their pain. (Gutke et al 2017) 'I've accepted that I have, that I will live with this the rest of my life. I don't know. I find I try so many different things to get rid of the pain that I have felt— come to that (laughter) insight that I'll have to live with it.' (Gutke et al 2017) Women who had more constant pain felt that they were coping less well than those who said their pain was intermittent (Wuytack et al 2015) … they also expressed experiences of coping, and it seemed that they assumed a positive attitude towards their problems. (Engeset et al 2014)

Medication, treatment	None of the strategies adopted by the women, including analgesia, eradicated the pain. (Shepherd 2005) 'I was taking a ridiculous amount of painkillers and that worried me...but they weren't optional.' (Wellock & Crichton 2007b) Self-funded manual therapy treatment was seen by most as crucial to reduce symptoms to a point where they were more able to participate in everyday activities. (Elkins-Bushnell & Boyle 2019)
Self-care, self-management	One self-management strategy that was particularly popular among participants was taking a bath. […] Another strategy was exercise or keeping active. (Close et al 2016) Many participants took up alternative forms of exercise, such as swimming, to help keep active and fit, which was also perceived to promote participation in other activities in the long term. (Elkins-Bushnell & Boyle 2019) You must not push yourself at all. The danger that you will have problems afterwards is much greater if you do. (Fredriksen et al 2008) They described a learning process over time to avoid activities that might provoke more pain. (Persson et al 2013)
Knowledge of LPP	
Knowing, not knowing	'I'm alright with it, cos I think, it's like, I know what it is now.' (Clarkson & Adams 2018) Women stressed that the first time they experienced PGP they lacked knowledge of what it was. It made them feel there was something seriously wrong and think that they were alone in experiencing symptoms.' (Elden et al 2014) Most first-time informants described how they had not known much about PGP, although the condition was not totally unknown. (Persson et al 2013)
Information about LPP	[The NHS website was] 'too much for me because I don't understand all the jargon words.' (Clarkson & Adams 2018) Information and knowledge were perceived as important to being able to cope. (Engeset et al 2014)
Making sense of LPP	These women searched for patterns in their symptoms, hoping to understand their pain and to thus be able to live as before (Gutke et al 2017) Some women (13/23) ascribed the pain to their posture and the way they carry and lift or felt it was because their body was weakened from the pregnancy. Others (6/23) thought it might be because of a difficult birth that the PGP

	persisted. Someone else read it could be hormonal, as she was still breastfeeding, and another woman noticed it was worse mid-menstrual cycle. (Wuytack et al 2015)
Uncertainty	When the first symptoms of PGP occurred, they were unprepared and had problems understanding the situation. (Persson et al 2013)
Women's attitudes to LPP	The women in typology I were struggling to adapt to a life in pain. In some respects, they had accepted their pain. […] However, unlike the women in typology I, the respondents in typology II had accepted their changed body and its limitations, and had gradually developed increased body awareness. (Gutke et al 2017)
	The development of PGP is seen as rather unpredictable unless one has the opportunity to rest. (Fredriksen et al 2008)

[1] All extracts are quotes from included papers. Extracts in quotation marks are direct quotes given by study participants.