Chapter 8
Labour Pain

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Where it is unavoidable, pain can be transformed into something useable, something which wakes us beyond the limits of the experience itself into a further grasp of the essentials of life and the possibilities within us. . .This insight illuminates much of the female condition, but in particular the experience of giving birth [1, p. 158].

Abstract Contemporary thinking about pain suggests its ultimate function is more than just to indicate bodily injury, pathology or disease. This would seem especially important in the pain that a woman feels during labour and childbirth. The event of birthing a child is essentially a normal and vital physiological process but the pain women report can be extreme. In addition, it can be quite variable, and the variability cannot be explained by tissue-based factors alone. The variability extends not just to the intensity of the pain but also to its quality and behaviour. Equally variable is the ability for women to cope with the pain associated with childbirth. It can be anticipated that individuals will have differing capacities to cope, but the variability can also be a moment-to-moment proposition for the individual woman. In this chapter we will discuss the idea that the meaning of labour pain to the woman may be more important than its nature or intensity in determining the balance between coping and acopia and in defining her overall experience. In doing so, we will also highlight the limitations in current conceptions of pain that cannot yet fully account for unique occurrences of pain, such as the pain of labour and childbirth.

Capsule Summary: The concepts explored in this chapter emphasise the need to attend to the individual meaning that a woman ascribes to her pain experience during labour. We suggest that by conceptualising labour pain as a productive and

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purposeful pain, prioritising individualised social support and attending to cognitive and emotional variables that shape a woman's perception of pain, women may be more likely to have positive experiences of labour pain and less need for pharmacological intervention.

Keywords Labour · Pain · Childbirth · Social support · Pain cognitions · Pain control · Maternity care

1 Introduction

The pain associated with labour is a unique and complex phenomenon. Whilst typical experiences of pain tend to be associated with injury or disease, labour pain emerges during a vital and highly positive event. In fact, as the pain intensity rises, the labour is seen to be progressing normally! [2, 3] This pain experience raises significant philosophical and theoretical questions due to its unique occurrence. One obvious question is: Why is a normal physiological process, one that is essential to human existence, associated with such intense pain? The unique context of this pain provokes two ideas: (1) the ultimate function of pain is more than just to indicate bodily injury, pathology or disease; and (2) labour pain may be better understood if considered as different from other types of pain.

A further complexity to this pain experience is its enormous variation between women or in the same woman on different occasions, independent of the physical demands of labour on her body. Labour pain is often described as the most challenging and intense pain experience a woman can undergo. However, reports of intensity vary significantly and descriptions of this pain range from excruciating through to pleasurable [4, 5]. Some women manage the pain very well, require minimal assistance and report positive experiences, whilst others do not cope well, experience great suffering and request intervention in order to avoid or alleviate the pain [6–8]. Curiously, women have even described labour pain as a paradoxical experience—one that is both excruciating but desirable because of its positive outcome: the birth of a child [5]. This variation in both intensity and descriptions suggests that the nature of labour pain is complex, and the experience of labour pain has determinants beyond those associated with the physiological state of the woman's labouring body.

A growing argument emphasises the meaning of pain as the determining factor in defining a woman's pain experience during childbirth. Women may interpret their pain as productive and purposeful and accept it as part of their labour experience, or as a threatening pain from which they wish to escape. Thus, the meaning a woman attributes to her pain affects her relationship to the pain and her ongoing responses to it. The individual interpretation of this pain experience is a complex evaluative process influenced by personal, social, contextual and physical inputs. Furthermore, an exploration of the concept of a *productive and purposeful* pain challenges current conceptions of pain and its function. In this chapter we will examine these ideas to

better account for the individual differences in experiences reported by women, as well as to expand conceptions of pain more broadly.

1.1 A Brief Historical Perspective

Prior to the scientific revolution, conceptions of labour pain were mainly driven by religious and cultural beliefs. For example, the Judeo-Christian conception of labour pain was that it was Eve's punishment for her sins in the Garden of Eden: "I will make your pains in childbearing very severe; with painful labor you will give birth to children"—Genesis 3:16 [9]. Many women continue to call on their faith to give them strength during labour. In other cultures and religions, labour pain has many different meanings and functions. In traditional Japanese culture, birth is believed to be the work of the gods and overcoming labour pain is seen as an honour [10]. Chinese childbearing women report that it is shameful to scream during labour, and a proverb often used is, "If you wish to be the best person, you must suffer the bitterest of the bitter" [11]. More recent conceptions of labour pain reflect the medicalisation of birth, but many women still hold beliefs about labour pain drawn from cultural traditions.

1.2 Current Definition of Pain

> An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. —IASP definition of pain [12]

Definitions of pain have evolved to be more inclusive of the human pain experience. The longstanding International Association of the Study of Pain (IASP) definition of pain [12] (which should always be considered with its annotation) challenges a biomedical, exclusively tissue-based understanding of pain by emphasising the emotional component and incorporating the idea that perceived damage may be enough to explain pain.

> Pain is a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive, and social components. —Williams and Craig's [13] proposed revised definition

Above is a recent attempt to provoke discussion for change to the IASP statement; primarily to emphasise the cognitive and social components of pain [13]. This inspired much commentary including a response from us about its capacity to (in) sufficiently account for labour pain [14] and subsequently there has been a further detailed analysis of the IASP definition [15].

In the context of labour pain, the IASP definition, including its annotation, is overly focussed on damage to tissues. The implication is that the primary function of pain is to indicate actual or potential tissue damage. Here is the dilemma: labour is a

normal physiological process and so it is hard to justify that the function of pain in that context is to indicate damage. The definition also promotes that tissue damage—whether actual or perceived—is the main contributor to the pain experience. Again, this would seem inappropriate in a process such as labour that is tissue-challenging but not necessarily tissue-injurious [16].

At this point we would like to acknowledge that women can and do sustain tissue damage during childbirth, but the pain associated with labour, we argue, is often separate to the phenomenon of tissue injury.

1.3 What Is the Function of Pain?

The Australian and New Zealand College of Anaesthetists, Faculty of Pain Medicine (ANZCAFPM) promote a reorganisation of the term biopsychosocial to socio-psycho-biomedical, and this perhaps is a good starting point to capture the pain associated with labour and childbirth. However, *biomedical* may be seen to exclude the reactive, learned and pre-emptive *biology* associated with psychological and social contexts, so important in the human pain experience.

In line with the emphasis on social and psychological contexts, it has been argued that pain during labour may have more of a behavioural function, by encouraging the woman to act in a way to find a safe place to birth and to promote empathic and support behaviours in those around her [17, 18]. As labour continues, increases in pain are associated with progression [2, 16] and perhaps the ramifications of this, and maybe the function of this, is to focus the woman on the task of birthing. One benefit of the intensity of the sensation could be to disable any sophisticated cognitive processing, preventing the woman from *overthinking* and instead forcing her to *withdraw within* [19] and engage with innate and primal processes as her labour progresses.

Of course, these alternate ideas about the primary function of pain could simply be a convenient consequence of a tissue-based phenomenon, for those putting forward these more humanistic views. However, it is important to recognise that the expression of pain has evolved in a social context. It could be argued that there would not be expression of pain if it did not warn the social group of some danger and trigger a response that promoted survival of group members, or if it did not facilitate behaviour in nearby others to act in a way to protect and support the individual in pain. It is not too difficult to imagine that the perception and expression of pain are likely to have evolved together around this social function. In which case, perhaps the association of pain and tissue damage is simply a convenient consequence for those maintaining a biomedical view.

Indeed, to think of pain only as a sign of tissue damage reduces its function to one that is increasingly questionable. A large number of imaging studies on asymptomatic participants published since the 1990s would suggest structural variations occur with age and are not necessarily pathological or the source of pain [20–22]. Pain might draw us to explore tissue integrity but it is not sensitive or specific to that. It

would seem wiser to recognise pain as a driver of species preservation behaviour influenced by the complexity of psycho-socio-neuro-immune-endocrine synergies and that this may be for either protective or (re)productive purposes. This would include behaviour in response to tissue disease and damage—or perhaps more correctly put—the response to the challenge to survival (immediate or latent) that tissue disease and damage are often associated with.

If accepted fully, this argument about the development of pain perception ignores the role of pain in self-preservation behaviour that might be independent of the social context. Nevertheless, it does promote a shift in thinking that may allow a more comprehensive understanding of all types of pain and pain behaviour, but especially pain associated with labour and childbirth.

2 Perspectives and Theories of Labour Pain

2.1 Women's Report of Pain Experience

The research into women's experiences of labour pain produces an additional concern about applying the current and proposed definitions of pain to labour and childbirth. The current definition uses the word "unpleasant" while the definition proposed more recently [13] uses "distressing." Studies report that contrary to the pain having a negative quality as these terms suggest, many women describe the pain experience in positive terms associated with empowerment, strength, happiness and even pleasure [5, 23]. Some women are even conflicted enough not to want to use the term "pain" because the pervading negative connotation does not match their birthing experience, which is overwhelmingly positive [23]. It would seem that notions of working with the pain, commonly promoted by midwifery practitioners, aligns well with embracing a positive, more physiological interpretation of pain, and taking away the pain, commonly promoted by medical practitioners, aligns more with a negative, pathological interpretation of pain. The latter obviously is also more aligned with current pain definitions.

It would also seem apparent that the approach to pain promoted by a woman's carers needs to align to her concepts of pain and her experiences can be influenced by her ability to maintain her conceptual framework during her labour. A recent review of the literature of labour pain [24] emphasised the concept of the *individual meaning* of a woman's pain experience and this may in fact be its defining feature. It has been demonstrated across numerous studies involving women from various cultural backgrounds and birthing in various models of care, that a woman's pain experience is shaped by the personal meaning that she ascribes to it. The meaning of the pain is influenced by factors including personal beliefs, the context of the pain, cognitive attributes of the woman, and the immediate social and broader socio-cultural environment in which she is birthing. Women who ultimately described their labour pain as "productive and purposeful" tended to demonstrate a greater capacity to cope. Alternatively, other women described their experience of labour

pain as a "threatening" pain, and this was often associated with a diminished capacity to cope and greater call for pain intervention.

To understand how women develop and sustain a meaning for their pain, we must first consider the broader socio-cultural and philosophical perspectives of pain. These overarching pain "beliefs" will no doubt form the foundation for a woman's own perspectives and understanding of her pain experience.

2.2 Current Labour Pain Theories

Two opposing theoretical views regarding labour pain and how it should be best managed exist currently. One can be described as a "biomedical" or "medicalised" view, and the other a "midwifery" or "working with pain" view, based on their differing philosophical perspectives of the function of labour pain and how it should be managed. The biomedical view of pain is that it is a sign that things are not right. Therefore, if effective pain relief is available, then it is unnecessary for any woman to experience labour pain [25]. This view advocates for the availability and use of pharmacological interventions to eradicate pain. The working with pain view sees labour pain as a normal part of labour and birth that can be used constructively [26]. This view emphasises the use of (non-pharmacological) resources to support the labouring woman to cope with the sensations of labour. Neither view believes that a woman should suffer during labour and birth. However, the biomedical view assumes that if a woman is in pain then she must be suffering [27], whilst the working with pain view separates pain from suffering and focuses on supporting the woman to cope with the pain of labour [28].

Over the past 50 years in Western societies, the medicalised view of labour pain has dominated. Within this view, labour pain is conceptualised using a tissue-based model that focuses on peripheral contributions to the woman's pain experience: labour pain is described as an "excellent model of acute pain;" that is, one that is clearly attributed to noxious stimulation [29]. Much literature on labour pain within this model emphasises that nociceptive input is the reason for a woman's pain and leaves little space for consideration of non-tissue-based influences [16, 30, 31]. Accordingly, pharmacological management of labour pain that targets the nociceptive input is prioritised. For example, in Wall & Melzack's Textbook of Pain (fifth ed.) over 12 pages is dedicated to describing pharmacological methods of managing labour pain, whilst less than one page discusses non-pharmacological methods. As stated on page 793: "The modern theory of pain management in labour and delivery points out that pain should and must be relieved effectively" [32]. The focus on the eradication of pain in labour is further illustrated by a statement made by the American College of Obstetrics and Gynecology in 2017: "Labor causes severe pain for many women. There is no other circumstance in which it is considered acceptable for an individual to experience untreated severe pain that is amenable to safe intervention while the individual is under a physician's care" [25, p. 766]. In an Australian study, a critical analysis of hospital documents provided to women

described how the use of epidural analgesia during labour is framed as safe whilst the use of water immersion during labour is framed as risky, despite these claims not being supported by evidence [33]. It is clear from examples such as these how pervasive the medical model is. An assumption is made regarding how women understand and relate to their pain during labour, and subsequently how it will be managed, with little space for the possibility of it to be perceived as a productive and purposeful pain.

The opposing working with pain view sees labour pain as central to the process of labour and birth. Within this view, labour pain is described as "functional" pain in that it is "physiological pain felt in a healthy body working well, but at levels of high intensity, beyond usual comfort levels" [34]. The term "functional discomfort" is also suggested as an alternative to labour pain, in order to further differentiate it from pathological pains and the negative connotations associated with the term [35]. Within the working with pain view, it is believed that, given the right environment and circumstances, women possess the capacity to cope with the pain of normal labour.

A key feature of this thinking is that the pain experience is beneficial and various functions of labour pain may include:

- labour pain forces a woman to stop and divert her attention to her body, to recognise that she is about to give birth
- labour pain triggers a woman to summon support
- the challenge of labour pain marks the significance of the occasion—birthing a child
- the discomfort of labour heightens the joy of receiving a baby

At a biochemical level, research has identified that pain plays a vital role in triggering a cascade of neurohormones that optimise the labour process, such as oxytocin [36]. In addition, the production of the body's natural pain-relieving opiates—beta-endorphins—demonstrates that human physiology was designed to attenuate the nociceptive input generated by the woman's labouring body, to facilitate her coping.

It is important to note that a distinction is made between "normal" labour pain, which is that associated with the physiological process of normal labour, and "abnormal" pain, which may be associated with a complication such as labour dystocia or damage to tissues. The working with pain view recognises that abnormal pain may warrant pharmacological intervention. However, during normal labour, the view prioritises non-pharmacological intervention to support the labouring woman. This is justified by the growing body of evidence demonstrating negative effects of pharmacological interventions on hormonally-mediated mechanisms that support and drive labour, breastfeeding and maternal-infant attachment, as well as on mothers' and babies' health and outcomes (See Leap and Anderson [26] and Whitburn et al. [24] for summaries). In promoting normal birth, the view focuses on supporting the labouring woman to engage with, and work through any pain associated with normal labour, rather than trying to take it away. Importantly, the working with pain view emphasises the role of the woman's support people in

helping her cope with her pain: The attitudes and actions of her support people will have a powerful influence on her own perceptions of her pain and ability to cope.

It is clear that each view assumes a different meaning for the pain associated with labour. The medicalised view does not differentiate labour pain from pains associated with pathology, injury, disease or over-applied adaptive changes to the nervous system. The meaning of labour pain is simply associated with nociceptive input from tissue damage, and its management (i.e., to relieve all pain) suggests its redundancy in the process of labour and birth. On the other hand, the working with pain view recognises that labour pain has a different context and function to other pains. Labour pain is functional pain in that it is associated with desirable (if extreme) adaptive tissue changes that occur within a normal physiological event. The working with pain view also acknowledges possible philosophical, social, and personal implications of this pain experience that, from an evolutionary perspective, are important to consider.

Ultimately, we may describe a continuum in which at one end labour pain is viewed as an unnecessary by-product of the labour and birth process that can and should be avoided. At the other end labour pain is viewed as a central component to the transformative process of becoming a mother and has several specific functions. Across the continuum are likely to be mixed, uncertain or ambivalent feelings relating to the role of pain in labour. Recognising these two alternate views regarding labour pain allows us to appreciate the likely social influences that women face prior to, and during, labour and birth. Undoubtedly, these attitudes will subsequently shape the woman's personal meaning for her pain during labour and may set the stage for her interpretations of labour pain as a productive and purposeful pain, or as a threatening pain (Fig. 8.1).

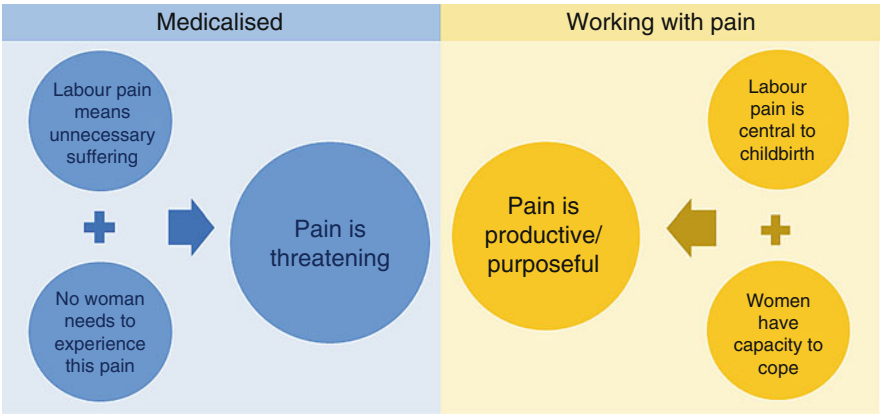

Fig. 8.1 Opposing theoretical views regarding labour pain and its management. The medicalised or biomedical viewpoint: labour pain is associated with suffering and is unnecessary and something to be avoided; the working with pain viewpoint: labour pain plays a central role in labour and birth and given the right environment and support during a normal labour women possess the capacity to cope.

3 Factors that Shape the Personal Meaning of Labour Pain

3.1 Personal Beliefs

Deep personal beliefs are rooted in cultural and social perspectives and are also shaped by personal prior experiences. Although the biomedical view dominates in many Western birthing contexts, women will be influenced by their own set of personal experiences, cultural backgrounds, and may hold their own ideas and beliefs, which may go beyond the biomedical tissue-based model. In a study we conducted involving primiparous women, participants were asked, pre-birth, what they thought the function of pain during labour may be [37]. Women's thoughtful responses revealed various theories, including:

Pain as a signal of the normal progress of labour.

Maybe it's there (the pain) as a sign that everything is going the way it should be going. Participant 2203 [37]

The challenge of the pain matches the significance of the event.

It's a pretty amazing thing (labour and birth) that's happening so if it was easy then it wouldn't. . .really match up to what you're going through. Participant 2111 [37]

The challenge of the pain triggering a sense of accomplishment.

If somebody wants to climb a mountain it's never going to be easy, it's never going to be painless. But once they've finished they know they've achieved because they've gone through the pain. Participant 2113 [37]

Pain as a trigger of maternal-child attachment.

It could be a strong bonding point with your child, that you've done all this for them. Not in a selfish way, but in. . . that I've gone through this to have you in my life. Participant 2104 [37]

These responses by women anticipating their first birthing experience demonstrate that despite the dominance of the biomedical model of labour pain, many women seem aware of its limitations in making sense of this unique occurrence of pain.

The personal meaning of pain also has another reference: the woman's prior pain history. Women participating in our research had experienced pain associated with various bony injuries, chronic back pain, kidney stones, a mandible infection, wisdom tooth removal, endometriosis and one even reported being tasered. These experiences can affect the woman's belief about labour pain, her self-efficacy for labour and her approach to managing labour pain. We can access some of the personal meaning about labour pain for women with reference to other painful life experiences by exploring two quotes from our research.

It (labour pain) was definitely the worst (physical) pain I've ever experienced. But then, there are worse pains when you're really sick. When I was younger, I was really sick and the intensity of my abdomen pain was scarier because it was an unknown, I was thinking, 'What's going on with me, am I going to die?' Whereas when you're in labour I knew I was in labour and wasn't going to die. So there are worse pains, but labour's pretty bad too. Participant 8 [38]

... I don't like to talk about it as pain like I don't think of it as being in pain, it was a really intense physical experience but I never really thought of it as, yeah, being painful, it just ... you know it took a lot of concentration to get through it and that sort of thing but yeah... Participant 6 [23]

These two women provide examples of pain being physically intense but not threatening compared to pain associated with illness or injury. In the latter case we also get some insight into the cognitive demand required to cope with the intensity.

Post-birth data reveal an additional interpretation of pain to a labouring woman: Women report using their labour pain to "track" their labour.

...you had it in your mind the whole time that the contractions were good even though they were painful it was good because it was sort of tracking your progression. Participant 2106 [18]

In such cases the meaning of pain to the woman is a sign of the productive work she is doing in labour; that progress is being made. The ability to be consistent and persistent in this interpretation of her body's internal signalling relies on supportive messages from her external environment and, one assumes, a certain amount of resilience.

3.2 Cognitive Attributes

By cognitive attributes, we mean the woman's resilience, her persistence with and ability to focus on a task despite adversity and her ability to interpret signals from interoceptors. Over the past two decades research has revealed important clues regarding the role of cognitive attributes in the experience of labour pain. To fully appreciate how many of these cognitive variables influence a woman's pain, we will consider how they contribute to the meaning of the pain to the labouring woman.

3.2.1 State of Mind

They assessed me and told me that I would need a forceps delivery so they were going to give me an epidural...So then I thought, 'Oh well, the epidural is going to take care of the pain and the contractions now so I can stop focussing. It's going to be easy now'. And as soon as I lost my focus I started getting pain. I became more focussed on the room and the people around me. I was focussing on all the outside stuff instead of focussing on what was going on inside me. I had more of a normal everyday mind. Participant 12 [23]

A woman's state of mind during labour influences her relationship with the pain and interpretation of it. In a study we conducted in 2014 [23], the women's retelling of labour indicated a shift between two states of mind during their labour: a "mindful acceptance" state and a "distracted and distraught" state. The mindful acceptance state was characterised by women remaining focused in the present moment, on their bodies and on their sensory experiences, without reacting to the experience or judging themselves. When in this state, women appeared to be in tune with their bodies. Importantly, their experience of pain was accepted as one component of their overall experience. This state of mind appeared to have a powerful effect on women coping well with the pain, through this quality of acceptance. It may be that a mindful acceptance state attenuates the pain experience by preventing pain from re-entering an active threat-response system as an additional threatening input. Several other studies have also identified that an attitude of acceptance and "going with the flow" helps women interpret the pain as less threatening and enables them to work with it [39, 40].

A distracted and distraught state was characterised by women not focussing on the present moment or their bodies. Instead, their thoughts included reactive responses (particularly worrying about the pain) and critical judgement of their capacity to cope. A sense of helplessness highlighted this state and resulted in a negative relationship to the pain. Although helplessness may be considered useful in the context of labour—i.e., a recognition of not being able to cope alone that triggers behaviours that summon support—sustained catastrophic thinking may undermine an individual's sense of coping. The distracted and distraught state featured key elements of pain catastrophising, described as an exaggerated negative mindset in relation to an actual or anticipated pain experience. Catastrophising has also been linked in other studies to measures of labour pain intensity, use of pain interventions during labour, and the length of postpartum physical recovery [41, 42].

3.2.2 Distractions

Women in our study reported shifting between the two states throughout their labour. They could be pulled out of a mindful acceptance state by distractions in their environment, or by an internally generated loss of focus. This included the sounds and features of the space they were labouring in (e.g., bright lights, the sounds of monitors or clocks on the wall), who was around them and what those present in the room were doing, or their own thought processes triggered by this environmental *noise*.

> *I was focused on not having seen my daughter for 2 days . . . I got distracted and out of my zone.* Participant 8 [23]

An unexpected finding was how some women described that their focus was often drawn to a concern for how their partner was coping. It became apparent from this data, that there was a strong interrelationship between a labouring woman's pain experience and her physical and social environment, and that her own thought

processes, including those related to the care of others, could draw her away from a mind-state beneficial for the progress of labour.

3.2.3 Other Life Events

One of the key influences on the development of the cognitive attributes in responses to pain may be the outcomes of prior pain experiences, as outlined in a previous section, and other life learning about pain including parental behaviours [43, 44].

> *My mum was a pretty tough cookie so she . . . I don't know, she was kind of not hesitant but she was kind of like 'Oh you'll be okay, you'll be fine, you'll get over it' kind of thing. And my sister for example broke her arm and my mum didn't think much of it until she complained about it for like quite a few hours and then Mum's like 'Okay, we better get this sorted.' So yeah, Mum and Dad are quite strong and tough. So I think that kind of got passed on to us.* Participant 2 (unpublished data)

Yet another factor that potentially shapes women's labour experience are the stories and descriptions provided by childbirth educators and other women, and the increasingly accessible images and recordings available online. Most women do not get to witness a live birth before they have their own experience and so must build a version of what it might be like, drawn from personal accounts of others or edited versions presented in the media.

3.2.4 Self-Efficacy for Labour

The imagery of labour presented in the media and online and the personal storytelling, especially by those she views as similar to her, has the potential to strongly influence a woman's self-efficacy. Self-efficacy relates to the belief in one's ability to accomplish a task. In the context of labour, it is a woman's belief in her ability to labour successfully, despite the associated intense sensory and emotional experiences, including pain. Prior self-efficacy for labour has been found to influence a woman's labour pain experience [45]. Higher levels of self-efficacy are associated with persistence despite difficulty and, in labour, reflect that a woman feels she has the necessary cognitive and behavioural resources to manage the pain and so is less likely to rely on passive pain interventions to cope.

A recent study investigating distress and the use of epidural analgesia found that women who were more distressed during pregnancy were more likely to use epidural as their sole tool for pain management [46]. While self-efficacy was not measured, it is possible a distressed woman would self-evaluate her resources and ability to cope as lower than a non-distressed woman. A longitudinal study of primiparous women did measure self-efficacy [45]. While the study found that self-efficacy did not influence pain tolerance (measured as the percentage of time during labour without pain intervention), higher levels did change women's evaluation of the intensity of pain and how distressing the pain was. These findings have recently been supported and extended in a study of more than 200 women using pre- and post-birth measures

of self-efficacy. Additionally, this study reported that women with higher levels of self-efficacy were more likely to use coping strategies during the labour than those with low levels [47].

Self-efficacy has been shown to be shaped by numerous factors. One factor that is particularly critical during labour is that of verbal persuasion. While encouraging and supportive comments can increase self-efficacy, comments interpreted by the woman that she is not coping potentially have the opposite effect. In one of many examples from a qualitative study examining 50 women's labour stories, one woman said: "I was asked eleven times if I wanted drugs. . .it tears away at your self-confidence. . ." [48].

It is possible to draw in on the meaning of pain here. The self-evaluation of the ability to labour successfully, is likely to be different for a woman who is accepting of the pain associated with labour and who views it predominantly as non-threatening, compared to a woman who considers labour pain threatening. It could be speculated the woman with the more accepting, non-threatening view of pain, might consider she needs fewer or more self-regulated resources to cope, and so would have a higher self-efficacy for labour. Importantly, the woman's caregivers can provide implicit or explicit cues to her regarding her capacity to cope, or not, and in doing so can influence both her self-evaluation of coping and the meaning of the pain.

3.2.5 Anxiety Sensitivity

Anxiety has long been considered an influence on pain but the role of general anxiety on labour pain seems uncertain. On the other hand, anxiety sensitivity, defined as the belief that anxiety-related symptoms are themselves dangerous or threatening, has been shown to be a strong predictor of labour pain [49, 50]. It could be expected that a woman with high levels of anxiety sensitivity would be hypervigilant for bodily experiences during her labour (e.g., the physical experience of a uterine contraction) and attribute these to negative outcomes (e.g., the subsequent experience of pain), and to interpret them as more dangerous (i.e., the pain is more threatening).

3.2.6 Attachment Pattern

A woman's attachment pattern prior to labour has also been demonstrated to influence her experience of labour pain. Attachment is conceptually thought of as the tendency of a person to establish an emotional bond to attachment figures for safety and security [51]. According to attachment theory, childbirth is a significant life event that should activate the attachment system, thus calling upon a woman's attachment tendencies when engaging with her caregivers for support and assistance. Anxious and avoidant attachment patterns have been found to be associated with more severe pain reports and to be predictive of analgesia use [51, 52].

One of the primary purposes of attachment patterns is thought to be the regulation of negative affect. During childbirth, women may use attachment behaviours to manage their emotions and threatening experiences, and subsequently increase their sense of safety. Anxious and avoidant attachment patterns both represent suboptimal cognitions, emotions and attachment behaviours in relation to caregivers, and therefore may heighten the perceived sense of the threat of labour, and thus result in a more threatening pain experience.

Whilst the positive effect of support during labour is well documented, particularly in relation to a woman's ability to reframe her pain and capacity to cope, the emerging data on attachment patterns demonstrate the complexities of how support may be differently perceived by different women.

3.3 Coping and Suffering and the Meaning of Labour Pain

I remember thinking 'this hurts, but it also feels awesome!' Participant 15 [23]

In developed countries where labour pain is often conceptualised as a negative pain, pain and suffering are often inextricably linked—a woman experiencing pain during labour is presumed to be suffering. It is claimed that women should not be made to suffer through labour pain and will need to be "rescued" through the implementation of pain interventions. Pain and suffering, however, are separate experiences, and whilst they often co-exist in situations of (particularly extreme) pathological pains, in relation to labour pain this may not always be the case. Consistent findings in the literature demonstrate that women who experience labour pain as a productive and purposeful pain, associated with positive emotions and cognitions, do not describe a sense of suffering. Suffering is often associated with women who feel alone or unsupported during their labour. Chuahorm et al. [6] describes the experiences of Thai women for whom support people are not allowed in the hospital labour room. Women described a sense of helplessness exacerbated by a sense of being alone. Similar findings were reported by Wang [7] regarding women giving birth in Shanghai, China. One participant explained:

> *When I was in pain, I would yell and no one would pay attention. Then by the time it hurt even more severely, I wanted to cry, but not even one tear would come out. Really, at the time I thought I wanted to die. . .Everyone [the nurse-midwives] wanted you to give birth yourself. Any they would just chat, talk to each other, and make jokes. And it was just me, alone, suffering—no one paid attention. At that time, I lost hope because there was not one person to comfort me. I felt like I didn't want to give birth anymore.* Participant Dongmei [7]

It is important to recognise that pain is not sufficient for suffering and instead it is the individual's unique interpretation of their experience, including the perceived impact on physical and emotional wellbeing, meaning and coping resources that determines whether they experience suffering in relation to their pain [27]. As Turk and Wilson [27] explain, "Viewing suffering as an inevitable consequence of pain may unwittingly initiate and reinforce suffering." It may therefore be that the current

approach to viewing and managing labour pain in many Western societies inadvertently contributes to women's suffering.

3.4 Pain Context

> *As soon as I found out I'd need a caesarean section it felt more painful because I knew that it wasn't working towards giving birth.* Participant 10 [23]

Interacting with these cognitive attributes of the woman, is the pain context. The context of the woman's pain experience will shape the meaning ascribed to it. Even though all labouring women are proceeding through the same process, which is working towards the birth of a child, this context may be interpreted differently by different women.

For some women, the pain of labour is a signal of labour progressing, is accepted as a normal part of the experience, and for some is even embraced as an opportunity for growth and achievement. The social environment can facilitate this contextual understanding. Caregivers who are known, trusted and calm can facilitate this positive interpretation of the context. A woman's caregivers can help steer her away from pain catastrophising and help her remain in a focussed state of mindful acceptance. Through implicit and explicit actions and words, the context of the pain is represented as leading towards a positive outcome: the birth of a child.

If a woman interprets the context of the pain as not working towards a goal, she is more likely to interpret the pain as threatening. For some women the rate of progression, or the intensity of the pain, does not match their expectations, and is not linked to progression through labour. Thus, the meaning of the pain is that it is a threat to her or her baby's well-being. A prior fear of the pain of labour, or low self-efficacy for labour, can further prime a woman for a negative evaluation of the context of the pain. Caregivers can have a powerful influence over a woman's response to the context. A lack of support can make a woman feel unsafe, heightening the sense of pain as threatening. Alternatively, caregivers who interfere with a woman's focus, or influence her interpretation of the pain through verbal and non-verbal cues, can further increase the pain's threat-value. In our evaluation of women's experiences of labour pain, we found that simply reporting the findings of a cervical dilation assessment could have detrimental effects on a woman's pain evaluation and sense of capacity to cope.

> *When they told me I was 3 cm. . . that's probably the main thing out of my whole labour that really got me. I started crying 'cause I was just so upset because, like, you hear you have to be this many centimetres . . . But I reckon if they were to tell me that no, look, you are 8 cm, this is the pain at 8 cm, I would have been like alright, I'm managing with the gas then.* Participant 2201 [18]

This quote also highlights another important contextual feature: the woman's emotional state. It would seem that losing her focus accompanied by a change in emotional context, may challenge a woman's resilience significantly.

Women's understanding of the context of the pain influences the pain's meaning. A productive and purposeful pain is associated with labour progression, is accompanied by positive cognitions and emotions, and with a supportive and sensitive social environment. A non-productive pain is one that is interpreted as not leading towards the goal, is not embraced as a useful component of the labour, and these messages may be implied by the actions or words of people in the social environment.

3.5 Social Environment

In many of the examples above, we see how the woman's social environment influences each variable, thus shaping her pain experience. Humans are social beings: Our brains are relational organs that drive us to connect with others. In doing so we contextualise, form an understanding of, and identify meanings for, our experiences. Pain is one such experience that is determined by an appraisal of an individual's needs at a time to survive and thrive in the physical and social environment. Pain during labour has strong social uses in driving a labouring woman to seek, and remain engaged with, caregivers. Even maladaptive pain cognitions such as catastrophising may be functioning to enhance the labouring woman's urge to seek help. The emerging role of the endogenous opioid system in socialisation [53] may further reinforce a link between pain and social bonding with carers, above and beyond what is currently realised.

Ultimately, the social context of the woman's pain during labour gives that pain meaning, which then contributes to its place in her labour and birth "story." The people present during a woman's labour are somewhat predetermined by choices she made, or others made, about the safety of her and her baby. However, there are often no guarantees that preferred staff will be there, especially for the duration of labour. Similarly, the preferred personal support people may not always be available or allowed to be present, for example due to restriction of numbers. This is important as it would seem apparent that caregivers and support people have a significant impact on a woman's pain experience. This chapter is not the place to explore or expand on care provision. However, models of midwifery care that provide continuity of care in small teams or via one-to-one midwifery care [54] and culturally informed initiatives such as Birthing on Country [55] can help to provide a supportive social environment that would appear to have many benefits, including for the labour pain experience [56].

4 Conclusion

Labour pain is a significant component of the birthing experience of women across the world. However, not all women experience labour pain in the same way. A defining variable in a woman's experience appears to be her interpretation of its meaning. What is this pain telling me? Research suggests that women can view pain as a positive sign of progression of labour, or as a sign of damage and even threat to their life. Importantly, a woman who may go into labour with a strong belief one way or the other can undergo challenges to that belief which may change the course of the experience. As the woman finds her resources to cope depleted or enhanced, the assistance she seeks and the capacity to persevere will likely change. This may be a moment-to-moment proposition and it may transform the birthing process. Our research suggests that it is important for women to think of labour pain as part of a natural physiological process (i.e., purposeful) and a sign of progression towards the birth of her child (i.e., productive). Logically, a woman supported by carers promoting a more physiological approach to pain may maintain a belief that pain is productive and purposeful and would be more likely to persevere with the effort of childbirth and show greater tolerance to the process. Conversely, a woman who has a belief that she or her child are at risk of harm is unlikely to persevere and is more likely to request and agree to medical interventions. Giving birthing women the confidence to acknowledge their pain experience as a sign of progression and to support them to respond by working with the pain, reinforces a meaning of labour pain that is distinct and unique.

In this chapter we have attempted to provide a review of the literature that demonstrates the important relationship between a woman's experience of labour pain and its meaning. We have drawn from our own work, including author Whitburn's doctoral thesis, as well as a broad range of theoretical and empirical literature from numerous contexts, countries and models of health care. However, the complexity of this experience could never be comprehensively explored in one book chapter. Therefore, there will be facets that we have not covered, or only brushed on. This is partly due to the limited available research that explores the concept of the meaning of labour pain.

We hope that future studies further explore the personal attributes and sociocultural dynamics that shape a woman's pain experience during labour. Due to the subjective nature of pain these ideas must be studied through robust qualitative inquiry. We also hope that the unique nature and context of labour pain helps to expand and improve conceptions and definitions of the human experience of pain and its function.

Note Informed consent was obtained from all individual participants included in the study.

References

1. Rich A. Of woman born: motherhood as experience and institution. London: WW Norton; 1995. 274 p.
2. Corli O, Grossi E, Roma G, Battagliarin G. Correlation between subjective labour pain and uterine contractions: a clinical study. Pain. 1986;26(1):53–60.
3. Lowe NK. Critical predictors of sensory and affective pain during four phases of labor. J Psychosom Obstet Gynaecol. 1991;12(3):193–208.
4. Melzack R, Kinch R, Dobkin P, Lebrun M, Taenzer P. Severity of labour pain: influence of physical as well as psychologic variables. Can Med Assoc J. 1984;130(5):579–84.
5. Lundgren I, Dahlberg K. Women's experience of pain during childbirth. Midwifery. 1998;14 (2):105–10.
6. Chuahorm U, Sripichyakarn K, Tungpunkom P, Klunklin A, Kennedy P. Fear and suffering during childbirth among Thai women. Thai J Nurs Res. 2007;11(1):49–61.
7. Wang E. Requests for cesarean deliveries: the politics of labor pain and pain relief in Shanghai, China. Soc Sci Med. 2017;173:1–8.
8. Beigi NMA, Broumandfar K, Bahadoran P, Abedi HA. Women's experience of pain during childbirth. Iran J Nurs Midwifery Res. 2010;15(2):77.
9. The Holy Bible: new international version. London: Hodder & Stoughton; 2015.
10. Doering K, Patterson J, Griffiths CR. Japanese women's experiences of pharmacological pain relief in New Zealand. Women Birth. 2014;27(2):121–5.
11. Callister LC, Khalaf I, Semenic S, Kartchner R, Vehvilainen-Julkunen K. The pain of childbirth: perceptions of culturally diverse women. Pain Manag Nurs. 2003;4(4):145.
12. Merskey H. Pain terms: a list with definitions and notes on usage. Recommended by the IASP Subcommittee on Taxonomy. Pain. 1979;6:249–52.
13. Williams ACC, Craig KD. Updating the definition of pain. Pain. 2016;157(11):2420–3.
14. Whitburn LY, Jones LE, Davey MA, Small R. Supporting the updated definition of pain. But what about labour pain? [Comment]. Pain. 2017;158(5):990–1.
15. Cohen M, Quintner J, van Rysewyk S. Reconsidering the international association for the study of pain definition of pain. Pain Reports. 2018;3(2):e634.
16. Rowlands S, Permezel M. Physiology of pain in labour. Baillieres Clin Obstet Gynaecol. 1998;12(3):347–62.
17. Visser EJ, Davies S. Expanding Melzack's pain neuromatrix. The threat matrix: a super-system for managing polymodal threats. Pain Pract. 2010;10(2):163.
18. Whitburn LY, Jones LE, Davey MA, Small R. The meaning of labour pain: how the social environment and other contextual factors shape women's experiences. BMC Pregnancy Childbirth. 2017;17:157.
19. Olza I, Leahy-Warren P, Benyamini Y, Kazmierczak M, Karlsdottir SI, Spyridou A, et al. Women's psychological experiences of physiological childbirth: a meta-synthesis. BMJ Open. 2018;8(10):e020347.
20. Reilly P, Macleod I, Macfarlane R, Windley J, Emery R. Dead men and radiologists don't lie: a review of cadaveric and radiological studies of rotator cuff tear prevalence. Ann R Coll Surg Engl. 2006;88(2):116–21.
21. Englund M, Guermazi A, Gale D, Hunter DJ, Aliabadi P, Clancy M, et al. Incidental meniscal findings on knee MRI in middle-aged and elderly persons. N Engl J Med. 2008;359 (11):1108–15.
22. Frank JM, Harris JD, Erickson BJ, Slikker W III, Bush-Joseph CA, Salata MJ, et al. Prevalence of femoroacetabular impingement imaging findings in asymptomatic volunteers: a systematic review. Arthroscopy: J Arthrosc Relat Surg. 2015;31(6):1199–204.
23. Whitburn LY, Jones LE, Davey MA, Small R. Women's experiences of labour pain and the role of the mind: an exploratory study. Midwifery. 2014;30(9):1029–35.

24. Whitburn LY, Jones LE, Davey MA, McDonald S. The nature of labour pain: an updated review of the literature. Women Birth. 2019;32(1):28–38. https://doi.org/10.1016/j.wombi.2018.03.004.
25. Obstetric Analgesia and Anesthesia. Practice bulletin no 177. American college of obstetricians and gynecologists. Obstet Gynecol. 2017;129:e73–89.
26. Leap N, Anderson T. The role of pain in normal birth and the empowerment of women. In: Downe S, editor. Normal childbirth: evidence and debate. Edinburgh: Churchill Livingstone; 2008. p. 29–47.
27. Turk DC, Wilson HD. Pain, suffering, pain-related suffering—are these constructs inextricably linked? Clin J Pain. 2009;25(5):353–5.
28. Leap N, Dodwell M, Newburn M. Working with pain in labour: an overview of evidence. NCT New Digest. 2010;49:22–6.
29. Melzack R. Labour pain as a model of acute pain. Pain. 1993;53(2):117–20.
30. Hess P. Pain in the obstetric patient. In: Elliott JA, Smith HS, editors. Handbook of acute pain management: informa healthcare; 2010. p. 276–91.
31. Brownridge P. The nature and consequences of childbirth pain. Eur J Obstet Gynecol Reprod Biol. 1995;59:S9–S15.
32. Pan PH. Obstetric pain. In: McMahon S, Koltzenburg M, Tracey I, Turk DC, editors. Wall & Melzack's textbook of pain. 6th ed. Philadelphia, PA: Elsevier Health Sciences; 2013. p. 772–93.
33. Newnham EC, McKellar LV, Pincombe JI. Documenting risk: a comparison of policy and information pamphlets for using epidural or water in labour. Women Birth. 2015;28(3):221–7.
34. Dempsey R. Embracing the intensity – celebrating birth as a peak bodily performance. Birth matters. 1998:4–6, 20.
35. Sanders R. Functional discomfort and a shift in midwifery paradigm. Women Birth. 2015;28(3):e87–91.
36. Buckley SJ. Hormonal physiology of childbearing: evidence and implications for women, babies, and maternity care. Washington, DC: Childbirth Connection Programs, National Partnership for Women & Families; 2015. 225 p.
37. Whitburn LY, Jones LE, Davey MA, Small R. First-time mothers in Victoria – a pilot cohort study.
38. Whitburn LY, Jones LE, Davey MA, Small R. Expectations, fears and pain experience: identifying internal and external threats to perceived safety for women in two birthing environments. BMC Pregnancy Childbirth. 2017;17:157.
39. Karlsdottir SI, Halldorsdottir S, Lundgren I. The third paradigm in labour pain preparation and management: the childbearing woman's paradigm. Scand J Caring Sci. 2014;28(2):315–27.
40. Johnson TR, Callister LC, Freeborn DS, Beckstrand RL, Huender K. Dutch women's perceptions of childbirth in the Netherlands. MCN Am J Matern Child Nurs. 2007;32(3):170–7.
41. Flink IK, Mroczek MZ, Sullivan MJL, Linton SJ. Pain in childbirth and postpartum recovery—the role of catastrophizing. Eur J Pain. 2009;13(3):312–6.
42. Veringa I, Buitendijk S, de Miranda E, de Wolf S, Spinhoven P. Pain cognitions as predictors of the request for pain relief during the first stage of labor: a prospective study. J Psychosom Obstet Gynaecol. 2011;32(3):119–25.
43. Kraljevic S, Banozic A, Maric A, Cosic A, Sapunar D, Puljak L. Parents' pain catastrophizing is related to pain catastrophizing of their adult children. Int J Behav Med. 2012;19(1):115–9.
44. Fillingim RB, Edwards RR, Powell T. Sex-dependent effects of reported familial pain history on recent pain complaints and experimental pain responses. Pain. 2000;86(1–2):87–94.
45. Berentson-Shaw J, Scott KM, Jose PE. Do self-efficacy beliefs predict the primiparous labour and birth experience? A longitudinal study. J Reprod Infant Psychol. 2009;27(4):357–73.
46. Jonsdottir SS, Steingrimsdottir T, Thome M, Oskarsson GK, Lydsdottir LB, Olafsdottir H, et al. Pain management and medical interventions during childbirth among perinatal distressed women and women dissatisfied in their partner relationship: a prospective cohort study. Midwifery. 2019;69:1–9.

47. Sánchez-Cunqueiro MJ, Comeche MI, Docampo D. On the relation of self-efficacy and coping with the experience of childbirth. J Nurs Educ Pract. 2018;8(6):48.
48. Rafalovich A. Pain is the club: identity and membership in the natural childbirth community. Qual Sociol Rev. 2016;12(3):100–16.
49. Lang AJ, Sorrell JT, Rodgers CS, Lebeck MM. Anxiety sensitivity as a predictor of labor pain. Eur J Pain. 2006;10(3):263–70.
50. Curzik D, Jokic-Begic N. Anxiety sensitivity and anxiety as correlates of expected, experienced and recalled labor pain. J Psychosom Obstet Gynaecol. 2011;32(4):198–203.
51. Costa-Martins JM, Pereira M, Martins H, Moura-Ramos M, Coelho R, Tavares J. The role of maternal attachment in the experience of labor pain: a prospective study. Psychosom Med. 2014;76(3):221–8.
52. Quinn K, Spiby H, Slade P. A longitudinal study exploring the role of adult attachment in relation to perceptions of pain in labour, childbirth memory and acute traumatic stress responses. J Reprod Infant Psychol. 2015;33(3):256–67.
53. Ballantyne JC, Sullivan MD. Discovery of endogenous opioid systems: what it has meant for the clinician's understanding of pain and its treatment. Pain. 2017;158(12):2290–300.
54. Forster DA, McLachlan HL, Davey MA, Biro MA, Farrell T, Gold L, et al. Continuity of care by a primary midwife (caseload midwifery) increases women's satisfaction with antenatal, intrapartum and postpartum care: results from the COSMOS randomised controlled trial. BMC Pregnancy Childbirth. 2016;16(1):28.
55. Kildea S, Hickey S, Nelson C, Currie J, Carson A, Reynolds M, et al. Birthing on country (in our community): a case study of engaging stakeholders and developing a best-practice Indigenous maternity service in an urban setting. Aust Health Rev. 2018;42(2):230–8.
56. Leap N, Sandall J, Buckland S, Huber U. Journey to confidence: women's experiences of pain in labour and relational continuity of care. J Midwifery Womens Health. 2010;55(3):234–42.