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Pain relief in labour: an overview

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This article provides an overview of some of the physiological and psychological factors associated with pain relief in labour, together with some of the issues that midwives should acknowledge when supporting the woman in labour.

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Childbirth may readily be described as one of the most momentous events in any woman's life. The process of labour and birth is, however, both physically and emotionally demanding. As every midwife knows, for the majority of women one of the most significant aspects of this process is the apprehension and anxiety evoked by the prospect of pain in labour. In fact, labour pain has been identified as one of the most intense pain experiences (Melzack and Wall, 1988).

The midwife's role is crucial for informing and guiding women throughout pregnancy and labour; as well as sharing their joy, she will provide support, reassurance, and help in coping with any distress. The skills and sensitivity necessary for fulfilling this role are developed through an appreciation and understanding of the processes involved in pain perception and labour. It must be acknowledged that maternal distress is associated not only with labour but also with the pain experienced by many women in the puerperium, as well as with many of the 'discomforts' associated with pregnancy.

However, this article will consider primarily pain relief in labour and the factors associated with it.

It is important, initially, to reflect on the attitudes and beliefs that underpin every individual's experience and expectation surrounding pain-relieving techniques.

Attitudes and beliefs relating to pain relief in labour have changed through the ages. In the Middle Ages, attitudes were often founded on the Christian belief that a woman should accept pain in labour as a consequence of her sin in the Garden of Eden. Reinforcement of such doctrine by the church and physicians of the time led to a widespread view that purification of sin was synonymous with pain in labour. A midwife attempting to relieve a woman's distress, often using herbal remedies, could have been condemned to death as a witch. It was not until the famed use of chloroform by Queen Victoria that pain relief in childbirth became more acceptable within society.

There is a current view which perceives labour pain as an experience that is both

unwanted and unnecessary (Melzack and Wall, 1988):

> 'Despite the obvious progress in our knowledge, many people who suffer cancer pain, postoperative pain, labour pain and various forms of chronic pain, are inadequately treated. We are appalled by the needless pain that plagues so many people...every human being has a right to freedom from pain.'

However, it has been demonstrated that a totally pain-free labour may not be associated with a wholly satisfying experience of the birth process (Morgan et al, 1982). This particular study, despite its methodological problems, may suggest that for many women, giving birth following a totally pain-free labour could result in some dissatisfaction with the whole experience. There are, of course, many potential explanations for their negative feeling. Nevertheless, it illustrates an area that no midwife should underestimate when evaluating the effectiveness of pain-relieving methods, i.e. the birth experience itself, and therefore potentially, the woman's adjustment to motherhood. In turn, this may begin to reflect the complexities associated with pain perception in labour.

Physiology of pain

One of the more obvious complexities associated with pain in labour is the variation between individual perceptions of pain. Pain has been described by Merskey (1986) as:

> '...an unpleasant sensory experience associated with actual or potential tissue damage, or described in terms of such damage'.

Such a definition goes only a short way to providing a full explanation for pain in labour. However, it does highlight that there are both physiological and emotional components to the pain experience.

Physiological explanations of pain transmission would appear, at first sight, to provide an inadequate explanation of the varying phenomena associated with pain perception. Traditionally such explanations have focused on the specificity theory. However, pain is a subjective experience and the idea that a specific pain centre exists in a specific area of the brain has long been discredited. Melzack and Wall's gate control theory of pain modulation (1965) would appear to provide an explanation which acknowledges the subjective component of pain perception.

> 'Pain is a subjective experience, as each individual has a unique range of anatomical, physiological, social and psychological identities. These identities can be applied to the gate control theory to explain the subjective nature of pain perception' (Clancy and McVicar, 1992).

This 'gating' mechanism occurs within the spinal cord's dorsal horn grey matter in an area known as the substantia gelatinosa.

The gate control theory suggests that sensory information, such as pain, can only travel through to the brain when the 'gate' is open; the closing of the 'gate' is the basis of many forms of pain relief. The gate is operated by neurotransmitters which in turn excite ascending nerve fibres. Closing the gate is initiated by inhibitory neurotransmitters and endogenous chemicals. The gate theory provides an explanation not only for the psychological aspects of pain relief in labour, but also for many of the methods now familiar to midwifery practice such as transcutaneous nerve stimulation, massage, etc.

Psychological factors

Many factors have been shown to influence individual perception of pain. Cultural background, for example, has a significant effect on pain perception threshold, giving rise to some amazing feats such as Indian fakirs who walk on hot coals or appear to impale their bodies with knives or hooks, apparently with no feeling of pain or signs of injury. However, as Melzack and Wall (1988) point out, care must be taken when asserting that variations in pain are due to variation in an individual's pain threshold. Four thresholds have been demonstrated experimentally (*Table 1*). It is therefore suggested that it is the encouraged pain tolerance threshold that is utilised by women in labour, who are encouraged to do so by those supporting them.

Other factors that provide probable explanations for variation in individual

Table 1. Pain thresholds

Sensation threshold	The level at which sensation is felt
Pain perception threshold	The level at which pain is felt
Pain tolerance threshold	The level at which an individual will want the pain to stop
Encouraged pain threshold	The level to which individuals can be encouraged to tolerate pain

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pain experience have been identified, e.g. distraction of attention, level of anxiety, feelings of control, and the effect of suggestion (as demonstrated by placebos).

Midwives recognise those women who will not want to use drugs in labour as well as others who will request an epidural from the very onset of labour. The use of stereotypes feature in the common attempt to explain psychological consistencies in behaviour between individuals. In midwifery practice, such stereotyping has resulted in women being labelled as the 'well-educated, middle-class National Childbirth Trust (NCT) type' or the 'uneducated, working-class type' (Green et al, 1990). However, individual differences relating to personality traits, types and characteristics have long been identified psychologically.

As a result of psychotherapeutic practice, Raphael-Leff (1986) suggests that individual differences may provide some useful explanations for a woman's expectation of the childbearing experience. This psychodynamic explanation proposes that women possess certain conscious and unconscious attitudes or 'orientations' towards pregnancy, labour and motherhood, and consequently perceive labour as either a 'natural event' or a 'depleting, medical event'. The 'facilitator' is therefore the woman who will want no intervention in labour and the 'regulator' is the woman who perceives a need to experience a 'civilised' birth and will need analgesics in labour. It is considered that an understanding of psychological processes will enable midwives to identify those factors common to women in pregnancy, which will, in turn, assist them in recognising and acknowledging the individual needs of women in labour.

Niven (1994) suggests that midwives may not always give value to the psychological coping strategies adopted by certain groups of women particularly those adopting what may be known as 'fanciful NCT-type techniques.' It is believed that midwives are aware of the strategies adopted by women in labour as identified in this study; such strategies include relaxation, distraction, imagery, reversal of effect, breathing techniques, internalisation of pain and certain other idiosyncratic strategies.

Niven also demonstrated that midwives consistently underestimate the intensity of pain experienced by women in labour. In turn, Rajan (1993) suggests that professionals are not good at recognising or responding to women's pain in labour. Medical staff, for instance, commonly 'believed that pain relief was effective while women reported it as unsatisfactory.' Rajan's secondary analysis of the data gathered by the National Birthday Trust (NBT) survey further suggests that 6–7% of all professional groups, i.e. midwives, obstetricians and anaesthetists, judged pain relief to be ineffective when women in fact believed it to be effective. There would consequently appear to be some discrepancy between a woman's experience of pain in labour and the perceptions of those caring for her. It is suggested, therefore, that a better understanding of women's experiences during labour and the psychological processes associated with pain perception are necessary.

Pharmacological methods of pain relief

Midwives will be familiar with the methods of analgesia most frequently used by women in the UK. Approximately 60% of women use Entonox in labour, a further 37% use pethidine and 18% have an epidural anaesthetic. Diamorphine and meptazinol were used by a further 2.1% and 1.8% respectively (Chamberlain et al, 1993).

Pethidine is a controlled drug which the midwife is able to prescribe and is therefore more readily available to women in labour. Its disadvantages include maternal confusion and loss of control, as well as its prolonged effects on the newborn such as respiratory depression, poor sucking and other possible effects which hinder the establishment of successful breastfeeding.

Although epidural anaesthesia is the most effective method of pain relief, it is not without its problems. MacArthur et al (1991) identify some of the potential problems, such as long-term backache. Despite the potential problems, epidural anaesthesia is used most frequently by women who have been in labour for more than 16 hours. However, the facilities for epidural anaesthesia are still significantly limited, being available in only 63.3% of maternity units (Chamberlain et al, 1993).

In the future, techniques that allow a woman greater mobility in labour may be used; this would not only promote relaxation but would also be helpful in increasing relaxation and pelvic dimensions, thereby facilitating pain relief through effecting the physiological processes of labour.

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The midwife and pain relief

When assessing any woman's pain in labour it must be remembered that the amount of pain is not merely a result of increasing sensory stimulation from uterine contractions and cervical dilatation, but is an experience influenced by:

> '...a complex interaction of psychological and physiological mechanisms which may serve to exacerbate or modulate the effects of noxious stimulation' (Melzack and Wall, 1988).

An important factor that cannot be ignored is the influence that a midwife will have on the woman's labour experience and level of pain perception. It is proposed that the interaction between a labouring woman, together with her partner in labour, and her midwife is one of the most significant factors influencing pain relief. This interaction involves many skills, including communication, caring, empathy, compassion and understanding, i.e. the skills of being 'with woman', and thus reduces anxiety in the labouring woman and increases her feelings of being in control.

Melzack and Wall describe pain as:

> '...one of the most challenging problems in medicine and biology...part of the problem lies with health professionals who have failed to keep up with the advances in our field.'

Midwives must rise to such a challenge, not only by updating their knowledge, but also by adding to the body of knowledge in an area which is, at present, sparse in research.

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KEY POINTS

- Labour pain is one of the most intense forms of pain that can be experienced.
- Attitudes and beliefs relating to pain relief in labour have developed and changed over time.
- A totally pain-free labour may not be desirable for all women.
- The midwife's skill in relieving pain associated with childbirth develops through an understanding of the physiological and psychological processes associated with pain perception.
- Physiological understanding includes a knowledge of not only the anatomical pathways involved in pain transmission but also the mechanisms of pain modulation.
- Psychological factors associated with pain perception focus on the subjectivity of pain experience.
- Professionals caring for women in labour are not always good at recognising or responding to individual pain experience.
- Midwives, by their presence, are themselves representative of one of the most effective means of pain relief in labour.