Critical Review

'Birthgasm'

A Literary Review of Orgasm as an Alternative Mode of Pain Relief in Childbirth

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Childbirth is a fundamental component of a woman's sexual cycle. The sexuality of childbirth is not well recognized in Western society despite research showing that some women experience orgasm(s) during labor and childbirth. Current thinking supports the view that labor and childbirth are perceived to be physically painful events, and more women are relying on medical interventions for pain relief in labor. This review explores the potential of orgasm as a mode of pain relief in childbirth and outlines the physiological explanations for its occurrence. Potential barriers to sexual expression during childbirth and labor, including the influence of deeply held cultural beliefs about sexuality, the importance of privacy and intimacy in facilitating orgasmic birth experiences, and the value of including prospective fathers in the birthing experience, are discussed. The role of midwives and their perceptions of the use of complementary and alternative therapies for pain relief in labor are examined. While there are indications of widespread use of complementary and alternative therapies such as hydrotherapy, herbal remedies, and breathing techniques for pain relief in childbirth, orgasm was not among those mentioned. Lack of recognition of the sexuality of childbirth, despite findings that orgasm can attenuate the effects of labor pain, suggests the need for greater awareness among expectant parents, educators, and health professionals of the potential of orgasm as a means of pain relief in childbirth.

Keywords: *childbirth; orgasm; pain relief; pleasure; midwife; training; complementary and alternative therapies*

Childbirth and sexuality are two aspects of the same phenomenon. The sequence of events that encompass a woman's broader reproductive and sexual cycle, from menstruation through to ovulation and conception, followed by pregnancy, labor, birth, and breastfeeding are sexual events (Buckley, 2010). The sexuality of childbirth has lost recognition over the past century with the move away from home births, as more Western women opt for giving birth in a clinical hospital setting (Tew, 1998). This has resulted in reduced opportunity for intimacy and privacy during labor and birth, thus widening the gap between sexuality and childbirth (Buckley, 2010).

Current thinking supports the view that labor and childbirth are perceived to be physically painful events (Buckley, 2010; Harel, 2007; Postel, 2013)—with more women relying on medicalized interventions for pain relief in labor such as narcotics and epidurals (Buckley, 2003; Gaskin, 2003). Less well known are reports of women who have not only experienced relatively painless labor but whose experiences of childbirth have been described as pleasurable (Gaskin, 2003; Harel, 2007; Postel, 2013). Such reports are often accompanied by reluctance by these women to give voice to their

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experiences, for fear of possible social recriminations (Harel, 2007). Harel believes that mentioning sexuality in the context of childbirth is considered taboo in Western society and that it goes against the cultural belief that childbirth and labor are meant to be painful and traumatic events. Wiederman (2005) proposes a Social Script theory to explain how individuals can be influenced by deeply held cultural beliefs about their sexuality. This theory is based on the assumption that individuals learn how to think, feel, and behave from members of the culture in which they are raised, through scripts or deeply ingrained communications, which are learned within cultures (Wiederman, 2005). These scripts provide meaningful guidelines as to the appropriate timing and expression of certain behaviors, including sexual activity (Wiederman, 2005).

While it is understandable, in light of the aforementioned theory, how sexuality and childbirth may be viewed as separate entities, Harel (2007) argues that sexual pleasure and arousal during childbirth should be better recognized as a possibility, given that a woman's sexual organs are stimulated, and sex hormones are triggered during the birthing process. Research suggests that hormones that are present in childbirth are also present in other aspects of women's sexual lives including orgasm (Colson, 2010; Meston & Frohlich, 2000). Why then can birth be traumatic and painful for some women, and pleasurable and pain free for others? More specifically, can orgasm(s) experienced during labor modulate the pain of childbirth? And to what extent is this phenomenon promoted by midwives to expectant parents?

This article aims to address such questions by first defining the term *orgasm* and then examining the literature to ascertain to what extent women experience orgasms while giving birth. This will then be followed by an investigation into how orgasms can modulate the pain experienced in childbirth, by describing the role of birth hormones and nerves located in the pelvic area. Awareness among midwives about promoting sexual pleasure as a complementary and alternative therapy (CAT) to modulate pain in childbirth will then be explored, with a view to understanding current perception and attitudes.

Orgasm in Childbirth

In order to ascertain the occurrence of orgasm in women while giving birth, it is important to first define what constitutes an orgasm. Early research by Masters and Johnson (1966) examined the occurrence of orgasms in the laboratory and proposed a physiological explanation, saying it involved an involuntary, sequential, and rhythmic contraction of muscles in the pelvic area along with anal and uterine contractions. However, not all orgasms involve contractions of the pelvic floor muscles. Singer (1973) differentiated 'vulval' orgasms, which occur on stimulation of the clitoris, and Perry and Whipple (1981) demonstrated the occurrence of orgasms when direct pressure was applied to the 'Grafenberg spot', a sexually sensitive area located through the anterior wall of the vagina. Later research considered the psychosocial, emotional, and cognitive factors involved in women's orgasm (Bianchi-Demicheli & Ortigue, 2007; Mah & Binik, 2005; Meston, Hull, Levin, & Sipski, 2004). Meston et al. (2004) argue that orgasm involves "a temporary peak sensation of intense pleasure that creates an altered state of consciousness" (p. 66). Harel (2007) suggests that giving birth is a fundamental component of a woman's sexual cycle and proposes a more expansive definition of sexual pleasure and orgasm to incorporate women's personal experiences as they give birth.

To what extent do orgasms occur in women during childbirth and labor? Gaskin (2003) and other researchers have observed that some women in the midst of labor and when birth is imminent, look and behave in a manner that is similar to women experiencing an orgasm. While numerous women have described the birth of their child in pleasurable terms, others have confirmed actually experiencing orgasm/s during labor and just before delivery (Baker, 2001; Gaskin, 2002, 2003; Harel, 2007; Shanley, 2008. Qualitative research by Harel (2007) revealed some women experienced "unexpected" orgasms while giving birth, that is, with no conscious stimulation. Harel refers to this phenomenon as a 'birthgasm'. There were also reports of other women who experienced 'passionate' orgasms, that is, a woman, with or without her partner, stimulates herself to orgasm during the birthing process with the hope of relieving labor pain (Harel, 2007).

The Role of Fathers

According to Harel (2007), women described their partner's presence and participation as essential.

The men not only provided emotional support but also stimulated them to orgasm with a view to reducing pain (Harel, 2007). Thus, a participatory role of fathers in childbirth can counter findings in research that suggest that men often experience feelings of inadequacy and helplessness during the birthing process (Finnbogadóttir, Crang Svalenius, & Persson, 2003; Plantin, Olukoya, & Ny, 2011) and can provide men a sense of empowerment in the birthing process (Harel, 2007). There is also evidence to suggest that some men may be confronted by the conflicting perception of their spouse as the 'mother of their child' versus their sexual partner (Conrad, 2006; Mesch, 2009). This conflict may result in a lack of support for sexual activity in labor by expectant fathers. These authors refer to this phenomenon as the 'Madonna/Whore Complex'. In the context of childbirth, this complex may be a potential barrier to communicating about, and engaging in, sexual stimulation during childbirth.

Pregnancy is a time of profound change and provides the opportunity for open discussions around controversial sexual topics, such as stimulating orgasm during birth. Prospective parents are becoming more aware of the importance of sexual expression during labor and are choosing home births or birthing centers in preference to hospitals, to allow them this freedom of expression (Buckley, 2010). Involving fathers in prenatal education and enhancing communication skills about sexuality are vital, if more men are to be engaged in a positive birthing experience with their partner.

The Importance of an Intimate Setting

Gaskin (2003) recognizes the sexual quality of birth and maintains that deep kissing and nipple stimulation may help progress a labor that has stalled. Consistent with this, research shows that breast stimulation triggers release of oxytocin, which causes the womb to contract (Kavanagh, Kelly, & Thomas, 2005; Tenore, 2003). Gaskin, a midwife and a proponent of sexual interaction during labor, encourages prospective parents to enjoy intimate time alone during labor. She conducted a survey where 32 out of 151 women interviewed attested to experiencing orgasms during childbirth. While the majority of these births occurred at home, there was a minority that took place in a hospital setting (Gaskin, 2003). Buckley (2010) supports this finding, agreeing that although most accounts of orgasmic birth come from women who have given birth at home and at birth centers, a relatively small number of women have reportedly experienced orgasms during labor in a hospital setting and in the presence of oblivious or surprised medical staff. Drawing on Wiederman's (2005) Social Script theory, the discrepancy in greater numbers of women experiencing orgasmic births in the privacy of their own homes or birthing centers, as opposed to hospital settings, may reflect the influence of cultural beliefs. According to Buckley (2010), deeply held cultural beliefs about sexuality and childbirth may infringe on the ability of hospital staff to encourage sexual intimacy during labor. She maintains that while labor and childbirth are essentially sexual in nature, female sexuality tends to be viewed largely within the confines of male-directed sexual relationships rather than as an all-encompassing part of a women's sexual cycle that incorporates labor and birth. Sexuality in childbirth may not be recognized or encouraged within a clinical setting (Buckley, 2010).

The greater number of women experiencing orgasmic births in the comfort of their own homes or birthing centers may also point to how comfortable women are in the environment they choose to give birth in (Buckley, 2003; Gaskin, 2003; Hotelling, 2009). Gaskin (2003) refers to 'sphincter law' and explains that sphincters such as the cervix and vagina are involuntary muscles that can be "shy" and function best when a sense of privacy is ensured. It is not surprising that when an expectant mother feels safe and cared for in an environment with limited disturbance, her body is more likely to respond by relaxing the cervical sphincter during labor to facilitate an easier delivery (Hotelling, 2009). According to Buckley (2003), the complexity of birth makes this process one that is extremely sensitive to outside influences. Buckley draws parallels between making love and giving birth, saying that both processes involve passion and love, and function best when privacy is ensured and when the individuals involved feel safe and unobserved. Furthermore, hormones that are released during birth are also released during sexual pleasure, highlighting the importance of examining the pleasure–pain continuum and the role of hormones in this regard (Buckley, 2010).

Orgasm and Pain Relief

Physiological Perspective

The Role of Hormones. In preparation for birth, women's bodies naturally release a combination of hormones that allow the smooth progression of labor and birth (Harel, 2007). The release of sex hormones progesterone and estrogen play an important role in initiating labor (Weiss, 2000) and preparing the uterus to contract (Harel, 2007). They are also thought to jointly activate analgesic mechanisms in the brain and spinal cord to enable laboring women to cope with labor pain (Russell, Douglas, & Ingram, 2001). Additionally, four other hormones are released in preparation for labor, birth, and breastfeeding. Otherwise known as 'ecstatic hormones', oxytocin, beta-endorphins, adrenaline/noradrenaline (A/NA), and prolactin promote powerful euphoric and ecstatic feelings during birth (Buckley, 2005; Gaskin, 2003; Harel, 2007; Hotelling, 2009).

Oxytocin. It is produced and secreted by neurons in the para-ventricular nucleus (PVN) of the hypothalamus into the blood stream, brain, and spinal cord (Komisaruk, Beyer-Flores, & Whipple, 2006). Referred to as a 'neurohormone', oxytocin is released from the posterior lobe of the pituitary gland in response to stimulation of sex organs such as the breast and nipples, clitoris, vagina, cervix, and the uterus (Komisaruk et al., 2006). According to Buckley (2003), release of oxytocin increases the number of receptors in a woman's uterus and contributes to rhythmic uterine contractions during labor and childbirth. Researchers also suggest that oxytocin plays an important role in sexual behavior and orgasm (Colson, 2010; Kruger et al., 2003; Thackare, Nicholson, & Whittington, 2006), as well as birth, lactation, and stress-related responses (Vega et al., 2010). During orgasm, the PVN of the hypothalamus has been observed to be activated, thus raising the possibility that oxytocins are involved in the pleasurable sensations of orgasm and consistent with reports by some women of orgasmic feelings experienced during childbirth (Komisaruk et al., 2004). Studies have also verified that the release of oxytocin can have an analgesic effect (Condés-Lara et al., 2006; Gu & Yu, 2007; Lundeberg, Uvnäs-Moberg, Ågren, & Bruzelius, 1994; Yang et al., 2007; Yu, Lundeberg, & Yu, 2003). Research conducted on rats by Han and Yu (2009) confirms this finding. These authors measured hind-paw withdrawal responses in rats using a hot-plate test, before and after being injected with oxytocin. The time taken for the rat to withdraw its paw from the hot-plate was found to increase significantly after being injected with oxytocin, providing evidence for the pain modulating effect of oxytocin (Han & Yu, 2009).

Beta-endorphins. They are naturally occurring opiates or pain killers that are released from the pituitary gland in response to pain and stress; high levels of pain killers are found during pregnancy, childbirth, and lactation (Buckley, 2003). Elevated levels of beta-endorphins also increase tolerance to pain and can induce feelings of intense pleasure, euphoria, and excitement, which can sometimes lead laboring women to enter an 'altered state of consciousness' (Bodnar, 2007; Buckley, 2010). Buckley speculates that this altered state of consciousness may be important in helping women in labor to behave intuitively and to use bodily movements that will facilitate an easier birth.

Adrenaline/noradrenalin. They are under the influence of the sympathetic nervous system and are triggered in response to both pleasant and unpleasant experiences (Buckley, 2010). Known as 'fight or flight' or stress hormones, they are reported to be involved in sexual activity (Kruger et al., 2003), as well as childbirth (Alehagen, Wijma, Lundberg, & Wijma, 2005; Buckley, 2010). From an evolutionary perspective, because both sexual intercourse and childbirth tend to occur when individuals are relatively immobile and vulnerable, thereby requiring greater vigilance and a sense of safety, it is reasonable to assume that levels of A/NA will be elevated during labor and birth (Buckley, 2003, 2010; Kruger et al., 2003).

Consistent with this, research indicates that while the release of noradrenalin is triggered by physical stress, levels of adrenaline increase during mental stress (Alehagen, Wijma, Lundeberg, Melin, & Wijma, 2001). Childbirth can be both physically and mentally challenging, levels of A/NA are expectedly high during labor (Alehagen et al., 2001). Buckley (2010) speculates that the role played by these hormones during birth can be complex. While excessive release of A/NA earlier on can inhibit uterine contractions and extend the duration of labor (Buckley, 2010; Lederman, Lederman, Work, &

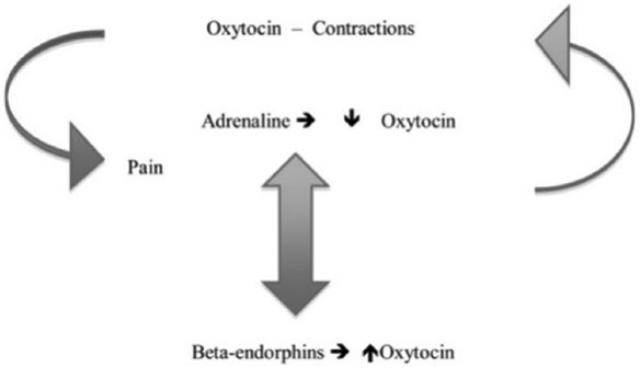

Figure 1. The Oxytocin-Pain-Adrenaline-Endorphin Cycle (Hotelling, 2009).

McCann, 1985), a surge toward the end of labor, triggered by pressure from the baby's head in the lower birth canal, can hasten delivery (Blanks & Thornton, 2003; Hotelling, 2009). Their overall role in the birth process would appear to occur in synchrony with the other birth hormones to progress labor and birth, as Hotelling (2009) illustrates in Figure 1.

When a woman goes into labor, pulses of oxytocin are released, which increases the strength of uterine contractions resulting in greater pain (Hotelling, 2009). With heightened pain levels, adrenaline is released, which then curtails the amount of oxytocin being produced. At this time, beta-endorphins are triggered, resulting in moderating pain levels, which in turn reduces adrenaline. When adrenaline levels go down, oxytocin levels again rise, thus increasing contractions to generate the next cycle. The process continues with increasingly larger amounts of oxytocin and beta-endorphins working synchronously to progress labor and to keep pain thresholds under control (Hotelling, 2009).

In keeping with this, oxytocin released in the posterior pituitary gland has a pain-relieving effect (Gimpl & Fahrenholz, 2001). When women are exposed to high levels of stress and pain for extended periods of time, as in labor, stress hormones such as A/NA and endorphins not only assist with increasing pain thresholds and reducing stress, they also promote feelings of euphoria, ecstasy, and even sexual pleasure (Alehagen et al., 2005; Buckley, 2005, 2010). These euphoric feelings may contribute to some women experiencing orgasm during childbirth (Harel, 2007). Toward the end of labor, pressure from the baby's head that stimulates stretch receptors in the lower vagina of the mother triggers a surge in hormones, which not only makes the mother more alert but also stimulates the fetal ejection reflex (FER) resulting in a quick delivery (Blanks & Thornton, 2003; Buckley, 2010; Hotelling, 2009). Also referred to as the 'Ferguson reflex', the FER is consistent with evolutionary thinking, where a quick delivery favors safety of mother and newborn (Buckley, 2010; Newton, 1987). Additionally, stretching of the lower birth canal generates analgesia during birth (Komisaruk & Whipple, 1986).

The Role of Nerves. Pressure from the baby's head as it descends through the birth canal can stimulate two main nerve systems, the hypogastric and the pelvic, which have a pain-relieving effect (Whipple, Josimovich, & Komisaruk, 1990). Some birthing women can experience orgasms when these nerves are stimulated, which is understandable, considering stimulation of the receptors of these two nerves can elicit cervical and vaginal orgasms (Paget, 2006).

Research has revealed that self-stimulation of the clitoris and the anterior wall of the vagina generated an analgesic effect (Whipple & Komisaruk, 1985). These authors hypothesized that passage of the baby through the lower birth canal would generate an even greater pain-relieving effect. Studies have shown that pain thresholds rose by more than 50% when the anterior wall of the vagina was stimulated; of greater interest was the finding that when vaginal stimulation was applied in a more pleasurable manner, pain thresholds increased by over 75%, and by over 100% in women who experienced orgasms during the process (Komisaruk & Sansone, 2003; Whipple & Komisaruk, 1985, 1988).

Sensation from genital stimulation was believed to be conveyed to the brain via the spinal cord, as were pain impulses (Komisaruk & Whipple, 2005). Research conducted on women with complete spinal cord injuries (SCI), however, demonstrated that not only were such women able to feel the effect of vaginal cervical stimulation (VCS), they also reported pain-relieving effects measured at the fingertips; furthermore, one of these women experienced multiple orgasms in response to VCS (Komisaruk, Gerdes, & Whipple, 1997; Komisaruk & Sansone, 2003; Komisaruk & Whipple, 2005). These authors thus hypothesized that the vagus nerves may provide an alternative sensory pathway directly to brain, something which was demonstrated in earlier experiments using laboratory rats. Research by Cueva-Rolón et al. (1996) found a pain-relieving response

to VCS in rats despite transection of the pudendal, pelvic, and hypogastric nerves. Furthermore, when the vagus nerves were subsequently severed in these same rats, the analgesic effect was abolished. Similarly, pupil dilation that occurred in rats in response to VCS continued despite surgical severing of the spinal cord (Komisaruk et al., 1996). This response was eliminated when the vagus nerves were subsequently transected in the same rats, providing evidence that sensory stimulation can also be conveyed to the brain via the vagus nerves (Komisaruk et al., 1996; Komisaruk & Sansone, 2003; Komisaruk & Whipple, 2005).

To confirm whether the vagus nerves operate similarly in women, functional magnetic resonance imaging (fMRI) was used to examine activity of the brain region to which the vagus nerves project in humans, bypassing the spinal cord, that is, the nucleus of the solitary tract (NTS) located in the medulla oblongata (Komisaruk & Whipple, 2005). Five women with complete SCI participated in this study, in which in all women activity was observed in the lowermost region of the NTS in response to VCS (Komisaruk et al., 2004). The aforementioned findings provide evidence that the vagus nerves can directly relay sensory information to the brain from the reproductive tract in both rats and in women, bypassing the spinal cord. In addition, the activation of this pathway by VCS can ease pain, and in some cases lead to orgasm in women (Komisaruk et al., 1997; Komisaruk & Sansone, 2003; Komisaruk & Whipple, 2005).

The recognition of this transference of sensory information to the brain via an alternative pathway from the reproductive tract can be seen in Figure 2 (as depicted by Komisaruk & Sansone, 2003).

The above-mentioned findings have generated speculation that the combination of pleasurable sensations from VCS together with its apparent pain-relieving properties may assist childbirth by attenuating labor pain, thus promoting increased bonding between women, their partners, and newborn infants (Komisaruk & Sansone, 2003; Komisaruk & Whipple, 2005). It would also appear that orgasm can attenuate the effects of pain in childbirth. This makes sense in light of research that suggests that pain and pleasure rely on the same underlying functions of the nervous system and that the brain can only respond to each sensation individually (Harel, 2007). Emerging evidence from the field of pain research indicates large parallels in the

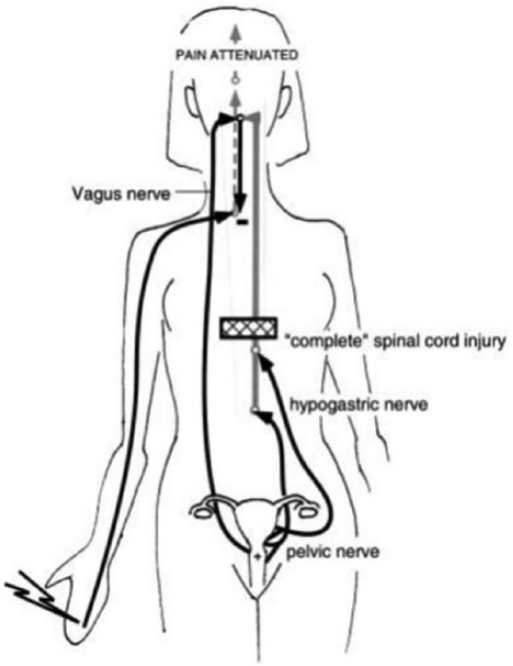

Figure 2. Depiction of Genitospinal Nerves Showing an Alternate Pathway via the Vagus Nerves Directly to the Brain, When Transference of Information via Hpogastric and Pelvic Nerves Are Blocked by Spinal Cord Injury (Komisaruk & Sansone, 2003).

physiological make-up of sensations associated with pleasure and pain (Leknes & Tracey, 2008). These authors argue that the noticeable overlap in brain regions associated with pleasure and pain may help explain the attenuating effects of one over the other. If this is the case, then to what extent are expectant parents being made aware of the potential benefits of orgasm in childbirth, and is this being promoted as a complementary therapy in the field of midwifery?

Use of Complementary and Alternative Therapy in Childbirth

Complementary and alternative therapy, also referred to as complementary and alternative medicine, is defined by the U.S. National Center for Complementary and Alternative Medicine as "a broad collection of therapeutic practices and products that are not considered part of conventional medicine" (Hall, McKenna, & Griffiths, 2011, p. 2). Almost half a century ago, Meares (1968) was advocating for positive, relaxed birth experiences for women. His practical book affirmed women's capacity to give birth without drugs using simple relaxation techniques.

Meares urged young women not to listen to "exaggerated stories" of painful births (p. 178). He believed such stories added to their anxieties, and gave rise to the self-perpetuating notion of negative childbirth experiences (Meares, 1968).

Research suggests that the use of CATs among midwives is becoming increasingly popular in Australia and in other developed countries (Adams, 2006; Hall, McKenna, & Griffiths, 2010). The home-birthing movement has long been a proponent of alternative birth experiences in Australia, and this is starting to flow through to hospital-based practice (Adams, 2006). On closer examination, it appears that the term 'CAT' is more commonly used to describe numerous practices ranging from massage therapy, herbal medicines, relaxation techniques, nutritional supplements, aromatherapy, homeopathy, acupuncture, and reflexology (Bayles, 2007; Hall et al., 2010; Hall, McKenna, & Griffiths, 2012). Bayles (2007) conducted a survey in Texas, asking certified nurse midwives (CNMs; who work in hospitals), and licensed or 'direct-entry' midwives (who mostly attend home births), the extent to which they used, recommended, or referred their clients for CATs. Chiropractic care and massage therapy were most commonly recommended for back pain during labor, followed by herbal remedies and acupressure for nausea and vomiting. Nipple stimulation and sexual intercourse were sometimes recommended for post-date cervical ripening and labor induction, with hydrotherapy, massage, and breathing techniques recommended for pain relief (Bayles, 2007). This study did not differentiate which therapies were recommended by CNMs, and which were recommended by licensed midwives, thus limiting interpretation of the extent to which sexual activity is promoted within a clinical setting by midwives. While there is some evidence to suggest that sexual intercourse and breast stimulation are promoted as alternative therapies to expectant mothers, it appears to be recommended for induction of labor and cervical ripening rather than as a means to reduce pain in labor (Hall et al., 2010; Kavanagh et al., 2005; Kavanagh, Kelly, & Thomas, 2001; Tenore, 2003). Hydrotherapy, breathing techniques and relaxation, therapeutic massage, acupuncture, acupressure, and herbal remedies are among the more commonly promoted CATs for reduction of labor pain (Tournaire & Theau-Yonneau, 2007). Further research is warranted that demonstrates the use of CATs such as sexual activity during childbirth, specifically to reduce pain in labor.

The Role of Midwives

More than 85% of midwives surveyed by Postel (2013) stated that a sexually pleasurable birth experience was possible, and 69% had observed such a case. Adams (2006) found that while hospital midwives seem to be in favor of promoting the use of CATs, they are constrained by the limitations of working within a hospital setting with its largely hierarchical system, where a privileged status of obstetricians over midwives is evident. It is becoming increasingly evident that despite having care of low-risk expectant women, midwives tend to adjust their practices to suite the preference of clinicians in medical settings (Walsh, 2010). Evidence suggests that there are contrasting views regarding childbirth between some midwives and obstetricians (Adams & Steel, 2012; Reime et al., 2004; Turner et al., 2008; Walsh, 2010), which would make orchestration of certain CATs difficult in a clinical setting (Adams, 2006). Walsh (2010) notes that 'professional territorialism' is prevalent among obstetricians. Evidently, while a large proportion of midwives consider pregnancy and childbirth as natural processes and prefer to work *alongside* women in a supportive role, obstetricians tend to view birth as a risky process, which requires medical intervention to ensure safety of mother and baby (Adams, 2006; Simonds, 2002).

In Western societies, the role of the midwife is at risk of being limited to the care of women who are becoming more reliant on medical interventions (Tiran, 2011). This trend is becoming increasingly evident especially in Australia, where, due to the burgeoning mining industry in Western Australia (Australian Bureau of Statistics, 2013), growing numbers of fly-in/fly-out workers are driving the demand for caesarean sections (CS). Increasingly, prospective parents are opting to have the birth of their babies brought on by inductions or delivered by CS to tie in with their partner's work schedules (Rasdien, 2012). Consistent with this, figures from the Australian Institute of Health and Welfare indicate that a third of newborns in Western Australia were delivered by CS in 2009, of which 17.2% were elective caesareans (Australian Institute of Health and Welfare [AIHW] National Perinatal Epidemiology and Statistics Unit and AIHW, 2013). A 2006 nationwide survey of new mothers in the United States of America found that 'technology-intensive' care in childbirth was becoming the norm, even for

healthy women (Freeze, 2008); a trend that has also been observed in Australia (Adams, 2006; Turner et al., 2008). The escalating rates of CS in these countries, as well as in the United Kingdom, Italy, Canada, China, and South Africa, attests to the increasing medicalization of childbirth (Hunter & Segrott, 2010; Lauer, Bertran, Merialdi, & Wojdyla, 2010; Monari, Di Mario, Facchinetti, & Basevi, 2008; Tiran, 2011; Walsh, 2010). Research also points to the escalating use of conventional medical interventions such as fetal monitoring, epidural analgesia, and pethidine for pain relief in labor (Hall et al., 2011), and administration of synthetic oxytocin and prostaglandins for induction of labor (Tenore, 2003) in medical settings. This implies the need for better education of midwives in developed countries about the potential benefits of CATs in childbirth (Tiran, 2011), and more specifically, orgasm as a means of pain relief in labor (Buckley, 2010; Gaskin, 2003; Harel, 2007).

Consistent with this, research suggests that despite enthusiasm by midwives to support CATs, information about the use of CATs, especially the value of orgasm during birth, is lacking in midwifery educational programs (Grace, Vemulpad, Reid, & Beirman, 2008; Hall et al., 2011; Hastings-Tolsma & Terada, 2009). These authors speculate that this may be a potential barrier to incorporating CATs within conventional medical practices. A study undertaken by Hastings-Tolsma and Terada (2009) to determine how knowledgeable CNMs were about CATs found that education about CATs in nurse midwife training programs is limited, with 64% of CNMs reporting no specific content had been covered in their midwifery training program. This, coupled with a growing trend among pregnant women to use CATs in childbirth and labor (Hall et al., 2010; Skouteris et al., 2008; Steel & Adams, 2011; Tiran, 2011), signifies the need to understand what information about CATs are included in the medical training of midwives. First, does midwifery training explore the role potential of orgasm as pain relief? Second, to what extent do midwives promote CATs? Interestingly, research supports the view that the most common source of information among pregnant women about CATs comes from family and friends rather than childbirth professionals (Hall et al., 2010). This highlights the need to normalize discussions about sexuality and the role potential of orgasm as a mode of pain relief in labor. These discussions, especially by the popular media, would pave the way to a more pleasurable birth experience and to closing of the gap that currently exists between sexuality and childbirth.

Recommendations

This review uncovered reports of orgasm as a means of pain relief in childbirth through qualitative interviews (Harel, 2007); however, empirical research using quantitative methodology would further consolidate findings and encourage better recognition of orgasm as a CAT among health professionals. Despite evidence that supports the value of orgasm as a means of pain relief in labor, there is a gap in the extent to which such information is promulgated to childbirth professionals via formal education channels. Numerous authors (Grace et al., 2008; Hall et al., 2011; Hastings-Tolsma & Terada, 2009) have stated that education about the use of CATs in midwifery training programs is limited. Midwives play a key role in imparting information to expectant parents, primarily through antenatal classes. With improved education in their training, midwives can promote the role potential of orgasm as a mode of pain relief in childbirth. While current findings indicate that maternity hospitals are becoming more attuned to consumer needs by providing the option of birthing suites (Rasdien, 2012), greater privacy is warranted to allow birthing couples intimacy and freedom of expression during labor and birth.

Although considerable information about the use of CATs in childbirth is available in academic print journals, the likelihood of birthing couples accessing such information is limited. Therefore, the popular media can play a significant role by normalizing discussions about sexuality and childbirth and promoting the possibility of a pleasurable birth experience. Prospective parents are more likely to have access to media, for example, parenting and pregnancy magazines, and current affairs programs on television.

Sexuality and relationship education in schools also has an important role to play. Giami, Ohlrichs, Quilliam, and Wellings (2006) emphasize the need for 'sex-positive' sexuality education, an approach that "avoids blaming or shaming" about sexual feelings and experiences and avoids "delivering messages that sex is not enjoyable" (p. 486). Allen (2012) agrees that it is essential to include desire and pleasure in sexuality

education programs to ensure that students understand that there is more to sexuality than infections and condoms. Young people, especially young women, need to understand that they have a right to be empowered about their sexuality and sexual pleasure (Allen, 2012; deFur, 2012; Nodulman, 2012). Dailey (1997) urges sexuality educators to emphasize sexual pleasure and not fall into the trap of becoming "agents of social control" (p. 93). A sex-positive approach to birthing could change attitudes of young people. Rather than that the horror stories that are frequently discussed, imagine young people hearing stories of women's birthing experiences that are positive and empowering.

Conclusion

The likelihood of orgasm as an alternative mode of pain relief in childbirth is a possibility. Physiologically, the roles of hormones and genitosensory nerves have been shown to play a significant role toward this end (Buckley, 2010; Harel, 2007; Komisaruk & Sansone, 2003; Komisaruk & Whipple, 2005; Whipple & Komisaruk, 1985). Evidence from the field of pain research lends further support to the potential benefits of orgasm as a means of pain relief during labor and childbirth (Harel, 2007; Leknes & Tracey, 2008). Despite such findings, there appears to be a paucity of information with regard to promoting orgasm as an alternative means of pain relief in childbirth. While there is considerable information on the use of other forms of CATs in the literature such as massage, herbal remedies, acupuncture, and aromatherapy, sexual stimulation and the promotion of orgasm as a CAT among hospital midwives is scarce (Adams, 2006; Bayles, 2007; Hall et al., 2010). There is speculation that perhaps hierarchical and time constraints within the hospital system along with deeply held cultural beliefs about sexuality may infringe on ability of hospital staff to encourage intimacy between birthing couples (Buckley, 2010; Gaskin, 2003; Walsh, 2010; Wiederman, 2005). Lack of inclusion of material about CATs in midwifery training programs may also be a potential barrier to implementing CATs in conventional medical settings (Hastings-Tolsma & Terada, 2009). Taking a holistic approach to the birth process is vital, and with improved education, midwives can be influential in driving this change.

While research suggests some men may experience feelings of inadequacy and helplessness in the face of their partner's pain during labor, educating men as to the vital role they can play toward attenuating such pain may give them a sense of empowerment in this regard. While reports of women who have experienced orgasmic birth are largely anecdotal, empirical findings that support how such a phenomenon can occur in a physiological sense suggest further recognition of the link between childbirth and sexuality by women and childbirth professionals is warranted.

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