**Mothers’ experiences of sex and sexual intimacy in the first postnatal year: A systematic review**

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## Abstract

**Background:** The transition to parenthood following childbirth can be socially and emotionally significant, impacting on postnatal sexual functioning. This study aimed to conduct a systematic review of the literature on mothers’ experiences of sex and sexual intimacy in the first postnatal year, since an early meta-analysis was conducted in 1996.

**Method:** Systematic review strategies of nine databases were conducted to identify relevant literature. Electronic databases were searched for English language, peer-reviewed literature using search terms relating to ‘sex’, ‘intimacy’, ‘postnatal’, ‘experience’, and ‘twelve months’ and their quality was systematically assessed.

**Results:** Thirteen studies meeting the criteria were included. Women typically resumed sexual intercourse during the early postnatal weeks when the prevalence of sexual health problems was high. Women experienced significantly more sexual problems, such as pain and dyspareunia following perineal trauma, yet sexual functioning changes or problems were rarely explored by healthcare professionals.

**Conclusion:** Consistent with earlier reviews, this review demonstrated the lack of focus on all aspects of sexual intimacy post-natally. The prevalence of postnatal sexual problems following perineal trauma highlights the need for interventions aimed at supporting these women, including healthcare professionals providing information, and having discussions with women regarding postnatal sexual changes and possible problems.

**Keywords:** Postnatal, sex, intimacy, twelve months.

## Introduction

Sexual health is defined as “a state of physical, emotional, mental, and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction, or infirmity” (World Health Organisation; WHO, 2006). It is considered “fundamental to the physical and emotional health and well-being of individuals, couples and families, and to the social and economic development of communities and countries” (WHO, 2006). Women’s postnatal health can significantly affect their own physical and mental health (Schytt, Lindmark, & Waldenström, 2005), whilst contributing to the health of their children (Kahn et al., 2002).

Sexuality and sexual relations are central to reproductive and sexual health, yet most sexual activity is not directly associated with reproduction; highlighting individuals’ and couples’ desire to have fulfilling and pleasurable sexual relationships that go beyond reproductive functions (WHO, 2006). Sexual relationships can fluctuate throughout a person’s lifespan, adjusting to age and changes in circumstances, with the transition to parenthood following the first childbirth, being described as an event of major social and emotional significance (Cowan & Cowan, 1988). Despite women’s postnatal mental health having been extensively researched (Chivers, Pittini, Grigoriadis, Villegas, & Ross, 2010; Moel, Buttner, O’Hara, Stuart & Gorman, 2010), their postnatal sexual functioning has been neglected. This may be due to the complexity of the area, as it encompasses diverse behaviours, physiological, psychological, social, cultural, political, spiritual, or religious processes and aspects of sex (Abdool, Thakar & Sultan, 2009).

Sex and sexual intimacy may be viewed as natural, healthy, and pleasurable aspects of life (Allgeier & Allgeier, 1995; Hyde & DeLamater, 1997), however this has not always been the case and it differs culturally. Despite cultural beliefs evolving and adapting to different eras, sex remains a focus of cultural norms and restrictions, and can still be a topic accompanied with disgust and embarrassment for many adults (Goldenberg et al., 1999). Such evolutions are echoed within empirical research in this area, as an early meta-content analysis highlighted how the focus of research has reflected the eras in which it was undertaken (Von Sydow, 1999). Specifically, early research of sexual functioning initially focused on sexual activity during pregnancy, shifting to postnatal sexual functioning over time (Leeman & Rogers, 2012; Von Sydow, 1999).

Key findings highlighted in Von Sydow’s (1999) review, included how prevalent postnatal sexual problems were in the literature between 1950 and 1996, despite sex being a highly taboo subject during this time. For instance, only 14% of women recorded having no postnatal sexual problems at all; with 40% of women experiencing problems during their first postnatal sexual intercourse experience, leading to 64% of the 40%, subsequently avoiding it (Von Sydow, 1999). Despite some interesting findings, the validity of them could be questioned as the studies were largely heterogeneous, encompassing diverse sampling, methodology, design, data collection, and used non-validated self-report measures.

Since Von Sydow’s (1999) meta-analysis, postnatal sexual functioning research has predominantly been conducted solely with women. Often using self-report questionnaires in cohort or cross-sectional study designs, they invariably report findings on the frequency and timing of resuming sexual intercourse, the experience of perineal pain/dyspareunia, levels of sexual desire, enjoyment, and satisfaction (Barrett et al., 1999). Besides changes in family structure and sleep patterns, other factors found to negatively affect postnatal sexual health include: perineal trauma and operative vaginal deliveries, dyspareunia, postnatal depression, and breastfeeding. These have again been researched predominantly with women using similar research designs. Postnatal sexual health problems are reportedly common; with 41-83% of women at two to three months post-natally experiencing some sexual dysfunction (Leeman & Rogers, 2012). However, resumption of postnatal sexual activity is rapid, with 52% of women resuming sexual activity by five to six weeks post-natally and 90% by three months post-natally (Rogers, Borders, Leeman & Albers, 2009).

Despite research concerned with the resumption of sexual intercourse and factors which negatively affect this, dominating the postnatal sexual functioning literature, the lack of professional recognition of such difficulties has increasingly been reported (Barrett et al., 2000; Glazener, 1997). Few women are provided with information on postnatal sexual functioning changes, and only a minority of women experiencing postnatal sexual problems were asked about them during postnatal health visits or discussed them with healthcare professionals (Barrett et al., 1999; 2000).

Predominantly, this literature has explored women’s postnatal sexual functioning within the first twelve months, focussing on sexual intercourse as opposed to all aspects of sexual intimacy (Von Sydow, 1999). Recommendations from earlier reviews of this body of literature have highlighted the need to research all aspects of sexual intimacy (Johnson, 2011; Von Sydow, 1999). This systematic review aims to synthesise existing studies exploring mothers’ experiences of sex and sexual intimacy in the first postnatal year since the early meta-analysis was conducted by Von Sydow (1999). This would facilitate understanding of mothers’ experiences which could not only direct clinical practice but also future research in this area.

## Method

### *Eligibility criteria*

This review focuses on studies of mothers’ experiences of sex and sexual intimacy in the first postnatal year. Studies were included if:

* English language papers published in peer reviewed journals, as a certain level of quality can be assumed of these studies.
* Published after 1996, as studies up to this date could have been included in the earlier meta-content analysis published by Von Sydow (1999).
* Included either primiparous or multiparous women due to this area being a relatively new research interest.
* Mothers were aged 18 and over due to the stage of their physical growth and development.

Due to arguably being somewhat different in nature, studies that solely investigated postnatal sexual functioning of specialist subgroups of mothers were excluded. For example, mothers who have HIV, depression, experienced intimate partner violence, and secondary suturing following that immediately undertaken following childbirth.

### *Search strategy*

Electronic databases PsycINFO, PsycARTICLES, Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus, Global Health, MEDLINE, MEDLINE with Full Text, University of Liverpool Catalogue, Scopus, and Web of Science were searched for English language literature in peer-reviewed journals. The flow of information through the phases of the systematic review is reported using the Preferred Reporting Items for Systematic Reviews (PRISMA) diagram (Figure 1).

### *Search terms*

The search terms aimed to identify relevant literature using combinations of terminology within this research area and were combined using Boolean operators. The first concept related to sexual intimacy, included ‘sex\*’ (truncated) or ‘intima\*’ (truncated). The second concept related to the postnatal period following childbirth, included ‘postpartum’ or ‘postnatal’. The third concept related to capturing women’s sexual health experiences, included ‘experience\*’ (truncated). The final concept related to the postnatal timeframe, included “12 months” or “first year” or “year” or “twelve months”.

### *Quality Assessment*

The methodological quality of the final 13 papers were assessed using the Newcastle-Ottawa Assessment Scales (NOS; Wells et al., 2000). This quality assessment tool, designed specifically for cohort studies, with an adapted version for cross-sectional studies was selected as the final 13 papers utilised these study designs. Moreover, the content validity and inter-rater reliability of the NOS has been established. The NOS employs a 'star system' whereby studies are assessed on three broad perspectives: the selection of the study groups, the comparability of the groups, and the ascertainment of either the exposure or outcome of interest for the studies. Each category received between two to five stars each, totalling a maximum of nine stars for the quality of each cohort study and ten stars for cross-sectional studies as can be seen in Tables 2 and 3 presented on pages 31-34 (Wells et al., 2000).

### *Data Extraction*

Data was extracted from the selected studies regarding study design, participants, year the study was conducted, country of origin, evaluation moments, and statistical and descriptive outcomes. These are detailed in Table 1.

## Results

A total of 690 records were obtained from the electronic search and 164 duplicates were removed. In total, 526 articles were assessed on title and abstract, with 37 being eligible for full-text assessment. Reasons for exclusion are provided in Figure 1. The most common reason for exclusion was having an inappropriate subject area, meaning there was no reference to sex or sexual intimacy; or the articles focused on specialist sub-groups when exploring postnatal sexual functioning such as intimate partner violence, mothers with postnatal depression, adolescent and childhood abuse etc. The full-text of these 37 studies were reviewed, with a further 24 studies being excluded (see Figure 1). The most common exclusion reason was exceeding the twelve months postnatal timeframe.

### *Characteristics of included studies*

The characteristics of the 13 included studies are detailed in Table 1. Baseline evaluation moments, involved a total of 6,909 participants; 5,995 of whom completed all final evaluation moment questionnaires. The studies involved women of mixed parity; five studies including only primiparous women, three including women of mixed parity (either primiparous or multiparous), one including only nulliparous women, and for four, parity was not reported. The reported mean age of women raged from 25 to 34 years old, but this was not reported in seven studies, yet two of these required women to be minimum age of 16 to participate. Evaluation moments ranged from six to twelve hours after the birth to up to 12 months post-natally. Two studies evaluation moments exceeded 12 months, thus only their findings up to this time point were included.

### *Quality assessment*

Of the 13 studies included in this review, six utilised cohort study designs and seven cross-sectional study designs. The quality assessment results of the included studies can be found in Tables 2 and 3.

#### Cohort studies

Overall quality scores for the six cohort studies ranged from five to eight out of nine. In relation to the selection of participants, all six studies used convenience/opportunistic sampling methods and so all could only be regarded as somewhat representative of the target population, as opposed to truly representative, thus highlighting potential selection biases. As the sample size used in one of the studies was somewhat small (Connolly, Thorp & Pahel, 2005), highlighting drop-out biases, thus limiting generalizability of findings.

Two of the six studies took measures limiting potential reporting biases by matching women’s self-report information to clinical and obstetric medical records, for example their degree of perineal trauma. However, the remaining four studies relied solely on mothers’ self-report methods, thus increasing the likelihood of biases existing (Buhling et al., 2006; Signorello, Harlow, Chekos & Repke, 2001). To limit pre-existing sexual intimacy difficulties confounding the results, four studies also recorded pre-pregnancy intimacy experiences (Avery, Duckett, & Frantzich, 2000; Buhling et al., 2006; Connolly, Thorp & Pahel, 2005; Signorello, Harlow, Chekos & Repke, 2001).

All studies employed appropriate follow-up time frames with the final evaluation moments ranging between six to 12 months post-natally. However, variations in the overall quality of outcome across these studies was attributed to either high drop-out rates, inadequate descriptions of participants lost or the over-reliance on self-report outcome measures only and the associated biases. In attempts to reduce reporting biases, only two of the six studies referred to their outcome measures having been pre-evaluated by independent experts in their fields (Avery, Duckett, & Frantzich, 2000; Buhling et al., 2006).

#### Cross-sectional studies

Of the seven cross-sectional studies, overall quality scores varied between six to nine out of ten. All seven studies used convenience/opportunistic sampling methods and so all could only be regarded as somewhat representative of the target population, as opposed to truly representative, highlighting potential selection biases. Large drop-out rates and smaller sample sizes for two studies (Barrett et al., 1999; Chivers et al., 2011), along with comparisons between respondents and non-respondents only being evident in three of the studies (Barrett et al., 1999; 2000; Williams, Herron-Marx & Hicks, 2007); may further weaken generalizability.

All studies gained quality ratings for providing descriptions of non-validated tools used; with only three studies achieving maximum quality ratings for using validated tools or stipulating how their non-validated tools were pre-evaluative by independent experts (Acele & Karacam, 2011; Chivers et al., 2011; Heidari, Khoei & Asiabar, 2009). Thus biases regarding data collection could exist.

Regarding the outcome quality assessment ratings, all studies employed appropriate statistical analyses. The sole reliance on self-report methods for three studies (Acele & Karacam, 2011; Chivers et al., 2011; Heidari, Khoei & Asiabar, 2009), prevented them achieving maximum ratings according to the NOS (Wells et al., 2000). This should be interpreted with caution however due to the nature of research in this field depending on self-report assessments, whilst studies gaining maximum ratings matched participant information to clinical and obstetric medical records, thus limiting these biases (Barrett et al., 1999; Barrett et al., 2000; Williams, Herron-Marx & Hicks, 2007; Williams, Herron-Marx & Knibb, 2007).

### *Overall outcomes*

Key findings from the included studies are described below:

*Resumption and experience of sexual intercourse*

Of the eight included studies exploring the resumption of sexual intercourse, the median time sexual intercourse was resumed was between six to seven weeks post-natally. Moreover, 82-90% of women resumed sexual intercourse between six to nine months post-natally, with a minority of women engaging in masturbation only (10%), and others not having engaged in any form of sexual activity, partnered or solitary (13%) (Acele & Karacam, 2011; Chivers et al., 2011; Connolly, Thorp & Pahel, 2005).

Perineal trauma and maternal age were found to be strongest predictors of timing to resume sexual intercourse. Women with an episiotomy, second- and high-degree perineal trauma waited on average 2.1 weeks longer to resume than women with an intact perineum. Similarly, women aged 35 or over waited 2.5 weeks longer to resume than women younger than 25 years old; whilst breastfeeding women also resumed intercourse significantly earlier than non-breastfeeding women (Signorello, Harlow, Chekos & Repke, 2001; Williams, Herron-Marx & Hicks, 2007; Williams, Herron-Marx & Knibb, 2007).

Women experiencing an episiotomy, spontaneous perineal tear, or operative delivery, experienced significantly more pain during their first sexual intercourse than those experiencing a spontaneous vaginal delivery without perineal injury or Caesarean section. No significant differences between modes of delivery and the enjoyment or resumption of sexual intercourse were found (Buhling et al., 2006); but oral sex by their partners significantly declined post-natally (Barrett et al., 1999). Women experienced orgasms around six weeks post-natally (39%), 12 weeks (60%), and at 24 weeks (61%); with orgasms being described as similar to pre-pregnancy or improved by 71-83% of women during this period (Connolly, Thorp & Pahel, 2005).

*Prevalence of postnatal problems*

Five of the included studies explored the prevalence of postnatal problems. Of those women who resumed sexual intercourse, 17-43% of women experienced at least one problem up to three months post-natally, with this rising to between 36-43% at six months, and 80-91% at 12 months post-natally (Acele & Karacam, 2011; Barrett et al., 1999; 2000; Glazener, 1997; Williams, Herron-Marx & Hicks, 2007). Limited information was provided as to the severity or duration of these problems, with only two studies reporting the prevalence of sexual problems pre-natally (38%), and during the course of pregnancy (33%) (Acele & Karacam, 2011; Barrett et al., 2000). Yet, the biggest predictor of experiencing postnatal sexual problems included the presence of sexual problems during pregnancy, an increase in age, having had two or more births, an increase in time following childbirth, and experiencing first or second-degree perineal trauma (Acele & Karacam, 2011; Williams, Herron-Marx & Hicks, 2007).

Postnatal problems such as pain, lack of vaginal lubrication, vaginal looseness/lack of muscle tone, and difficult reaching orgasm, increased significantly during the first three months, with this declining by six months post-natally, but not to pre-pregnancy levels (Barrett et al., 1999; 2000). Despite the high prevalence of women experiencing postnatal sexual problems (80-84%), only 15-19% of women reported them to healthcare professionals (Barrett et al., 1999; 2000).

*Perineal pain and trauma*

Nine studies reported findings regarding the prevalence of perineal pain. At one week post-natally, 42% of women experienced perineal pain, rising to 62% by three months, and decreasing to 10-36% up to twelve months post-natally (Barrett et al., 1999; Barrett et al., 2000; Glazener, 1997; Williams, Herron-Marx & Hicks, 2007). The severity of pain varied depending on the degree of perineal trauma, with mild pain being more frequently reported by women with an intact perineum (51%), compared to women who had experienced second-degree (42%), or high-degree trauma (31%). Severe pain more commonly being reported following a second-degree trauma (14%), compared to a high-degree trauma (10.4%), or an intact perineum (7%) (Signorello, Harlow, Chekos & Repke, 2001).

Perineal trauma was significantly associated with more perineal difficulties (perineal pain, healing, incontinence), and sexual difficulties (dyspareunia, lack of lubrication, unwanted leakage of urine or faeces during sexual intercourse, lack of sensation, vagina too tight or lax). Women experiencing a spontaneous tear or an episiotomy reported significantly more perineal difficulties than women with an intact perineum. Moreover, women reported significantly higher levels of perineal difficulties, resuming sexual intercourse significantly later following a forceps vaginal delivery compared to other modes of birth (Williams, Herron-Marx & Hicks, 2007; Williams, Herron-Marx & Knibb, 2007).

Buhling et al. (2006) found that perineal pain during first intercourse was experienced by 69% of women. Perineal trauma significantly related to pain during the first sexual intercourse in a dose-response manner, with breastfeeding and a history of dyspareunia being additional predictors. Pain during first intercourse was significantly greater for women with perineal lacerations (74% second- and high degree), than women without (58%) (Signorello, Harlow, Chekos & Repke, 2001). At three months post-natally, dyspareunia was significantly related to degree of perineal trauma (33% intact, 48% second-degree, 61% high-degree). Relative to women with intact perineums, women with a second-degree and third or fourth-degree perineal trauma were 80% and 270% retrospectively more likely to report dyspareunia at three months post-natally (Signorello, Harlow, Chekos & Repke, 2001).

*Breastfeeding*

Two studies reported findings on the effects of breastfeeding on women’s sexual functioning. The majority of women (74.6%) did not find breastfeeding interfered with their sexual relationship, whilst a minority of reported it to be a minor (12.4%) or major (3.2%) problem for them. Slightly less women (40.4%) reported feeling sexual aroused whilst breastfeeding, than those who did not (59.4%) (Avery, Duckett, & Frantzich, 2000; Heidari, Khoei & Asiabar, 2009). In relation to their breasts having a dual purpose, slightly more women (39.2%) found this easier than women who experienced some degree of difficulty with it (32.2%) (Avery, Duckett, & Frantzich, 2000). Common effects on sexuality reported by breastfeeding women included low sexual desire (31.5%), fatigue (38.1%), distorted body style (7.4%) and discharge of milk during intercourse (14.4%); with the latter being more of a ‘turn-off’ (47.5%) compared to those who had a neutral response (24.6%), or who found it a ‘turn-on’ (9.8%) (Avery, Duckett, & Frantzich, 2000; Heidari, Khoei & Asiabar, 2009).

The impact of breastfeeding on postnatal sexual functioning yields inconsistent findings which the included studies continue to reflect. For instance, Glazener (1997) found breastfeeding women were significantly more likely to report a lack of interest in intercourse at eight weeks post-natally than those bottle-feeding; yet Heidari, Khoei and Asiabar (2009) reported breastfeeding women had significantly more intercourse in a month post-natally than bottle-feeding women. Women who breastfed were found to be greater than four times more likely to report dyspareunia compared to non-breastfeeding women (Signorello, Harlow, Chekos & Repke, 2001), with persisting pain during intercourse being significantly associated with breastfeeding at six and twelve months post-natally after controlling for mode of delivery and episiotomy (Barrett et al., 2000; Connolly, Thorp & Pahel, 2005). No significant differences were found between breast and bottle-feeding women’s sexual desire, orgasm, vaginal dryness, and dyspareunia post-natally, compared to prenatally (Heidari, Khoei & Asiabar, 2009). Avery, Duckett and Frantzich (2000) however, found women who breastfed more than 26 weeks, were more positive about breast changes, leaking of breasts during sexual arousal, and vaginal lubrication during sexual arousal, compared to those breastfeeding for less than 26 weeks.

*Professional help and advice*

Four included studies provided findings on the information or advice women received about their postnatal sexual health. Only 30% of women reportedly received information about postnatal sexuality from their care provider, with 60% stating that they would have liked this (Chivers et al., 2011). Similarly, 59-69% of women reported health professionals discussed resuming sex after childbirth with them; with the focus of discussions being centred on contraception (93-96%), timing to resume (29-35%), and sexual changes, or possible problems (11-18%) (Barrett et al., 1999; 2000). Between 88-91% attended their six week postnatal check, with the majority having vaginal examinations (62-64%); being asked about problems with their perineum/vagina (31-45%), with a minority wanting to ask something but felt they could not (9-11%) (Barrett et al., 1999; 2000).

*Depression and other factors*

Women experiencing depressive symptoms had a significant lack of interest in intercourse within the first eight weeks post-natally (Glazener, 1997). Moreover they had significantly poorer sexual functioning than women without depressive symptoms, experiencing significantly lower arousal, orgasm, and satisfaction; whilst sexually active women with depressive symptoms experienced reduced sexual activity (Chivers et al., 2011).

Tiredness was significantly associated with a lack of interest in sexual intercourse after controlling for depression and breastfeeding (Glazener, 1997). Whilst findings related to parity, found primiparous women were significantly more likely to report painful intercourse and reduced sexual desire at twelve months post-natally than women who had their second baby (Saurel-Cubizolles, Romito, Lelong & Ancel, 2000).

## Discussion

Due to postnatal sexual functioning being an evolving body of literature, this review aimed to summarise and critique existing research into mothers’ experiences of sex and sexual intimacy in the first postnatal year, since the publication of an early meta-analysis (Von Sydow, 1999). Despite Von Sydow (1999) recommending future research to explore all aspects of sexual intimacy as opposed to sexual intercourse, the included studies reported findings on postnatal sexual health and functioning as opposed to all aspects of sexual intimacy. This highlights its absence in the literature, reinforcing the need for research to explore all aspects of sexual intimacy. Many interesting and valuable results have been described from the included studies, with fundamental findings being discussed herein.

Firstly, women resumed sexual intercourse promptly during the early postnatal weeks despite the prevalence of postnatal sexual health problems being high during this period, increasing throughout the postnatal period (Acele & Karacam, 2011; Barrett et al., 1999; 2000; Glazener, 1997). Problems included pain, lack of vaginal lubrication, vaginal looseness/lack of muscle tone, and difficulty reaching orgasm, which despite declining over time, did not return to pre-pregnancy levels (Barrett et al., 1999; 2000). These findings reflect conclusions drawn from an early meta-analysis that postnatal sexual problems persist over months or years, even following perineal trauma being healed (Von Sydow, 1999). Yet, only a minority of studies assessed for pre-existing sexual problems, thus caution is needed when interpreting these results, particularly since the presence of sexual problems during pregnancy was one of the largest predictors of experiencing postnatal sexual problems (Acele & Karacam, 2011; Williams, Herron-Marx & Hicks, 2007).

A second finding was the significant impact perineal trauma has on women’s postnatal sexual functioning. Not only did experiencing an episiotomy, second- and high-degree perineal trauma significantly delay women resuming sexual intercourse, but they experienced significantly more perineal problems and pain during their first sexual intercourse in a dose-response manner up to three months post-natally. Alarmingly, women’s dyspareunia at three months post-natally significantly increased by 80% following a second-degree trauma and 270% following a third or fourth-degree perineal trauma (Signorello, Harlow, Chekos & Repke, 2001; Williams, Herron-Marx & Hicks, 2007; Williams, Herron-Marx & Knibb, 2007). This exemplifies the serious influence experiencing perineal trauma has on women’s postnatal sexual functioning, given that 70% of women completing the national survey of women’s experiences of maternity care 2014, experienced either an episiotomy or a minor tear requiring stitches (Redshaw & Henderson, 2015).

A third finding, was despite sexual functioning problems being highly prevalent and the significant impact of perineal trauma, few women received information or advice from healthcare professionals regarding this, despite them reporting this would have been valued (Chivers et al., 2011). Instead, discussions were centred on contraception and timing to resume, with postnatal sexual functioning changes, or difficulties rarely being explored (Barrett et al., 1999; 2000).

This raises questions as to what barriers prevent women seeking support from healthcare professionals regarding their postnatal sexual functioning, and why this aspect of women’s lives is neglected by healthcare professionals, given postnatal sexual problems being highly prevalent, and how quick women resume sexual intercourse. It has been questioned whether this is due to the difficulties people have discussing sex and sexual intimacy, them historically being considered ‘taboo subjects’ often accompanied with disgust and embarrassment (Goldenberg et al., 1999). Alternatively, it may be due to increased availability and accessibility of additional sources of information, from postnatal support groups and online; or whether healthcare professional’s lack of awareness or training in asking about it also plays a role (Bhugra & Colombini, 2013; Leeman & Rogers, 2012). Regardless, it indicates the need for future research to explore these questions further.

### *Strengths and limitations*

Overall, a number of key strengths to this systematic review exist. A reproducible protocol exists, and a comprehensive search strategy was employed, yielding key papers in the area. The process of the review was rigorous and objective when locating the included studies, an approach intended to reduce the potential for subjectivity. However, a number of limitations of the review also exist. Despite the objective process of locating studies and using standardised quality assessment tools, the underlying quality assessment process of them is somewhat subjective in nature. The quality assessments were not independently assessed by a second reviewer which could have reduced such subjective biases; however, no papers were excluded on the basis of their methodological quality. Caution is needed when interpreting the results, due to the diversity in methodological quality and heterogeneity of the studies, as they often involved women of mixed parity and relied on single questions or non-validated self-report questionnaires to assess postnatal sexual functioning, neglecting all aspects of sexual intimacy. Moreover, pre-existing sexual functioning problems were rarely considered. Combined, these methodological issues make it difficult to draw firm conclusions from; however, the issues are reflected in this body of literature and have been mentioned elsewhere (Abdool, Thakar & Sultan, 2009; Handa, 2006; Leemman & Rogers, 2012; Von Sydow, 1999).

### *Implications for future research*

Due to the methodological issues described, there is a continued need for further research in this area. The findings from this review appear to be consistent with findings emphasised in an earlier meta-analysis (Von Sydow, 1999), including similar methodological issues. Moreover, as women’s postnatal functioning has a significant effect on their own physical and mental health, and their partner’s, and children’s (Kahn et. al., 2002), it is essential for further research within this area to be conducted, involving both quantitative and qualitative methods.

Quantitative research needs to recognise the methodological issues and limitations highlighted across within the evidence base, accounting for them in future research designs. Primarily, this means expanding the focus of postnatal sexual functioning research from sexual intercourse, to all aspects of sexual intimacy, consistent with previous recommendations (Von Sydow, 1999). Future research needs to assess for the presence of sexual problems during pregnancy, given it being one of the largest predictors of them existing post-natally (Acele & Karacam, 2011; Williams, Herron-Marx & Hicks, 2007). Furthermore, methodological quality would be improved if validated postnatal sexual health assessment tools were used and confounding factors such as parity, age, breastfeeding, and depression were controlled for. Prospective longitudinal study designs could be used to understand the long-term effects of childbirth on postnatal sexual functioning.

Consideration or exploration of psychological issues relevant to women’s postnatal sexual functioning, such as their attitudes surrounding postnatal sexual intimacy, appraisals of breastfeeding, and even the role of body image and the quality of the relationship with their partner, also appears to have been neglected. This illustrates the need for future research to explore the role of these issues in women’s postnatal sexual functioning. Lastly, due to the absence of qualitative research located through the process of undertaking this review, and in line with earlier recommendations from Von Sydow (1999), there is a need for more qualitative research in this area. This would provide a platform and a voice for mothers and their partners, in attempts to better understand their subjective experiences of sexual intimacy during the postnatal period.

### *Implications for clinical practice*

This review adds to the growing body of evidence in postnatal sexual functioning, highlighting key findings pertinent for clinical practice in the area. In particular, it illustrates how quickly women resume sexual intercourse after childbirth, but equally how common it is for women to experience a range of postnatal sexual problems and their associated risk factors.

Perineal trauma was found to be one of the biggest predictors of timing to resume sexual intercourse, including whether women experience postnatal sexual health problems (Acele & Karacam, 2011; Signorello, Harlow, Chekos & Repke, 2001; Williams, Herron-Marx & Hicks, 2007; Williams, Herron-Marx & Knibb, 2007). As perineal trauma is commonly experienced by women following childbirth (Redshaw & Henderson, 2015), there is an importance for interventions to support these women, particularly considering sexual health problems can persist for months or years following perineal trauma healing (Von Sydow, 1999).

This review continued to add weight to previous findings that women receive little information and advice post-natally, regarding sexual functioning changes, or problems they may encounter during this period, despite reports they would value this (Barrett et al., 1999; 2000). Instead, discussions have centred on contraception or timing to resume intercourse, with many women describing they wanted to ask something, but felt they could not (Barrett et al., 1999; 2000). Clinically this highlights the importance of healthcare professionals providing women with this information, and routinely enquiring about their postnatal sexual functioning during health visits. Providing teaching and training to healthcare professionals regarding the latest empirical findings would also better equip them in disseminating this information to women.

## References

Acele, E. O., & Karacam, Z. (2011). Sexual problems in women during the first postpartum year and related conditions. *Journal of Clinical Nursing, 21*, 929-937.

Abdool. Z., Thakar, R. & Sultan, A. H. (2009). Postpartum female sexual function. *European Journal of Obstetrics & Gynaecology and Reproductive* *Biology*, *145*, 133-137.

Allgeier, A. R., & Allgeier, E. R. (1995). *Sexual interactions* (4th ed.). Lexington. MA: Health.

Avery, M. D., Duckett, L., & Frantzich, C. R. (2000). The experience of sexuality during breastfeeding among primiparous women. *Journal of Midwifery and Women’s Health*, *45*, 227-237.

Barrett, G., Pendry, E., Peacock, J., Victor, C., Thakar, R., & Manyonder, I. (1999). Women’s sexuality after childbirth: A pilot study paper. *Archives of Sexual Behaviour*, *28*, 179-191.

Barrett, G., Pendry, E., Peacock, J., Victor, C., Thakar, R., & Manyonder, I. (2000). Women’s sexual health after childbirth. *British Journal of Obstetrics and Gynaecology*, *107*, 186-195.

Bhugra, D., & Colombini, G. (2013). Sexual dysfunction: Classification and assessment. *Advances in Psychiatric Treatment*, *19*, 48-55.

Buhling, K. J., Schmidt, S., Robinson, J. N., Klapp, C., Siebert, G., & Dudenhausen, J. W. (2006). Rate of dyspareunia after delivery in primiparae according to mode of delivery. *European Journal of Obstetrics and Gynaecology, 124*, 42-46.

Chivers, M. L., Pittini, R., Grigoriadis, S., Villegas, L., & Ross, L. E. (2010). The relationship between sexual functioning and depressive symptomatology in postpartum women: A pilot studyjsm. *Journal of Sexual Medicine, 8*, 792–799.

Connolly, A. M., Thorp, J., & Pahel, L. (2005). Effects of pregnancy and childbirth on postpartum sexual function: A longitudinal prospective study. *International Urogynecology Journal, 16,* 263-267.

Cowan, P. A., & Cowan, C. P. (1988). Changes in marriage during the transition to parenthood: Must we blame the baby? In Michaels, G. Y. & Goldberg, W. A. (Eds.), *Transition to parenthood* (pp. 114-154). Cambridge: Cambridge University Press.

Glazener, C. M. (1997). Sexual function after childbirth: Women’s experiences, persistent morbidity and lack of professional recognition. *British Journal of Obstetrics and Gynaecology*, *104*, 330-335.

Goldenberg, J. L., Pyszczynski, T., McCoy, S. K., Greenberg, J., & Solomon, S. (1999). Death, sex, love and neuroticism: Why is sex such a problem? *Journal of Personality and Social Psychology, 77*, 1173-1187.

Heidari, M., Khoei, E. M., & Asiabar, A. K. (2009). What happens to sexuality of women during lactation period? A study from Iran. *Pakistan Journal of Medical Sciences, 25,* 938-943.

Hyde, J. S., & DeLamater, J. (1997). *Understanding human sexuality* (6th ed.). New York: McGraw-Hill.

Johnson, C. E. (2011). Sexual health during pregnancy and the postpartum. *Journal of Sexual Medicine, 8*, 1267–1284.

Kahn, R. S., Zuckerman, B., Bauchner, H., Homer, C. J., & Wise, P. H. (2002). Women’s health after pregnancy and child outcomes at age 3 years: A prospective cohort study. *American Journal of Public Health, 92*, 1312–1318.

Leeman, L. M., & Rogers, R. (2012). Sex after childbirth: Postpartum sexual function. *Obstetrics and Gynaecology*, *119*, 647-655.

Moel, J. E., Buttner, M. M., O’Hara, M. W., Stuart, S., & Gorman, L. (2010). Sexual function in the postpartum period: Effects of maternal depression and interpersonal psychotherapy treatment. *Archives of Women’s Mental Health, 13*, 495–504.

Redshaw, M., & Henderson, J. (2015). *Safely delivered: A national survey of women’s experience of maternity care 2014*. Oxford: National Perinatal Epidemiology Unit.

Rogers, R. G., Borders, N., Leeman, L. M., & Alders, L. L. (2009). Does spontaneous genital tract trauma impact postpartum sexual functioning? *Journal of Midwifery Women’s Health, 54,* 98-103.

Saurel-Cubizolles, M., Romito, P., Lelong, N., & Ancel, P. (2000). Women’s health after childbirth: A longitudinal study in France and Italy. *British Journal of Obstetrics and Gynaecology, 107,* 1202-1209.

Schytt, E., Lindmark, G., & Waldenström, U. (2005). Physical symptoms after childbirth: Prevalence and associations with self-rated health. *British Journal of Obstetrics and Gynaecology: An International Journal of Obstetrics and Gynaecology, 112*, 210–217.

Signorello, L. B., Harlow, B. L., Chekos, A. K., & Repke, J. T. (2001). Postpartum sexual functioning and its relationship to perineal trauma: A retrospective cohort study of primiparous women. *American Journal of Obstetrics and Gynaecology*, *184*, 881-888.

Von Sydow, K. A. (1999). Sexuality during pregnancy and after childbirth: A metacontent analysis of 59 studies. *Journal of Psychosomatic Research*, *47*, 27-49.

Wells, G. A., Shea, B., O’Connell, D., Robertson, J., Peterson, J., Welch, V., Losos, M., & Tugwell, P. (2000). *The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses*. 3rd Symposium on Systematic Reviews: Beyond the Basics.

Williams, A., Herron-Marx, S., & Hicks, C. (2007). The prevalence of enduring postnatal perineal morbidity and its relationship to perineal trauma. *Midwifery, 23,* 392-403.

Williams, A., Herron-Marx, S., & Knibb, R. (2007). The prevalence of enduring postnatal perineal morbidity and its relationship to type of birth and birth risk factors. *Journal of Clinical Nursing, 16*, 549-561.

World Health Organisation (2006). *Defining sexual health: Report of a technical consultation on sexual health*, 28–31 January 2002. Geneva, World Health Organization.