

# MIXED METHODS SYSTEMATIC REVIEW: CHILDBEARING WOMEN'S VIEWS, EXPERIENCES AND DECISION-MAKING RELATED TO EPIDURAL ANALGESIA IN LABOUR

## ABSTRACT

**Aims.** To investigate childbearing women's views, experiences and decision-making related to epidural analgesia in labour.

**Design.** Mixed methods systematic review.

**Data sources.** A comprehensive literature search was implemented across Medline, CINAHL and EMBASE from 2000 to September 2018. The literature search was undertaken in January 2018 and updated in September 2018. Thirty papers were selected.

**Results.** Four overarching synthesised findings were identified: **a)** choice; **b)** pain management experience; **c)** lack of information and **d)** information provision and consent.

**Review methods.** Quality appraisal was conducted using JBI levels of evidence and other established tools. NVivo was used to independently dual-code and thematically synthesise qualitative data. A narrative synthesis of the quantitative findings from the included studies was undertaken. The GRADE-CERQual approach was used to assess confidence in the review findings based on the qualitative data. A set of integrated mixed methods synthesised findings was produced.

**Conclusion.** Recommendations for practice based on the systematic review findings are that midwives should dedicate time to discuss epidural with women and birth partners, ideally during the second or third trimester of pregnancy, asking women what coping strategies or pain relief they have been considering, if any. The factors which may influence the woman's choice of epidural, including pain threshold, ability to cope with pain, timing of epidural and length of labour should be continuously evaluated during labour. The midwife should remain with women after an epidural has been sited, demonstrating understanding of the woman's choice and providing an opportunity for discussion of plans for the remaining labour and birth.

**Impact.** The findings of this systematic review can inform both healthcare professionals and service users on various aspects of the decision making process about the use of epidural analgesia in labour. Data can be transferable to similar settings in high-income countries.

**KEYWORDS:** Analgesia; childbirth; choice; consent; decision-making; epidural; labour; nursing; pain relief; systematic review; women.

## **INTRODUCTION**

The use of epidural analgesia for the control of labour pain is an increasingly common phenomenon in high-income countries worldwide (Seijmonsbergen-Schermer et al., 2018). In the last two decades, surveys in North America and Europe have shown a trend towards increased use of epidural (Grond et al., 2000). The National Health Service Maternity Statistics (2018) report rates of anaesthetic administration during labour in the United Kingdom, with 57.4% of women aged under 20 and 65.7% of mothers aged more than 40 years receiving analgesia. Similar rates are observed in other high-income countries (Grond et al., 2000, Seijmonsbergen-Schermer et al., 2018) with approximately two thirds of pregnant women choosing to have an epidural in the United States (CDC, 2011).

## **BACKGROUND**

The outcomes of labour in women with epidural analgesia in terms of duration of labour, mode of delivery, maternal/neonatal outcomes, side effects and comparison with other pain relief methods are well-documented (Cambic and Wong, 2010, Anim-Somuah et al., 2011, Douma et al., 2011, Tveit et al., 2012, Freeman, 2015, Genc et al., 2015, Xing et al., 2015). The epidural analgesia decision-making process is currently only partially covered in the existing panorama of evidence and international guidelines (NICE, 2014, WHO, 2018). The purpose of this review was to systematically explore psychosocial aspects of women's use of epidural to inform evidence based midwifery and maternity practice.

The World Health Organisation (2018) reports that women's decision making process for epidural analgesia is strongly influenced by the setting where they access antenatal and intrapartum care, the type of care (e.g. one to one continuous care versus shared care) and the care provider. The National Institute for Health and Care Excellence (2014) states that women should be advised of the advantages and disadvantages of epidurals, including increased duration of second stage of labour and increased chance of instrumental birth, with quality and timing of information being key (Raynes-Greenow et al., 2007, Toledo et al., 2016).

## **THE REVIEW**

### **Aim**

This paper details a mixed methods systematic review that aimed to investigate childbearing women's views and experiences related to epidural analgesia in labour, with a particular focus on the decision-making process. This information is vital to the development of recommendations for healthcare professionals, midwives, women and their families.

### **Design**

A mixed methods systematic review was undertaken using a segregated results-based convergent synthesis design (Sandelowski et al., 2012, JBI, 2014, Pearson et al., 2015). Segregated designs require individual syntheses of quantitative and qualitative evidence to be conducted prior to the final mixed method synthesis. Quantitative and qualitative findings may confirm or contradict each other or present complementary evidence (Aromataris and Munn, 2017). The review protocol was registered on the PROSPERO database (CRD42018094905) prior to study commencement.

### **Search methods**

The systematic literature search was completed in three stages. Stage one included one reviewer searching electronic databases including the Cochrane Library, Medline and Embase to establish the range of index terms and synonyms to include in the search strategy. In stage two, databases were searched to identify current guidance and systematic reviews to determine whether relevant reviews were already published and consider the merits of conducting the proposed review. No existing systematic reviews were identified addressing the topic. In stage three, an optimised strategy was developed for Medline and CINAHL databases using the information from stages one and two. The literature search was undertaken in January 2018 and updated in September 2018. A summary of the search terms are included in Table 1 and Supplement 1 provides details of the full Medline search strategy. Forwards and backwards citation tracking from the selected papers was conducted to identify other relevant papers for inclusion.

Papers were included in the review if they met the following criteria: (i) published in English, (ii) based in an OECD country (to enable greater comparability between

health systems and socio-economic contexts), (iii) reporting quantitative or qualitative primary research (iv), published between January 2000 to September 2018, (v) reported experiences or decision making for women who had, or were considering, epidural analgesia in labour. Exclusion criteria were: papers reporting outcomes and/or experiences of women having epidural for caesarean section, retrospective cohort studies, secondary data analysis and literature reviews.

Answer sets retrieved from the electronic databases were imported to an EndNote library, and duplicate records were identified. A single researcher screened the titles and abstracts against the review inclusion and exclusion criteria. Full text papers of the remaining citations were then retrieved and independently assessed by two researchers. A third researcher moderated any discrepancies until the final selection of papers was agreed. Data was extracted using a pre-piloted form and was completed independently by two researchers.

### **Search outcome**

The search identified 10,841 potentially eligible papers which were assessed on the information provided in the abstract using the review eligibility criteria. After removal of duplicates (n=998), 56 papers were retrieved for full text assessment. Of these, 26 were excluded. Main reasons for exclusions were that papers: a) were not related to the review's aim; b) did not include relevant study populations; c) were not research studies; or d) were not published in the English Language. The literature search and inclusion process is detailed in the PRISMA Flow diagram (Moher et al. 2009) (Figure 1).

Thirty studies were included. These were conducted between 2000 and 2017 in Australia (n=8), Canada (n=3), Denmark (n=1), Netherlands and Belgium (n=1), Israel (n=1), Sweden (n=1), UK (n=6) and US (n=9). The quantitative papers (n=22) included three randomised controlled trials, one non-randomised quantitative study and eighteen surveys. There were two mixed methods studies and six qualitative studies (Table 2). The majority of papers were assessed as being of high or medium quality, but some were rated as low-medium quality due to methodological and reporting concerns. There was considerable heterogeneity between the included studies in regard to study objectives, data collection methods, timescales and characteristics of participants. Many studies included a general population of women in labour, therefore

data was extracted and analysed from results specific to women who had epidural analgesia. Characteristics of the included studies are presented in Table 2.

### **Quality appraisal**

The quality of studies included in the review was evaluated using a range of established critical appraisal tools selected for the study design and Joanna Briggs Institute (JBI, 2013) levels of evidence:

- Critical Appraisal Skills Programme (CASP, 2019) tools for qualitative, cohort and case control studies;
- Boynton and Greenhalgh (2004) quality checklist for survey papers;
- MMAT QA tool (Pluye, 2009) for mixed methods papers;
- Cochrane Risk of Bias tool (Higgins and Green, 2011) for randomised controlled trials.

Two independent researchers assessed study quality and banded studies as low, medium or high quality. There was consensus of opinion between the two researchers. Although no studies were excluded on the basis of quality, the quality assessment was used to critically consider the strengths and limitations of the evidence and to inform an assessment of confidence in the review findings (Aromataris and Munn, 2017).

### **Data abstraction**

Data abstraction forms were designed, piloted and independently completed by two researchers. Data abstraction tables consisting of numerical and textual data for the qualitative and quantitative synthesis were produced to present the study characteristics, results and quality assessments.

### **Data synthesis**

NVivo software was used to independently dual-code and interpret the findings from the qualitative studies into key themes and sub-themes following a thematic synthesis approach (Thomas and Harden, 2008). A third researcher moderated the coding and thematic analysis. A narrative synthesis of the quantitative data was undertaken to characterise the key outcomes and findings across the studies (Popay et al., 2006). This involved generating a narrative description of quantitative findings and reporting

these thematically alongside the relevant numerical data. There was insufficient data to perform a meta-analysis due to the variation in study designs and insufficient outcome data. The final mixed methods synthesis involved assembling the themes from the quantitative and qualitative data analysis and producing a set of synthesised findings and overall conclusions (Supplement 2 - Mixed methods synthesised findings).

Methods to establish confidence or certainty in the synthesised findings of mixed methods reviews have not yet been developed (Noyes et al., 2019). However, to achieve as rigorous an approach as possible, an assessment of confidence was undertaken for the findings of the separate syntheses, prior to final integration. Grading of Recommendations Assessment, Development and Evaluation-Confidence in the Evidence from Reviews of Qualitative research (GRADE-CERQual) approach was used to assess confidence in the review findings based on the qualitative data (Lewin et al., 2018). Each qualitative review finding was rated as high, medium, low or very low confidence according to an assessment of four dimensions of its underpinning evidence: methodological limitations, coherence, adequacy and relevance. See Supplement 3 for the GRADE CERQUAL evaluations. A GRADE assessment of the quantitative findings was not completed as most studies were descriptive surveys and there was insufficient data to inform an overall GRADE assessment (risk of bias, statistical analysis data, validated outcome measures, confidence intervals, assessments of heterogeneity) (Baker et al., 2011)

## **RESULTS**

Four overarching themes were identified: **a)** choice; **b)** pain management experience; **c)** lack of information and **d)** information provision and consent. Themes, sub-themes and sources from where these were developed are included in Table 3. The full mixed methods synthesised findings are reported in Supplement 2. The full CERQual summary of qualitative evidence is reported in Supplement 3.

### ***Choice***

The first theme identified related to women's experiences regarding whether or not they felt they had a choice in having an epidural. The rates of women planning / not planning on using epidural analgesia before going into labour vary within the available evidence (Orbach-Zinger et al., 2008, Yoshioka et al., 2012, Mahomed et al., 2015).

Women who did not plan to have an epidural often had a *wait and see* or *see how far I can get* attitude, leaving all options open throughout the ongoing labour with informal birth plans (Raynes-Greenow et al., 2007, Morris and Schulman, 2014, Newnham et al., 2017). The factors to be continuously evaluated in order to decide whether or not to request an epidural were pain threshold, ability to cope with pain, length of labour and feedback received by healthcare providers during labour (Raynes-Greenow et al., 2007, Morris and Schulman, 2014, Newnham et al., 2017). The women described the need for epidural analgesia if labour became intolerable, with some participants considering it as a last resort (Morris and Schulman, 2014, Newnham et al., 2017). Some women planned to avoid an epidural, with this decision being guided by negative experiences of family members, fear of epidural insertion, concerns about maternal and fetal side effects and desire of being in control of a natural birth (Henry and Nand, 2004, Hidaka and Callister, 2012, Morris and Schulman, 2014, Mahomed et al., 2015, Newnham et al., 2017). In regard to choice of birthplace, Raynes-Greenow et al. (2007) found most women chose to birth in an Obstetric Unit rather than in a Midwifery-Led Unit because of access to a full range of analgesia.

Factors influencing the choice of epidural analgesia included partners' opinions, outpatient discussions about epidural analgesia, antenatal classes, media, labour pain level, length of labour, maternal exhaustion, lower degree of coping and positive experiences of epidural recounted by family and friends (Hidaka and Callister, 2012, Yoshioka et al., 2012, Wassen et al., 2013, Morris and Schulman, 2014, Newnham et al., 2017). Onset of painful contractions and attendance at antenatal classes seemed to be associated with increased use of epidural (Echevarria et al., 2017). Multiparity, socio-economic position and having a fear of the side effects reduced the chances of having an epidural by half, whereas the desire to have a pain-free childbirth and positive experiences of epidural analgesia recounted by family and friends doubled the likelihood of having an epidural (Van den Bussche et al., 2007). Women who wanted to have an epidural were expecting to have pain-free childbirth (Raynes-Greenow et al., 2007). Husbands, previous labour experiences and antenatal classes were influential for women who chose to avoid an epidural (Yoshioka et al., 2012). Scotland et al. (2011) found a positive association between the use of epidural and experiencing operative delivery, restricted mobility or longer labour. Overall, women reported no influence on their decision from husbands' or own parents, anaesthesiologists, labour ward obstetricians, obstetrics nurses / midwives and

primary care doctors (Yoshioka et al., 2012).

Jepsen and Keller (2014: 100) identified two categories of women when considering issues around epidural analgesia: the 'worried woman' and the 'unworried woman'. At the point of labour, the worried woman has no previous wish for epidural analgesia, would like others to make the choice for her, worries about the lost sense of control, has uncertainties about side effects, develops low self-esteem and sense of failure in respect to the birth experience and finds it difficult to share her worries and doubts about epidural with the midwife (Jepsen and Keller, 2014, Attanasio et al., 2015). By contrast, the unworried woman regards epidural analgesia as an advantageous option, feels she can autonomously make a choice about having an epidural, gains a sense of control of labour and is not worried about side effects (Jepsen and Keller, 2014, Attanasio et al., 2015, Newnham et al., 2017).

In some cases women felt prompted, pressured and persuaded to have an epidural by healthcare professionals and organisational procedures/times/processes (Morris and Schulman, 2014, Attanasio et al., 2015). Examples of care providers' coercive behaviours included suggesting or asking repeatedly if the woman wanted an epidural, performing an artificial rupture of membranes making labour more painful and presenting caesarean section as the only alternative to epidural giving therefore the woman a false choice (Morris and Schulman, 2014). It appears that ethnicity and a lower educational level may influence the healthcare professionals' degree of pressure about using an epidural. For instance, education may give women bargaining power and/or more respect from clinicians to negotiate pain relief methods (Morris and Schulman, 2014).

### ***Pain management experience***

Overall, women were satisfied with their experience of using an epidural in labour providing effective pain relief (Dickinson et al., 2003, Heinze and Sleight, 2003, Halls, 2008, Attanasio et al., 2015, Mahomed et al., 2015) and would choose an epidural again or advise a friend (Yoshioka et al., 2012, Mahomed et al., 2015). Women who felt very well informed were also very satisfied with their pain management (Henry and Nand, 2004). In some cases the use of epidural analgesia was associated with lower birth satisfaction for women and their partners following a vaginal birth (Belanger-Levesque et al., 2014, Lindholm and Hildingsson, 2015). The benefits highlighted by



participants included the labour being completely or mostly pain free, the ability to relax and the provision of rest and respite from exhaustion (Hidaka and Callister, 2012, Attanasio et al., 2015, Mahomed et al., 2015). A minority of women were dissatisfied due to the epidural insertion hurting, requiring too many attempts and difficulty staying still during contractions for insertion of the catheter (Attanasio et al., 2015, Mahomed et al., 2015). Some women described situations in which epidural analgesia was not as effective as expected, such as leaving a portion of the body without pain relief or providing less pain relief than expected. Women named headache, sore back and numbness of legs as side effects (Attanasio et al., 2015, Mahomed et al., 2015).

For women who used epidural analgesia in labour, when the pain disappeared most of them felt more relaxed, relieved or even euphoric (Hidaka and Callister, 2012, Jepsen and Keller, 2014). During this period the women wanted to discuss the labour progress with their care providers. After reverting from euphoric to normal, some women were seeking introversion and wanted to rest or sleep. Contrarily, others report that the need for rest, which was urgent before the initiation of epidural, had completely disappeared. A sense of ambivalence was noticed in most women, with them being 'happy and scared' at the same time. The metaphor of feeling like cheating was used to describe the apparently wrong nature of using an epidural and contrasted the relief following the disappearance of labour pain (Jepsen and Keller, 2014).

The sentiments about epidural expressed by women at the point of labour framed as worried or not worried continued into the recounting of their epidural's experiences. The worried woman using epidural analgesia developed low self-esteem, lower control, distant contact with the baby, sense of failure and would prefer to avoid epidural at potential subsequent labours (Jepsen and Keller, 2014). The unworried woman who used epidural analgesia felt in control and a good mother who had a well deserved break from labour pain with no sense of guilty (Jepsen and Keller, 2014).

Negative experiences were reported by women in regard to the timing of epidural analgesia, including waiting in pain for an anaesthetist to be available and no other pain relief options in the interim, miscommunication with care providers with lack of empathy from clinicians, late initiation of analgesia and ineffective analgesia during the second stage of labour (Attanasio et al., 2015).

Women identified the relationship with the midwife, continuity of carer, physical presence and support as key factors when receiving epidural analgesia in labour. The presence of the midwife was associated with a greater sense of security. It seemed

important for women that the midwife was aware of how much pain they experienced and 'for how many hours they had suffered' before the initiation of epidural analgesia. In the case of a change of midwife, women may not establish a good relationship with the new midwife due to the midwife not being aware of the situation prior to using the epidural. The woman may be reassured by hearing the previous midwife validating her decision of epidural analgesia during the handover to the new midwife. Women's self-esteem tended to be influenced by the midwife's approval of their decision. After initiation of the epidural, women expressed the desire of focussing the communication with the midwife on the side effects and plans for the remaining part of labour. The midwife should be attentive to the possible connotations of implicit expressions and requests as some women's needs may be overlooked (Jepsen and Keller, 2014).

### ***Lack of information***

When considering quantitative data, the women appeared to be aware of the risks associated with epidurals, knew of other pain relief options and seemed to be satisfied with the information provided in the antenatal period (Jackson et al., 2000, Henry and Nand, 2004, Halls, 2008, Kamarzaman et al., 2011, Mahomed et al., 2015, Toledo et al., 2017). However, when considering the more detailed findings mostly provided by qualitative studies, women reported a lack of information on epidural analgesia and described their attempts at accessing the right information as not always satisfactory (Yoshioka et al., 2012, Mahomed et al., 2015, Burkle et al., 2017, Newnham et al., 2017, Toledo et al., 2017). Epidural information was scant and consent was brief, often verbal, with women not required to understand the full list of side-effects or possible risks (Yoshioka et al., 2012, Newnham et al., 2017).

A number of studies reported women's fear, generalised responses and incomplete understanding of potential side-effects (Raynes-Greenow et al., 2007, Hidaka and Callister, 2012, Attanasio et al., 2015, Newnham et al., 2017). When discussing benefits and risks, healthcare professionals seemed to downplay, minimise or omit obstetric risks and the potential cascade of intervention following epidural initiation such as longer labour, hypotension, pyrexia, caesarean section, instrumental birth, use of continuous fetal monitoring and lower breastfeeding rates (Raynes-Greenow et al., 2007, Attanasio et al., 2015, Newnham et al., 2017). Continuous fetal monitoring was presented as a positive aspect in one instance, with the mother and birth partner

being able to listen to the fetal heart rate (Newnham et al., 2017). Some midwives were reported to have stated that the effects of epidural on the newborn are unknown (Newnham et al., 2017). Downplaying the effects and risks and 'normalising the procedure' of epidural analgesia may be an attempt by midwives at protecting women from feeling guilty or regretting the use of epidural after birth. Some women reported feeling patronised by the provision of 'sugar-coated' information, as if they needed to be protected from the truth (Newnham et al., 2017: 55). The lack of information led in some cases to women overestimating the risks and expressing concerns towards the more serious but rarer risks (e.g. paralysis and nerve damage) (Raynes-Greenow et al., 2007, Mahomed et al., 2015). Rather than informing women of the risks, care providers seemed to concentrate more on procedures and system requirements (Newnham et al., 2017).

### ***Information provision and consent***

A number of healthcare professionals including midwives worked within the pain relief menu model (Newnham et al., 2017) when providing information about epidural. The epidural-related information offered usually included technical details of epidural catheter insertion, with very little information on benefits, risks and side effects (Newnham et al., 2017). In regard to the content of information about epidural analgesia desired by women, key topics included analgesic choices and alternative options; less severe and more common side effects; more severe yet rarer complications; what to expect when epidural analgesia is used; how quickly they should expect the onset of analgesia and what to expect in terms of numbness and mobility (Kelly et al., 2004, Attanasio et al., 2015, Toledo et al., 2017). Women wanted to be informed of all potential epidural complications as part of the consent process and preferably before labour, although some did not wish to be told the incidence of the complications. Anaesthetists often discussed complications and side effects of epidurals without quoting the risk incidence (Jackson et al., 2000).

Most women acquired information on epidurals at various time points during pregnancy. Sources of information were family and friends, antenatal classes, multimedia and maternity care providers (Jackson et al., 2000, Raynes-Greenow et al., 2007, Kamarzaman et al., 2011, Yoshioka et al., 2012, Mahomed et al., 2015, Echevarria et al., 2017, Toledo et al., 2017). Anecdotal information from family and friends was considered by some women as easy to recall and trustworthy, with many

women who heard about epidural anaesthesia from friends having positive impressions about the method (Raynes-Greenow et al., 2007, Yoshioka et al., 2012). Other participants commented about the untrustworthiness of magazines and online material (Raynes-Greenow et al., 2007). The degree to which women used the information from the internet varied, with some respondents considering themselves as light users of internet based information whilst others were heavily dependent on online information (Toledo et al., 2017). Some women would double check online information with care providers (Toledo et al., 2017).

Pre-anaesthetic consultations were mainly conducted for women with specific concerns or complicated pregnancies. Antenatal anaesthesia consultations were rarely recommended for any pregnant woman who desired to have labour epidural analgesia (Saunders et al., 2006). Intrapartum informed consent for epidural analgesia during labour was often brief, verbal and characterised by lack of information (Newnham et al., 2017). Information in other languages or translation services were not always used to gain informed consent from women whose first language was not English (Middle et al., 2009). A number of participants across the qualitative studies could not remember the information given by the healthcare providers as part of the informed consent process mainly due to the information being presented whilst women were coping with labour pain and therefore finding it difficult to concentrate on the conversation about epidural (Mahomed et al., 2015, Newnham et al., 2017, Toledo et al., 2017). Women's ability to understand information did not seem to be affected by their age, anxiety level, pain level, desire for an epidural or duration of labour pain (Jackson et al., 2000). Some women who had epidural analgesia reported that they experienced loss of control for not having been consulted in decision making about a procedure they experienced, for instance changes to the medication dose without their knowledge, understanding and consent (Thompson et al., 2014, Attanasio et al., 2015).

Newnham et al. (2017: 57) state 'epidural information is disparate because no-one claims ownership of the task of informing pregnant women specifically about epidural analgesia'. Intrapartum verbal or written informed consent is often quickly undertaken in the labour room by the anaesthetist (Middle et al., 2009, Mahomed et al., 2015), with whom the woman is unable to establish a trusting relationship (Toledo et al., 2017). Quality and timing of information about epidural seemed to be key. Most women expressed a preference for obtaining information on epidural from their care provider

(obstetrician or midwife) prior to the intrapartum period and ideally in the second or third trimester of pregnancy (Raynes-Greenow et al., 2007, Toledo et al., 2017). Anaesthetists may contribute some input on epidural during antenatal classes, as women informed by anaesthetists during pregnancy had the most comprehensive knowledge about pros and cons of epidural analgesia and were ironically put off the idea (Newnham et al., 2017).

Suggested formats for epidural information were pamphlets or handouts, a list of trustworthy websites, question and answer leaflets, internet-based information, other women's experiences and a video demonstrating epidural catheter placement (Toledo et al., 2017). Written and audio information were thought to improve women's knowledge of pain relief options and support decision making (Raynes-Greenow et al., 2009, Raynes-Greenow et al., 2010, Toledo et al., 2017). Printed material was considered key for in-depth reading after the discussion of key issues and bullet points with the obstetric provider (Toledo et al., 2017). Decision aids based on up-to date evidence, presented as a list of pros and cons for each analgesic option resulted in higher knowledge scores when compared to information pamphlets (Raynes-Greenow et al., 2010).

## **DISCUSSION**

This is the first mixed methods review that has synthesized a range of empirical research related to women's experiences of epidural from the point of considering this option for analgesia through to experiences of this. Methodological limitations of the review included the considerable heterogeneity between the included studies (e.g. study objectives, data collection methods, timescales and characteristics of participants). Some data was extracted and analysed from sub-groups of women who had epidural analgesia in labour. Although most of the included papers were rated as high or medium quality, some were rated as low-medium quality due to methodological and reporting concerns. Twenty of the twenty-three papers reporting quantitative data were descriptive and/or observational studies, providing low quality evidence (Schünemann et al., 2013). Only three RCTs were identified for inclusion. Two RCTs evaluated similar interventions in the same study setting over the same period of time and assessed knowledge of labour analgesia. The other included RCT

assessed satisfaction with labour pain relief. Therefore, it was not possible to perform a meta-analysis.

A number of care providers including midwives worked within the pain relief menu model (Newnham et al., 2017), a hierarchical approach in presenting the available pain relief options from the least to the more invasive techniques. This may send the message to women that they will be unable to cope with labour pain without using pain relief techniques. The synthesised findings presented in this review highlight that women expected to be actively involved in the epidural analgesia decision-making process and receive support and advice from their midwife, regardless of the choice made (Raynes-Greenow et al., 2007, Attanasio et al., 2015, Toledo et al., 2017). McCrea and Wright (2001) found that labouring women who are actively involved in birth practices may increase the confidence in their own ability to being in control of the pain experienced and chosen pain relief methods. According to Schwartz et al. (2015: 29), 'addressing women's physical and emotional wellbeing and perceptions of the upcoming birth may highlight their level of self-efficacy for birth'. Whilst it is recognised that birth plans empower women by extending their understanding of intrapartum care and helping them make informed decisions (Moore and Hopper, 1995, Whitford and Hillan, 1998), some of the participants from the studies included in this review had 'open-ended' birth plans, in which epidural analgesia was considered only if labour became intolerable (Morris and Schulman, 2014, Newnham et al., 2017). The review identified several factors to be continuously evaluated by the midwife to decide whether or not to consider an epidural, including: pain threshold, ability to cope with pain, length of labour and feedback received by healthcare providers during labour (Raynes-Greenow et al., 2007, Morris and Schulman, 2014, Newnham et al., 2017). Negative experiences were reported by women in regard to miscommunication with care providers with lack of empathy from the clinicians, late provision of epidural analgesia due to anaesthetist availability and subsequent ineffective analgesia during the second stage of labour (Attanasio et al., 2015). Timely epidural anaesthesia may not always be provided due to service and anaesthetist availability (Kamakshi et al., 2018). For women to be empowered in their pain relief decision making, midwives need to provide 'open communication, adequate life skills, a nurturing and caring environment, and a democratic management structure' (Too, 1996: 44). Access to epidural may influence the choice of birthplace, considering that epidural is not available within Midwifery-Led Units (Raynes-Greenow et al., 2007).

Women reported a lack of information on epidural analgesia and described their attempts at accessing the right information as not always satisfactory (Yoshioka et al., 2012, Mahomed et al., 2015, Burkle et al., 2017, Newnham et al., 2017, Toledo et al., 2017). As epidural information is disparate and midwives might not consider providing detailed information about epidural to be a primary aim of their role (Newnham et al., 2017), healthcare professionals should not assume pregnant women have read and understood the implications of an epidural. Women felt that healthcare professionals seemed to minimise obstetric risks and the potential cascade of intervention (Raynes-Greenow et al., 2007, Attanasio et al., 2015, Newnham et al., 2017). Although effective risk communication is a recognised factor that could improve the quality of healthcare in all settings, some important developments are needed in this area (Paling, 2003), including more training in communicating risk to clients (Edwards et al., 1998), further research on how various strategies (e.g. use of visual aids) may help understanding risk and how differences in culture, age, and gender could affect the perception of risk (Paling, 2003).

Women preferred to be informed about epidurals by their maternity care provider during the antenatal period (Raynes-Greenow et al., 2007, Toledo et al., 2017). Educating women about risks and benefits of epidural analgesia and obtaining informed consent are essential (Hidaka and Callister, 2012). Lowe (2004) encourages care providers and childbirth educators to fully inform women about the risks and benefits of epidural analgesia prior to labour.

Women identified the relationship with the midwife, continuity of carer, physical presence and support as important factors when using epidural analgesia in labour (Jepsen and Keller, 2014). In a recently published descriptive qualitative study Colciago et al. (2019), midwives shared their experiences of caring differently for women with epidural when compared to women without analgesia, mainly due to the more medicalised care and a sense that their role was not useful when caring for women not feeling labour pain. Our findings indicate that midwives could contribute more to childbearing women and their families' needs if they changed certain aspects of practice, including open discussion of plans and compassionate information provision about epidural analgesia in both the antenatal and intrapartum periods. There were also pointers for supporting women's self-esteem when decisions had been made to accept an epidural.

## CONCLUSION

Recommendations for practice based on the systematic review findings are that midwives should dedicate time during antenatal appointments to discuss epidural with women and birth partners, ideally during the second or third trimester of pregnancy (topics to discuss are epidural analgesia key information, pros, cons and potential side-effects, preferably using printed and/or audio material as additional aids), asking women what coping strategies or pain relief they have been considering, if any. The factors which may influence her choice of an epidural, including pain threshold, ability to cope with pain, timing of epidural and length of labour should be continuously evaluated during labour. The midwife should also remain with women after an epidural has been sited, demonstrating understanding of the woman's pain relief choices and providing an opportunity for discussion of plans for the remaining labour and birth. Midwives have probably more opportunities to speak with pregnant women compared to other healthcare professionals; in some settings such conversations may be particularly supported by continuity models thus these discussions should be enabled within such frameworks (NHS, 2018). Additional data are needed to better support women's decision-making related to epidural. Further research should explore different approaches to information provision, including content, format and optimal timing.

## CONFLICT OF INTEREST

Conflicts of interest: none.

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