Title: Women's information needs, decision-making and experiences of membrane sweeping to promote spontaneous labour.

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ABSTRACT

Objective: To explore and synthesise evidence of women's information needs, decision-making and experiences of membrane sweeping to promote spontaneous labour.

Design: A systematic review following the Joanna Briggs Institute (JBI) meta-aggregative approach to qualitative evidence synthesis. Relevant databases were searched for literature published in English between 2000-2019. Study quality was assessed using the JBI quality assessment tool for qualitative studies.

Setting: Qualitative research conducted in OECD countries describing women's information needs, decision-making and/or experiences of membrane sweeping to promote spontaneous labour.

Findings: One article met the criteria for inclusion. This article describes the experience of a membrane sweep given without consent.

Key conclusions and Implications for practice: There is a lack of evidence around women's information needs, decision-making and experiences of membrane sweeping. This is concerning, especially in the context of rising rates of formal induction of labour. Further research is needed to

investigate how women are being offered membrane sweeping and what information women need to make informed choices about membrane sweeping to promote spontaneous labour.

Keywords

Membrane sweeping; induction of labour; women's experiences; informed consent

Introduction

UK policy currently recommends membrane sweeping to avoid prolonged pregnancy and reduce the need for formal induction. Guidance from the National Institute for Health and Care Excellence (NICE, 2008) on induction of labour recommends that at 40- and 41-week antenatal visits, nulliparous women should be offered membrane sweeping prior to formal induction and additional membrane sweeping may be offered if labour does not start spontaneously. Updates to the guideline are expected in July 2020. NICE Quality Standard [QS22] (NICE, 2016) for antenatal care additionally recommends that women having their second or later baby are offered membrane sweeping.

Membrane sweeps are carried out by midwives in a range of care settings, as well as by other healthcare professionals. Local practices vary (Keynon et al., 2017). There is some evidence to suggest that midwives may see membrane sweeping as a way to promote normal birth and minimise intervention (Leonie et al., 2004; Butler, 2017). In contrast, one UK study identified a number of concerns among midwives that acted as barriers to offering membrane sweeping including a reluctance to interfere with nature but also lack of time, the unsuitability of the venue, the importance of preparing women, and being unsure of the technique or its effectiveness (Keynon et al., 2017).

Among non-pharmacological methods for achieving labour onset, membrane sweeping has been found to have the strongest evidence base, with a reduction in post-term pregnancy and without increasing risk of pathology (Mozurkewich et al., 2011). Membrane sweeping increases the likelihood of spontaneous labour within 48 hours (Boulvain et al., 2005). Routine membrane sweeping at term, reduces the incidence of pregnancy continuing to 41 and 42 weeks (Boulvain et al., 2005, Mozurkewich et al., 2011, Avdiyovski et al., 2019) and decreases incidence of induction by other methods (Boulvain et al., 2005).

There is an upward trend in induction of labour internationally (Coates et al., 2019). In the UK in 2017-8, the proportion of labours where labour was induced was 32.6% (NHS Maternity Statistics, 2018). The number of inductions has risen by 60% in the last ten years (NHS Digital, 2018). There is a number of indications for induction of labour, including post-term pregnancy, prolonged labour, hypertensive disorders and suspected macrosomia. Up to 50% of inductions may be to manage prolonged pregnancy in the absence of other medical complications (Cheyne et al., 2012). Review level evidence suggests that induction of labour at or beyond 41 weeks may reduce perinatal mortality (Middleton et al., 2018). A recent observational study using English Hospital Episode Statistics reported that induction of labour at 40 weeks, compared with expectant management, was associated with a lower risk of in-hospital perinatal death (0.08% compared to 0.26%) and concluded that 562 inductions at 40 weeks would be required to prevent one perinatal death (Knight et al., 2017). Risks of induction of labour include longer, more painful labour, increased risk of postpartum haemorrhage and reduced satisfaction with birth experience compared to women who experience spontaneous labour onset (Cheyne et al., 2012; Henderson 2013). Risks of induction of labour vary by method but include uterine hyper-stimulation, maternal and neonatal infection (Che et al., 2015; Mozurkewich et al., 2011). Epidural, assisted vaginal birth and episiotomy are also more

common with induction of labour (Tracy et al., 2007). Comparing the birth experiences of women who had labour induced with women with spontaneous onset of labour using the standardised Childbirth Experience Questionnaire, Schaal et al. (2019) found that women who were induced scored significantly lower on perceived safety (containing items about feelings of security and positive and negative memories) and participation (containing items about possibilities to influence the birthing situation). Therefore, there continues to be considerable professional debate around the optimal timing of induction and the balance of risks and benefits (Cheyne et al., 2012).

About eight women need to have membrane sweeps to avoid one formal induction of labour (Boulvain, Stan et al. 2005) which represents a clinically beneficial number needed to treat, given the risks of a sweep compared to those of induction. Potential complications of membrane sweeping include rupture of membranes, intrapartum and postpartum infection and neonatal infection (Wong et al., 2002). Boulvain's (2005) review found no evidence of increase in infections; Avdiyovski et al. (2019) found an increased risk of pre-labour rupture of membranes. Membrane sweeping is associated with the side-effects of vaginal bleeding, irregular contractions, and maternal discomfort (Mozurkewich et al., 2011). In one trial of the efficacy of membrane sweeping for onset of labour, up to 70% of women in the intervention group reported significant discomfort and one third reported significant pain (Wong et al., 2002). Reviewing the literature, Boulvain (2005) concluded that 'the reduction in the more formal methods of induction needs to be balanced against women's discomfort and other adverse effects'. Indeed, individual women may wish to balance the relative risks and benefits of membrane sweeping when making decisions about their care.

With the induction rate over 30%, an even greater proportion of women must be experiencing membrane sweeping, including those who experience spontaneous labour before formal induction. As part of the induction of labour pathway, women's experiences of sweeps may be subject to similar structural and cultural forces shaping the practice. It is therefore important to understand women's views on membrane sweeping. While there have been a number of reviews about the efficacy of sweeps to stimulate labour and avoid formal induction, less is known about women's information needs, decision-making and experiences. Evidence drawn from qualitative research could provide insight into women's views and inform women-centred care. Yet, to date, no review of qualitative evidence has been published.

This review was undertaken as part of a wider project (Pallotti et al., 2019), to synthesise evidence around induction of labour and produce guidance for midwifery practice in this area. The focus therefore is on membrane sweeping as part of midwives' role. The objective of this review is to explore and synthesise evidence around women's information needs, decision-making and experiences of membrane sweeping to promote spontaneous labour.

Methods

A systematic review was conducted following the Joanna Briggs Institute meta-aggregative approach to qualitative evidence synthesis (Lockwood et al., 2015). The report follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement guidelines (Moher et al., 2009). The review protocol was registered on the PROSPERO database at the CRD (CRD42019127729).

A systematic literature search was developed for 6 online databases (MEDLINE, ASSIA, PsycINFO, CINAHL, MIDIRS and ProQuest Dissertations and Theses A&I). Two reviewers (authors 1 and 2) completed the literature search in March 2019. A summary of the search terms is included in Table 1 and a supplementary file provides details of the full Medline search strategy.

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 qualitative primary research, (iv) were published between January 2000 to March 2019, (v) include pregnant women who have completed 36 weeks of pregnancy (vi) reporting the views of women and/or their families who have been offered or received a membrane sweep to promote spontaneous labour. Exclusion criteria were (i) papers only reporting quantitative outcomes of membrane sweeping interventions (ii) experiences of women having augmentation of labour (iii) survey, quantitative studies, secondary data analysis and literature reviews.

Answer sets retrieved from the databases were imported to an EndNote library, and duplicate records were identified. Two researchers independently screened the titles and abstracts against the review inclusion and exclusion criteria (authors 1 and 2). Full-text papers of the remaining citations were then retrieved and independently assessed by the two researchers. A third researcher (PP) moderated any discrepancies until the final selection of papers was agreed.

Quality assessment

The quality of evidence included in the review was to be evaluated using Joanna Briggs Institute (JBI) levels of evidence (Joanna Briggs Institute, 2013) and the JBI quality assessment tool for qualitative studies (Joanna Briggs Institute, 2017).

Two independent researchers assessed study quality (authors 1 and 2), designating a study as high, medium or low quality. There was consensus of opinion between the two researchers. As per the guidance from JBI and the Cochrane Qualitative Methods Group, no studies were excluded on the basis of quality. Rather, the quality assessment was used to help evaluate the relative strengths and limitations of the review (Caroll et al., 2012; Noyes et al. 2017; Porrit et al., 2014).

Data extraction

A pre-piloted form was developed for data extraction. Data extraction was performed by two independent researchers.

Data analysis and synthesis

A meta-aggregative synthesis of the qualitative data was planned (Munn et al., 2014). However, due to the fact that only one study was identified it was not possible to undertake a synthesis, hence a narrative description of the qualitative findings was reported.

Findings

Results of the Literature Search

The search identified 7,726 potentially eligible papers which were assessed on the information provided in the abstract using the review eligibility criteria. Duplicate papers were removed (n=579). Potentially eligible papers (n=42) were retrieved for full-text assessment. Papers (n=41) were excluded for the following reasons: (i) did not include qualitative data; (ii) did not report views or experiences of membrane sweeping or (iii) did not include the views of pregnant women. The literature search and inclusion process are detailed in the PRISMA Flow diagram (Moher et al., 2009) (Figure 1). Excluded studies are outlined in Table 3.

Characteristics of the Included Study

One study was included in the review (Happell-Parkins and Azin, 2016). (Table 2). This is a qualitative study conducted in a large metropolitan city in Midsouthern United States. Participants were women who planned to give birth to their first child without medical intervention, including pain-relieving drugs. The research question is: 'How do first-time mothers who decided to attempt labour and birth without medical intervention conceptualise and experience childbirth?' (p311).

The research employs a narrative inquiry approach. This approach is commonly used in qualitative research around maternal health and wellbeing and it has been suggested it is particularly well suited to studying birth stories, where birth is seen as a key life event and where the stories women tell about birth are central to making meaning from their experience and forming new identities (Carson et al., 2016). Six women were interviewed focusing on their lived experiences, stories, feelings, opinions and experiential knowledge. The small number of participants reflects the aims of narrative inquiry to produce rich life stories rather than representative data. Data were analysed using thematic analysis. Four themes are produced from the data: benefits and limitations of self-education in preparation for labour; experiences of relationality; importance of birth stories and expectations; complexities of informed choice.

The researchers contextualise their study in a city with high rates of poverty, poor access to healthcare and high rates of maternal and infant mortality. Rates of out-of-hospital birth are lower than the national rate (0.5% in 2010 compared to 1.2% nationally). However, the participants, recruited via local midwives and doulas and snowballing, were relatively homogenous: age 30-45 years, five out of six participants are white, one African-American, all are middle-class. One of the six participants had a home birth.

The paper was assessed as being of high to medium quality. (Table 4) There is a high level of congruity between the researchers' feminist, interpretivist perspective, their choice of methodology and the chosen data collection method. The findings are substantiated and illustrated with data excerpts. The research has appropriate ethical approval.

Findings from the Included Study

Only one finding from this study related directly to our research question. Evette is a white woman in her mid-30s who works at a hospital in the city as a research scientist (p313). Evette is described as choosing to 'purposefully concealing her birth plan' (p316) that included hypno-birthing, afraid of the potential responses of healthcare professionals. Evette, described the doctors 'stretching her cervix' (performing a membrane sweep) without her consent.

> *"Evette did not express anger about this non-consensual procedure; instead, she seemed to feel relieved that she had not experienced other more invasive procedures."* (p314)

This finding is reported in a longer section about the experiences of women who educate themselves in preparation for labour and make a birth plan but nonetheless find themselves 'caught up in the medical model hierarchies in ways they could not control' (p314). Elisa too reports receiving an unwanted episiotomy without consultation or consent:

> *"it's not what I wanted but I feel like it could have been something a lot worse"* (p314)

In Elisa's case, the 'something a lot worse' is made explicit; she has heard stories of forced inductions and caesarean sections.

The women in this study seem remarkably sanguine about received unwanted interventions to which they did not consent, feeling that it could have been 'worse'. This may be because their birth experience as a whole, with minimal intervention, nonetheless ran counter to the local norms and expectations. The transferability of this finding to other geographical contexts is unknown and indeed the narrative inquiry method does not lend itself to this kind of generalisation. Nonetheless, such accounts of disrespectful care in which women's consent is not sought – and in which women seem to expect nothing better - are hard to read and warrant further consideration.

In the discussion, we trace connections with related literatures that may further illuminate this isolated finding and make a case for further high-quality research in this area of maternity care.

Discussion

We set out to explore and synthesise the qualitative evidence around women's information needs, decision-making and experiences of membrane sweeping to promote spontaneous labour. Although membrane sweeping is part of an induction of labour care pathway, qualitative reviews of women's experiences and perceptions of induction of labour have not explicitly included membrane sweeping (Akuamoah-Boateng and Spencer, 2018; Lou et al., 2018; Coates et al., 2019).

It is therefore surprising that we identified so little qualitative evidence around women's information needs, decision-making and experience of membrane sweeping. Only one article met our inclusion criteria and included only one finding in relation to membrane sweeping. Nonetheless, we chose to report it here as per accepted systematic review reporting conventions (Moher et al. 2009), but also to draw attention to the lack of research in this field. The paucity of evidence is particularly concerning given current rates of induction of labour internationally (Vogel et al., 2014), and the use of membrane sweeping to reduce the need for formal induction. Membrane sweeping is a common practice that may be perceived as routine by midwives but is likely to be significant for women because of the intimate nature of the procedure, the potential for pain, and its significance as a means to start labour.

The specific finding of one woman's account of receiving a membrane sweep without consent is concerning. Informed consent is a fundamental principle in healthcare. We treat this finding cautiously as it is reported as an isolated case. However, a similar case was reported in Stevens and Miller (2012): the paper did not meet our criteria as the participants were not pregnant at the time of the study and were presented with hypothetical scenarios, however one participant reported the experience of being given a membrane sweep without adequate information:

> *"Unfortunately, I had my 'membranes stripped' without being told why or given any information. It was only afterwards that he mentioned the name of what he had done (I looked it up) – and that I could go into labour soon (which I did)."* (Stevens and Miller 2012: 253)

A case of membrane sweeping being conducted without consent has also been reported to the Irish Medical Council, and reported in the news media (Farsaci, 2016).

Related literatures also suggest the need for further research in this area. Three recent qualitative reviews of women's experiences of induction, although they do not mention membrane sweeping, identify information and decision-making as key issues. Akuamoah-Boeteng and Spencer (2018) and Lou et al. (2018) focus on women's experiences of post-term induction of labour, whereas Coates et al. (2019) include studies of women experiencing both low- and high-risk pregnancies. Each review included between 5 and 11 articles, with a degree of overlap and a total of 12 articles analysed

across the reviews. Articles reported research carried out in a range of national contexts including: UK, Australia, USA, Ireland, Canada, and Brazil. These reviews suggest that women are not given adequate information about formal induction of labour, and particularly about the risks of induction (Akuamoah-Boateng and Spencer, 2018; Coates et al., 2019). Women may not have clarity about why induction is booked and do not feel involved in decision-making (Coates et al., 2019). Many women see induction as a 'non-decision' (Lou et al., 2018) or 'unavoidable', imposed by hospital policy (Akuamoah-Boateng and Spencer, 2018). They had a sense that 'time's up' and they must conform to someone else's clock (Akuamoah-Boateng and Spencer, 2018; Coates et al., 2019). 'Feelings of resignation and acceptance at having to be induced were then described as women perceived they no longer had a role in decision-making' (Coates et al., 2019: 24). Compliance is assumed rather than healthcare professionals devoting time to information giving and shared decision-making (Lou et al. 2018). Women experience pressure to accept induction of labour from healthcare professionals and family members (Akuamoah-Boateng and Spencer, 2018).). One woman reported having a pessary inserted without her knowledge (Coates et al., 2019).

Decision-making and consent are sometimes complex in maternity care (Malacrida and Boulton 2014). Leonie et al. (2004) who found that nulliparous women planning a home birth were more likely to receive a membrane sweep from their midwife than nulliparous women planning a hospital birth. They conclude: 'The likely explanation is that midwives' interventions are a last resort for those planning a home birth to start or speed up labor so as to enable the woman to stay at home for the delivery' (p32). That is to say consent is given, sometimes reluctantly, to protect other birth choices.

Membrane sweeping involves a vaginal examination. Issues around information, decision-making and consent also arise in the related literature around vaginal examination in labour. One study, from midwives'perspective, found that midwives perceived that women have a high level of participation in the decision-making process for membrane sweeping as opposed to induction of labour in which it was felt obstetricians had the highest influence (Leonie et al. 2007). Nonetheless, Lewin, Fearon et al. (2005) reported that a third of women wished they had been provided with more information and two-fifths felt that they could not refuse a vaginal examination if they wished to. Membrane sweeping has been reported as a common 'treatment decision' for women and as a common midwifery-led intervention in late pregnancy (Leonie et al. 2007, Kortekaas et al. 2019). A recent study in the Netherlands (de Klerk et al., 2018) found that 35% of women reported a negative experience of vaginal examination during labour including the feeling that they could not stop the examination. A Cochrane review reported that while most women were satisfied with their experience of intrapartum vaginal examination, and saw it as a normal part of labour, some researchers found the potential for women to perceive examinations as painful or abusive, particularly where women had experienced sexual abuse (Downe et al., 2013). Scammel and Stewart (2014) in their ethnographic study of midwifery talk and practice, also document an example of vaginal examination being conducted without consent.

Taken together, the evidence suggests that although membrane sweeps may be seen as a routine intervention by midwives, it is not an inconsequential procedure for women. It is intimate and potentially painful. It is inextricably linked to the induction of labour pathway and as such does not stand alone but is linked as a first step towards induction or as a strategy to avoid formal induction. It is also intertwined with other birth choices, such as place of birth, and therefore accepting membrane sweeping may be a means to protect other birth choices. As with any other procedure or intervention, healthcare professionals should ensure full informed consent is given, and ensure it is clear that women can decline or stop the procedure at any time.

Personalised care, based in women's needs and women's decisions and underpinned by unbiased information, is central to maternity policy in the UK (NHS England, 2016). However, in practice, women reported that they 'do not always feel like the choice is theirs and that too often they felt pressurised by their midwives and obstetricians to make choices that fitted their services' (ibid., p32). Respectful care is fundamental to safe care (Prochaska 2015) and delivering personalised care is a key target for improving maternity services, including making services physically and emotionally safer.

Limitations

Conclusions are limited as the review process resulted in one included paper, and limited relevant evidence within that paper. Selection criteria may have limited the scope of the review including the restriction to English language and the exclusion of grey literature. These exclusions were made due to time constraints. After the rigorous search process, only one paper was included in the review and membrane sweeping was not the main focus of that article. Therefore, conclusions are drawn cautiously.

Nonetheless each step of the review process was followed. Reviews with few or no included papers may still have important implications in highlighting the current state of evidence in a field, including major gaps in the evidence base (Slyer 2016; Lang, Edwards and Fleiszer 2007). Yaffe et al. (2012) identified 9% of reviews in the Cochrane Database of Systematic Reviews were empty. Therefore, while this review offers minimal recommendations for practice, it does suggest directions for future research.

Further research

Our review identified a gap in the qualitative literature around women's experiences of membrane sweeping to promote spontaneous labour. Addressing this knowledge gap is vital in the context of rising rates of formal induction of labour. Further research might use qualitative approaches to investigate women's perspectives on their information needs and decision-making around membrane sweeping. Research questions include:

What are women's experiences of being offered membrane sweeping to promote spontaneous labour?

How do women understand the process of membrane sweeping, its purpose, efficacy and potential side-effects?

What information do women need to make informed choices about membrane sweeping? Where do women seek information about membrane sweeping?

In addition, research to explore how membrane sweeping is offered and performed in the clinical context could highlight issues in practice and barriers to providing woman-centred care. Qualitative research can analyse women's retrospective accounts, but conversation analysis might also be used to investigate clinical practices around membrane sweeping. This approach has been used effectively in other areas of maternity care to demonstrate that the ways in which choices are presented or consent is sought impact on women's ability to exercise choice and agency (Pilnick 2008, Jackson et al., 2017).

Implications for practice

The results of this review emphasize the importance of midwives ensuring that women give full informed consent for membrane sweeping. Healthcare providers may need to be especially mindful

to apply a rights-based approach (Prochaska 2015) to interventions that are perceived to be routine or minimally invasive. This should include the right of women to withdraw consent at any time, including during the procedure. It may be helpful, during the antenatal period, to provide women with complete information about the risks and benefits of membrane sweeping. Women may need information about the potential side-effects of membrane sweeping, including bleeding and contractions, how to manage these and when to seek advice.

Conflict of Interest

The review was funded by the Royal College of Midwives, UK.

Ethical Approval

Not applicable

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Figures and Tables

Table 1: Search terms

(Labour) Induced / Induction (Pre) Induction / Labour Cervical ripening / priming (pre) Labour Induction	and	Membrane sweeping Membrane stripping Membrane stretching Soften* Thin* Sweep* Strip* Stretch* Separating Effac* Dilat* Soften* Digital Finger Manual	and	Comfort / coping Pain Satisfaction Desire / wish Decision making / Choice Consent / rights Support / care Knowledge / information Understanding / belief Psychological / anxiety Self-efficacy Consent Behaviour Attitude / value Preference Experience Feelings Emotion / mood Fear / hope

Table 2: Included studies

First author Year Country	Study aim	Participants	Study design	Summary of the authors findings	Quality assessment
Happel-Parkins 2016 US	To understand and contextualise the childbirth experiences of first-time mothers who planned to have a natural childbirth	Six pregnant women who intended to have a natural childbirth. Recruited through contacts with local midwives, doulas, facebook groups and women's groups	Narrative inquiry using semi-structured life story interviews	Thematic analysis revealed four themes: (1) benefits and limitations of pre labour self-education (2) labouring women's experiences of relationality (3) the importance of birth stories and expectations (4) the creation of false dilemmas and complexities of 'informed choice'. US medical establishments, the media and society need to empower pregnant women by creating new narratives of labour and positive spaces for relationality. Healthcare professions need to critically examine their usage of the medical model of care while respecting women's choices and agency.	Medium to high

Table 3: Excluded Studies

First author Year	**Title**	**Reasons for exclusion**
Borrelli 2018	First time mothers' expectations of the unknown territory of childbirth: Uncertainties, coping strategies and 'going with the flow'	Does not include views and experiences of women and families about membrane sweeping
Bovbjerg 2014	What started your labour? Responses from Mothers in the Third Pregnancy, Infection and Nutrition Study	Does not include views and experiences of women and families about membrane sweeping

Brown 2015	Women's experiences of cervical ripening as inpatients on an antenatal ward	Does not include views and experiences of women and families about membrane sweeping
Chalmers 2015	Interventions in labour and birth and satisfaction with care. The Canadian Maternity Experiences Survey	Does not include views and experiences of women and families about membrane sweeping
De Miranda 2006	Membrane sweeping and prevention of post-term pregnancy in low risk pregnancies: a randomised controlled trial	Does not include views and experiences of women and families about membrane sweeping No qualitative data
Declerq 2008	Mothers' reports of their maternity experiences in the USA and Canada	Does not include views and experiences of women and families about membrane sweeping No qualitative data
Fenwick 2007	Believing in birth – choosing VBAC: The childbirth expectations of a self-selected cohort of Australian Women	Does not include views and experiences of women and families about membrane sweeping
Fleming 2017	Grand multiparous mothers' embodied experiences of natural and technological altered births	Does not include views and experiences of women and families about membrane sweeping
Gatward 2010	Women's experiences of being induced for post-dates pregnancy	Does not include views and experiences of women and families about membrane sweeping
Halvorsen 2013	Giving birth with rape in one's past: A Qualitative study	Does not include views and experiences of women and families about membrane sweeping
Hemistad 2007	Women's experiences and attitudes towards expectant management and induction of labour for post-term pregnancy	Does not include views and experiences of women and families about membrane sweeping
Henderson 2013	Women's experience of induction of labour: a mixed methods study	Does not include views and experiences of women and families about membrane sweeping
Hildingson 2011	Women's experiences of induction of labour – findings from a Swedish regional study	Does not include views and experiences of women and families about membrane sweeping
Jay 2018	In labour or in limbo? The experiences of women undergoing induction of labour in hospital	Does not include views and experiences of women and families about membrane sweeping
Jay 2018b	Induction of labour: How do women get information and make decisions?	Does not include views and experiences of women and families about membrane sweeping
Jolly 2019	"We are the one's who should make the decision" - knowledge and understanding of the rights-based approach to maternity care among women and healthcare providers	Does not include views and experiences of women and families about membrane sweeping Not conducted in an OECD country
Kyaw 2017	Management of pregnancy at and beyond 41 completed weeks of gestation in low-risk women	Does not include views and experiences of women and families about membrane sweeping
Mclean 2000	Method of delivery and subjective distress: Women's emotional responses to childbirth practices	Does not include views and experiences of women and families about membrane sweeping
Maher 2008	Progressing through labour and delivery: Birth time and women's experiences	Does not include views and experiences of women and families about membrane sweeping
Maimberg 2016	Women's experience of post-term pregnancy	Does not include views and experiences of women and families about membrane sweeping
Malacrida 2014	The best laid plans? Women's choices, expectations and experiences in childbirth	Does not include views and experiences of women and families about membrane sweeping
Moore 2015	Moving towards patient-centered care: Women's decisions, perceptions and experiences of the induction of labour process	Does not include views and experiences of women and families about membrane sweeping
Murtagh 2014	Women's experiences of induction of labour for post-dates pregnancy	Does not include views and experiences of women and families about membrane sweeping
Nystedt 2005	The negative birth experience of prolonged labour: a case referent study	Does not include views and experiences of women and families about membrane sweeping
O'Brien 2013	Women's experiences of outpatient induction of labour with remote continuous monitoring	Does not include views and experiences of women and families about membrane sweeping
Oster 2011	Inpatient versus outpatient cervical priming for induction of labour: Therapeutic landscapes and women's preference	Does not include views and experiences of women and families about membrane sweeping
Roberts 2018	"Babies come when they are ready" Women's experiences of resisting the medicalisation of prolonged pregnancy	Does not include views and experiences of women and families about membrane sweeping

Schaffir 2002	Survey of folk beliefs about induction of labour	Does not include views and experiences of women and families about membrane sweeping
Simpson 2010	Patients' perspectives on the role of prepared childbirth education in decision making regarding elective labour induction	Does not include views and experiences of women and families about membrane sweeping
Scamell 2014	Time, risk and the midwife practice: the vaginal examination	Does not include views and experiences of women and families about membrane sweeping
Schwarz 2016	Women's perception of induction of labour outcomes	Does not include views and experiences of women and families about membrane sweeping
Scotland 2011	Women's preferences for aspect of labour management: results of a discrete choice experiment	Does not include views and experiences of women and families about membrane sweeping
Stevens 2012	Overdue choices: How information and role in decision-making influence women's preferences for induction of prolonged pregnancy	Does not include views and experiences of women and families about membrane sweeping Participants do not include pregnant women or women in the post-natal period
Stewart 2005	'I'm just going to wah you down': sanitising the vaginal examination	Does not include views and experiences of women and families about membrane sweeping
Sutton 2016	Patient attitudes towards outpatient cervical ripening prior to induction of labour at an Australian tertiary hospital	Does not include views and experiences of women and families about membrane sweeping
Tan 2006	Membrane sweeping at initiation of formal labour induction: a randomised controlled trial	Does not include views and experiences of women and families about membrane sweeping Not conducted in an OECD country
Van der Hulst 2004	Does a pregnant woman's' intended place of birth influence her attitudes toward and occurrence of obstetric interventions	Does not include views and experiences of women and families about membrane sweeping
Vos 2014	Constructing the uncertainty of due dates	Does not include views and experiences of women and families about membrane sweeping
Westfall 2004	The rhetoric of 'natural' in natural childbirth: childbearing women's perspectives on prolonged pregnancy and induction of labour	Does not include views and experiences of women and families about membrane sweeping
Wong 2002	Does sweeping of the membranes beyond 40 weeks reduce the need for formal induction of labour?	Does not include views and experiences of women and families about membrane sweeping Not conducted in an OECD country
Yildirim 2010	Membrane sweeping to induce labour in low-risk patients at term pregnancy: a randomised controlled trial	Does not include views and experiences of women and families about membrane sweeping

Table 4 Quality Assessment

JBI Critical Appraisal Checklist for Qualitative Research

Reviewer Julie Roberts Date 14/5/19

Author Happel-Parkins Year 2016 Record Number 1

	Yes	No	Unclear	Not applicable
1. Is there congruity between the stated philosophical perspective and the research methodology?	X☐	☐	☐	☐
2. Is there congruity between the research methodology and the research question or objectives?	X☐	☐	☐	☐

3.	Is there congruity between the research methodology and the methods used to collect data?	X☐	☐	☐	☐
4.	Is there congruity between the research methodology and the representation and analysis of data?	X☐	☐	☐	☐
5.	Is there congruity between the research methodology and the interpretation of results?	X☐	☐	☐	☐
6.	Is there a statement locating the researcher culturally or theoretically?	X☐	☐	☐	☐
7.	Is the influence of the researcher on the research, and vice- versa, addressed?	☐	X☐	☐	☐
8.	Are participants, and their voices, adequately represented?	X☐	☐	☐	☐
9.	Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	X☐	☐	☐	☐
10.	Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	X☐	☐	☐	☐

Overall appraisal: Include x Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

Figure 1 PRISMA flow diagram: Women's information needs, decision making and experiences of membrane sweeping to promote spontaneous labour.