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What are women's mode of birth preferences and why? A systematic scoping review

Abstract

Background: The optimal caesarean section rate is estimated to be between 10-15%; however, it is much higher in high and many middle-income countries and continues to be lower in some middle and low-income countries. While a range of factors influence caesarean section rates, women's mode of birth preferences also play a role. The aim of this study was to map the literature in relation to women's mode of birth preferences, and identify underlying reasons for, and factors associated with, these preferences.

Method: Using a scoping review methodology, quantitative and qualitative evidence was systematically considered. To identify studies, PubMed, Maternity and Infant Care, MEDLINE, and Web of Science were searched for the period from 2008 to 2018, and reference lists of included studies were examined.

Findings: A total of 65 studies were included. While the majority of women prefer a vaginal birth, between 5-20% in high-income countries and 1.4 to 50% in low-middle-income countries prefer a caesarean section. The six main reasons or factors associated with a mode of birth preference were: 1) perceptions of safety; 2) fear of pain; 3) previous birth experience; 4) encouragement and dissuasion from health professionals; 5) social and cultural influences; and 6) access to information and educational levels.

Conclusion:

To help ensure women receive the required care that is aligned with their preferences, processes of shared decision-making should be implemented. Shared decision-making has the potential to reduce the rate of unnecessary interventions, and also improve the willingness of women to accept a medically-indicated caesarean section in low-income countries.

Keywords: caesarean section, mode of birth preferences, shared decision-making, childbirth fear, vaginal birth

Statement of Significance

Problem

The caesarean section (CS) rate has risen dramatically over recent decades, particularly in high and middle-income settings, often without a clear reason.

What is Already Known

While a range of factors influence CS rates, women's mode of birth preferences also play a role.

What this Paper Adds

While the majority of women prefer a vaginal birth (VB), a large minority of women have a preference for CS. The most common reasons for a CS preference included fear of pain, a perception that CS is safer than VB, a previous negative birth experience, the influence of healthcare professionals, friends and family, and limited access to information/education.

Introduction

The caesarean section (CS) rate has risen dramatically over recent decades¹⁻⁴, particularly in high and middle income settings, often without a clear reason^{1-3,5,6}. The optimal CS rate, i.e. the CS rate that is not associated with increased maternal or perinatal mortality or morbidity, is estimated to be between 10-15%⁷⁻⁹. A CS rate below 5-10% is associated with increased maternal and neonatal mortality⁹, and a CS rate of higher than 15% is not associated with reduced mortality^{7,8}. The CS rate is much higher than 15% in high and many middle-income countries. The CS rate is 34% in Australia^{10,11}, 32.2% in the United States (US)¹², 26.2% in the United Kingdom (UK)¹², 26% in Canada¹², 50.4% in Turkey¹³ and 58.1% in the Dominican Republic¹⁴. The global CS rate is 21.1%, which has almost doubled since 2000 (12.1%)¹⁴. Nonetheless, the CS rate in some low and middle-income countries continues to be much lower and remains below what is considered optimal. The CS rate is 5.5% in certain areas of Pakistan¹⁵, 6% in Tanzania¹⁶, and as low as 2% in sub-Saharan African countries like Burkina Faso and Niger^{14,17}. While the low CS rate in these regions can be largely attributed to structural issues such as inadequate resourcing¹⁸, some women refuse or are reluctant to accept a medically-indicated CS because of personal values and beliefs^{17,19,20}. A rise in the CS rate in these regions reflects improvements in care, as more women receive this potentially life-saving intervention¹⁸; this, however, is not true for high and most middle-income countries where an increasing proportion of CS are performed for non-medical reasons^{5,6}.

Estimates indicate that in high and many middle-income countries, between 35% and 43% of the overall CS rate is for women with 'low risk pregnancies'^{5,6,14,21,22}. While CS is a relatively safe procedure, low-risk planned CS is nonetheless associated with higher maternal morbidity than planned vaginal birth²³. It is also associated with 'early term' birth^{24,25} (i.e. birth between 37-39 weeks); in 2015 between 42-60% of Australian women who had a planned CS before 39-weeks either did not have a medical indication for CS or did not have an indication for birth before 39

weeks²⁶. Early birth is associated with numerous complications^{26,27}, including increased admission to neonatal intensive care for respiratory problems, risk of hypoglycaemia and jaundice^{26,28,29}, and longer term complications such as increased risk of infections, poorer performance in schools and attention deficit hyperactivity disorder^{27,30}.

The decision to perform a medically unnecessary CS is influenced by a range of factors, including clinician-related factors such as clinician beliefs and attitudes, confidence and skills as well as maternal factors³¹⁻³³. A CS can be maternally requested in the absence of medical or obstetric indications, and this is known as CS on maternal request (CSMR)^{33,34}; however, whether a CSMR should be granted is an issue of some debate. While a number of clinical guidelines indicate that a women's request should be supported, providing that she has been informed of, and understands, the risks and benefits^{33,34}, the World Health Organization (2015) does not support CSMR³⁵.

The aim of this study was to systematically map the literature in relation to women's mode of birth (MOB) preferences and attitudes, and map the underlying reasons for, and factors associated with, their preferences. Our aim was to provide an up-to-date overview of the field, to gain insight into the nature of the evidence and identify research gaps. Gaining an understanding of women's MOB preferences and the reasons behind these preferences can help identify ways in which women can be best supported to receive care that is evidence based as well as informed by their beliefs, values and preferences.

Method

Using a scoping review methodology, quantitative and qualitative evidence was systematically considered to gain insight into women's MOB preferences, as well as the underlying reasons for, and

factors associated with, these preferences. The aim of a scoping review is to map the literature relevant to a broad research question to gain insight into the nature of the evidence and identify research gaps³⁶⁻³⁸, and is an appropriate alternative to a systematic review when literature is vast and complex³⁶⁻³⁸. While a scoping review has less depth than a traditional systematic or integrative review, it has a broader conceptual range, and allows for a diversity of relevant literature and studies using different methodologies to be considered^{37,38}. The review process followed the PRISMA reporting guidelines for scoping reviews (PRISMA-ScR) (as per the review protocol, unregistered).

Relevant studies were identified through a range of methods. In the first instance, the databases PubMed, Maternity and Infant Care, MEDLINE, and Web of Science were searched for the period from 2008 to 2018. The databases were searched using the terms 'caesarean section', 'cesarean', 'mode of birth', and 'birth mode', in combination with the terms preferences, values, beliefs and attitudes. Following this, the reference lists of articles were examined for further articles (See Figure 1).

Insert Figure 1

References were imported into EndNote for screening. All articles were reviewed by reading the title, abstract and if required, full text for inclusion as per the criteria outlined in Table 1.

Insert Table 1: Inclusion and exclusion criteria

Information relevant to the research question (i.e. study aim, participants, sample size, methods, and findings relevant to the research question) was extracted from each article by two reviewers independently using a purposely designed data extraction template.

The quality of included studies was assessed by two reviewers using the Mixed Method Appraisal Tool (MMAT) version 2011³⁹. This tool was selected as it is well suited to a public health context⁴⁰ and meets accepted standards in terms of validity and reliability^{41,42}. MMAT consists of a checklist with 19 items to assess the quality of five different types of studies (qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies, and mixed method studies)⁴³. An overall methodological quality score was calculated using the tool for each included study. Scores are expressed as the number of criteria met out of four, ranging from 25% (one criterion met) to 100% (all criteria met). For mixed method studies, the overall quality score is the lowest score of the study components (qualitative and quantitative). Given our aim to provide a comprehensive overview of the field, no studies that met criteria were excluded based on the quality assessment.

A numerical analysis of the nature of the studies and thematic analysis of the study findings was conducted, and results are reported narratively and tabularly^{37,38}.

Findings

The review identified a total of 65 studies, 48 quantitative and 17 qualitative, with a total of 156,666 participants (Supplementary file 1). Specifically we identified 37 cross sectional survey studies^{20,44-79}, three longitudinal survey studies⁸⁰⁻⁸², seven cohort studies⁸³⁻⁸⁹, one medical record analysis⁹⁰, and 17 qualitative studies^{17,19,91-105}.

A total of 42 studies came from high-income countries^{44-46,48-53,60,62-66,68,70,72,73,75-83,85-94,97,101-103}, 21 from middle-income countries^{20,47,54-59,61,67,69,71,74,84,95,96,98-100,104,105}, and two from low income countries^{17,19}.

Twenty studies were from Europe^{46,54,55,63,64,68,73,75,78-83,85-87,89,102,103}, 17 from Asia^{47,59-61,69,71,84,90,93,95-100,104,105}, 14 from North America^{44,45,48-50,52,53,62,65,70,72,88,92,101}, eight from Africa^{17,19,20,56-58,67,74} four from Australia^{66,76,91,94}, one from South America⁵¹, and one study included 8 countries across multiple continents⁷⁷.

Seventeen studies regarded women who had had a previous CS^{17,19,20,56,57,59-62,65,68,70,72,76,82,91,93}, 13 included first-time pregnant women/mothers only^{44,45,47,69,71,85,87,88,92,94,97,99,102}, 30 included pregnant or postpartum women regardless of parity (first-time pregnant women/mothers, primiparous and multiparous women)^{46,49-54,58,63,66,67,73,74,78-81,83,84,86,89,90,95,96,98,100,101,103-105}, three only included nulliparous non-pregnant women^{45,48,77}, and three studies included a random population sample^{55,64,75}. Further characteristics are included in Table 2: *Characteristics of included studies*.

The quality of included studies was mostly high, with 31 studies rated as 100% (meeting all quality criteria), 31 as 75% (meeting 3/4 criteria) and three at 50% (meeting 2/4 criteria) (Supplementary file 1: Included studies).

Insert table 2: Characteristics of included studies.

Mode of birth preferences and attitudes

A total of 36 studies provided findings in relation to MOB preferences (34 quantitative and 2 qualitative). Of these, 24 were set in high-income countries and 12 in low or middle-income countries. Women's MOB preferences, in particular the CS preference rate, varied considerably between countries and studies, across high, middle and low-income settings.

MOB/CS preference rate

In high-income countries, the CS preference rate ranged from 5% in Norway⁷⁸ to 20% in Italy⁷⁵. The Norwegian study (N= 65,959 pregnant women) found that 5% of women had a preference for CS, 84% for vaginal birth (VB), and the remaining 11% were neutral⁷⁸. In the Italian study, participants (1,000 nationally representative women) did not have the option to select neutral; with this in mind, this study found that 20% of women indicated a preference for CS and 80% for VB⁷⁵. This range (5% to 20%) is consistent with a study that compared the CS preference rate of non-pregnant female university students (≤ 40 years) in eight high-income countries (N= 3616), and found that while an average 10% of young women preferred a CS, the preference rate ranged from 7.6% in Iceland to 18.4% in Australia⁷⁷. For high-income countries, most of the studies that investigated MOB preference came from Europe and North America. Overall, with the exception of Italy (20%)⁷⁵, the CS preference rate was lower in European studies (5% to 9.8%)^{46,78-81} than studies from North America (11% to 14%)^{44,48-50,52}. One study from Trinidad (an Island of South America) found a CS preference rate of 6.8% (N=368)⁵¹.

In middle-income countries, the CS preference rate ranged from 1.4% in Nigeria⁷⁴ to 50% in Turkey⁵⁴. The Turkish study found that while only 13% of women identified CS as their ideal MOB, 50% indicated they would prefer a CS (N=423)⁵⁴. A study from Shanghai found that 28.4% of first-time pregnant women preferred a CS, 60.9% a VB and 10.7% had no preference (N=272)⁴⁷. A study from Iran found that 18.6% of first-time pregnant women preferred a CS (N=797)⁷¹. The CS preference rate in China is between 13.2% and 17% (N=523)⁸⁴, and between 25-28% in Shanghai (N= N=272)⁴⁷. The studies that reported the lowest CS preference rate came from Nigeria^{20,57,58,74}. These studies found that Nigerian women were reluctant to request or accept a CS, even when medically indicated; 1.1% of Nigerian women reported they would refuse a CS under any circumstances^{57,74}. There were no studies from low-income countries that measured the MOB preference rate.

The considerable variation in women's MOB preferences reported by these studies may be explained, at least in part, by the different study designs and populations (see Table 2: study characteristics). There was considerable variation in studies in terms of when surveys were administered (during early pregnancy, middle or late pregnancy, postnatally, or random population samples), which would likely impact on MOB preferences. Furthermore, the sample of included women in each study likely varied, in terms of how many women in the included sample had medical indications for CS. Most studies reported on their sample as a whole, reporting on the preferences of women with medical indications for CS and those without as one group, making it impossible to report on these groups separately (A summary of each study is provided in supplementary file 1). A number of studies did consider the influence of a previous CS as well as parity on MOB preferences, as reported below.

The influence of parity and previous CS on MOB preferences

A CS preference was associated with parity and having had a previous CS. A number of studies found that parous women were more likely to have a preference for a CS than first-time pregnant women^{80,83}. A cohort study that included six European countries (N=7200) found that a CS was preferred by 3.5% of first-time pregnant women versus 8.7% of parous women⁸³. This observation was consistent across all six countries, Belgium (2.1% versus 6%), Iceland (4% versus 8.2%), Denmark (3.3% versus 11.9%), Estonia (4.3% versus 7.6%), Norway (3.5% versus 9.6%) and Sweden (3.5% versus 6.4%). A large cross sectional survey study in Norway (N=58,881 pregnant women) reported similar findings (2.4% versus 5.1%)⁷⁹. This finding was not supported by one study from Hungary (N=488), which did not find a difference in MOB preference based on parity. A key reason some studies may have found MOB preference as associated with parity while others did not may relate to whether (or how many)

women with a previous CS were included in the sample; women with a previous CS are more likely to prefer a CS than first-time pregnant women or women who had a previous VB ⁷⁹.

Eight studies specifically investigated the MOB preferences of women who had a previous CS, three from high-income countries ^{49,52,60} and five from middle-income countries ^{20,56,57,59,61}. In relation to high-income settings, studies came from the US and Japan. Just over half (55%) of Japanese women preferred a repeat CS (N=121) ⁶⁰, and just under half (46%) of American women (N=396) ⁴⁹. Lower rates were reported by an American study that investigated the preferences of women of low socioeconomic status and found that only 27.3% preferred a repeat CS (N=308) ⁵². In relation to middle-income settings, studies came from Pakistan and Nigeria. In Pakistan 19.3% of women preferred a repeat CS (N=150) ⁵⁹, but 70% reported they would be willing to consider a repeat CS if medically indicated (N=717) ⁶¹. Studies from Nigeria assessed women's willingness to accept a repeat CS, rather than assessing MOB preference (as was the aim of studies from high and most middle-income countries). These study found that between 18.4% and 30.8% of Nigerian women would not accept a repeat CS, even if medically indicated ^{20,56,57}.

When are MOB preferences made?

Studies that investigated when MOB preferences were made found that the preference is made before pregnancy ^{86,89,92 91} or during the first trimester ^{49,91}, and that this preference remains relatively stable throughout pregnancy ^{47,80,81}. A study from Hungary found that a CS preference increased from 6.5% in mid pregnancy to 7.5% at term (N=488) ⁸¹; a study from Sweden found that the CS preference reduced from 7.6% during mid pregnancy to 7% in late pregnancy ⁸⁰; and a study from Shanghai showed that there was no significant difference between women's preferences for CS in early (25%) and late pregnancy (28%) N=272 ⁴⁷. Only one study, from China, showed a significant increase in CS preference between the second and third trimester, from 13.2% to 17.0% (N=523) ⁸⁴.

The MOB preference for women who had a previous CS seems less stable. A longitudinal study from the UK found that only 57% of women who had a previous CS held the same preference for MOB between mid and late pregnancy (N=742)⁸². Of the women who changed their preference, most (76%) changed their preference from attempted vaginal birth after CS (VBAC) to repeat CS⁸².

Attitudes towards CSMR

Seven studies assessed young women's attitudes towards CSMR, five from high-income countries^{45,49,53,63,64} and two from middle-income countries^{55,58}. The extent to which CSMR is supported varied between studies and countries.

In relation to high-income studies, a study from the US found that while only 6.1% of pregnant women rated CSMR as "a good idea", 85.9% believed that women should have the right to choose their MOB, and 79.6% believed that everyone should be offered a CSMR (N=833)⁵³. Another US study found that 75% of pregnant women believed CSMR should be an "informed choice" (N=396)⁴⁹. Support for CSMR was much lower in a study from the UK, which found that only 20% of pregnant women believed that a CSMR should always be supported (N=166)⁶³. Specifically, 19.4% felt that a request for CS by women with no previous children should be supported, 15.6% for women who already had a previous normal birth, and 22% for women who had a previous forceps or vacuum birth⁶³.

Two studies assessed the views of non-pregnant women in relation to CSMR, reporting similar findings. A Canadian study assessed the attitudes of nulliparous women towards CSMR and found that 28.6% of women had a favourable attitude towards CSMR (N=140)⁴⁵. A Swedish study assessed the attitudes of a representative population sample of women (N=1066), and found that 31% of

women indicated a woman should have the right to have a CSMR, while 69% of women believed that CS should be decided on for medical reasons only ⁶⁴.

In relation to middle-income countries, a study from Turkey found that 47% believed CSMR should be supported (N=366) ⁵⁵. A study from Nigeria found that 29.0% of women believed that women should have the right to make their own MOB decisions, including CSMR (N=752) ⁵⁸.

Reasons for, or factors associated with, a MOB preference

A total of 57 studies (40 quantitative and 17 qualitative) investigated the reasons for, or factors associated with, MOB preferences. While some studies regarded reasons for MOB preferences more broadly, the majority of studies assessed women's reasons for, or the (non-medical) reasons associated with, a CS preference. A small number of studies, restricted to low middle or low-income countries, investigated women's refusal of, or reluctance to accept, a CS when medically indicated.

The participant groups included in these studies varied; out of the 57 studies, two had a random population sample (pregnant, non-pregnant, nulliparous and parous) ^{55,75}; three included nulliparous non-pregnant women only ^{45,48,77}, nine regarded first-time pregnant women/first-time mothers ^{47,69,71,85,87,88,97,99,102}, 17 only included women who had a previous CS ^{17,19,20,56,59,61,62,65,68,70,72,73,76,91-94}, and 26 included pregnant women/new mothers regardless of parity (first-time pregnant women/primiparous and multiparous women). ^{46,49,51-54,57,58,63,66,67,74,79,80,83,86,89,90,95,96,98,100,101,103-105}

Thematic analysis of the findings of these studies identified six main reasons or factors associated with a MOB preference: 1) perceptions of safety and recovery; 2) fear of pain associated with childbirth; 3) previous birth experience; 4) encouragement and dissuasion from health professionals;

5) social and cultural influences/personal beliefs and values; and 6) access to information and educational levels (see Table 3: Reasons for MOB preferences).

Insert Table 3: Reasons for MOB preferences

Perceptions of safety and recovery

A total of 35 out of 57 studies (25 quantitative and 10 qualitative) identified perceptions of safety and recovery as a key influence on MOB preferences. While the majority of these studies regarded CS preferences, those studies that investigated reasons for MOB preferences more broadly found that perceptions of safety and recovery were associated with both a VB and CS preference^{65,75,101}. An Italian study (N=1,000 representative sample) found that the main reason 80% of women preferred a VB was because they perceived VB as safer and easier in terms of recovery; the 20% of women who preferred a CS also listed perceptions of safety, specifically a belief that a CS is less traumatic for the baby, as a key reason for their preference⁷⁵. A US study (N=283) that assessed why some women prefer a VBAC while others request a CS found that women planning to have a VBAC perceived a CS as the riskier option, while women who wanted a repeat CS perceived a VBAC as the riskier option⁶⁵. A qualitative study from the US (N=168) also found that issues around safety were common reasons given for wanting either a VB or CS¹⁰¹.

Studies that investigated why women requested a CS consistently highlighted perceptions of safety and recovery as a key reason, regardless of parity. Studies that investigated CS preference of nulliparous non-pregnant women^{45,48,77}, of women who had had a previous CS^{65,68} and of pregnant women or new mothers generally (nulliparous or parous)^{49,52,62,63,66,87,89 51,88 53,55,58,61,67,69,73} all highlighted perceptions of safety as key reason for preferring or requesting a CS. For example, a

study from the US (N=833 pregnant women) found that 18.3% of women indicated that they thought that CS was a safer alternative for the mother and 27.2% thought CS was safer for the fetus⁵³.

In terms of the specific concerns that women reported, while some studies reported rather vaguely that women were concerned about ‘complications’ associated with VB ^{67,69,88}, other studies identified more specific concerns in relation to the safety of the baby ^{49,53,55,58,61,66,87,89} or the potential damage of VB for the mother ^{45,48,52,53,55,58,61,77}. In particular, studies found that women were concerned about vaginal tears/episiotomies during VB ⁵², prolapse or incontinence ^{55,58,66,67} and the impact of VB on vaginal injury and sexual enjoyment ^{58,68}. Specific to repeat CS, studies found that women were concerned about the risk of uterine rupture ⁶⁸.

These findings are by and large consistent across studies from high-income and middle-income countries. However, some of the studies from low middle-income countries (specifically Nigeria) assessed why women refused, or were reluctant, to accept a medically indicated CS ^{20,57,61,74}. Three studies from Nigeria ^{20,57,74} and one from Pakistan ⁶¹ found that a key reason women refuse a medically-indicated CS is because they perceived CS as less safe than a VB and more complicated in terms of recovery.

These quantitative findings are supported by ten qualitative studies. In relation to high-income settings, a study from Australia (N=14) found that first-time mothers who had requested a CS constructed VB as dangerous and believed VB would result in physical injury to both themselves and/or their baby ⁹⁴. Studies from Canada (N=17) ⁹², Sweden (N=12) ¹⁰², the US (N=168) ¹⁰¹, the UK (N=115) ¹⁰³ and Taiwan (N=20) presented similar findings ⁹⁷. Studies that investigated why women request a repeat CS over a VBAC also highlighted perceptions of safety as key (Taiwan, N=21) ⁹³.

Similar findings are presented in three qualitative studies from middle-income countries, all from Iran^{95,99,100}.

Fear of pain associated with childbirth

A total of 28 studies (19 quantitative and 9 qualitative) identified fear of pain as a primary reason for, or factor associated with, a CS preference. A total of 19 quantitative studies, from both high and middle-income countries, identified fear of pain as important^{45,48,49,51,54,55,58,66-68,73,75,77,79,80,83,85,86,89}, although the extent to which a CS preference was related to fear of pain varied between studies and countries. A study with nulliparous university students across eight high-income countries (N=3616) found that 77.8% of participants were worried about childbirth pain⁷⁷, while an Australian study with pregnant women who wanted a CSMR in a private hospital setting found that only 11.5% identified fear of pain a key reason (N=78)⁶⁶.

Nonetheless, studies that measured the level of fear experienced by women who wanted a CS versus those who wanted a VB found that the women who requested a CS experienced significantly higher levels of childbirth fear^{79,85,89}. A large Norwegian study including 58,881 pregnant women found that first-time pregnant women who experienced childbirth fear were 27 times more likely to request a CSMR than women without childbirth fear⁷⁹. Similarly, a Swedish study found that 43.4% of women who requested a CS showed a clinically significant fear of birth (N=496)⁸⁵. These findings are consistent with findings from a German study which also found that women who underwent a CSMR had a higher fear of childbirth than those who had a VB (N=57)⁸⁹.

These findings are supported by nine qualitative studies, four from high-income⁹¹⁻⁹⁴ and five from middle-income countries^{95,96,99,100,104}. In relation to high-income settings, two studies from Australia (N=14)⁹⁴ and Canada (N=17)⁹² investigated why first-time mothers requested a CS. Both studies

identified fear of VB as a key reason, particularly fear of the potential damage VB may cause as well as fear of pain^{92,94}. Two studies, from Australia (N=16)⁹¹ and Taiwan (N=20)⁹³, investigated why women who had a previous CS opt for a repeat CS rather than a VBAC; both these studies identified fear of pain as a primary reason^{91,93}.

Five studies from middle-income settings reported similar findings (four studies from Iran^{95,96,99,100} and one from Lebanon¹⁰⁴). Both studies that investigated why first-time mothers requested a CS⁹⁹, and studies that included parous women^{95,96,100,104} identified fear as a key factor.

Previous birth experience

Thirteen studies (10 quantitative and 3 qualitative) identified previous birth experience, including a previous CS, to influence MOB preference. Ten quantitative studies from high-income countries identified a CS preference as associated with a previously negative birth experience, including a previous CS^{46,51,52,59,62,65,73,79,80,83}. For example, a large Norwegian study including 58,881 pregnant women found that the odds for preferring CS were 6 times greater among women with a previous CS and 3-6 times greater among women with a previous negative birth experiences⁷⁹. A German study found that women who preferred a VB were much more likely to describe their previous birth experience as positive than those who preferred a CSMR (1.7% and 52.0% respectively, $p = 0.007$) (N=201)⁴⁶. Studies that specifically investigated why some women opt for a repeat CS while others prefer to attempt a VBAC also identified previous birth experience as a key influence on decision making^{59,62,65}. For example, a study from the US found that women who plan to have a VBAC were less satisfied overall with their previous birth than women who opted for a repeat CS (N=289)⁶⁵.

These quantitative findings are supported by three qualitative studies (from the US, the UK and Taiwan)^{93,101,103}. These studies found that women's MOB preference was motivated by a desire to avoid a repeat of their previous birth experience (e.g. an emergency CS)^{93,101,103}.

Encouragement and dissuasion from health professionals

Ten studies (seven quantitative and three qualitative) identified encouragement and dissuasion from health professionals as an influencing factor on MOB preferences. An Italian study with a representative sample of 1,000 women found that women who preferred a CS (20%) identified the influence of their obstetrician as a key factor⁷⁵. A US study (N=396) that investigated why women requested a CS found that 31% indicated they were influenced by their doctor⁴⁹. In a similar study from Shanghai (N=272) 60% of women reported being influenced by their doctor⁴⁷. Similar findings were reported in a study from Iran⁷¹.

Specific to decisions in relation to repeat CS versus VBAC, a number of studies found that women's preferences were associated with healthcare provider recommendations^{62,68}. A study from Switzerland (N=349) found that the most important factor influencing the decision to attempt a VBAC versus have a repeat CS was care provider recommendations⁶⁸. This study found that women who were counselled by their main care provider to attempt a VBAC had 4.2 times the odds of choosing to do so ($p=0.001$)⁶⁸. Similarly, a US study (N=101) found that 95% of women reported that their preference or decision in relation to repeat CS or VBAC was influenced by their doctors' preferences and recommendations⁶². Another US study (N=68) found that a third of the women (6/18) perceived their own desire to have a repeat CS to be much lower than their care provider's preference; ten of the 18 good candidates for successful VBAC perceived that their healthcare provider recommended a repeat CS⁷².

An Australian study (N=14) that investigated why women requested a CSMR for their first pregnancy also identified the influence of doctors as important in their decision making, as doctors reinforced the belief that CS was the safer option ⁹⁴. This finding is consistent with findings from two further qualitative studies from Iran (N=14) ⁹⁹ and Lebanon (N=22) ¹⁰⁴. The Iranian study found that a request for CS was related to their trust in obstetricians, and lack of trust in maternity ward staff ⁹⁹.

Social and cultural influences/personal beliefs and values

A total of 15 studies (nine quantitative and six qualitative) identified social and cultural influences or personal beliefs and values as an important influence on MOB preferences. Two of these studies came from low income countries ^{17,19}, six from middle-income countries ^{20,56,58,74,98,105} and seven from high-income countries ^{48,49,65,75,76,92,94}.

In relation to high-income countries, quantitative ^{48,49,76} and qualitative ^{75,92} studies found that a CS preference or decision to request a CS is influenced by friends and family. A US study (N=283) also highlighted the influence of online communities on MOB preferences ⁶⁵. In relation to personal values, a qualitative study from Australia (N=14) found that first-time mothers who requested a CSMR did not place a lot of value on the birth process and did not value VB any greater than CS ⁹⁴. A qualitative study from Iran (N=18) found that women request a CS because it is culturally accepted/the norm and perceived as easier than VB ¹⁰⁵.

Studies that investigated why some women refuse a medically indicated CS in low or low middle-income settings also found that women are influenced by social and cultural factors. Common reasons reported by five studies of why women may refuse a CS included religious beliefs ^{19,56,74}, fear of being judged or criticized by their community ^{19,58}, domestic violence ²⁰, and a belief of CS as unnatural ^{17,98}.

Access to information and educational levels

A total of 13 quantitative studies investigated the influence of access to information and educational levels on MOB preferences. The majority of these studies, in both high and middle-income settings, found that a preference for CS is associated with limited access to information or lower levels of education^{68,71,75,77,86-88,90}. A study conducted across eight high-income countries found that preferences for CS declined as the level of confidence in women's knowledge of pregnancy and birth increased⁷⁷. A US study (N=232) found that women who wanted a CSMR were less likely to be college-educated than women who wanted a VB (72.4% versus 90.2%, $p = 0.009$)⁸⁸. One study from Turkey did not find a correlation between educational levels and MOB preferences⁵⁵.

Specific to decisions in relation to repeat CS, a US study (N=45) found that of women who were deemed to have high knowledge, 55% chose VBAC, whereas 24% chose repeat CS⁷⁰. This finding was not supported by a study from Trinidad (N=368) which found that women who preferred a CS had high levels of knowledge regarding CS⁵¹.

In relation to women's willingness to accept a CS when medically indicated, a study from Pakistan (N=717) found that women who had higher levels of education were more likely to accept a medically-indicated CS⁶¹. In relation to CSMR, a study from Nigeria did not find an association between educational status and willingness to request a CS (N=752)⁵⁸.

Discussion

This review systematically mapped the quantitative and qualitative evidence in relation to women's MOB preferences and the non-medical reasons for these preferences. The review identified a total of 65 studies, of which 36 presented findings in relation to MOB preferences and attitudes (including when these preferences are made) and 57 explored possible reasons. While estimates vary between countries, the majority of women prefer a VB. However, a large minority of women have a preference for CS, ranging from 5-20% in high-income countries and from 1.4%-50% in low-to-middle-income countries ⁵⁴.

The most common reasons for a CS preference included fear of pain, a perception that CS is safer than VB (for both the mother and the baby), a previous negative birth experience (e.g. a previous emergency CS), the influence of healthcare professionals, friends and family, and limited access to information/education. A large number of studies found that women were influenced by health professionals in their decision-making, and that better access to information reduces a CS preference.

These findings highlight the importance of providing women with the information they need to make informed decisions. Many women are influenced by their healthcare professionals in their decision to request a CS, often without being informed of the benefits and risks associated with CS versus VB⁹⁴. While clinical guidelines increasingly highlight the importance of shared decision-making^{34,106}, this continues to not occur consistently in clinical practice ^{72,107}. Shared decision-making refers to a process of decision-making where women are provided with information about the risks and benefits associated with different treatment options, so that they can make informed decisions that

are in line with their beliefs, values and preferences^{108,109}. Shared decision-making is now widely recognised as an integral component to the provision of high-quality maternity care¹¹⁰⁻¹¹².

Shared decision-making is not only associated with improved satisfaction and outcomes^{111,113}, but is increasingly put forward as a strategy to reduce the overuse of interventions¹¹⁴⁻¹¹⁷. This is consistent with a number of studies included in this review that found that women who have access to information and knowledge to make informed choices are less likely to prefer or request a CS^{70,77}. Furthermore, a number of studies have shown that access to information (i.e. the risk and benefits of VB versus CS) reduces childbirth fear^{48,118-120}.

Given the prevalence of childbirth fear as a reason for a CS preference, it is critical that women with childbirth fear are appropriately counselled and provided with the information required to make informed choices. Simply granting women who have childbirth fear a CSMR does not appear to improve their birth experience¹²¹. A Swedish study found that women with childbirth fear who were granted a CSMR were dissatisfied with their birth experience and the decision-making process, even though their request was granted¹²¹. Counselling/information sharing interventions for women with childbirth fear have been shown to be effective in reducing CS rates as well as improving birth satisfaction^{118,122,123}.

Shared decision-making may be an appropriate strategy to reduce unnecessary interventions and improve satisfaction with the decision-making process as well as the birth experience. There is a need for clinical guidelines to be updated or developed to include more detail in relation to shared decision-making, and how clinicians can ensure that women are actively engaged in decisions about their own care. A number of studies have either identified a lack of guidelines or insufficient detail in the existing guidelines as key contributing factors to the rising CS rate¹²⁴⁻¹²⁸. This is supported by a

recent review of CS guidelines which found that overall, few provide explicit guidance in relation to shared decision-making¹²⁹.

To ensure that women can make informed decisions aligned with their own values and preferences, it is important that obstetricians and midwives are cognizant of their own biases and values and recognise that their values or perceptions of risk may vary from the woman's. The values women attribute to potential complications are highly individual and vary considerably⁵⁰, and there is evidence that indicates that pregnant women are willing to accept a higher level of risk regarding potential complications of VB than clinicians involved in their care¹³⁰.

The importance of shared decision-making and adequate access to information is also important in low and some middle-income settings where the CS rate is low and women may refuse a potentially life-saving CS. This review found that key reasons women might refuse a medically-indicated CS included a perception of CS being unsafe, cultural and religious influences, and that women who have access to appropriate information are more likely to accept a medically-indicated CS⁶¹. As such, there is a need for better counselling on the risks and benefits of CS versus VB in high, middle and low-income settings.

A strength of this review is that it provides an up-to-date overview of the field, systematically analysed by two reviewers for both content and quality. Limitations include that only full-text articles published in English were included; there may have been valuable insights into women's preferences published in non-English journals, however resources to consider non-English work were not available. Another limitation is the time restriction to articles published from 2008 on. However, given the evolution of maternity care services, and changing CS rates and attitudes towards MOB in the last 10-15 years, it is likely that the more recent research covered in this review is most relevant to informing current care. Lastly, given the scoping review methodology used, this

review provides an overview of the field and is limited to a surface analysis of the available literature. The findings need to be interpreted with caution, in particular as the influence of medical indications on MOB preferences remains unclear. There is a difference between preferring a CS due to an absolute medical indication such as major placenta praevia, preferring a CS due to relative medical indication such as one prior uncomplicated CS, and preferring a CS in the absence of any medical indication. As, with the exception of women who had a previous CS, the majority of included studies did not report on the preferences of women with medical indications separately from those without medical indications, more research to ascertain the preferences of these cohorts separately is required.

Conclusion

This review systematically mapped the evidence in relation to women's MOB preferences and the non-medical reasons for these preferences. While this review found that the majority of women prefer a VB, a large minority of women have a preference for CS. The six main reasons or factors associated with a MOB preference were: 1) perceptions of safety and recovery; 2) fear of pain associated with childbirth; 3) previous birth experience; 4) encouragement and dissuasion from health professionals; 5) social and cultural influences/personal beliefs and values; and 6) access to information and educational levels. As shared decision-making helps ensure women receive appropriate care aligned with their values and preferences, and may both reduce unnecessary interventions in settings with exceedingly high CS rate as well as improving willingness of women to accept medically indicated CS in countries with a low rate, its implementation should be encouraged.

Table 1: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Studies relevant to: <ul style="list-style-type: none"> • Women’s MOB preferences and attitudes, including in relation to repeat CS or vaginal birth after CS • Self-reported reasons for preferences • Maternal factors/characteristics associated with MOB preferences and attitudes (e.g. education, knowledge, socio-psychological factors, fear, self-esteem, previous experiences) 	Studies limited to: <ul style="list-style-type: none"> • Women’s satisfaction or experience of CS or vaginal birth • Preferences specific to timing of birth • Preferences and attitudes of fathers/partners/family members • Hospital factors associated with MOB preferences • Medical or physical reasons or factors associated with MOB preferences (e.g. maternal age, BMI, smoking, previous CS, hospital factors)
Primary qualitative, quantitative and mixed method studies (regardless of study design)	Narrative reviews, opinion pieces, commentaries, and review articles
Published in peer reviewed journals	Non-peer reviewed studies
Published between 2008 and 2018	Published before 2008
In English	Not written in English
Full text available	No full text available or accessible

MOB = Mode of birth; CS = Caesarean Section; BMI = Body Mass Index

Table 2: Characteristics of included studies

Characteristic	Number of studies	Number of women	Studies
Study design			
Cross sectional survey study	37	142,054	[20, 44-79]

Longitudinal survey study	3	2,442	[80-82]
Cohort study	7	8,836	[83-89]
Retrospective medical record analysis	1	2497	[90]
Qualitative study	17	837	[17, 19, 91-105]
Region			
Australia	4	183	[66, 76, 91, 94]
Europe	20	139,769	[46, 54, 55, 63, 64, 68, 73, 75, 78-83, 85-87, 89, 102, 103]
North America (USA and Canada)	14	4,178	[44, 45, 48-50, 52, 53, 62, 65, 70, 72, 88, 92, 101]
South and Central America	1	368	[51]
Asia	17	5,791	[47, 59-61, 69, 71, 84, 90, 93, 95-100, 104, 105]
Africa	8	2,761	[17, 19, 20, 56-58, 67, 74]
Countries across multiple continents	1	3,616	[77]
Country income level			
High income	42	149,983	[44-46, 48-53, 60, 62-66, 68, 70, 72, 73, 75-83, 85-94, 97, 101-103]
Middle income	21	6,560	[20, 47, 54-59, 61, 67, 69, 71, 74, 84, 95, 96, 98-100, 104, 105]
Low income	2	123	[17, 19]
Participants			
Nulliparous non-pregnant women	3	4508	[45, 48, 77]
First time pregnant women/new mothers	12	2,584	[44, 47, 69, 71, 85, 87, 88, 92, 94, 97, 99, 102]
Women who had a previous CS only	17	3,807	[17, 19, 20, 56, 57, 59-62, 65, 68, 70, 72, 76, 82, 91, 93]
Pregnant or postpartum women regardless of parity (excl. women with previous CS only)	30	143,335	[46, 49-54, 58, 63, 66, 67, 73, 74, 78-81, 83, 84, 86, 89, 90, 95, 96, 98, 100, 101, 103-105]
Random population sample (pregnant, non-pregnant, nulliparous and parous)	3	2,432	[55, 64, 75]
Time of data collection			
Antenatally	31	141,060	[44, 46, 49, 50, 53, 57-60, 63, 65-71, 74, 76, 78, 79, 81-83, 86, 91, 93, 95, 96, 100, 102]

Postpartum/Postnatally	21	6,115	[17, 19, 20, 47, 52, 54, 56, 61, 62, 72, 73, 85, 87, 89, 90, 92, 94, 97, 99, 103, 104]
Antenatally and/or postnatally	7	2,551	[51, 80, 84, 88, 98, 101, 105]
Non pregnant women/random population sample	6	6,940	[45, 48, 55, 64, 75, 77]
The study addressed			
MOB preferences (not specific to repeat CS)	24 quant	146,393	[20, 44, 46-52, 54, 58, 63, 71, 74, 75, 77-81, 83, 84, 86, 89]
	1 qual	17	[92]
Preferences specific to repeat CS	9 quant	3,484	[20, 49, 52, 56, 57, 59-61, 82]
	1 qual	16	[91]
Attitudes towards CSMR	7 quant	3719	[45, 49, 53, 55, 58, 63, 64]
Reasons for MOB preference/ factors associated with MOB preference	41 quant	87,013	[20, 45-49, 51-59, 61-63, 65-77, 79, 80, 83, 85-90]
	17 qual	836	[17, 19, 91-105]

CS = Caesarean section; MOB = Mode of Birth; CSMR = Caesarean Section for maternal request

Table 3: Reasons for MOB preferences

Reasons/Associated factors	Number of studies by study design	Total number of participants	Countries	Studies
Perceptions of safety (N=35)	25 quant	1,3897	USA, UK, Australia, Canada, New Zealand, Iceland, Chile, England, Germany, Switzerland, Italy, Sweden, Iran, Trinidad, Turkey, Pakistan, Nigeria	[20, 45, 48, 49, 51-53, 55, 57, 58, 61-63, 65-69, 73-75, 77, 87-89]
	10 qual	607	USA, UK, Australia, Canada, Sweden, Taiwan, Iran	[92-95, 97, 99-103]
Fear of pain associated with vaginal childbirth (N=28)	19 quant	77,486	USA, UK, Australia, Canada, New Zealand, Canada, Iceland, Germany, Belgium, Iceland, Denmark, Estonia,	[45, 48, 49, 51, 54, 55, 58, 66-68, 73, 75, 77, 79, 80, 83, 85, 86, 89]

			Norway, Sweden, Germany, Switzerland, Italy, Chile, Turkey, Nigeria	
	9 qual	352	Australia, Canada, Taiwan, Lebanon, Iran	[91-96, 99, 100, 104]
Previous birth experience (N=13)	10 quant	69,063	USA, UK, Australia, Canada, New Zealand, Iceland, Germany, Norway, Sweden, Chile, Trinidad, Pakistan	[46, 51, 52, 59, 62, 65, 73, 79, 80, 83]
	3 qual	304	USA, UK, Taiwan	[93, 101, 103]
Encouragement and dissuasion from health professionals (N=10)	7 quant	3332	USA, Australia, Switzerland, Italy, China, Iran	[47, 49, 62, 68, 71, 72, 75]
	3 qual	50	Australia, Lebanon, Iran	[94, 99, 104]
Social or cultural influences/personal beliefs and values (N=15)	9 quant	3901	USA, UK, Australia, Canada, New Zealand, Iceland, Chile, Germany, Italy, Nigeria	[20, 48, 49, 56, 58, 65, 74-76]
	6 qual	218	Australia, Canada, Iran, West Africa, Tanzania	[17, 19, 92, 94, 98, 105]
Educational factors/ access to information/knowledge (N=13)	13 quant	11,067	USA, Switzerland, Germany, Sweden, Italy, Turkey, Taiwan, Trinidad, Pakistan, Iran, Nigeria	[51, 55, 58, 61, 68, 70, 71, 75, 77, 86-88, 90]

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