

Midwives' views of an evidence-based intervention to reduce caesarean section rates in Ireland

Siobhán Corrigan^{a,*}, Vivienne Howard^a, Louise Gallagher^b, Valerie Smith^b, Kathleen Hannon^b, Margaret Carroll^b, Cecily Begley^b

^a School of Psychology, Trinity College Dublin, Dublin, Ireland

^b School of Nursing & Midwifery, Trinity College Dublin, Dublin, Ireland

ARTICLE INFO

Keywords:

Caesarean section
Midwifery
Prenatal care
Qualitative methods
Intervention testing

ABSTRACT

Problem: A worldwide increase of caesarean section (CS) rates has been estimated at a rate of 4% per year and numerous interventions to reduce the rates have not been successful, perhaps because they are not acceptable to clinicians.

Background: A caesarean section (CS) can be a life-saving operation, but has been associated with short- and long-term risk factors and shown to affect subsequent pregnancies.

Aim: To explore midwives' views on CS rates and evaluate the feasibility and acceptability of an evidence-based intervention programme (REDUCE) designed to decrease overall CS rates in Ireland by 7%.

Methods: Following ethical approval, a qualitative exploratory design was used to seek midwives' views of the evidence-based intervention. A total of 28 midwives from one large tertiary maternity hospital took part in four focus group interviews. Data were analysed using thematic analysis.

Findings: Five themes emerged, illustrating the midwives' views of what could be improved in the present system and how CS rates could be reduced in future. The themes included: (i) Induction of labour; (ii) Education; (iii) Auditing of practice; (iv) Clinical practice; (v) Midwife-Obstetrician collaboration.

Discussion: This study noted a rising CS rate year on year, with a rate of 37% at the time of the study, and the midwives voiced their very real concerns over the increased high rates.

Conclusion: The study provided support for the evidence based 'REDUCE' intervention, which now needs to be tested empirically within this Irish population.

Statement of significance

Problem

Worldwide increase in the rate of caesarean sections.

What is already known?

Rising rates are aggravated by a complex interplay of multiple factors (e.g., health systems, clinicians, pregnant women, societies, and legal frameworks). Due to this complexity limited progress has been made to reduce CS rates.

What this paper adds?

Advances knowledge by taking a draft intervention to reduce caesarean sections and testing its acceptability with midwives from a study site that had agreed to implement the intervention. Midwives' views will drive further modification of the intervention and improve the feasibility and successful implementation of the intervention.

1. Introduction

Caesarean Section (CS) is a lifesaving operation, but has been associated with short- and long-term risk factors and affects subsequent pregnancies [1]. When compared to vaginal birth, CS is associated with longer recovery time, higher healthcare costs and increases the risk of severe maternal and perinatal morbidity and mortality [2–4], due to uterine rupture, abnormal embedding of the placenta, ectopic pregnancy, and stillbirth [1]. Babies and children are also affected through preterm birth, allergy, and asthma [1]. Recent predictions of the costs of a five-percentage-point reduction in CS rates among first-time mothers, and a similar improvement in rates of vaginal birth after caesarean section (VBAC), in two public health systems (Ireland and England/Wales) showed savings of €1.1 million and £9.8 million per annual cohort of 18-year-olds in the two countries [5].

* Corresponding author at: School of Psychology, Trinity College, College Green, Room 1.13, Dublin 2, Ireland.

E-mail address: siobhan.corrigan@tcd.ie (S. Corrigan).

Despite an acceptable rate of 10–15% of total CS births being described by the World Health Organization [6], rates of CS continue to increase unabated in most parts of the developed world with no signs of reversal or slowing. Analysis of data from 1990 to 2014 in 150 countries noted striking differences in CS rates, with a high level of 41% in the Latin America and the Caribbean regions, and a low rate of 3% in the West African region [2]. These findings suggest overuse of CS in some regions, while other women who have a clinically indicated need for CS may have limited access [7]. European countries report an overall 2% increase in CS rates (from 25% in 2010 to 27% in 2015) [8,9]; however, worldwide the increase is estimated at a rate of 4% per year [2]. Projections using data from 154 countries have shown that, by 2030, across the world, 28.5% of women will give birth by CS [7].

Rising CS rates appear to be aggravated by a complex interplay of multiple factors including health systems, clinicians, pregnant women, societies, and legal frameworks [10]. Due to the complexity of these factors limited progress has been made to reduce CS rates through effective interventions [11]. A systematic review of 29 non-clinical interventions to reduce unnecessary CS found that interventions targeting clinicians, such as education of physicians and development of guidelines, combined with second opinion or audit and feedback, could reduce CS rates [11]. However, they also concluded that there was a lack of high-quality evidence and few interventions targeting other factors such as healthcare systems and pregnant women [11]. Maternity care in the Republic of Ireland is provided across a hybrid system whereby mothers can choose to receive care funded by public finance or to receive private care funded by healthcare insurance. These services are delivered side by side in publicly owned maternity hospitals, but the type of funding source may influence the care received. Between 2009 and 2017, 75.2% of mothers opted for publicly funded care [12].

This paper reports on one aspect of a larger study, which aimed to develop and test, through a hybrid effectiveness implementation study with two study sites (A and B), the feasibility and acceptability of an evidence-based intervention programme, called “REDUCE”, designed to reduce overall CS rates in Ireland by 7 percentage points.

2. The REDUCE intervention

The REDUCE intervention was developed based on evidence synthesis activity and consultation with stakeholders (pregnant women, their partners, and clinicians) (see Fig. 1). An overview of 101 systematic reviews [13] was initially carried out, which identified antenatal and intrapartum clinical and educational practices that were shown to

reduce ($n = 25$) or increase ($n = 9$) the risk of having a CS. Focus group discussions and individual interviews were then held with women ($n = 15$), their partners ($n = 2$) and clinicians ($n = 30$; 18 midwives, nine obstetricians and two physiotherapists, (data missing $n = 1$)) from one study site (Site A) to ascertain their views on CS and what they thought would help reduce the CS rates [14]. Based on the findings from these activities a draft intervention was designed. The key components of the intervention package of care were then presented to the three midwifery and obstetric leaders in Site A for their opinions on its applicability, feasibility, and potential ease of use within the Irish context, and minor modifications were made.

In order to test the final proposed intervention for the first stage of feasibility and acceptability to other clinicians, a qualitative study was required to seek the views of a wider group of clinicians involved in maternity care, prior to quantitative testing in a pilot intervention study. It was thus presented to 28 clinicians at Site B in a series of focus group interviews, (see Fig. 1) to answer the research question: Will this evidence-based intervention programme, designed by one group of clinicians to decrease CS rates in Ireland, be acceptable to clinicians from a different maternity hospital and, in their view, be feasible to implement?

Proposed intervention package: (i) appointment of opinion leads (midwife and obstetric) to support vaginal birth; (ii) additional antenatal information, education and support classes for women, and their partners, and clinicians presenting the evidence on reducing CS and promoting vaginal birth; (iii) monthly audits and feedback on CS rates (where not already in existence); (iv) use of Pinard (preferably) or Doppler for intermittent auscultation (IA) for women at low risk; (v) continuous one-to-one support during labour; (vi) a supportive environment including use of hypnosis/acupressure, home-like labour ward, labour and birthing aids, and dim lighting, if desired; (vii) documenting fetal presentation from 36 weeks' gestation onwards, and external cephalic version (ECV) encouraged for breech presentation; (viii) avoiding induction of labour (IOL) at <41 weeks unless there is a clear and documented indication of fetal or maternal health need.

3. Participants, ethics and methods

3.1. Methods

The aim of this study was to explore clinicians' views on CS rates and evaluate the feasibility and acceptability of an evidence-based intervention programme (REDUCE) designed to decrease overall CS rates in Ireland by 7%. A qualitative descriptive method [15], employing

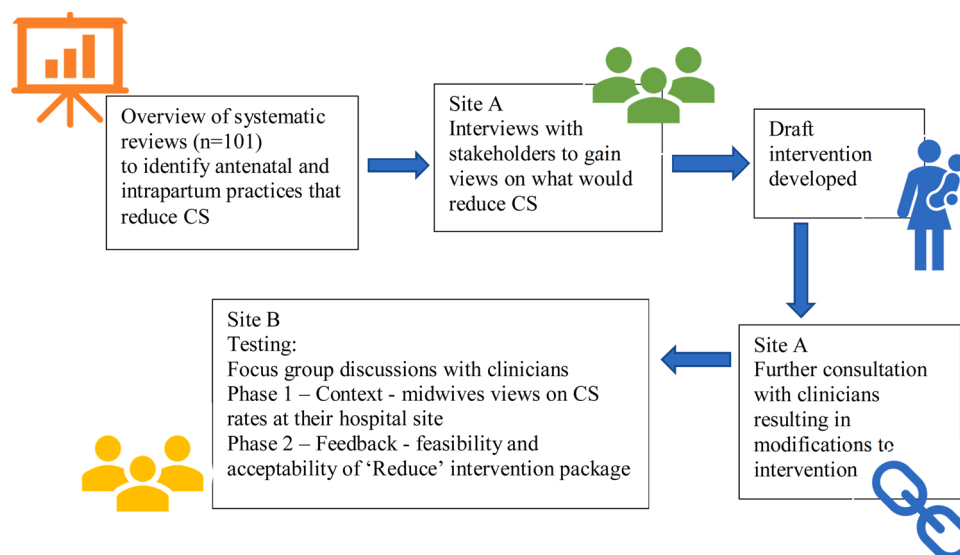


Fig. 1. Development and refinement of the REDUCE intervention.

thematic analysis, was used in this study. This flexible approach facilitates researchers to give a precise description and inclusive summary of participants' views, and ensures they stay close to the data, which provides factual and practical conclusions to guide practice or research. Grounded theory, phenomenological or ethnographic approaches would not have been suitable for this study as we did not need to generate a theory about the intervention, describe the meaning or essence of people's lived experience of using the intervention, or produce an in-depth description of the culture surrounding it [16]. Focus group interviews (FGIs) were used to collect data at study site B, as these were felt to be the optimal method to gain insight into current attitudes and perceptions of CS rates, and to elicit feedback on the proposed REDUCE intervention. Phase 1 of the FGIs focused on the current 'as is' context, to gain an idea of clinicians' perceptions and experiences in relation to current CS rates at site B. Phase 2 of the FGIs focused on presenting the REDUCE intervention and eliciting feedback on its potential effectiveness.

Ethical approval was granted by the University's and study site's Research Ethics Committees, with an updated approval to conduct the second phase online, via a video conferencing platform, also granted.

3.2. Participants

The FGIs were conducted in the Republic of Ireland, in a large tertiary, stand-alone maternity hospital with over 8000 births annually. In phase 1 of the study, two FGIs were conducted in the hospital site during the month of November 2019, facilitated by the team's researchers. Two further FGIs were conducted during phase 2 (August & September 2020), with a prolonged delay between, due to the Covid-19 pandemic.

The inclusion criterion was "all clinicians working with pregnant women at site B." In phase 1, all clinicians were invited to participate by nominated gatekeepers; however, initially, only midwives volunteered to take part. Information about the study was distributed one week prior to the FGIs. Convenience sampling was used and those midwives who had volunteered and who could attend the FGIs at the scheduled time were invited to join. The gatekeepers circulated participant information leaflets (PILs) and consent forms to all clinicians. A total of 13 midwives gave written, informed consent and attended the two FGIs, seven at the first one, and six at the second. All were female, seven had more than ten years' experience working in maternity care, two had 2–5 years' experience and one had worked in the maternity care services for fewer than two years; (three midwives did not provide details of experience as they had arrived late). Following further circulation of information by the gatekeepers, two obstetricians volunteered to participate and were booked to attend a FGI in early 2020. Due to illness, that FGI had to be cancelled and its re-scheduling was prevented by the COVID-19 pandemic.

During phase 2, clinicians were again recruited through nominated gatekeepers working in the hospital. The gatekeepers circulated PILs and consent forms to all clinicians, along with documents detailing the main themes established in the FGIs conducted previously with clinicians in Site A and the phase 1 FGIs in Site B. COVID-related restrictions on face-to-face FGIs required that these phase 2 FGIs were conducted online via a secure video conferencing platform link. Fifteen midwives gave written, informed consent and participated in the two separate FGIs, eight in the first one (August 2020) and seven in the second (September 2020). At this stage the two obstetricians were no longer available to participate, and thus the study population included midwives only ($n = 28$). Demographic information was not collected from this group of midwives.

3.3. Phase 1 — data collection

During phase 1 the FGI protocol followed this structure: introductions by the FGI's facilitators; overview of the REDUCE research study and FGI objectives, and brief introductions by each of the

participants. The following provides a sample of the trigger questions: Do you think the CS rate in this hospital is at too low a rate, about right, or too high? And why; what factors are important if we wanted to reduce CS rates?; what factors do you consider are important to encourage more vaginal births after caesarean section (VBACs)?; what are the barriers to women achieving vaginal birth? Each of the FGIs lasted approximately 1 hour and were conducted by 3 facilitators (Assistant Professors in Psychology, Midwifery, and a Research Assistant). Both FGIs were recorded and fully transcribed. Completed consent forms were scanned and securely transferred to a member of the research team.

3.4. Phase 2 — data collection

During Phase 2 the FGI protocol followed the same structure as phase 1 with the addition of a presentation on the REDUCE intervention and specific questions relating to each of the components of the intervention in relation to its utility for reducing the rate of CS and any challenges in its implementation. Each of the FGIs lasted approximately 1 h and were conducted by 3 facilitators (Assistant Professors in Psychology, Midwifery, and a Research Assistant). These online FGIs were not recorded as we did not have the required ethical approval to do so. Instead, detailed notes were taken by the Research Assistant and validated by the other two facilitators.

3.5. Data analysis

The data were analysed by an experienced qualitative researcher, using a thematic coding frame. Thematic analysis was chosen as it offers a systematic framework for coding qualitative data and identifying patterns across a data set [17]. It also offers a flexible method that allows for a variety of ontological and epistemological viewpoints [18] and is especially useful for applied research that focuses on policy and practice [17]. Phase 1 and phase 2 analyses were carried out using the same procedure. The analysis involved six discrete steps [18]. (1) Data transcripts were read and re-read so that the researcher would gain a high degree of familiarity with the content. (2) Data was organised in a meaningful way and preliminary codes were generated. (3) Preliminary codes were examined until patterns emerged that grouped codes thematically. (4) Codes and themes were reviewed and modified until all the data were accounted for and subthemes were generated. (5) Themes and subthemes were defined and mapped in relation to each other. (6) A report was prepared that presented the themes and subthemes and provided quotes from the text to support and illustrate the analysis. Emerging themes and results were discussed, modified, and agreed by all facilitators to ensure reliability of the findings. Data were coded and attributed to the focus group as a collective rather than any individual participant.

4. Findings

4.1. Phase 1: thematic analysis of FGIs on midwives' perceptions regarding CS rates at the hospital site

In this phase, the participating midwives ($n = 13$) considered their experiences and their perceptions around the rates of CS and discussed current clinical practices in maternity care at their hospital site. The participants shared factors that they felt were contributing to what they agreed have been unacceptably high levels of decision-making for CS at their hospital: "...there certainly has been [a rise in CS]" (FG2); "I think our threshold to section is lower than it used to be, I think we're quicker to jump all over a woman and section her" (FG1). Thematic analysis of the interview data generated four themes. The themes are presented below with their subthemes and are supported by participants' quotations from the transcripts of the FGIs.

4.1.1. Phase 1: Theme 1. 'Policy and Practice'

The theme of 'Policy and Practice' represents data that explored issues related to midwives' perceptions of tension points between policy, protocol and clinical practice. There was general agreement, among the participants, that these tensions could be underpinning issues that impact on CS rates and need to be explored, though it was recognised that hospital-related factors contribute to the issues also: "*Activities in the hospital [i.e., busy] can have a huge impact on what policies and protocols and what the practice on the labour ward on that day can be*" (FG2). In relation to the reduction of CS rates, participants felt that policy and practice issues in the following areas may be particularly salient:

4.1.1.1. P1: induction. Possibly the strongest theme to emerge from the discussions on high CS rates related to current high levels of induction of labour (IOL) procedures carried out at the hospital, and that this has had a direct impact on the high rates of CS in their hospital: "*I have nothing to back that up, but I think all of us would agree that it would be that our induction rate has gone way up, way up*" (FG2); "*So yeah, I think the Caesarean rate has gone up as a result*" (FG2); Some midwives stated that in their experience over 50% of mothers had their labour induced daily: "*...there's an enormous number of inductions...if you look at the board in our labour ward every day, it's more unusual to see a spontaneous labour than it would be to see an induction*" (FG1). Although high levels of IOL are not explicitly supported by hospital policy, midwives felt that protocols have been influenced by the research study 'ARRIVE', which supports IOL at 39 weeks [19]. This was commonly regarded by them as a flawed work, with serious limitations. It is also the participants' experience that IOL at 39 weeks is being actively promoted by hospital managers because of 'ARRIVE': "*Yeah well there was a new, the ARRIVE study, which was published in America*" (FG1); "*...so, there's a lot of research out that says it's safe to induce after 39 weeks so it's gone up*" (FG1); "*We're kind of increasing our induction rate, you know, certainly our clinical director is pushing inductions a little bit more now*" (FG1).

The midwives reported that, in their understanding, health care policy advises that where pregnancy is progressing normally a woman should be supported towards achieving spontaneous labour until 10/12 days post-dates (40 + 10/12). The midwives endorsed this aim but questioned whether the obstetricians are adhering to the policy. They reported that, in their experience, non-clinically indicated interventions begin at 39 weeks in obstetrics-led care: "*Our ladies go back (to obstetric care) after post-date so they wouldn't be falling into the 39 weeks, it would only be the ones in the doctor-led*" (FG1). Furthermore, midwives gave account of obstetric-led maternity care provision where informal induction (membrane sweep) was no longer the norm and that pharmacological IOL was commonly initiated as the first step towards induction: "*And also, they haven't been offered sweeps.... If they were offered more sweeps on the day of them booking the induction, to give them the chance to go into labour spontaneously*" (FG2). The midwives experienced this early intervention as being delivered in half-hearted fashion, with very conservative doses used and inadequate time given for the therapy to take effect: "*...even after the first milligram...they will start talking about c-section*" (FG2); "*...in practice they are very hesitant to use up those milligrams of Prostin*" (FG2).

Midwives suggested that sometimes this had resulted in oxytocin therapy being introduced prematurely and again, the intervention was conducted without the mothers being given adequate time to respond. They felt that the premature use of oxytocin, resulting in failure to achieve active labour, was a significant contributor to raised CS rates: "*They are coming over and starting oxytocin on a closed cervix, they're gonna end up in section, they're not giving them a chance*" (FG2).

4.1.1.2. P1: public/private health care provision. Participants queried whether policies and protocols differed across public and private care provision. It was suggested that CS rates may be higher in private care, but that this was difficult to ascertain, and figures were sometimes contentious: "*Plus then you have the private public mix as well, so the private caesarean section rate is probably 45% I'd say...at least I'd say it's 40-45%*" (FG1); "*They don't separate these rates like into private and public when they do, so it's kind of, you know, it would be interesting to know that*" (FG1). Midwives felt that some level of oversight was called for: "*...until we question what they're at...who's challenging that, like the rates will always be high in Ireland I think because of the way the care is delivered. The private and the public*" (FG1).

4.1.1.3. P1: record keeping. In a related discussion the issue of accountability arose. Midwives reported the perception that the procedures for recording the clinical indications for interventions are not necessarily adhered to. Participants reported that the most common reason, noted on files, for initiating a clinical induction is simply documented 'IOL' without an indication: "*If you look at the, the reason for induction, it will say induction for, it will say IOL or labour*" (FG1); "*...there was no other clinical reason but because she was here...they said, 'we will just crack on with the induction.' And the woman wouldn't question that, she says 'okay, fine'*" (FG2). The documentation of clinical indications for CS is similarly poor. By a wide margin, the most common reason noted in records is 'failure to progress'. Participants expressed the belief that this was problematic: "*Most of the c-sections we can see it's all 'failed to progress'*" (FG2). Participants felt that accountability was compromised and that this will need to be addressed for benefits to be felt in reduction of CS rates: "*If there's more than 7 [CS scheduled] you're to question the reasons...and once we question then it's like 'what is the reason why, because I said so'*" (FG2); "*The thing is, the senior registrars and all that that they are plucked apart you know for their decision making you know: 'if you do a caesarean why did you do it?' But who is ripping apart the consultants who are just sectioning?*" (FG1). One participant noted that the rates of CS do decline somewhat when increases are flagged: "*...since we started complaining about them going up they do go down again*" (FG2). The sense was that this was a temporary fluctuation and that overall, the trend was one-directional.

4.1.2. Phase 1: Theme 2. 'Knowledge'

Across all the threads of the conversations, a theme that presented itself repeatedly is best captured by the title 'knowledge'. This theme linked stakeholder groups, with benefits for reducing CS rates identified from reviewing the evidence base for decision making by obstetricians, supporting increased input on decision making for midwives as well as empowering mothers for choice and collaborative decision making.

4.1.2.1. P1: empowering mothers. Many of the midwives felt that pregnant women come into maternity care "*underinformed*", lacking in the knowledge and understanding that would empower them to question, challenge and engage in shared decision-making around their pregnancy and childbirth: "*I think women find it very hard to question, and you know they think that's 'well, the doctor's telling us this, then this is it'*" (FG2). The midwives observed that women are not asking for explanations of clinical indications or enquiring into different options. It was also noted that when they are presented, birth plans tend to focus on choices that arise after care decisions are made: "*Maybe if women are actually informed, like as part of antenatal classes sometimes we can...not be afraid of, but going through exactly what the hospital policy on induction process is...if they know the questions to say well 'Am I ready for the drip? And am I ready for this?'*" (FG2); "*They don't often question it...there's requests for*

induction as well" (FG1); *"But most women don't challenge, they just believe what they're told"* (FG1)

Midwives felt that the mothers who seemed to be most informed, and who questioned decisions and challenged decision makers, were those who requested midwife care in the community: *"I think a lot of the women go into community will have researched a lot and they're dead set against going for induction and they want to have that talk with the doctor when they go in post-dates"* (FG1). It was suggested that if women attending the hospital-based clinics were more informed about policy and procedures it would be helpful. For example, women are not being offered sweeps but, when they request a sweep, it is generally provided: *"...who has asked 'can I not have a sweep?'...we then liaised with the doctors and that's been fine"* (FG2). It may be that women would be more likely to request sweeps or other approaches to intervention, if they had greater understanding about the clinical procedures that may potentially be offered to support normal birth, and what expectations they might reasonably entertain regarding these. It was noted that information delivery is time and medium critical. Lastly, participant midwives would like to see educational initiatives targeting mothers, that are aimed at normalising the concept of a 'natural' birth process at full term (40 + 10/12). It was felt that this would be helpful for empowering women toward active participation in the birth. It was recognised in the FGIs that convenience is a significant factor for women, both with regard to IOL and to CS. It was felt that an educational initiative such as that outlined here may go some way towards addressing that issue: *"I think if women are more informed and know that birth is a 'natural' process and just because they maybe have some sort of a high risk doesn't necessarily mean that they have to...just go with what they're told"* (FG1); *"...it's important for them to know, yeah you could have the ten day wait and provided everything is okay and safe, you know"* (FG2).

4.1.2.2. P1: VBAC. A key area where it was felt that information-based interventions could impact on a reduction of CS rates was with women who had a previous CS: *"It's been steadily increasing, like the more women you section, the more women are going to fall into that category when they're pregnant again"* (FG1). There have been some useful moves in this direction with the establishment of a 'next birth after caesarean' clinic, which is midwife-run, as well as improvements in obstetric-led, post-natal debriefs: *"If we meet women who have had... [previous CS] we push for VBAC and we give them the information about what the VBAC clinic involves and then she has that information going with at the first booking [next pregnancy]"* (FG2); *"I think the debriefs are helping...women do get debriefed even if they're elective sections"* (FG2). It was felt that these initiatives would be more effective with cross-discipline support: *"Em, the clinic I think has been a little bit hit and miss because the doctors haven't been really referring them..."* (FG2). Participants also felt that antenatal educational interventions would benefit from supplementary interventions in the labour ward at the point of 'next birth', which may be years later: *"I think you need something put in place for labour...that's going to make an impact...on the reduction of the [CS] rates, because it depends on who is up in there on the day, where someone's allowed try a little longer or..."* (FG1).

4.1.2.3. P1: evidence-based obstetrics. Though not explicitly indicated in the discussions but certainly implied is the identification of a need for an obstetric information piece. It was felt that some practices may need review. For example, the 'ARRIVE' study [19], which is thought to inform much of the clinical obstetric practice around inducing labour at 39 weeks, was considered to have several well-recognised limitations that need to be acknowledged and addressed in an educational setting

among obstetric staff: *"The ARRIVE study, which was published in America, which suggested that it was safer to induce everybody at 39 weeks, so that's what I think they're all pushing for, the obstetricians"* (FG1).

4.1.2.4. P1: understanding midwifery. Participant midwives expressed the view that a small but notable shift toward greater understanding of what midwifery has to offer mothers had occurred but felt that this trend will need to be supported. Primarily, it was felt that public education about midwifery needs to challenge the societal belief that childbirth belongs in the medical domain and that midwives are identified with nurses and not recognised as highly skilled at supporting pregnancy and birth. It was noted that women of other nationalities have a different understanding, which leads them to seek out midwife-led care more often: *"I personally feel that women in Ireland...they don't actually know what a midwife can do, and a lot of the time it's 'the nurse' just because that's the title of somebody in a hospital...We probably don't promote that enough"* (FG1); *"It's definitely changing...I've been dealing with patients a good while now and I used to feel at the start you'd have to nearly sell midwifery health care..."* (FG1); *"The word is spreading definitely, of what midwives can do"* (FG2).

4.1.3. Phase 1. Theme 3. Psychosocial Drivers

Several psychosocial factors emerged from the discussions as drivers for practices that may be implicated in the unacceptably high levels of decision making for CS.

4.1.3.1. P1: defensive practice. Participant midwives expressed an awareness that obstetricians are often working in highly pressured conditions and that there are some who have been deeply affected by adverse outcomes. Midwives have witnessed the distress caused and noted how it has, in some cases, led to anxiety-driven, pre-emptive decision-making and defensive practice: *"It's very difficult to deal with bad outcomes and the longer you're there, the more times you're exposed to this and the harder and harder it becomes because you only need one exposure to something like that and your practice can change"* (FG1); *"They're never going to do that again; they're never going to let that happen again you know. And it's very emotional and it's very raw"* (FG1). This can be true for midwives also, participants recognised that all clinicians are susceptible to anxiety and the impulse to intervene when a person is in suffering: *"...we are the ones ringing the registrar...when they've been called a second or a third time they have to do something and you know we're kind of all the same when someone comes into the emergency room with a pain and you feel 'I have to do something', so even if it's a set of obs (observations)...and maybe she's absolutely fine"* (FG1).

4.1.3.2. P1: clinical experience. This subtheme links to subtheme 4.1.3.1 but highlights a different perspective. Many of the midwives spoke of another important factor influencing CS rates, which they referred to as high-level consultant input at crucial decision points: *"Well constant ongoing access to senior, very senior [obstetricians], would [reduce the rate of CS]"* (FG1). Although access to consultants is assured, out-of-hours consultations often take place by phone. Both participant groups were strongly critical of hospital policy that sanctions off-site consultant access. Participants noted fewer CSs conducted during weekdays, when consultants were present on site. It was felt that remote access was impacting negatively on CS rates: *"I mean we have 24-h consultant cover but we don't have 24-h consultant cover in house and I think that's a huge problem"* (FG1); *"Calling somebody up from a room downstairs, 'can you come and have a look,' we'll get a much more senior, more directed management plan"* (FG1); *"High risk cases...they need that high decision*

making" (FG2). Also, it was felt that in general more experience is needed in the delivery suite: *"If you have a midwife who is... concerned about a CTG...[it] can create a heightened sense of anxiety where maybe it isn't necessary and you have an obstetrician who is quite junior ... you know, you don't have that senior input? Unfortunately"* (FG1). More experienced midwives will challenge and engage with decision-making and more experienced registrars will be slower to act towards intervention. It may also support a practice of increased collaboration between medics and midwives; the midwives feel that they are listened to, but it is mostly more experienced midwife practitioners who feel comfortable questioning obstetricians: *"...and then, especially on nights, if the registrar is more junior, they would go in for a section a lot quicker. Without turning off the oxytocin, or...thinking of other things they could do first"* (FG2); *"I think in the delivery I think there's good CMM1s and CMM2s (Clinical Midwife Manager, grade 1 and 2) that would question registrars sometimes if they're making a decision too quickly"* (FG2).

4.1.3.3. P1: mothers' expectations. Lastly, several factors were identified that midwives felt have been driving mothers' expectations regarding their maternity care. Most concerning to the midwives was the proliferation of negative stories in the media that create fear among women, which erodes trust in midwifery practice and pushes women towards highly medicalised care pathways: *"...but we're constantly bombarded in the media about another bad outcome and there's never anything good ... you'd rarely see them...cover anything we've done well"* (FG1); *"It's terrible it's really awful and it undermines patients, women's confidence when they come to the service and reinforces this need to be medicalised"* (FG1). This is supported by a culture of medicalised maternity care in Irish society. Other social factors also contribute to women's expectations for maternity care, with many women observing and being influenced by the experiences of their sisters and friends: *"...it depends on the woman's social circle as well, they'll often go with the recommendation from their sister or their cousin or whatever"* (FG1). One midwife suggested that this could present a broader target for an educational intervention, where midwives could work to increase awareness of their skills in a wider audience: *"...better education about the whole fertility and...biology and all of those things from a very early age so that they see this as the normal way to go"* (FG1).

4.1.4. Phase 1. Theme 4. Solutions from Midwifery

Participants envisaged multiple roles for midwives in mitigating rising CS rates and promoting an alternative to the highly medicalised care that has become firmly rooted in the Irish maternity care system. These fall into three main areas as described by the subthemes below.

4.1.4.1. P1: knowledge transfer. It was recognised in the discussions that women attending obstetric led clinics would often seek out midwives for supplementary information when attending for appointments: *"And sometimes they're with a doctor and sometimes they're coming to us and asking to speak to a midwife because maybe things weren't explained to them, and they're saying 'can you take me aside and can I discuss this in further detail with you'"* (FG1). Participants suggested that the provision of enhanced opportunities for mothers to be exposed to midwife care, across the different pathways, would facilitate these encounters: *"I think every woman should see a midwife and get that information and support.... We tend to give them the time and...space to ask the questions and give them the information that they want"* (FG1). Furthermore, increased exposure across pathways would enable repeated encounters, which could address the time critical aspects of knowledge transfer: *"But I think like that, if they get it from you [information] they have time to process it, time to read it, time to ask questions"* (FG2).

4.1.4.2. P1: expanded role for midwives. Participants believed that expanding the role of midwives in maternity care would be desirable. Beyond the transfer of information, many other benefits of increased

exposure to midwife care across the different pathways and through the birth journey were envisaged. For example, changes that could facilitate the midwife's role in protecting 'time to labour': *"If that were just an induction led room where it was just midwifery-led, and...limited obstetric input"* (FG2). On a related point, participants noted that over the last number of years they have observed changes in the demographics of women presenting for maternity care, which may have implications for mothers' eligibility to engage with midwife-led care: *"...but now we're finding a lot more women fall into the category of high risk? They're out of our care, they've big BMIs, they've more medical problems"* (FG1). Participants discussed the possibility of addressing eligibility issues by modifying outdated exclusion criteria for midwife-led care: *"...there was two weeks I checked every single patient who was booked into outpatients, just to check to see are we missing anybody, and we weren't, they just weren't eligible for our care. So, does that mean then that we've to start changing our criteria a bit to link in with pathways but still give midwifery care?"* (FG1). Participants were in firm agreement that all women should benefit, in one way or another, from the woman centred approach that midwives can offer: *".... every woman does deserve to have midwifery and should have midwifery input at each encounter regardless of the status of risk"* (FG1).

4.1.4.3. P1: supporting midwives at work. Participants also made the point that retention of staff with high levels of skill and experience is critical for ensuring that experienced midwives are present to support mothers throughout their journey through maternity care: *"We're training lots of midwives but they're either heading off soon after...so we're not getting that experience in the long term.... to be generating more experienced midwives"* (FG1). In the discussions, participants drew attention to several factors that can create barriers to achieving this. Some participants felt that the move to 'direct entry' midwife training had implications for the vocational aspects of the job: *"The big change was the direct entry...so now we've younger midwives who are coming into the job and have to get huge points to get into the system so you're quite intelligent, but you mightn't have the social skills that are needed"* (FG1); *"I think our training was more clinical and hands on and for the direct entry is gone the other way, it's all academic and...in my opinion they don't get enough hands on"* (FG1). Working conditions for midwives can also present significant barriers to the retention of skilled practitioners: *"There's a big weight of responsibility as well and they fear that responsibility"* (FG1). Given the highly responsible and pressurised nature of the role, emotional and psychological supports can be critical. Participants report that in their hospital these can be 'hit and miss': *"I mean there is a process in place but whether it kicks in every time I don't know"* (FG1). Nonetheless, this highly dedicated and motivated group of professionals are key stakeholders in maternity care and as outlined above are well positioned to direct enquiry toward finding solutions to the rising rates of CS in Irish maternity services: *"... 'I want to be a midwife would you recommend it?' I would say yes, I would never say no. I think it's a fantastic job...midwives are needed more than ever to try and reverse this..."* (FG1).

4.2. Phase 2: thematic analysis presenting the REDUCE intervention and eliciting feedback on its potential effectiveness

Midwives (n = 15) who were recruited as focus group participants responded to the complex intervention package 'REDUCE'. Participants confirmed that, in their experience, high rates of CS are an issue that requires urgent attention by maternity care services. The two groups of participants had contrasting views about the impact of the Covid-19 pandemic on CS rates, but irrespective of the pandemic there was consensus that increasing rates of CS had been a feature of maternity care for some time. It was agreed that the hospital current caesarean section rate of 37% was 'too high' (FG4).

Participants were broadly supportive of the proposed intervention, and four themes describe their perspectives on how the intervention may be used to reduce CS rates. These are presented below with

Table 1
Summary of phase 1 and phase 2 themes and subthemes.

Phase 1		Phase 2	
Themes	Subthemes	Themes	Subthemes
1. Policy and Practice	• Induction • Public/Private Healthcare • Record Keeping	1. Reviewing the Components	• Pinard Stethoscope • Opinion Lead • Auditing • External Cephalic Version
2. Knowledge	• Empowering Mothers • VBAC • Evidence-Based Obstetrics • Understanding Midwifery	2. Inducing Change	• Current Experience • Contributing Factors
3. Psychosocial Drivers	• Defensive Practice • Clinical Experience • Mothers' Expectations	3. On the Ground	• Practice • Population • Culture
4. Solutions from Midwifery	• Knowledge Transfer • Expanded Role for Midwives • Supporting Midwives at Work	4. Moving Forward	• The Collective • Education

subthemes and are supported by text from the researchers' accounts of the FGIs. See Table 1 below for summary of phase 1 and phase 2 findings.

4.2.1. Phase 2. Theme 1. 'Reviewing the Components'

It was felt overall that the intervention components were suitable targets for change as they addressed areas of maternity care that the midwives felt were appropriate to the aim of achieving reductions in CS rates. Some participants felt that some elements of the intervention were already established practice at their hospital, including the following; use of Pinard stethoscope for IA in low-risk women, external cephalic version (ECV) for breech presentation, and provision of next birth after caesarean (NBAC) clinics. Participants offered their impressions and observations as they reviewed some of the individual components of the proposed package in detail, presented below as subthemes:

4.2.1.1. P2: *Pinard stethoscope*. Midwives were enthusiastic about leveraging their midwifery skills with increased use of a Pinard stethoscope in place of continuous fetal monitoring (CFM) or "relying on the fundamentals instead of technology" (FG3), where suitable. They were clear that they "did not see any issues emerging in using the Pinard for low risk mothers" (FG3). It has been the experience of this group of midwives that CFM has been associated with increased medical intervention for mothers and therefore, they welcomed the proposed use of a Pinard for IA of the fetal heart. It was noted that evidence-based antenatal education on the available options for fetal monitoring during labour, highlighting the benefits of each, could be critical for ensuring that mothers have confidence that they are in receipt of the best care. In addition, they had positive expectations for the implementation of the Pinard initiative if it was supported by strong practice guidelines as well as by other healthcare workers; "It would be easy to implement if the midwives were backed by a strong guideline and support from the EMT [Executive Management Team]" (FG3).

4.2.1.2. P2: *opinion lead*. Participants gave positive feedback on the appointment of an opinion lead to champion VBAC in the hospital. It was suggested that a critical factor for implementation would be that the individual recruited to the role was well regarded "must be a person who is respected within the hospital" and was "someone who will be listened to" (FG3).

4.2.1.3. P2: *auditing*. Institution of a programme of continuous auditing of CS rates was well received also. One participant expressed the view that there were discrepancies between CS rates among women attending a consultant obstetrician privately, and those attending publicly. The

researcher notes recorded: "Queries arose over how private clinicians will be monitored, as some private clinicians record significantly higher CS rates in comparison to their peers" (FG3).

4.2.1.4. P2: *external cephalic version*. Furthermore, participants responded positively to the proposed External Cephalic Version (ECV) initiative for foetuses presenting by the breech. They commented that it is a popular choice with women but that midwives have historically not been involved in the decision-making for that procedure; "Midwives are not involved within this conversation" (FG4).

4.2.2. Phase 2. Theme 2. 'Inducing Change'

The second theme, 'Inducing Change', represents participants' views on the intervention component that identifies a need for the reduction in IOL in women with pregnancy gestations of less than 41 weeks. This topic stimulated the greatest amount of discussion and was prominently featured in participant discourse through many strands of the FGIs.

4.2.2.1. P2: *current experience*. Participants reported observing high induction rates currently in their hospital. The researcher notes showed that: "midwives viewed induction of labour as increasing the number of medical interventions a woman will have" (FG3), leading to what one participant called "a cascade of events" (FG3) that could end in CS.

4.2.2.2. P2: *contributing factors*. The midwives identified several factors that they felt are contributing to the high prevalence of IOL. Firstly, there are a significant number of women who actively seek the intervention; "Women are eager to have an induction" (FG3). Also, they note the pervasiveness of often cited evidence from the ARRIVE study [19], from which they note the findings and recommendations are in conflict with their experience; "The ARRIVE trial was mentioned as an example of conflicting information" (FG3).

In addition, participant midwives queried the medical necessity of some IOLs, which were referred to as "soft inductions" (FG4). The midwives opined that the lack of clinical accountability for decisions to induce, "there is no consultant presiding over these inductions," (FG4) may to some degree account for this issue. The midwives also speculated that another driver may be a lack of clinical experience among junior, trainee obstetricians; "high rates of induction were also attributed to clinical inexperience" (FG4). They also felt that inadequate assessments of the presenting mothers may be playing a role in the overprescribing of IOL; "not really listening to an individual woman's experiences" (FG4). They report that "All clinics throughout the hospital can book a woman in for an induction, and there is no consultant presiding over these inductions" (FG4). It was felt that more senior clinicians should be involved in the booking of

inductions with one participant noting that this was the case a few years ago.

4.2.3. Phase 2. Theme 3. 'On the Ground'

The third theme, 'On the Ground', draws on the midwives' account of their daily working experience to highlight a wide range of issues, which they feel present barriers to the pursuit of reduced CS rates. The observations are categorised into three sub-themes.

4.2.3.1. P2: practice. The midwives identified clinical practice issues that they felt have impacted negatively on CS rates in their hospital. It was noted that *"women with previous CS may be referred to doctors' clinics for future pregnancies, midwives are unlikely to see these women referred back"* (FG4); this was felt to limit opportunities to provide midwife-led care. The midwives also discussed their experience of epidural rates in the hospital; *"the epidural rate is also high, which leads to women requiring continuous fetal monitoring"* (FG4); it was felt that this may sometimes progress to a "cascade" of interventions (FG3) which was considered by the midwives to be a factor in high CS prevalence. Lastly, midwives noted that of all the components included in the intervention package, provision of *"one-to-one care is the biggest challenge"* (FG4). They felt that implementation of this initiative would not currently be possible in their hospital setting as staff shortages would prohibit it. The midwives stated that improving staffing levels would *"ensure women had access to the best care"* (FG4).

4.2.3.2. P2: population. The midwives noted that in recent years they have seen a significant reduction in women who were classed as low risk: *"The demographic of women attending the hospital has changed in recent years"* (FG3). They felt that the current population of pregnant women were *"older"* (FG3) and were presenting with higher levels of risk: *"more women with morbidities or risk factors are presenting at the hospital"* (FG4). The older demographic was felt to have positively impacted on women's knowledge and engagement with services as they were *"more informed and are equipped with the ability to ask questions"* (FG3). However, participants felt that this knowledge may have little impact on CS outcomes when the moderating effects of co-morbidities and other risk factors are present.

4.2.3.3. P2: culture. Participants expressed concern that organisational factors may present obstacles to the implementation of the intervention or to the overall goal of reduced rates of CS. For example, issues of transparency and accountability across public and private care provision were mentioned; *"some private clinicians record significantly higher CS rates in comparison with their peers"* (FG3). It was suggested that publication of CS rates in both services might be helpful. Midwives were also unsure if education and referral policies within private care aligned with those in public care services; *"participants questioned the differences between public and private patients' antenatal education"* (FG3). However, it was recognised that this is an issue that will not be addressed easily; *"Having a consultant presiding over public and private doctors' decisions for booking inductions could create upset within the hospital"* (FG4).

4.2.4. Phase 2. Theme 4. 'Moving Forward'

In the fourth and final theme, data collected spoke to the midwives' impressions and thoughts on factors that they thought might directly affect the successful implementation of the REDUCE intervention in their hospital setting. The data fell into two broad categories.

4.2.4.1. P2: the collective. The midwives recognised that there was a *"need for a collective working towards implementing the REDUCE intervention package"* (FG3), and they identified a necessity for *"support from the rest of the healthcare professionals"* (FG3). Participants noted that clinicians across all specialties and levels of seniority need to be engaged in all aspects of the intervention package for it to be effective in reducing

the CS rate: *"a need for the entirety of the healthcare professionals within the hospital (e.g., obstetricians, junior and senior registrar), on a micro level, including middle level staff members"* to be *"on board"* (FG3) with the package.

4.2.4.2. P2: education. In looking to the future, participants highlighted the importance of knowledge and information sharing. In discussions related to the previous theme, education-based interventions were envisaged as playing a key role in garnering cross-discipline healthcare provider support for engagement with the intervention; *"Information on the implementation package should be included in early training for clinicians and orientation days"* (FG3); the midwives felt that buy-in for REDUCE was more likely if all the clinicians had familiarity with the evidence providing the basis for the intervention package.

Participants also recommended that antenatal education should include modules that educate mothers on the evidence base for the proposed interventions, to support acceptability in women: *"The inclusion of Pinard within the antenatal education component was highlighted as key...so that there is confidence from the women's perspective"* (FG3). The online antenatal education programme 'Journey to Birth,' developed from the REDUCE package to provide women with a source of information during the Covid-19 pandemic (<https://www.futurelearn.com/courses/journey-to-birth-tcd>), was thought to provide a valuable solution to an ongoing problem of low uptake of antenatal education. Midwives felt that the programme effectively eliminated common barriers to engagement, by providing flexible and remote access. It was also felt that community midwives may play a role in communicating novel approaches to women, but that the opinion lead component of the intervention package would be particularly valuable for *"normalising"* (FG3) approaches promoted by the REDUCE intervention among women and clinicians alike.

Lastly, the midwives stated that, in their experience, where a woman is referred to a doctor's clinic post-CS they are very unlikely to return to midwife-led care. To remedy this, the midwives suggested that provision of individualised postnatal education for women post CS might be useful: *"Postnatal education should be provided for women who had a previous section"* (FG4), *"to facilitate an opportunity where women would be educated about the reasons for their previous section and their options for the future"* (FG4).

4.3. Overarching themes: mapping phase 1 onto phase 2

There were several areas where findings from phase 1 and phase 2 intersected, giving rise to a set of overarching themes, these are outlined below. In many cases data collected at phase 1 dovetailed with elements of the REDUCE intervention package. For example, a noted requirement from phase 1 for improved monitoring to support greater accountability was addressed by the 'auditing' element of the intervention in phase 2. In addition, both sets of focus group data included numerous references to educational initiatives, which it was felt could be helpful in reducing CS rates. Over both data sets strongest representation was found for the theme of induction – in both sets of findings a relationship with heightened CS rates was observed and several factors were identified that it was felt may be contributing to this association.

4.3.1. Overarching themes

4.3.1.1. Overarching theme 1. Induction of labour. Phase 1: Participants observed a link between IOL and CS rates:

- *I think all of us would agree...that our induction rate has gone way up, way up* (FG2)
- *So yeah, I think the Caesarean rate has gone up as a result* (FG2)
- *...you know, certainly our clinical director is pushing inductions a little bit more now* (FG1)

Phase 2: Induction was very prevalent as a theme throughout phase 2 discussions. It was felt that a link to higher CS rates was observed and contributing factors were identified:

- Midwives viewed induction of labour as increasing the number of medical interventions (FG3)
- There is no consultant presiding over these inductions (FG4)
- High rates of induction were also attributed to clinical inexperience (FG4)
- Some women are eager to have an induction (FG3)

4.3.1.2. *Overarching theme 2. Education.* **Phase 1:** Participants believe that informational interventions for mothers and maternity care professionals could impact on CS rates:

- *Maybe if women are actually informed...if they know the questions to say well 'am I ready for the drip? And am I ready for this?' (FG2)*
- *I personally feel that women in Ireland...they don't actually know what a midwife can do... (FG1)*

Phase 2: Participants also felt that multiple benefits would be available from targeted educational initiatives for both mothers and clinicians:

- *Postnatal education should be provided for women who had a previous section (FG4)*
- *The ARRIVE trial was mentioned as an example of conflicting information (FG3)*
- *Information on the implementation package should be included in early training for clinicians and orientation days (FG3)*

4.3.1.3. *Overarching theme 3. Auditing of practice.* **Phase 1:** Increased accountability requires better record keeping across public and private care provision:

- *...until we question what they're at...the rates will always be high... (FG1)*
- *They don't separate these rates like into private and public...it would be interesting to know that (FG1)*
- *If you look at the, the reason for induction, it will say IOL [induction of labour] (FG1)*
- *...was really poorly documented as to the reason why as such....And the women themselves they don't necessarily know..." (FG2)*
- *Most of the c-sections we see it's all failed to progress (FG2)*

Phase 2: Participants responded positively to the 'auditing' component of the intervention package, but issues were flagged:

- *...some private clinicians record significantly higher CS rates in comparison with peers (FG3)*
- *Queries arose over how private clinicians will be monitored (FG3)*
- *Having a consultant presiding over public and private doctors' decisions for booking inductions could create upset within the hospital (FG4)*

4.3.1.4. *Overarching theme 4. Practice issues.* **Phase 1:** Participants identified areas in clinical practice where they felt changes may be helpful in targeting reductions in CS rates:

- *...they haven't been offered sweeps....to give them the chance to go into labour spontaneously.... Starting oxytocin on a closed cervix, they're gonna end up in section (FG2)*
- *...if the registrar is more junior, they would go in for a section a lot quicker (FG2)*
- *We don't have 24-h consultant cover in house and I think that's a huge problem (FG1)*
- *...but now we're finding a lot more women fall into the category of high risk (FG1)*

Phase 2: Participants identified areas of clinical practice where they felt changes may be helpful in targeting reductions in CS rates:

- *All clinics throughout the hospital can book a woman in for an induction (FG4)*
- *Midwives are unlikely to see these women [Post-CS] referred back (FG4)*
- *The demographics of women...has changed in recent years (FG3)*
- *More women with morbidities...are presenting (FG4)*

4.3.1.5. *Overarching theme 5. Midwife–obstetrician collaboration.* **Phase 1:** Participants felt that expanding the role for midwives in decision making was desirable. They also felt that increased opportunities for midwives to engage in knowledge transfer with mothers would support mothers toward shared decision making:

- *... from a labour ward perspective we maybe should have more input in the decisions (FG1)*
- *...asking to speak to a midwife because maybe things weren't explained to them, and they're saying; can you take me aside and can I discuss this in further detail with you (FG1)*
- *I wonder if there's a role for like....an induction led room where it was just midwife led" (FG2)*
- *...move towards...if they do end up going the doctor route that they will see a midwife at every encounter as well (FG1)*

Phase 2: Midwives felt that a collaborative approach was key to progressing the intervention and that nomination of 'opinion leads' to drive that agenda within clinician groups could be effective:

- *It would be easy to implement if the midwives were backed by a strong guideline and support from the EMT [executive management team] (FG3)*
- *Need for a collective working towards implementing the REDUCE intervention package (FG3)*

5. Discussion

Five strong themes emerged across the four FGIs, illustrating the midwives' views of what was problematic with the present system and how CS rates could be reduced in the future. Participants in these FGIs believed, based on their clinical experience, that increased rates of IOL led to increased rates of CS. Recently, some evidence has been published that supports the use of IOL before term, suggesting, contrary to their views, that it reduces CS rates [19]. However, as only 27% of eligible women agreed to take part in that study, such early induction is obviously not acceptable to the majority of women, and the study itself has been critiqued for possible lack of internal and external validity, and poor generalisability [20]. It is possible that the timing or methods of IOL in Ireland, or in this large tertiary hospital in particular, may give different results to those shown in the research conducted in other countries and, therefore, the views of these midwives need to be taken into account.

Participants also thought that an intervention involving information and education for women and maternity care professionals could help to decrease CS rates. Such information sessions, including decision support, have been shown previously to decrease decisional conflict for women considering a VBAC, although they resulted in no change in mode of birth [21]. Counselling sessions for women with previous CS, using a shared-decision model, have increased VBAC rates whilst also reducing decisional conflict and decision regret scores [22]. "Shared decision-making" also emerged as a key theme from nine FGIs with 71 clinicians across Ireland, Italy and Germany, who believed it could increase VBAC rates [23]. Educational strategies for clinicians, when delivered by an opinion leader, have also been shown to increase VBAC rates significantly [24]. Efforts to educate and inform women and clinicians about the benefits of VBAC and the benefits of a first spontaneous

vaginal birth are seldom provided, despite evidence showing that such education can also reduce primary CS rates [11].

Auditing of clinicians' practice, including better record-keeping and second opinions by a senior consultant for all CS decisions made by junior obstetricians, were highlighted by participants of this study, and have been shown previously to affect CS rates [11]. A recent systematic review of 34 studies of the views of clinicians from 20 countries [25] found that the factors that they believed affected their decision-making around CS included 'clinicians' lack of confidence and skills,' and the 'private versus public' issue, also mentioned in these FGIs. This indicates that the midwives attending these FGIs were not unique in their opinions, which should be taken on board.

Clinical practice issues, such as why membrane sweeps were not offered to women prior to moving directly to IOL, especially as it is known that they can result in more spontaneous onset of labour when compared with expectant care (ARR 1.21, 95% CI 1.08–1.34) [26], were raised by the participants. In addition, they spoke of how it was too easy to book women for IOL in that any staff member could do it, whereas, previously, a more senior clinician had to sanction IOLs, and the number of IOLs per day were limited.

Participants in these FGIs believed that collaboration between midwives and obstetricians was essential for good practice, and that collective working towards implementing the REDUCE intervention package was particularly necessary. They also felt that all women should see a midwife during pregnancy and that midwives should be more involved in decision-making. Studies from other countries have shown that obstetricians tend to believe they do work collaboratively with midwives, whereas midwives do not rate the collaboration with obstetricians as highly. The areas where discrepancies in their perceptions are most noticeable is in sharing opinions, discussing new practices and having respect for each other [27], all of which were highlighted by the midwives in this study. Collaborative working is obviously challenging and requires further support and study [28].

Despite the well-articulated views of the midwives in this study, their obvious concern over the high CS rate and their constructive ideas of how to reduce the rates, figures from the study site confirm a rising CS rate year on year, and a rate of 37% at the time of the study (2020). Very few of these midwives' views of how CS rates could be reduced are new. The WHO's recommendations for non-clinical interventions to reduce unnecessary CSs [7] include many different types of education for women, auditing of practice, and collaboration of midwives and obstetricians, with 24-h senior obstetric cover, similar to the views above. Where these midwives differed is in their strong view, based on their clinical experience, that increased rates of IOL led to increased rates of CS. The evidence supporting the use of IOL before term to reduce CS rates is recent [19], and questions have been raised over the internal and external validity of the study, due to a low percentage of eligible women agreeing to take part (27%), and higher proportions of women who were African-American, younger and with higher rates of hypertension than the general American population [20]. The applicability of the study is also of concern as the CS rate in participants is lower than in the country's general population, therefore replicating the study in one's own country or area may not produce similar results. In addition, it is possible that the timing or methods of IOL in Ireland, or in this large tertiary hospital, may give different results to those shown in the research conducted in other countries.

Recommendations for practice, based on these midwives' views, include: a senior clinician should be the only person permitted to sanction induction of labour; membrane sweeps should be offered to women prior to IOL; information and education about the benefits of VBAC and of a first spontaneous vaginal birth should be provided for women and maternity care professionals; there should be a mandatory second opinion given by a senior consultant for all CS decisions, and clinicians' practice should be audited; and collaboration between midwives and obstetricians should be enhanced.

5.1. Strengths and limitations

This research project was conducted across two leading maternity hospital sites. This benefitted the project greatly as a diverse sample of maternity service providers were represented and a broad spectrum of experience and opinion was harnessed. It was the intention of the research to elicit cross-discipline feedback at phases 1 and 2. While the research did not achieve this (lack of obstetric practitioner's engagement), in the final analysis it was felt that a midwife driven perspective is hugely valuable and provides powerful insights that were drawn from front-line experience. The research team believes that the midwives were well situated to comment on current practice as well as the acceptability and feasibility of the REDUCE intervention package. The research was limited in greatest part by the impacts of the restrictions put in place at the research sites in response to the Covid-19 pandemic. This impacted most significantly on data collection procedures, where face-to-face focus group activities were curtailed to satisfy the requirements. Online focus groups were organised in their stead, this was satisfactory from the researcher's point of view, data saturation was achieved, but it is acknowledged that in-person focus groups may have yielded additional data.

6. Conclusion

This study was critical in light of the worldwide increase of CSs. The evidence-based 'REDUCE' intervention, was further modified and enhanced by the synthesised views of these midwives. The intervention should now be tested empirically in the Irish population, which may differ in its response, leading to different results and possible reductions in the rates of unnecessary CSs.

Conflict of interest

The authors declare no conflict of interest.

Ethical statement

Ethical approval was granted by the Faculty of Health Sciences Trinity College Dublin on the 19th December 2017 (ref 170501) and at study sites' Research Ethics Committees (–ref RECE-2017-026) on the 15th December 2017 and the updated approval on the 16th July 2020, to conduct phase 2 online via a video conferencing platform).

Funding

The authors are grateful to the Health Research Board Ireland for funding this qualitative study as part of a wider research project, the REDUCE study, under the Definitive Intervention and Feasibility Awards (DIFA) 2017 (Grant No: DIFA-2017-011). The funder had no role in study.

Author contributions

Conceptualisation and research Design: Cecily Begley, Valerie Smith, Louise Gallagher, Margaret Carroll

Funding acquisition: Cecily Begley, Valerie Smith

Abstract: Siobhán Corrigan

Literature Review: Louise Gallagher & Valerie Smith

REDUCE intervention description: Valerie Smith

Methods: Siobhán Corrigan

Thematic Analysis: Vivienne Howard, Siobhán Corrigan

Findings: Vivienne Howard

Discussion: Cecily Begley

Facilitating FGIs: Siobhán Corrigan, Louise Gallagher, Margaret Carroll, Kathleen Hannon

Project Administration: Kathleen Hannon

Formatting and Reference Checking: Vivienne Howard

All authors played a substantial and critical role in reviewing all iterations of the paper.

Acknowledgements and disclosures

The authors are grateful to the Health Research Board Ireland for funding this qualitative study as part of a wider research project, the REDUCE study, under the Definitive Intervention and Feasibility Awards (DIFA) 2017 (Grant No: DIFA-2017-011). The funder had no role in study. The authors gratefully acknowledge and thank the clinicians who took part in Focus Group Interviews (FGIs). There are no conflicts of interest to disclose

References

- [1] J. Sandall, R.M. Tribe, L. Avery, G. Mola, G.H. Visser, C.S. Homer, et al., Short-term and long-term effects of caesarean section on the health of women and children, *Lancet* 392 (10155) (2018) 1349–1357.
- [2] A.P. Betrán, M.R. Torloni, J.J. Zhang, A.M. Gülmezoglu, WHO statement on caesarean section rates, *BJOG* 123 (2016) 667–670.
- [3] M.S. Harrison, A.P. Betrán, K. Suresh, J.P. Vogel, R.L. Goldenberg, A. M. Gülmezoglu, Risk factors associated with adverse maternal outcomes following intrapartum cesarean birth: a secondary analysis of the WHO global survey on maternal and perinatal health, 2004–2008, *BMC Pregnancy Childbirth* 20 (1) (2020) 1–11.
- [4] Organisation for Economic Co-operation and Development OECD, Caesarean sections (indicator) <https://doi.org/10.1787/adc3c39f-en>. (Accessed 16 June 2021).
- [5] P.S. Moran, C. Normand, P. Gillen, F. Wuytack, M. Turner, C. Begley, et al., Economic implications of reducing caesarean section rates — analysis of two health systems, *PLoS One* 15 (7) (2020), e0228309.
- [6] World Health Organization, Appropriate technology for birth, *Lancet* 2 (August (8452)) (1985) 436–437.
- [7] World Health Organization (WHO), Recommendations Non-clinical Interventions to Reduce Unnecessary Caesarean Sections, World Health Organization, Geneva, 2018. Available from <http://apps.who.int/iris/bitstream/handle/10665/275377/9789241550338-eng.pdf?ua=1>. (Accessed 15 June 2021).
- [8] Euro-Peristat Project, European Perinatal Health Report: Core Indicators of the Health and Care of Pregnant Women and Babies in Europe in 2015, 2018. Available from www.europeristat.com. (Accessed 15 June 2021).
- [9] A.P. Betran, J. Ye, A.B. Moller, J.P. Souza, J. Zhang, Trends and projections of caesarean section rates: global and regional estimates, *BMJ Glob. Health* 6 (6) (2021), e005671.
- [10] A.P. Betrán, M. Temmerman, C. Kingdon, A. Mohiddin, N. Opiyo, Torloni, et al., Interventions to reduce unnecessary caesarean sections in healthy women and babies, *Lancet* 392 (10155) (2018) 1358–1368.
- [11] I. Chen, N. Opiyo, E. Tavender, S. Mortazhejri, T. Rader, J. Petkovic, et al., Non-clinical interventions for reducing unnecessary caesarean section, *Cochrane Database Syst. Rev.* 9 (2018), CD005528.
- [12] C.M. Reynolds, L.E. McMahon, E.G. O'Malley, M.P. O'Connell, S.R. Sheehan, M. J. Turner, Trends in private maternity care in Ireland's capital during and after the Great Economic Recession 2009–2017, *Irish J. Med. Sci.* (1971–) (2020) 1–8.
- [13] V. Smith, L. Gallagher, M. Carroll, K. Hannon, C. Begley, Antenatal and intrapartum interventions for reducing caesarean section, promoting vaginal birth, and reducing fear of childbirth: an overview of systematic reviews, *PLoS One* 14 (10) (2019), e0224313. Available from, <https://doi.org/10.1371/journal.pon.e0224313>.
- [14] Gallagher, L., Begley, C., Smith, V., Carroll, M., Lawler, D., Hannon, K. (2022). What would reduce caesarean section rates? — Views from pregnant women and clinicians in Ireland. Submitted to PLoS One.
- [15] M. Sandelowski, What's in a name? Qualitative description revisited, *Res. Nurs. Health* 33 (1) (2010) 77–84.
- [16] H. Kim, J.S. Sefcik, C. Bradway, Characteristics of qualitative descriptive studies: a systematic review, *Res. Nurs. Health* 40 (1) (2017) 23–42, <https://doi.org/10.1002/nur.21768>.
- [17] V. Braun, V. Clarke, What can “thematic analysis” offer health and wellbeing researchers? *Int. J. Qual. Stud. Health Wellbeing* 9 (2014).
- [18] V. Braun, V. Clarke, Using thematic analysis in psychology, *Qual. Res. Psychol.* 3 (2) (2006) 77–101.
- [19] W.A. Grobman, M.M. Rice, U.M. Reddy, A.T. Tita, R.M. Silver, G. Mallett, et al., Labor induction versus expectant management in low-risk nulliparous women, *N. Engl. J. Med.* 379 (6) (2018) 513–523.
- [20] S.L. Carmichael, J.M. Snowden, The ARRIVE trial: interpretation from an epidemiologic perspective, *J. Midwifery Womens Health* 64 (5) (2019) 657–663, <https://doi.org/10.1111/jmwh.12996>. Epub 2019 Jul 2.
- [21] D. Horey, M. Kealy, M.A. Davey, R. Small, C.A. Crowther, Interventions for supporting pregnant women's decision-making about mode of birth after a caesarean, *Cochrane Database Syst. Rev.* 7 (2013), CD010041.
- [22] F. Hadizadeh-Talasaz, F. Ghoreyshi, F. Mohammadzadeh, R. Rahmani, Effect of shared decision making on mode of delivery and decisional conflict and regret in pregnant women with previous caesarean section: a randomized clinical trial, *BMC Pregnancy Childbirth* 21 (2021) (2021) 144.
- [23] I. Lundgren, P. Healy, M. Carroll, C. Begley, A. Mattered, M.M. Gross, et al., Clinicians' views of factors of importance for improving the rate of VBAC (vaginal birth after caesarean section): a study from countries with low VBAC rates, *BMC Pregnancy Childbirth* 16 (1) (2016) 350.
- [24] I. Lundgren, V. Smith, C. Nilsson, K. Vehviläinen-Julkunen, J. Nicoletti, D. Devane, et al., Clinician-centred interventions to increase vaginal birth after caesarean section (VBAC): a systematic review, *BMC Pregnancy Childbirth* 15 (2015) 16.
- [25] S. Panda, C. Begley, D. Daly, Clinicians' views of factors influencing decision-making for caesarean section: a systematic review and metasynthesis of qualitative, quantitative and mixed methods studies, *PLoS One* 13 (7) (2018), e0200941.
- [26] E.M. Finucane, D.J. Murphy, L.M. Biesty, G.M.L. Gyte, A.M. Cotter, E.M. Ryan, et al., Membrane sweeping for induction of labour, *Cochrane Database Syst. Rev.* 2 (2020), CD000451.
- [27] A. Romijn, P.W. Teunissen, M.C. de Bruijne, C. Wagner, C.J.M. de Groot, Interprofessional collaboration among care professionals in obstetrical care: are perceptions aligned? *BMJ Qual. Saf.* 27 (4) (2018) 279–286.
- [28] J.P. Skinner, M. Foureur, Consultation, referral, and collaboration between midwives and obstetricians: lessons from New Zealand, *J. Midwifery Womens Health* 55 (1) (2010) 28–37.