To give and to assist birth after cesarean

Rietveld, A.L.

2019

document version
Publisher's PDF, also known as Version of record

Giving birth after cesarean; exploring women's preferences using Q methodology

4

Submitted

Anna L. Rietveld
N.J.A (Job) Van Exel
Merith C. Cohen de Lara
Christianne J.M. de Groot
Pim W. Teunissen

ABSTRACT

Background

Women pregnant after one cesarean are counseled on the intended mode of delivery: a planned repeat cesarean or a trial of vaginal delivery. Guidelines advise to discuss risks and benefits of both options, and to take women's preferences into consideration. To support the decision-making process, it is important to gain a better understanding of the preferences that exist among women facing this decision. Using Q-methodology, this study systematically explores women's preferences for birth after cesarean.

Methods

36 pregnant women with a history of cesarean ranked 31 statements concerning their upcoming delivery from least to most important. By-person factor analysis was used to identify patterns which, supplemented with interview data, were interpreted as preferences.

Results

Three distinct preferences for delivery after a cesarean were found; a) "*Minimize the risks for me and my child*", giving priority to doctor's advice and risk of adverse events, b) "*Seek the benefits of normal delivery*", desiring a delivery as normal as possible for both emotional and practical reasons, c) "*Opt for repeat cesarean*", expressing the belief that a planned cesarean brings comfort.

Conclusion

Preferences for delivery after cesarean vary considerably among pregnant women. Knowledge of women's perspectives is helpful for developing strategies to involve patient preferences in antepartum decision-making, but also to better understand the reasons for the declining tendency towards vaginal birth after cesarean.

BACKGROUND

The rate of deliveries by cesarean has been rising worldwide. At no point in history have cesarean rates been as high as they are today. According to the latest data from 150 countries, currently 18.6% of all births occur by cesarean. Latin America and the Caribbean region has the highest cesarean rates (40.5%), followed by Northern America (32.3%), Oceania (31.1%), Europe (25%), Asia (19.2%) and Africa (7.3%).[1] Cesarean delivery is associated with medical risks for mothers and newborns, and the rising rate increases the economic burden on health care systems.[2] The greatest contributor to the high cesarean rate is the elective repeat cesarean after a previous one.[3] During the past decades, rates of vaginal birth after cesarean dropped considerably, from 48% to 30% in the United States and from 46% to 36% in the United Kingdom.[3,4] In the Netherlands, a relatively high number of women chooses trial of labor after cesarean, approximately 70%.[5]

Both trial of labor and planned repeat cesarean have certain medical risks. Cesarean deliveries have a higher risk of major infection (0.33% versus 0.18%), anesthetic complications (0.53% versus 0.21%) and neonatal respiratory problems (7% versus 5%) compared to vaginal delivery.[6-8] Trial of labor after cesarean is associated with a higher risk of uterine rupture (0.64% versus 0.03%) and neonatal hypoxic-ischemic encephalopathy (0.08% versus 0%).[9-11] Risks are highest when having to convert to a cesarean and not when the trial of labor succeeds.[12] Women pregnant after one cesarean are confronted with the choice to plan either a repeat cesarean or a trial of vaginal delivery.[12-14] Internationally, guidelines advice gynaecologists to incorporate women's preferences in counseling, leaving both options open for discussion.[13,15] However, Munro et al. found that physicians acted as information providers with limited consideration of women's preferences.[16] Research undertaken to understand women's preferences demonstrated that different medical as well as non-medical factors, such as the experience of the previous cesarean, play a role in weighing both options.[4,17,18] These qualitative studies provide insight in influences that shape women's attitudes, but have not established the degree of importance of these aspects to women. A more thorough understanding of the preferences for delivery after cesarean would not only support the counseling conversation, but might help to better understand reasons for the declining tendency towards trial of labor after cesarean.[3,4] We used Q-methodology to reveal distinct patterns in women's preferences towards delivery after a previous cesarean.[19]

METHODS

Q-methodology is a research technique which combines qualitative and quantitative methods in order to systematically investigate subjective issues.[20] Q-methodology can be used to uncover the main viewpoints about a subject within a certain population.[19] Participants were presented a set of statements drawn from the literature, covering aspects that are possibly important to them in regard to their upcoming delivery. In an interview setting, participants were instructed to rank each statement in a pyramid-shaped grid (figure 1) according to the degree of importance they assigned to it. Qualitative information was collected by interviewing participants after populating the grid to explain their rankings.

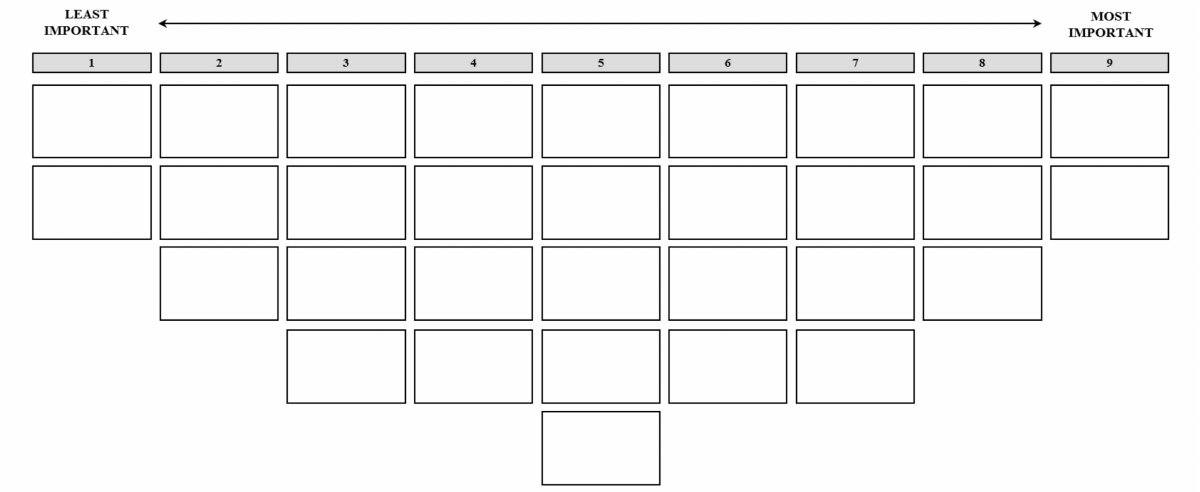

Figure 1. Q-sort grid

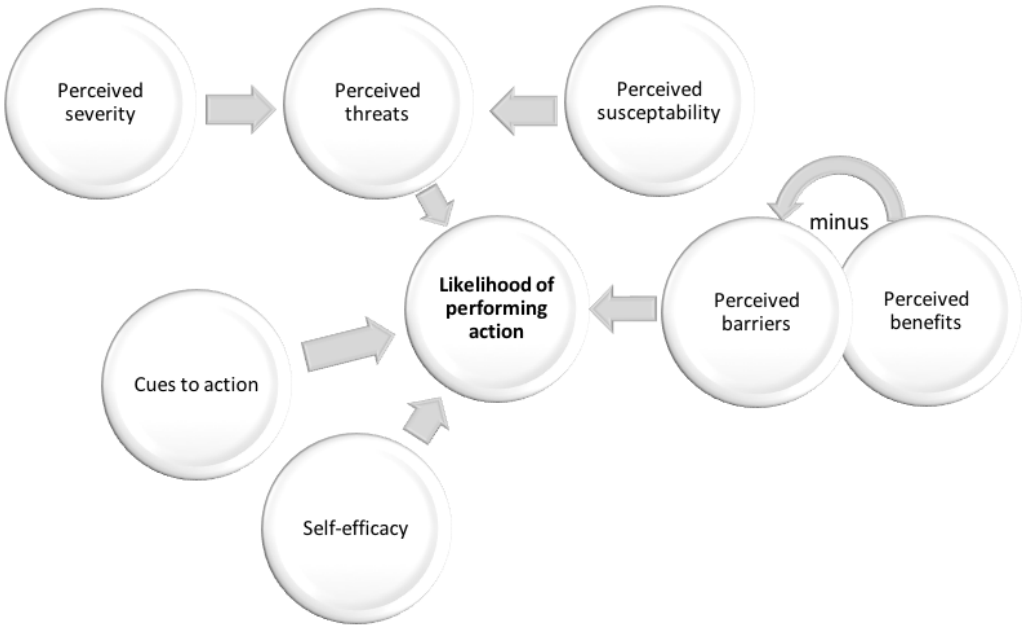

Figure 2. Adapted version of the health belief model

Statement set development

To develop a comprehensive statement set, including all different facets that are possibly important to women, we used the health belief model as the theoretical framework for this study.[21-24] The health belief model consists of six components shaping individuals' health beliefs. Figure 2 depicts an adapted version of the model used for this study.[22,24]

Through a non-systematic review of scientific and popular databases by the lead researcher (AR), a large variety of factors that women potentially find important for their post-cesarean delivery were identified.[4,17,23,25–29] In addition, four doctors were asked to provide regularly heard statements of women deciding on their mode of post-cesarean delivery. One researcher (MCL) added statements based on her experience as a psychological counsellor for women with delivery-related mental health problems. An initial set of 47 statements was developed. In joint discussion with three researchers (AR, PT, JE) adjustments were made; statements covering similar topics were merged or deleted. The wording was revised for clarity. This process resulted in a final set of 31 statements (Table 1). The final statement set was tested for comprehensiveness and comprehensibility in one pilot interview, not leading to any changes in the statement set.

Additional data

A brief questionnaire was developed, containing questions on demographic data and medical history. After ranking the statements and completing the questionnaire, participants were asked to motivate their ranking of the statements in a supplementary interview.

Setting and recruitment of participants

In the Netherlands, all hospitals facilitate trial of labor after cesarean. Healthy women with a history of a cesarean have their antenatal check-ups in a midwife-led practice, unless they choose to visit a hospital. Women with a medical condition or a high-risk pregnancy will be referred to secondary care at the beginning of pregnancy. All women with a previous cesarean are referred to a hospital for counseling on the mode of delivery when they reach a gestational age of approximately 34-36 weeks and they will deliver in secondary care under the responsibility of a gynecologist.

Q-methodology aims to explore the variety of viewpoints that people hold, without making claims about the number or characteristics of people expressing them. Therefore, participants were invited purposively with the aim of recruiting a diverse sample of participants.[30] Imperative for this study was inclusion before women received counseling on the mode of delivery. Inclusion criteria were: being pregnant after one previous cesarean, understanding and reading of either Dutch or English language. Exclusion criteria were: having a medical indication for repeat cesarean or having had a trial of labor after cesarean already in a previous pregnancy. The following sampling frame was used: women from an academic hospital population, a non-academic hospital population, and three midwife-led practices; and across these settings, women from different ages, educational levels, religions and nationalities/ethnicities. We aimed to include 30 to 40 women.[20] Participation was voluntarily.

Data collection

Women were recruited between May 2017 and January 2018 by their health care providers; either their doctor or their midwife who handed them the study information. After recruitment,

one researcher (AR) made an appointment. At the appointment, participants received written instruction for ranking the 31 statements, printed on cards, using the sorting grid (instructions presented in the supporting information). Subsequently, each participant filled out the questionnaire followed by an interview. They were asked to explain why they sorted the aspects as they did, with particular attention to the statements ranked at the extreme ends. Interviews were audio-recorded and transcribed verbatim. Transcripts were coded to allow thematic content analysis.

Analysis

Individual statement rankings were subject to by-person factor analysis (centroid factor analysis and varimax rotation) using PQMethod 2.35.[31] The assumption underlying this analysis is that participants who rank statements similarly, have similar preferences towards delivery after cesarean. For each factor a composite ranking of the statements was calculated; a weighted average ranking of all statements that represents how a participant with 100% correlation with that factor would have ranked the statements. The factors were then interpreted as preferences for the upcoming delivery, using both this composite statement rankings and the qualitative data of women associated with the factor. The first interpretation of the composite rankings focused on the characterizing statements for the factor (i.e., those with a score -4, -3, +3 or +4 in the composite ranking) and the distinguishing statements (i.e., statements whose rankings in one factor differed statistically significantly from those in all other factors). Next, the remaining statements were included in the interpretation, as well as the explanations participants statistically significantly ($p<.05$) associated with the factor gave to their ranking of the statements. Finally, the consensus statements (i.e., statements whose rankings did not differ significantly between any of the factors) were inspected and described.

Ethics approval and consent to participate

The Medical Ethics Review Committee of VU University Medical Center examined the study protocol (#2017.262) and judged that an official approval of this study was not required. Informed consent in writing was obtained from every participant.

RESULTS

A total of 36 women participated in the study. One participant had to be excluded due to language barriers that became apparent during the sorting of the statements and the interview. Analysis was done on 35 participants. Participant characteristics are shown in table 2. Results are illustrated with quotes.

Patterns of preferences in giving birth after cesarean

Inspection of the factor solutions supported by the data resulted in selection of a three-factor solution. Table 1 shows the composite ranking of statements for each preference. The composite rankings were defined by 28 participants (80%) that associated uniquely with one of the factors (table 3).

Preference A: Minimize the risks for me and my child

Women defining this factor did not yet tend strongly towards either cesarean or vaginal delivery and emphasized the importance of information about possible complications of both modes of delivery (statement 1: +3, statement 2: +2**, statement 4: +3**). *"I do not have a tendency of going normal or going cesarean. It is in the middle right now. I just try to take any*

information in." They expressed a need for doctor's advice based on their particular situation (statement 23: +3), and trusted their doctor to advise them on the option with the smallest risk of complications. *"[The chance of complications is] the assessment of doctors. I do not have a clear idea of it for myself, but if they say: well, there is a chance of complications, then I would rely on that."* These women indicated that they used doctors to help them to decide on their intended mode of delivery and they tried to use information to enhance predictability and safety of the upcoming delivery. Safety of both mother and baby were considered highly important (statement 7: **+4**, statement 8: +4), and women expressed the contrast that can be found in these priorities in the case of delivery after cesarean. "*Yes, it [a cesarean] does [feel more safe] for sure. It is more me that I am thinking of. There is always a risk with the operation, right? But I feel it is more on me then it would be on the baby.*" The wish to have another pregnancy after this one is important for women holding this preference and might influence their need for information (statement 18: +2**). Also, an important aspect that contributes to the need for information and doctor's advice is the wish to avoid uncertainty in general and emergency cesarean in specific (statement 10: +2). *"Things such as emergency cesarean or the uncertainty about the fact something can go wrong. (…) I prefer everything to be absolutely clear and certain, but of course that is impossible."* Women defining preference A were relatively more likely to involve their partners in decision-making, fitting the input-seeking behavior that seems to prevail (statement 24: +1**).

Preference B: Seek the benefits of normal delivery.

Women that loaded on this factor also highly valued the safety of their child and themselves (statement 7: +4; statement 8: +4), but in contrast to preference A expressed a clear tendency towards trial of labor, in order to achieve vaginal delivery (statement 19: +3**; statement 14: -4*). More than women with the other preferences they would like to avoid a cesarean (statement 9: 0**) for two main reasons: to be able to live the experience (statement 19: +3**; statement 28: +2**; statement 13: -3), and to have a swift recovery, for practical reasons (statement 15: +2). Women with this preference expressed a deeper, primal feeling associated with giving birth vaginally. *"Sometimes, the body is not cooperating and then, well, you can't do anything about it. But it's frustrating, because….. well, it is basically why we are on earth of course."* This feeling was among others motivated by the wish to have contact with the baby immediately after birth (statement 17: +3). *"I missed…, and I think that's very important, it's the dream of every mother to have the baby with you directly. And that doesn't happen during a cesarean."* Most women with this preference also valued the faster recovery after vaginal delivery, so that they would be able to take care of their other children as well. *"I've heard that recovery goes much faster. […] I have another child who's four years old, he has to go to school."* Nonetheless, the chance of failure of trial of labor was perceived as a barrier (statement 20: +3). Therefore, some women expressed a tendency toward planned cesarean in order to avoid emergency repeat cesarean, which they thought would be the least comparable to normal birth.

Table 1. Statement scores per preference, categorized by components of the health belief model

Statements	Preference		
Perceived susceptibility	A	B	C
1. The chance of complications of caesarean delivery	+3	+1	+1
2. The chance of complications of vaginal delivery	+2**	+1	0
Perceived severity			
3. My knowledge on trying to deliver vaginally	**-1**	**-1**	**-1**
4. The chance of rupture of the uterine scar	+3**	+2**	-2**
5. My experience with caesarean delivery	+1*	0*	+3*
6. The chance of damage to my perineum or pelvic floor	**+1**	**+1**	**+1**
Perceived benefits			
7. Safety of the baby	***+4***	***+4***	***+4***
8. My own safety	+4	+4	+2*
9. To avoid a caesarean	-2	0**	-3
10. To avoid emergency caesarean delivery	+2	0	0
11. To have the least amount of uncertainty during my delivery	**+1**	**0**	**+2**
12. The possibility to plan when the baby will be born	-3	-2	+3**
13. To avoid labor pains	-3	-3	+4**
14. To avoid vaginal delivery	-2*	-4*	+2**
15. Time to recovery after the delivery	0	+2	+1
16. The possibility to stay in the hospital after the delivery	-1	-2	+2**
17. To have contact with my newborn directly after delivery	+2	+3	+3
18. The wish to have another pregnancy after this one	+2**	-2	-1
19. To experience a natural delivery	-1**	+3**	-4**
Perceived barriers			
20. The chance of success of a trial of labor	0**	+3**	-2**
21. The experience of other women with caesarean delivery after previous caesarean delivery	-1*	-3	-2
22. The experience of other women with trial of labor after previous caesarean delivery	0	-2	-3
Cues to action			
23. My doctor's advice in current pregnancy	+3	+2	0*
24. The opinion of my partner	+1**	0**	-3**
25. The opinion of my friends	***-4***	***-4***	***-4***
26. The opinion of my family	***-3***	***-3***	***-2***
27. To prove that I am able to give birth vaginally	-4*	-1	-1
28. To at least try to deliver vaginally	-2	+2**	-1
Self-efficacy			
29. To be in control during my delivery	**0**	**-1**	**+1***
30. To be able to experience my ideal delivery	-2*	-1	0
31. The confidence I have in my own body	**0**	**+1**	**0**

* Distinguishing statement at $p < 0.05$

** Distinguishing statement at $p < 0.01$

Bold type indicates consensus statement, non-significant at $p > 0.01$

Bold italic type indicates consensus statement, non-significant at $p > 0.05$

Preference C: Opt for repeat cesarean.

Women defining this factor were very clear that they had no wish to experience natural delivery (statement 19: -4**; statement 14: +2**) and preferred a cesarean (statement 9: -3). They ascribed great importance to avoiding labor pains (statement 13: +4**), to being able to plan when the baby will be born (statement 12: +3**), to have the least uncertainty and be in control during delivery (statement 11: +2; statement 29: +1*). This resulted in their avoidance of a vaginal delivery (statement 14: +2**). *"I think there are a lot of women who would enjoy giving birth vaginally. Then I think: I'm part of the minority, I just let the baby be taken out."* These participants indicated that for them a cesarean feels as something that is safe and comfortable and they appreciate the possibility to stay in hospital after delivery (statement 16: +2**).
"I love the cesarean. The room, the operation room and everything. It feels you are not alone. When you deliver it's so much you are all sacrifice […]. But in the operation room you have all this team working and it is so clean and neat and professional that you feel comfortable." The women who loaded on preference C tried to deliver vaginally in their first pregnancies. The desire to avoid trial of labor in their current pregnancy was superimposed on a pre-existing idea of not being able to cope with pain, which they felt was corroborated by the experience of failing to deliver vaginally in the past, and their positive experience with cesarean (statement 5: +3**). Of all women, they attached the least importance to the opinion of their partner (statement 24: -3**).

Consensus statements

All participants emphasized the importance of the safety of their babies as well as safety of themselves. *"What I think is important? Just that we both make it and that it [the baby] is healthy. Very cliché, but it is true!"*. Consensus was also found in statements of least importance to the participants: the opinions of family and friends. *"Friends are just for fun, for a good conversation, but their opinion on my delivery is not important to me"*.

DISCUSSION

Main findings

There is no simple answer to the question "what is the best way to deliver after a cesarean?"[32] Clinical guidelines advise to incorporate women's preferences in antepartum counseling, but research showed that healthcare providers do not always adhere to this advice.[13,15,16] This study is the first to investigate in detail patterns in women's preferences concerning birth after cesarean. We found three main preferences: A) *Minimize the risks for me and my child*, B) *Seek the benefits of normal delivery* and C) *Opt for repeat cesarean*.

Table 2. Details of purposively sampled participants who completed the study

Characteristics	Participants (n=35)
Age, median (IQR)	35 (31.5 – 36.5)
Nationality*	30.5 (87%)
European	3 (9%)
Asian	1 (3%)
African	0.5 (1%)
South American	
Employed	31 (89%)
Religious	14 (40%)
Gestational age, median (IQR)	27+0 (22+4 – 29+5)
Antenatal care in	
Midwife-led practice	5 (14%)
Non-academic hospital	2 (6%)
Academic hospital	28 (80%)
Pregnant after fertility treatment	6 (17%)
Pregnant with twins	2 (6%)
Last caesarean planned during pregnancy	9 (26%)
Experience-score last delivery**, median (IQR)	16 (12-22)
Family completed after current delivery	
Yes	15 (43%)
No	5 (14%)
Not sure	15 (43%)
At time of interview, tendency towards	
Vaginal delivery	14 (40%)
Caesarean	11 (31%)
Not sure	10 (29%)

* Participants with two nationalities were counted as 0.5 for every nationality.
** Self-reported experience score of last delivery on a 7-point scale in four domains, 4 = most negative score, 28 = most positive score.
IQR, interquartile range

Table 3. Characteristics of factors

Factor		% Variance explained	Participants associated with factor
1	*Minimize the risks for me and my child*	28	13 (37%)
2	*Seek the benefits of natural delivery*	25	13 (37%)
3	*Opt for repeat caesarean*	13	2 (6%)
Participants associated with more than one factor			7 (20%)

Interpretation

Women with the preference A described a great deal of uncertainty, fueled by the fact that no option is without risks. The information-seeking behavior they exhibited is in accordance with earlier findings in women deciding on mode of birth after cesarean.[33-35] For women with this preference, health care professionals need to pay attention to the fact that they might have difficulties with applying health risk information to themselves, possibly either over- or underestimating risks.[36] The currently advised counseling methods discussing risks and benefits of both options and making a choice together with the physician, seem appropriate.[12,13] In contrast, women with the other two preferences were less uncertain. For women with preference B, experiencing a natural delivery is most important. They expressed less doubt and they predominantly wanted to try to deliver vaginally. Women with preference C disclosed a strong inclination toward planned repeat cesarean. These preferences indicate that some women already have a fixed idea on their upcoming deliveries, even before receiving counseling from a health care provider. In light of the worldwide declining uptake of vaginal birth after cesarean, it is conceivable that women increasingly tend toward preference C due to the objectified and perceived increasing safety of cesarean delivery.[37]

Our results show discrepancy with current literature on known birth choice influencers. Konheim-Kalkstein et al. described the influential role of being able to control the birth process.[38] Our participants however, reckoned that delivery is a process that is not likely to be controlled. They tended to feel neutral about this statement. An earlier article by the same authors described that women actively seek birth narratives of other women on the internet.[34] Women in our cohort awarded little importance to the experiences of other women. An explanation for these discrepancies might be the population from which the two study-samples were taken; our cohort mainly consisted of Dutch women who were recruited in-person, whereas Konheim-Kalkstein included American women in an internet-based study. Possibly, American women who want to pursue vaginal birth after cesarean are in search of support by others who plan the same, while Dutch women probably experience this support more often within society and from their health care providers.[39] This is in line with Bryant et al. describing that the social context of cesareans influences the decision women make on the desired mode of delivery.[40]

Research amongst Australian and English women described that a distressing previous birth experience induces the decision for planned repeat cesarean.[4] Our study did not confirm this. We found that most women indeed reflected on their past birthing experience when evaluating their preferences towards the upcoming delivery, but women who qualified their previous birthing experiences as distressing were represented in all preferences. This suggests that a previous birthing experiences does not necessarily lead to a major change in preferences for the next delivery. However, to confirm this suggestion, more research is needed.

Strengths and limitations

By employing Q-methodology we were able to uncover preferences, but we could not establish the frequency of these preferences in the population. Information on the prevalence of each preference and their relation with characteristics of the woman, her circumstances, and her previous experience giving birth, can be acquired using surveys.[41] Employing such a survey could not only be valuable for scientific purposes, but all the more in clinical practice. It could help counsellors and other health care providers to discuss preferences and concerns with women more effectively. A survey could also be used to investigate changes in preferences, for example following previous experiences.

Second, although we used the health belief model to structure the development and warrant the comprehensiveness of the statement set, we cannot guarantee that all aspects that are important to women when deciding about their post-cesarean delivery mode were included. However, in the process of developing the statement set, we gained input from international literature, the research team in which multiple disciplines are represented, and doctors working in the field of obstetrics. Upon request, some women indicated to miss a statement on breastfeeding. However, they indicated this topic was covered by statement 17 (*To have contact with my newborn directly after delivery*).

Third, one could question to what extent people are conscious of factors they value or that exert an effect upon them. People might for example be unconsciously influenced by opinions of others, without acknowledging this in the study setting.

Strength of this study is the use of Q methodology in order to enhance the applicability of qualitative information in clinical practice. This study is the first to increase insight in women's decision-making process by revealing existing preferences on birth after cesarean.

CONCLUSION

As patient-centeredness is increasingly receiving attention in healthcare and knowing there is no absolute best option for delivery after a previous cesarean, we suggest that health care professionals in obstetrics should be aware that different preferences for giving birth after cesarean exist among women.[42,43] Each preference asks for a different approach to enable the pregnant women to make their own choice between the two modes of delivery. Preferences vary widely amongst pregnant women, already before they are counseled by health care providers. Further research should focus on the question when and how ideas toward mode of delivery originate; possibly already before or right after the first cesarean, or during the interval between the two pregnancies. Also, our results highlight the need to investigate whether most women tend to hold one of the preferences throughout the pregnancy, or if they feel sympathy towards several preferences that may change over time. This knowledge is helpful for developing strategies to involve women's preferences in antepartum decision-making, but also to better understand the reasons for the declining tendency towards vaginal birth after cesarean and the worldwide increase of cesarean delivery rates.

REFERENCES

1. Betrán AP, Ye J, Moller A-B et al. The increasing trend in caesarean section rates: global, regional and national estimates: 1990-2014. PLoS ONE. 2016; 11:e0148343.
2. Foureur M, Turkmani S, Clack DC et al. Caring for women wanting a vaginal birth after previous caesarean section: A qualitative study of the experiences of midwives and obstetricians. Women Birth. 2017;30:3-8.
3. Guise J-M, Eden K, Emeis C et al. Vaginal birth after cesarean: new insights. Evidence report/technology assessment No.191. (Prepared by the Oregon Health & Science University Evidence-based Practice Center under contract No. 290-2007-10057-I). AHRQ Publication No. 10-E003. Rockville, MD: Agency for Healthcare Research and Quality. March 2010.
4. Black M, Entwistle VA, Bhattacharya S et al. Vaginal birth after caesarean section: why is uptake so low? Insights from a meta-ethnographic synthesis of women's accounts of their birth choices. BMJ Open. 2016;6:e008881.
5. Rietveld AL, Teunissen PW, Kazemier BM et al. Effect of interpregnancy interval on the success rate of trial of labor after cesarean. J Perinatol. 2017;37:1192–1196.
6. Declercq E, Barger M, Cabral HJ et al. Maternal outcomes associated with planned primary cesarean births compared with planned vaginal births. Obstet Gynecol. 20117;109:669–677.
7. Liu S, Liston RM, Joseph KS et al. Maternal mortality and severe morbidity associated with low-risk planned cesarean delivery versus planned vaginal delivery at term, CMAJ. 2007;176:455–460.
8. Hook B, Kiwi R, Amini SB et al. Neonatal morbidity after elective repeat cesarean section and trial of labor. Pediatrics. 1997;100:348–353.
9. Landon MB, Hauth JC, Leveno KJ et al. Maternal and perinatal outcomes associated with a trial of labor after prior cesarean delivery mark. N Engl J Med. 2004;351:2581–2589.
10. Lydon-Rochelle M, Holt VL, Easterling TR et al. Risk of uterine rupture during labor among women with a prior cesarean delivery. New Engl J Med. 2001;345:3–8.
11. Zwart JJ, Richters JM, Ory F et al. Uterine rupture in The Netherlands: a nationwide population-based cohort study. BJOG 2009;116:1069-1080.
12. The American College of Obstetricians and Gynecologists, ACOG Practice bulletin no. 115: Vaginal birth after previous cesarean delivery. Obstet Gynecol. 2010;116:450-463.
13. Nederlandse Vereniging voor Obstetrie en Gynaecologie, [Guideline Pregnancy and Delivery after a Previous Cesarean Section of the Dutch Society of Obstetrics and Gynaecology], 2010. retrieved from: www.nvog.nl, accessed 29-01-2017.
14. Royal College of Obstetricians and Gynaecologists, Birth after previous caesarean birth Green-top guideline No. 45, 2015. retrieved from: www.rcog.org.uk, accessed 29-01-2017.
15. The American College of Obstetricians and Gynecologists. National Institutes of Health consensus development conference statement: vaginal birth after cesarean: new insights. Obstet Gynecol. 2010;115:1279–1295.
16. Munro S, Kornelsen J, Corbett K et al. Do women have a choice? Care providers' and decision makers' perspectives on barriers to access of health services for birth after a previous cesarean. Birth. 2017;44:153-160.
17. Shorten A, Shorten B, Kennedy HP. Complexities of choice after prior cesarean: A narrative analysis. Birth. 2014;41:178–184.
18. Lundgren I, Begley C, Gross MM et al. 'Groping through the fog': a metasynthesis of women´s experiences on VBAC (vaginal birth after caesarean section). BMC Pregnancy Childbirth. 2012;12:85
19. Watts S, Stenner P. Doing Q methodology: theory, method and interpretation. Qual Res Psychol. 2005;2:67–91
20. Watts S, Stenner P, Doing Q Methodological Research Theory, Method & Interpretation. London: Thousand Oaks CA, 2012.

21. Glanz K, Bishop D. The role of behavioral science theory in development and implementation of public health interventions. Annu Rev Public Health. 2010;31:399–418.
22. Rosenstock IM, Strecher VJ, Becker MH. Social learning theory and the health belief model, Health Educ Q. 1988;15:175–183.
23. Loke AY, Davies L, Li S. Factors influencing the decision that women make on their mode of delivery: the Health Belief Model. BMC Health Serv Res. 2015;15:274.
24. Janz NK, Becker MH, The Health Belief Model: a decade later. Health Educ Q. 1984;11:1–47.
25. Folsom S, Esplin MS, Edmunds S et al. Patient counseling and preferences for elective repeat cesarean delivery. AJP Rep. 2016;6:e226-231.
26. Chinkam S, Ewan J, Koeniger-Donohue R et al. The effect of evidence-based scripted midwifery counseling on women's choices about mode of birth after a previous cesarean. J Midwifery Women's Heal. 2016;61:613–620.
27. McGrath P, Phillips E, Vaughan G. Vaginal birth after caesarean risk decision-making: Australian findings on the mothers' perspective. Int J Nurs Pract. 2010;16:274–281.
28. Keedle H, Schmied V, Burns E, Dahlen HG. Women's reasons for, and experiences of, choosing a homebirth following a caesarean section. BMC Pregnancy Childbirth. 2015;15:206.
29. Hauck Y, Fenwick J, Downie J et al. The influence of childbirth expectations on Western Australian women's perceptions of their birth experience. Midwifery. 2007;23:235–247.
30. Etikan I, Musa SA, Alkassim RS. Comparison of convenience sampling and purposive sampling. Am J Theor Appl Stat. 2016;5:1-4.
31. Schmolck P, Atkinson J. PQ method software and manual, version 2.35 (2014). Retrieved from http://schmolck.org/qmethod/.
32. Sargent J, Caughey AB. Vaginal birth after cesarean trends. Which way is the pendulum swinging? Obs Gynecol Clin N Am. 2017;44:655–666.
33. Bonzon M, Gross MM, Karch A et al. Deciding on the mode of birth after a previous caesarean section – An online survey investigating women's preferences in Western Switzerland. Midwifery. 2017;50:219–227.
34. Konheim-Kalkstein YL, Whyte R, Miron-Shatz T et al. What are VBAC women seeking and sharing ? A content analysis of online discussion boards. Birth. 2015;42:277–282.
35. Moffat MA, Bell JS, Porter MA et al. Decision making about mode of delivery among pregnant women who have previously had a caesarean section: a qualitative study. BJOG. 2007;114:86–93.
36. Lipkus IM, Samsa G, Rimer BK. General performance on a numeracy scale. Med Decis Making. 2001;21:37-44.
37. Main E, Morton C, Hopkins D et al. Cesarean deliveries, outcomes, and opportunities for change in California: toward a public agenda for maternity care safety and quality. Palo Alto, 2011;CA: CMQCC. Available at www.cmqcc.org.
38. Konheim-Kalkstein YL, Kirk CP, Berish K et al. Owning the birth experience: what factors influence women's vaginal birth after caesarean decision? J Reprod Infant Psychol. 2017;35:410–422.
39. Nilsson C, Van Limbeek E, Vehvilainen-Julkunen K et al. Vaginal birth after cesarean: views of women from countries with high VBAC rates. Qual Health Res. 2017;27:325-340.
40. Bryant J, Porter M, Tracy SK et al. Caesarean birth: consumption, safety, order, and good mothering. Soc Sci Med. 2007;65:1192–1201.
41. Baker RM, Van Exel J, Mason H et al.. Connecting Q & surveys: three methods to explore factor membership in large samples. Institute for applied health research. 2010;paper 44. Available at http://researchonline.gcu.ac.uk/iahr/44.
42. Duggan PS, Geller G, Cooper LA et al. The moral nature of patient-centeredness: is it 'just the right thing to do'? Patient Educ Couns. 2006;62:271–276.
43. Elwyn G, Dehlendorf C, Epstein RM et al. Shared decision making and motivational interviewing: Achieving patient-centred care across the spectrum of health care problems. Ann Fam Med. 2014;12:270-275.

Supporting information. Instructions for participants

Dear madam,

Thank you for participating in our study about giving birth after a previous caesarean. After a caesarean there are two options to give birth: through vaginal delivery or through planned repeat caesarean. Sometimes during an attempted vaginal delivery, there will be decided to perform a caesarean after all. Women have a lot of different considerations to choose one or the other option. This study is about what matters to you at this moment.

On the 31 cards you received, there are aspects that may be important for the decision between a planned caesarean and a vaginal delivery. We are curious about how important these aspects are to you at this moment.

We therefore ask you to arrange the cards in the reverse pyramid. It is all about your personal opinion, so there are no correct or incorrect answers. The numbers on the cards (from 1 to 31) are there to register your answers and do not mean anything else.

After ordering the cards, the researcher will ask you to fill out a questionnaire and she will ask a number of questions in a short interview. The total duration is approximately 45 minutes.

This is how it works:

Read the aspects on the 31 cards carefully and divide them into three stacks right away:

- A pile of aspects you find IMPORTANT.
- A pile of aspects that you find LESS IMPORTANT.
- A pile of aspects that you do not find important but also not unimportant.

You can use the boxes under the reverse pyramid for this distribution.

1. Start with the pile of aspects that you find IMPORTANT. Read them all again and choose the two aspects that you think are MOST IMPORTANT. Place these two cards in the two right-hand boxes of the pyramid, under number 9. It doesn't matter what card you put up or down. Then select from the rest of the IMPORTANT tickets the three aspects that you consider most important thereafter and place them under 8. Continue until you have given all your IMPORTANT tickets a place in the pyramid.

2. Do the same for the LESS IMPORTANT tickets. Start with the two factors that you find the least important and place them below the 1.

3. Finally, take the remaining stack of cards and distribute them in the remaining empty places.

4. You are done with the sorting task now. Look at the entire pyramid and change positions of cards wherever you find it necessary.

5. After that, the researcher will hand you a questionnaire and ask you some additional questions.

Thank you for your participation!