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Ingegerd Hildingsson & Margareta Johansson

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RESEARCH ARTICLE

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A cluster analysis of reasons behind fear of birth among women in Sweden

Ingegerd Hildingsson[a,b] and Margareta Johansson[a]

[a]Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden; [b]Department of Nursing, Mid Sweden University, Sundsvall, Sweden

ABSTRACT

Background: Fear of birth is common and complex, caused by a variety of reasons. The aim was to investigate the prevalence of pre-established reasons in relation to fear, and to identify profiles of women based on their reported reasons behind fear of birth.

Methods: A cross-sectional Swedish study of women with self-reported fear of birth who completed an online survey. Descriptive statistics, chi-square test, crude and adjusted odds ratios with 95% confidence intervals were used in the analysis of pre-established reasons in relation to self-reported severe fear. A Kappa-means cluster analysis was performed in order to group reasons, that were further investigated in relation to women's background variables.

Results: A total of 1419 women completed the survey. The strongest reason behind fear of birth was to be forced to give birth vaginally. Four clusters were identified and labeled: *minor complexity* (reference group), *relative minor complexity*, *relative major complexity,* and *major complexity*. Cesarean section preference, previous mental health problems, being younger, primiparity, and exposure to domestic violence were factors related to cluster grouping.

Conclusions: Women with fear of birth have various reasons and diverse complexities behind their fear. Health care providers need to investigate these reasons and support pregnant women with childbirth fear, based on their needs.

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Cluster analysis; fear of birth; parity; reasons; survey; women

Introduction

The body of research around fear of birth is growing. Although the phenomenon 'fear of birth' does not have a clear definition [1,2], it is commonly used in clinical practice [3], research [4,5], media [6], and among women [7,8].

The prevalence of fear of birth depends on how it is measured, with no consensus as to the best method, although governmental initiatives (such as that in Sweden) have suggested that using a Visual Analogue Scale (VAS) scale or similar instrument might be helpful in identifying women with fear of birth [3]. Previous research has shown a prevalence of 10–20% in studies conducted in high-resource countries [9], and a meta-analysis concluded that 14% of pregnant women worldwide suffer from fear of birth [2].

Another topic of interest is the reasons behind fear of birth. A systematic review based on 21 studies [10] grouped such reasons into population characteristics, mood-related aspects, and reasons related to pregnancy and childbirth. Many of the studies focusing on population characteristics have presented contradictory results in terms of age, social support, ethnicity, level of education, and parity. The mood-related aspects related to fear of birth are reported to include stress, anxiety, depression, mental health problems, and abuse. Reasons related to pregnancy and childbirth—including infertility problems, negative birth experiences, prolonged labor duration, epidural use, and emergency cesarean section (CS)—were other factors associated with fear of birth [10]. Results regarding fear of birth and elective CS [10–12] and instrumental vaginal birth [10] have been contradictory. Other studies have shown that labor augmentation with oxytocin, transfer of the baby to a neonatal intensive care unit, and long distance to the hospital

CONTACT Ingegerd Hildingsson ingegerd.hildingsson@kbh.uu.se Uppsala University, Department of women's and children's health, Uppsala, Sweden

increased fear of birth [13]. Other reasons reported as being related to fear of birth include lack of confidence in the ability to give birth, fear of the unknown, other women's birth stories, fear of perineal tearing, unmet needs around information and support, loss of control, not being involved in decision-making, blood and injection phobias, fear of pain, and low self-esteem [14].

Scant literature examines the impact of encounters with health care providers and support from the partner on reasons for fear of birth. Therefore, the aim of the current study was to investigate the prevalence of pre-defined reasons related to fear of birth and to identify and explore clusters of reasons related to parity and various background variables.

Material and methods

Design

This cross-sectional study was approved by the regional ethical committee in Sweden on August 24, 2021 (Dnr 2021-03759). The study procedure was guided by the STROBE checklist [15], and it involved participants completing an online survey.

Process and recruitment of participants

Inclusion and exclusion criteria

The present study recruited women, regardless of any previous pregnancy, with fear of birth and knowledge of the Swedish language. Women younger than 18 years of age and not living in Sweden were excluded.

Recruitment process

Information about the study was available *via* posters at ultrasound clinics, at counseling clinics for fear of birth at six hospitals in Sweden between February 2022 and September 2022. Potential participants were handed a study information leaflet with a web link and QR (Quick Response) code for the survey. In addition, advertisements were posted on social media (i.e. Facebook and Instagram), and in newsletters of non-profit organizations for pregnant women. At the bottom of the advertisements, a web link and/or QR code to the online survey were presented.

Informed consent

After clicking the link, potential participants were transferred to Research Electronic Data Capture [RedCap], which is hosted at Uppsala University. RedCap is a secure, web-based software platform designed to support data collection in research studies [16]. Study information, including the purpose of the research and the principles of voluntary participation and confidentiality of data was presented. Participants were informed that by clicking "yes", they consented to participate in the survey. The survey was completed anonymously after providing consent.

Instrument

Variables included in the survey

The survey comprised a variety of questions, of which some are used in the present study. Fear of birth, was assessed using one question *To what extent do you experience fear of birth?*, assessed on a 4-point Likert scale with the response options 'to a very large extent', 'to a large extent', 'to a small extent', and 'not at all'.

We also used the Fear of Birth Scale (FOBS) [17,18]. The FOBS consists of two 100-mm Visual Analog Scales (VAS), with the anchor spectra 'Calm–Worried' and 'No fear–Strong fear', and is preceded by a question *How do you feel right now about the approaching birth?* Women placed a mark on each of the scales, which were measured, summed, and averaged to get the FOBS score; a score of 60 or more was used to classify women as having fear of birth. The prevalence of Fear of birth using FOBS (with a cutoff 60 or more) in population-based pregnant populations is around 20%. The Cronbach alpha value was 0.929, correlation between the subscales 0.85 [18].

One section of the survey presented a set of pre-established listed reasons for experiencing fear of birth. The reasons were related to *labor and birth* (i.e. that they would die, having a vaginal instrumental birth), *internal factors* (i.e. becoming dependent on other people, feelings of helplessness, powerlessness, dependency, inability to give birth, uncertainty), *the baby* (i.e. having a sick baby), *encounters with health care providers* (i.e. being forced to give birth vaginally against will, not receiving sufficient information, not being taken seriously, not being respected, not being involved in the care, not being listened to), *the partner* (i.e. not being available to attend antenatal visits, partner having fear of birth, lack of support from partner), and *other reasons* (i.e. unsuccessful breastfeeding, worried about fainting). Women selected the relevant reasons by ticking the box next to the presented reasons.

Sociodemographic background explanatory variables were: age, civil status, country of birth, residential area, level of education, previous pregnancies (i.e. miscarriage, previous mode of birth) and current

pregnancy, previous and current mental health problems, and exposure to domestic violence.

Statistical analyses

Descriptive statistics were used to present participants' reasons behind their fear of birth, as well as background variables. Comparisons were made between nulliparous and parous women using chi-square tests. The pre-established reasons for fear of birth were first investigated in relation to severe fear of birth (an answer of 'to a very large extent' to the question *To what extent do you experience fear of birth?*). Thereafter, the pre-established reasons were grouped, summed, and transformed into z-scores. A nonhierarchical Kappa–means cluster analysis was performed to group the pre-established reasons to describe the levels of complexity of the fear. The goal of the cluster analysis was to split up the large set of variables into smaller and more homogeneous groups. Given the exploratory nature of cluster analysis other possible solutions of two-cluster and three-cluster solutions were also evaluated. The four-cluster solution was found to offer the most interpretable and clinically meaningful solution. Each cluster was labeled according to the grouping of its items after discussions among the authors. The next step was to calculate odds ratios (OR) with 95% confidence intervals (CI) between the clusters and the background variables. The variables age, residential area, previous miscarriage, previous mental health problems, and being currently pregnant were statistically different between nulliparous and parous women and were therefore selected as potential confounders in calculating the OR.

Results

In total, 711 nulliparous (50.1%) and 708 parous (49.9%) women with fear of birth completed the questionnaire. Table 1 shows the background information of the participants. The majority were 25–35 years old, living with a partner, born in Sweden, and had a university education. Parous women were more likely to exhibit severe fear of birth, or fear of birth 'to a very large extent', compared to nulliparous ($p = 0.002$). Nulliparous women were more likely to report previous mental health problems compared to parous women ($p = 0.008$), but no differences were found in current mental health problems or exposure to domestic violence. In addition, parous women were older than nulliparous women ($p < 0.001$) and less likely to live in a city ($p < 0.001$). Parous women were also more likely to have had a previous miscarriage ($p < 0.001$) and were less likely to be pregnant at the time of completing the survey ($p < 0.001$). Women's self-assessment of their fear of birth showed that 15.7% of the primiparous and 24% of the multiparous women reported the fear at 'a very large extent', ($p < 0.001$). The corresponding figures for presenting with a FOBS-score of 60 or more were 61.9% and 67.2%, non-significant difference.

Table 2 provides a detailed presentation of the listed pre-established reasons for fear of birth in women who exhibited severe fear, compared to women without severe fear as the reference, with the prevalence of each reason and the crude and adjusted ORs for the estimations of the strength of the associations. Nulliparous and parous women both reported that the reasons related to labor and birth were primarily that they themselves would die, along with the risk of having a vaginal instrumental birth.

Results on the reasons related to internal factors in women with severe fear reveal that the only reason nulliparous women reported was fear of becoming dependent of other people, while parous women's internal reasons included feelings of helplessness, powerlessness, dependency, inability to give birth, and uncertainty in relation to severe fear of birth.

The listed pre-established reasons related to the baby showed no association with severe fear in parous women, while nulliparous women were less likely to report having a sick baby as a reason for their fear.

Results on the reasons related to encounters with health care providers showed that the strongest association with severe fear was being forced to give birth vaginally against will, with ORs of 7.98 in nulliparous women and 5.59 in parous women. Nulliparous women were less likely to report 'not receiving sufficient information' as a reason but were more likely to report 'not being taken seriously' or 'not being respected' as reasons for their fear. Parous women also reported fear related to 'not being taken seriously' and 'not being respected' as reasons associated with severe fear of birth, as well as 'not being involved in the care' or 'not being listened to'.

'Partner not being available to attend antenatal visits' was associated with fear in nulliparous women, while 'partner having fear of birth' showed lower odds. Parous women were less likely to report 'lack of support from partner' as a reason behind fear of birth.

Of the reasons grouped as 'other', nulliparous women were less likely to report 'unsuccessful breastfeeding' as a reason for fear, and parous women were worried about 'fainting'.

Table 1. Background of the participants[a].

	Nulliparous women	Parous women	*p*-value
	n = 711 *n* (%)	*n* = 708 *n* (%)	
Socio-demographic background			
Age groups			
19–30 years	210 (29.8)	96 (13.7)	
31–35 years	350 (50.1)	310 (44.3)	
36–53 years	142 (20.2)	294 (42.0)	<0.001
Civil status			
Living with a partner	678 (95.5)	672 (95.0)	
Not living with a partner	32 (4.5)	35 (5.0)	0.709
Country of birth			
Sweden	646 (91.2)	632 (89.4)	
Other country	62 (8.8)	75 (10.6)	0.244
Level of education			
High school or lower	122 (17.2)	123 (17.4)	
University education	588 (82.8)	583 (82.6)	0.944
Residential area			
City	518 (73.1)	452 (63.8)	
Larger community	106 (15.9)	133 (18.8)	
Smaller village	85 (12.0)	123 (17.4)	<0.001
Obstetric characteristics			
Obstetric history [b]			
Previous live birth		699 (98.7)	na
Previous stillbirth		17 (2.4)	na
Previous miscarriage	136 (19.1)	196 (27.7)	<0.001
Previous abortion	153 (21.5)	144 (20.3)	0.525
Currently pregnant			
Yes	679 (95.6)	416 (58.8)	
No	31 (4.4)	291 (41.2)	<0.001
Gestational weeks			
18 or less	159 (24.5)	104 (25.1)	
19–36 weeks	369 (56.8)	222 (53.6)	
37 or more	122 (18.8)	88 (21.3)	0.525
Self-reported status of the current pregnancy			
Normal	595 (91.1)	364 (87.3)	
Not normal	58 (8.9)	53 (12.7)	0.051
Self-reported fear of birth			
To a very large extent	93 (25.0)	120 (34.3)	0.002
To a large extent	173 (46.5)	149 (42.6)	
To a small extent	104 (28.0)	72 (20.6)	
Not at all	2 (0.5)	9 (2.6)	
Fear of Birth Scale (FOBS)			
Mean, (SD)	62.98 (27.20)	64.44 (30.03)	0.394
FOBS 60 or more	373 (61.9)	350 (67.2)	0.070
Preferred mode of birth			
Vaginal	450 (69.1)	282 (67.8)	
Cesarean section	104 (16.0)	75 (18.0)	
Don't know	97 (14.9)	59 (14.2)	0.673
Mental health			
Previous mental health problems			
Yes	382 (60.2)	320 (52.7)	0.008
No	253 (39.8)	287 (47.3)	
Current mental health problems			
Yes	195 (30.8)	187 (30.8)	
No	438 (69.2)	420 (69.2)	1.000
Previous or current exposure to domestic violence			
Yes	112 (17.7)	108 (17.9)	1.000
No	520 (82.3)	496 (82.1)	

[a]Numbers might not reach 100% due to internal missing values.
[b]Parous women only.

In a subsequent step, a cluster analysis was performed of the pre-established listed reasons related to labor and birth, internal factors, the baby, encounters with health care providers, the partner, and 'other', after the reasons were summed for each group of reasons. The summed variables were standardized before the analysis was performed. Four distinct clusters appeared which describe the level of complexity of the fear; these were explored and labeled as (i) *minor complexity*, (ii) *relative minor complexity*, (iii) *relative major complexity*, and (iv) *major complexity* (Figures 1 and 2).

The first cluster, labeled *minor complexity,* was used as a reference group. This cluster, comprising 286 participants, was characterized by a mean FOBS score of 80.09 (SD 12.02) and showed negative levels of

Table 2. Reported reasons behind fear of birth in women with severe fear[a].

	Reported reasons in women with severe fear *n* (%)	Primiparas		Reported reasons in women with severe fear *n* (%)	Multiparas	
		Crude OR (95% CI)	Adjusted OR (95% CI)		Crude OR (95% CI)	Adjusted OR (95% CI)
Reasons in relation to labor and birth						
Prolonged labor	57 (61.3)	1.07 (0.66–1.74)	1.04 (0.63–1.71)	63 (52.5)	1.22 (0.78–1.90	1.22 (0.78–1.90
Severe ruptures	78 (83.9)	0.84 (0.44–1.61)	0.79 (0.41–1.54)	91 (75.8)	1.37 (0.83–2.71)	1.34 (0.79–2.25)
Risk of dying	51 (54.8)	2.59 (1.60–4.18)***	2.58 (1.57–4.23)***	60 (50.0)	1.87 (1.19–2.93)**	1.92 (1.20–3.09)**
Instrumental vaginal birth	64 (68.8)	2.52 (1.53–4.16)***	2.59 (1.55–4.33)***	60 (50.0)	1.94 (1.24–3.05)**	1.89 (1.19–3.00)**
Cesarean section	29 (31.2)	0.98 (0.59–1.63)	1.15 (0.68–1.94)	35 (29.2)	0.81 (0.50–1.32)	0.85 (0.52–1.40)
Infection	8 (8.6)	1.65 (0.67–4.04)	1.46 (0.58–3.68)	7 (5.8)	1.36 (0.50–3.67)	1.95 (0.68–5.59)
Reasons in relation to inner self						
Loneliness	38 (40.9)	1.50 (0.92–2.43)	1.45 (0.87–2.42)	54 (45.0)	1.32 (0.84–2.06)	1.29 (0.81–2.07)
Helplessness	61 (65.6)	1.37 (0.84–2.24)	1.40 (0.84–2.35)	92 (76.7)	3.11 (1.90–5.12)***	3.25 (1.94–5.44)***
Powerlessness	66 (71.0)	1.56 (0.94–2.60)	1.48 (0.87–2.52)	85 (70.8)	1.70 (1.06–2.74)*	1.68 (1.03–2.76)*
Dependency	40 (43.0)	2.34 (1.43–3.83)***	2.27 (1.36–3.78)***	45 (37.5)	2.33 (1.43–3.51)***	2.35 (1.41–3.90)***
Failure	29 (31.2)	0.87 (0.53–1.45)	0.81 (0.47–1.37)	36 (30.0)	1.11 (0.68–1.80)	1.17 (0.70–1.96)
Loss of control	62 (66.7)	1.22 (0.74–2.00)	1.24 (0.74–2.08)	66 (55.0)	1.24 (0.79–1.93)	1.25 (0.78–1.98)
Unbearable pain	60 (64.5)	0.95 (0.58–1.55)	0.94 (0.56–1.56)	65 (54.2)	1.06 (0.68–1.65)	1.08 (0.68–1.71)
Inability to manage labor pain	58 (62.4)	0.84 (0.51–1.37)	0.83 (0.50–1.38)	64 (53.3)	1.22 (0.78–1.90)	1.19 (0.75–1.88)
Inability to give birth	45 (48.4)	1.12 (0.69–1.85	1.13 (0.69–1.85	51 (42.5)	1.65 (1.04–2.61)*	1.78 (1.10–2.68)*
Uncertainty	71 (76.3)	1.48 (0.86–2.55)	1.58 (0.90–2.77)	85 (70.8)	1.64 (1.02–2.64)*	1.64 (1.01–2.68)*
Reasons in relation to the baby						
Baby getting infection	15 (16.1)	1.53 (0.79–2.99)	1.61 (0.81–3.19)	15 (12.5)	0.91 (0.47–1.77)	0.89 (0.45–1.77)
Admission to hospital	28 (30.1)	0.65 (0.39–1.07)	0.66 (0.40–1.11)	48 (40.0)	1.32 (0.83–2.09)	1.42 (0.88–2.28)
Baby being sick	47 (50.5)	0.55 (0.34–0.89)*	0.52 (0.31–0.86)*	66 (55.0)	0.90 (0.58–1.41)	0.97 (0.61–1.53)
Birth injuries	78 (83.9)	1.33 (0.71–2.49)	1.39 (0.73–2.66)	90 (75.0)	0.89 (0.53–1.50)	0.90 (0.53–1.53)
Death of the baby	69 (74.2)	1.32 (0.78–2.24)	1.37 (0.79–2.37)	93 (77.5)	1.44 (0.86–2.41)	1.52 (0.89–2.61)
Reasons in relation to encounter with health care providers						
Being forced to give birth vaginally	68 (73.1)	6.22 (3.69–10.48)***	7.98 (4.59–13.90)***	79 (65.8)	5.98 (3.69–9.70)***	5.59 (3.40–9.18)***
Unavailable hospital of choice	34 (36.6)	1.13 (0.69–1.85)	1.09 (0.65–1.82)	39 (32.5)	1.42 (0.88–2.31)	1.37 (0.83–2.27)
Stopped from being admitted to hospital	45 (48.4)	0.95 (0.59–1.53)	0.90 (0.55–1.46)	57 (47.5)	1.21 (0.78–1.89)	1.19 (0.75–1.88)
Not receiving pain relief	42 (45.2)	1.06 (0.66–1.69)	1.04 (0.64–1.70)	51 (42.5)	1.17 (0.74–1.83)	1.01 (0.63–1.61)
Not receiving support	61 (65.6)	0.79 (0.48–1.30)	0.75 (0.44–1.27)	87 (72.5)	1.20 (0.73–1.95)	1.19 (0.72–1.98)
Not receiving proper care	61 (65.6)	0.89 (0.54–1.46)	0.87 (0.52–1.45)	74 (61.7)	1.37 (0.87–2.15)	1.40 (0.88–2.24)
Not receiving information	59 (63.4)	0.55 (0.13–0.74)**	0.58 (0.35–0.98)*	78 (65.0)	1.58 (1.00–2.50)	1.52 (0.94–2.45)
Not being involved	63 (67.7)	1.51 (0.92–2.48)	1.40 (0.84–2.33)	75 (62.5)	1.63 (1.04–2.57)*	1.59 (0.99–2.55)
Not being treated with respect	63 (67.7)	1.72 (1.05–2.83)*	1.69 (1.02–2.80)	69 (57.5)	1.50 (0.96–2.34)	1.68 (1.04–2.70)*
Not being taken seriously	72 (77.4)	2.23 (1.29–3.83)**	2.21 (1.26–3.88)**	78 (65.0)	1.61 (1.02–2.34)*	1.64 (1.02–2.63)*
Not being listened to	65 (69.9)	1.58 (0.95–2.61)	1.51 (0.90–2.54)	81 (67.5)	1.87 (1.17–2.96)**	2.08 (1.28–3.39)**
Reasons related to the partner						
Not allowed to be present during antenatal visits	26 (28.0)	1.77 (1.02–3.07)*	1.64 (0.91–2.93)	31 (25.8)	1.60 (0.94–2.72)	1.56 (0.90–2.72)
Not allowed to be present during labor and birth	56 (60.2)	1.15 (0.71–1.86)	1.16 (0.76–1.90)	66 (55.0)	1.00 (0.64–1.57)	1.07 (0.68–1.70)
Not receiving support during pregnancy and birth	23 (24.7)	0.64 (0.38–1.10)	0.69 (0.40–1.19)	26 (21.7)	0.60 (0.36–1.01)	0.58 (0.34–0.99)
Not receiving support during parenthood	13 (14.0)	0.69 (0.35–1.33)	0.68 (0.35–1.35)	11 (9.2)	0.69 (0.33–1.45)	0.68 (0.32–1.46)
Partner being fearful	6 (6.5)	0.37 (0.15–0.92)*	0.38 (0.15–0.94)*	8 (6.7)	0.61 (0.26–1.41)	0.59 (0.25–1.40)
Reasons related to other aspects						
To see blood	15 (16.1)	1.14 (0.60–2.19)	1.21 (0.61–2.37)	10 (8.3)	1.81 (0.74–4.39)	1.59 (0.62–4.08)
To receive injections	18 (19.4)	0.85 (0.47–1.54)	0.86 (0.47–1.58)	17 (14.2)	1.41 (0.72–2.75)	1.55 (0.77–3.10)

(*Continued*)

Table 2. Continued.

	Reported reasons in women with severe fear *n* (%)	Primiparas Crude OR (95% CI)	Primiparas Adjusted OR (95% CI)	Reported reasons in women with severe fear *n* (%)	Multiparas Crude OR (95% CI)	Multiparas Adjusted OR (95% CI)
To faint	11 (11.8)	0.63 (0.31–1.26)	0.56 (0.26–1.19)	13 (10.8)	2.98 (1.23–7.19)**	3.09 (1.20–7.90)*
Sex life being affected	45 (48.4)	1.00 (0.62–1.59)	0.90 (0.55–1.47)	47 (39.2)	1.47 (0.92–2.33)	1.38 (0.85–2.22)
Not succeed with breastfeeding	20 (21.5)	0.36 (0.21–0.62)***	0.37 (0.21–0.66)***	26 (21.7)	0.82 (0.48–1.38)	0.94 (0.54–1.64)
Not being a good parent	29 (31.2)	0.86 (0.52–1.42)	0.82 (0.48–1.38)	16 (13.3)	0.91 (0.48–1.74)	0.82 (0.41–1.62)
Others' stories	46 (49.5)	1.00 (0.62–1.59)	1.04 (0.64–1.70)	34 (28.3)	1.12 (0.68–1.83)	0.95 (0.56–1.60)
Unable to take care of the baby	34 (36.6)	1.04 (0.64–1.70)	1.01 (0.61–1.68)	41 (34.2)	1.43 (0.89–2.31)	1.45 (0.88–2.39)
Don't know any reason	12 (12.9)	1.57 (0.75–3.28)	1.65 (0.78–3.52)	4 (3.3)	0.43 (0.14–1.31)	0.38 (0.12–1.20)

*=$p<0.05$, **=$p<0.01$, ***=$p<0.001$.
Adjusted for age, residential area, previous miscarriage, previous mental health problems, currently pregnant.
[a]Ref = Women assessing fear as not severe.

reasons related to health care providers and the partner along with low levels of internal reasons, the baby, and other reasons.

The second cluster, labeled *relative minor complexity,* comprised 144 women and had a mean FOBS score of 80.64 (SD 11.58). Women in this cluster had moderate levels of reasons related to encounters with health care providers and the partner, a few reasons related to internal factors, and negative levels of reasons related to the baby and other.

The third cluster, labeled *relative major complexity*, had a mean FOBS score of 85.67 (SD 12.35) and comprised 145 women. This cluster was characterized by low levels of reasons related to the partner and 'other' reasons along with moderate to high levels of reasons related to the birth, internal factors, the baby, and health care providers.

Finally, the fourth cluster, *major complexity*, comprised 148 women and had a mean FOBS score of 83.18 (SD 11.73). This cluster showed moderate to high levels of all grouped reasons, with the highest scores for reasons related to the partner and 'other'.

Each cluster was then compared with the reference group (*minor complexity*) in relation to the background variables presented in Table 1. No differences were found in any of the background variables when *minor complexity* and *relative minor complexity* were compared. When *relative major complexity* was compared with *minor complexity*, women in the *relative major complexity* cluster more often wished to have a CS (OR 2.63; CI 1.55–4.47) and were more likely to have had previous mental health problems (OR 1.86; CI 1.23–2.82). Finally, compared to the *minor* complexity cluster, women in the *major complexity* cluster were younger (OR 0.53; CI 0.30–0.93), less likely to have given birth before (OR 0.40; CI 0.26–0.61), had previous mental health problems (OR 2.06; CI 1.37–3.11), and were more likely to have been exposed to domestic violence (OR 2.10; CI1.31–3.37).

Discussion

The main findings of the present study highlighted some similarities and some differences between nulliparous and parous women who reported reasons for their fear of birth. Similarities were found in fears of dying, of having an instrumental vaginal birth, and of being dependent. The greatest similarities were found in the encounters with the health care providers, with worries about being forced to give birth vaginally showing the highest likelihood of severe fear. Other important similarities were fear of not being treated with respect, not being taken seriously, and not being listened to.

According to the present study, both nulliparous and parous women reported that being forced to give birth vaginally against their will, was a reason behind their fear of birth. Previous studies have shown that strategies used to avoid having to go through a vaginal birth are avoiding pregnancy [19] or requesting elective CS as the mode of birth [19,20]. Women who preferred a CS often regarded vaginal birth as risky and CS as a safe mode of birth associated with little or no risk [20,21]. These women would rather encounter acceptance in response to their request than receive information about risks [20]. Women considered themselves as having the right to demand a non-medical CS as a result of their well-reasoned request [20,21]. In contrast, clinicians held wide-ranging and conflicting views on the extent to which a woman has the right to choose the mode of birth herself [20].

Women in the present study reported fears of not being treated with respect, not being taken seriously, and not being listened to as reasons behind their fear

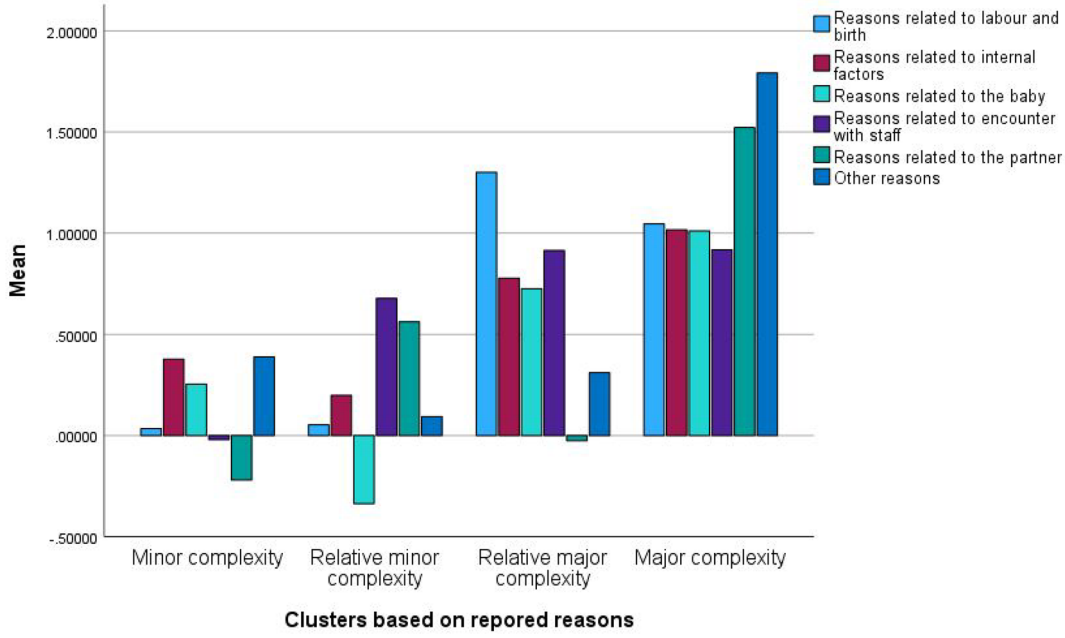

Figure 1. Cluster based on reported reasons among primiparous women.

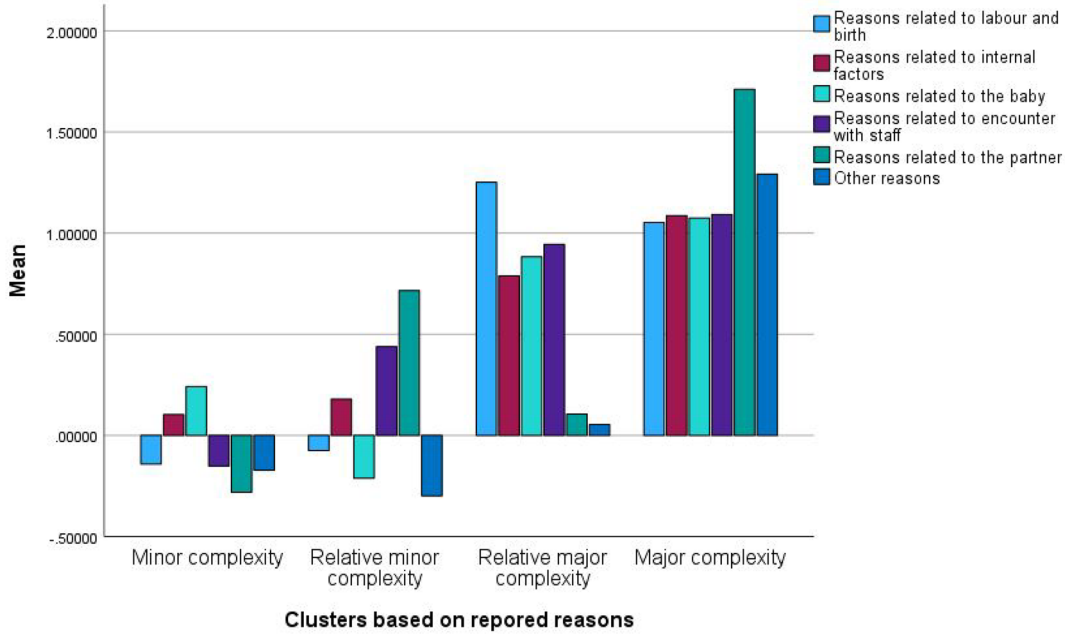

Figure 2. Clusters based on reported reasons in multiparous women.

of birth. A meta-synthesis of seven qualitative studies described how women feared not being treated with dignity during childbirth; however, an intervention by team midwifery helped women develop confidence in themselves and in health care providers, which helped them cope with labor and birth [1]. Another meta-synthesis of 22 studies investigated women's experiences of disrespect due to health care providers' attitudes during childbirth. Women felt lonely when they were not given attention, support, or an explanation of medical interventions carried out during labor, or an opportunity to express their wishes. In this kind of experience, women felt disrespected, unimportant, neglected, abandoned, and dehumanized [22]. In contrast, women felt respected and valued when clinicians listened to what they said without judgment, even if their opinion was of minor importance. Women also appreciated the presence and support of a midwife, who provided a sense of security [22]. It has previously been shown that women have been mistreated in childbirth through physical abuse, not being asked for their consent to the care given, and being verbally

abused, leading to decreased power and autonomy. Therefore, it is of great importance for women to receive adequate information for decision-making and to receive care involving dignity and respect, free from coercion [23].

In the present study, parous women reported more internal factors, such as helplessness, powerlessness, inability to give birth, and uncertainty, than nulliparous women. Previous traumatic birth experiences have previously been related to fear of birth in parous women [1,10,24], including feelings of helplessness [10] and uncertainty [1,22]. Women with a fear of birth viewed it as a time of uncertainty where they lack control and the midwife in control the birth [1]. Interactions with health care providers have a significant impact on women's experiences of birth [24], and the medicalization of childbirth may sustain dependency on and confidence in interventions. Having a trusting relationship with a midwife, along with individualized women-centered models of care that support physiological childbirth, have the potential to strengthen women's self-efficacy [10,21,24]. Midwife counseling has also helped women with fear of birth in coping with the uncertainty of childbirth, by providing a sense of security [1].

In the current study, the baby's health and well-being were not reasons behind women's fear of birth; most surprising was the lack of worry in nulliparous women about the baby being sick. This lack of concern for the baby's health and well-being may be understood as a consequence of maternal confidence. A concept analysis of 24 articles defined maternal confidence in physiological birth as a normal process, given the body's innate ability to give birth. A trusting relationship with the maternity care provider in an environment where women feel safe, receive information and trust the maternity system increases pregnant women's self-confidence in a physiological birth. Increased feelings of confidence and autonomy, in turn, resulted in decreased fear of childbirth [25]. Not all women have confidence in a physiological birth: previous experiences of fetal distress during childbirth and adverse neonatal outcomes have been related to experiences of fear of birth [10].

In the current study, nulliparous women reported fear related to partners not being allowed to participate during antenatal visits, while parous women reported lower odds of support from their partner. Data for the current study were collected during the COVID-19 pandemic, which restricted the involvement of women's partners during childbirth. According to a systematic review based on 58 scientific publications, a significant COVID-19 restriction that affected parents' birth experience was the absence of support persons during antenatal visits. Especially nulliparous women and parous women with previous childbirth complications stressed a need for their partner to accompany them during antenatal appointments and ultrasound scans. Some women felt lonely, overwhelmed by information, stressed, vulnerable, anxious, fearful, and worried that they would be alone if an ultrasound scan would show a fetal abnormality [26]. In addition, a supportive partner and a long partnership can decrease nulliparous women's fear of birth, whereas relationship problems may intensify severe fear of birth [10,27].

In the current study, no association was found between severe fear of birth and blood and injection phobias, but parous women reported fear of fainting as a reason for their fear. Few studies address the fear of fainting in relation to fear of birth [28–30]. In a Swedish interview study, women described themselves as sensitive, fearful, and prone to fainting [29].

The cluster analysis in the current study showed different patterns of reasons and a kind of dose–response relationship with severity. These findings highlight the importance of investigating women's reasons behind their fear of birth. Women in the *major complexity* cluster group seem to be most vulnerable, representing young and nulliparous women with high fear, lack of support, previous and current mental health problems, and exposure to domestic violence. One way to support women in this cluster might be to offer continuity of midwifery care, such as caseload, as the best available mode, as also described in a narrative systematic review by Cibralic et al. [31]. Characteristics of women who prefer continuity of care have been described in a longitudinal cohort study to be younger women, nulliparous women and women with fear of birth [18].

Women in the *relative major complexity* cluster group were most prone to report a variety of reasons at moderate levels and had partner support. A lack of partner support has been shown to be related to fear of birth; in contrast, when women are able to discuss their specific fears with their partner, they felt understood and taken seriously. Previously described in a meta-synthesis of qualitative research evidence women in the perinatal period have felt empowered when having a supportive partner [1].

This study is limited by its observational design, the self-selecting nature of the survey, and the fact that women were recruited through hospitals and through social media. No information about how many women noticed the study information is available, which is a limitation. Another limitation is the under-representation of foreign-born women in the study sample, which

reduces its capacity to be generalized to wider populations of women. Using two types of measures of fear of birth might have had an impact on the findings, and the dichotomization of the Likert scale. The choice of comparing women who assessed fear 'to a very large extent' with 'less than a very large extent' aimed to identify women with strong or severe fear and their reasons for fear of birth. Another possible choice would have been to collapse 'a very large extent' and 'a large extent'. When using 'a very large extent' 95% were classified as having FOBS 60 or more. Classifying fear of birth by using only the two questions of the FOBS might limit the prevalence of fear; however, the FOBS is a validated instrument that has been used in many studies and is a valuable screening instrument in clinical practice in Sweden and in other countries. The present study shows that women's self-assessment is fairly similar to the measure with FOBS. Combining FOBS as a screening tool together with discussion with women about their fear of birth and the reasons behind might be a useful way to communicate and measure fear of birth. The strength of this study was the large sample size that strengthens the validity of the findings, and the results of women's reported reasons behind their fear of birth concurs with those seen in previous studies.

Conclusion

Women with fear of birth have various reasons and diverse complexities underpinning their fears, and heterogeneity more or less prevails among fearful women. Healthcare providers need to investigate these reasons further and support pregnant women with childbirth fear in line with their needs and parity status. Interventions to develop the best evidence-based support for expectant parents according to individual needs are crucial.

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