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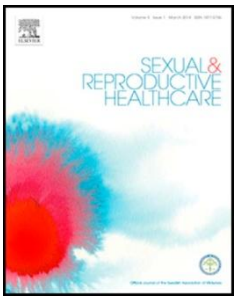

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Author: Lukasse M, Schei B, Ryding EL

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Prevalence and associated factors of fear of childbirth in six European countries

Lukasse M[ab], Schei B[bc], Ryding EL[d] on behalf of the Bidens study group*

[a] Department of Health, Nutrition and Management, Oslo and Akershus University College of Applied Sciences, Norway
[b] Department of Public Health and General Practice, Norwegian University of Science and Technology, Trondheim, Norway
[c] Department of Obstetrics and Gynaecology, St.Olav's University Hospital, Trondheim, Norway
[d] Department of Women's and Children's Health, Division of Obstetrics and Gynecology, Karolinska Institutet / University Hospital, Stockholm

Corresponding author:

Mirjam Lukasse, Oslo and Akershus University College of Applied Sciences, Faculty of Health Sciences, Department of Health, Nutrition and Management, PB 4 St.Olavs plass, N-0130 Oslo, Norway
E-mail: Mirjam.lukasse@Hioa.no,
Mobile: 00 47 95 77 18 64

*On behalf of the Bidens study group: Principal investigator: Berit Schei. Co-principal investigator: Elsa Lena Ryding. Coordinator: Mirjam Lukasse. Local Principal Investigators: Belgium: Marleen Temmerman. Iceland: Thora Steingrímsdóttir. Denmark: Ann Tabor. Estonia: Helle Karro. Norway: Berit Schei. Sweden: Elsa Lena Ryding. Local Coordinators: Belgium: An-Sofie Van Parys. Iceland: Hildur Kristjansdóttir. Denmark: Anne-Mette Schroll. Estonia: Made Laanpere. Norway: Mirjam Lukasse. Sweden: Anne-Marie Wangel.

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Abstract

Objectives: This study set out to compare the prevalence, content and associated factors of fear of childbirth in six European countries.

Method: A cross-sectional study of 6 870 pregnant women attending routine antenatal care in **B**elgium, **I**celand, **D**enmark, **E**stonia, **N**orway and **S**weden (Bidens).

Main outcome measure: Severe fear of childbirth, defined as a Wijma Delivery Expectancy Questionnaire score of ≥85.

Results: Eleven percent of all women reported severe fear of childbirth, 11.4% among primiparous and 11.0% among multiparous women. There were significant differences between the countries for prevalence of severe fear of childbirth, varying from 4.5% in Belgium to 15.6% in Estonia for primiparous women and from 7.6% in Iceland to 15.2% in Sweden for multiparous women. After adjusting for age, education and gestational age, only primiparous women from Belgium had significantly less fear of childbirth, AOR 0.35 (0.19–0.52) compared to Norway (largest participating group). Exploratory factor analyses revealed significant differences between the countries for the six factors extracted.

Conclusion: FOC appears to be an international phenomenon, existing with similar proportions in the participating European countries, except for primiparous women in Belgium who in our study reported significantly less severe fear of childbirth. Our study suggests that the content of fear of childbirth may differ between countries.

Key words: fear of childbirth, prevalence, Europe

Introduction

Fear of childbirth (FOC) has been described as anxiety caused by the appraisal of a possible future delivery (1). FOC can be viewed as a continuum ranging from negligible to extreme fear (1). Besides

influencing the emotional experience of pregnancy and birth, FOC may have an impact on mode of delivery (2, 3). FOC is a common reason for elective Caesarean Sections (CS) on maternal request without a medical indication (4, 5) and on occasions of uncertainty about mode of delivery, it may influence the decision towards an elective CS.

Approximately 10% of pregnant women in Western countries report suffering from FOC to a degree which is dysfunctional and disabling (3, 6-8). Comparing countries is hampered by the lack of uniform instruments used to investigate the concept and different dimensions of FOC (1, 3, 9-11). Dimensions assessed include expectations about the upcoming birth regarding support in labour, a woman's ability to be involved in decisions on pain relief and fear for health of the child. These expectations may be influenced by the organisation of the health care system and how women and society in a particular culture/country view childbirth (9, 12). For example, in Sweden and Norway most maternity care units have specialised services for women with FOC, while Belgium and Estonia lack such a service.

So far, three studies have compared the level and content of FOC across countries. Kjærgaard et al. (12) compared FOC in obstetrically low-risk nulliparous women in Sweden and Denmark using the 33-item Wijma Delivery and Expectancy/Experience Questionnaire (W-DEQ)(1) . Data was collected at different times (1996 in Sweden, 2004 in Denmark) as part of different research projects. This small study (55 Swedes and 110 Danes) found no significant difference between the countries in regard to the level of FOC, neither during pregnancy nor during early labour, even though women in Denmark were more likely to meet a known midwife in labour (12). The second study explored the association between FOC and medicalization by comparing 833 Belgian and Dutch pregnant women's attitudes towards childbirth using a four-dimensional model based on the W-DEQ (9). This study concluded that Belgian women in midwifery care were more fearful of medical interventions and hospital care compared to Dutch women receiving midwifery care. The third study compared Australian and Swedish pregnant women, using two Visual Analogue Scale based questions and 16

attitudinal items in the Fear of Birth Scale (13, 14) . Close to 30% of the women were defined as having elevated levels of childbirth-related-fear and no significant difference between the countries (13). However, they did observe significant cross-national differences in the attitudes towards childbirth women held, suggesting that the cultural context and system of care have an impact on these (14). No studies to date have compared the prevalence of FOC between more than two countries using the same measuring instrument. The primary aim of this study was to assess the prevalence of severe FOC in six Northern European countries. The second aim was to investigate the association between severe FOC and selected background variables. Thirdly, we wanted to explore if the content of fear was different for the participating countries.

Methods

The Bidens study, a six-country cohort study of pregnant women was the result of an EU-funded collaboration between the Norwegian University of Science and Technology (NTNU) and partners from Universities and Hospitals in six European countries (Belgium, Iceland, Denmark, Estonia, Norway and Sweden)(15). A short description of the study sites is given in Suppl. Table S1. There were between one and 7 urban antenatal care sites of data collection in each country with the most in Norway (5) and Sweden (7).

Recruitment took place between March 2008 and August 2010. A total of 7200 women who consented, subsequently completed a questionnaire and allowed the extraction of specified data on their delivery from their medical notes. Due to country specific organization as well as the requirements of local ethical committees, minor variations in the recruitment procedure occurred.

In *Belgium*, women were approached by the midwife or secretary when attending antenatal care. Women were asked to complete the questionnaire in the privacy of a separate room. In *Iceland* women were recruited when attending routine ultrasound and returned completed forms by mail. In *Denmark* women were given information about the study when attending early routine ultrasound

screening and were mailed the questionnaire later. They returned the questionnaire by mail or when attending their next ultrasound examination. In *Estonia* women were invited to participate while visiting for an antenatal consultation. After completing the questionnaire it was left in a mailbox at the clinic. In *Norway,* women received the questionnaire by mail and returned it by mail, after attending routine ultrasound. Non-responders were sent one reminder. In *Sweden*, the questionnaire was administered to women when attending routine glucose tolerance tests and filled out during the two hours between the blood samplings.

The right to obtain information on non-participating women varied between countries and hence the basis for calculating response rates. In *Belgium* and *Sweden* registrations of non-participants was not allowed, the response rate was estimated at 50% and 78%, respectively. In *Iceland* and *Denmark* the response rate was 65 % and 57.3 %, respectively (no reminder). In *Estonia,* the response rate was 90%, based on number of questionnaires given to the assigned study midwives and number of filled out forms returned. In *Norway* the participation rate was 50% (one reminder). The estimated response rate varied between 50% in Norway to 90% in Estonia.

For the purpose of this study we excluded 330 women, 216 who failed to answer seven or more of the 33 W-DEQ questions on fear (12), and 114 women for whom we lacked information on parity. Of the 6870 women left in the sample, 828 were Belgian, 585 Icelandic, 1252 Danish, 896 Estonian, 2351 Norwegian and 958 Swedish.

Women filled out a 68-items questionnaire which included a number of validated and previously used instruments, such as the Edinburgh Depression Scale (short version)(16), the Norvold Abuse Questionnaire (NorAq) (17) and the W-DEQ version A (1). The W-DEQ version A measures fear of childbirth as operationalized by the cognitive appraisal of the coming delivery. A complete version of the questionnaire was developed in English. The questionnaire was translated into the required languages by a native speaker of each of the respective languages (Flemish, Icelandic, Danish, Estonian, Russian, Norwegian and Swedish) and then translated back again into the source language.

The original and back-translated copies were then compared and discussed in order to achieve a valid translation. Where a good and previously used version of an instrument existed this was used. The W-DEQ was developed in Sweden, so the original version was used there (1).

Variables

FOC was assessed by the W-DEQ version A (1), including 33 items, each scoring from 0–5. The sum score ranges from 0 to 165; the higher the score is, the greater the FOC. A sum score of 85 or more is considered to represent severe FOC (18). Parity was derived from a question asking women how many children they had given birth to. Women reported their education by checking one of four predefined categories, which was coded into two levels of education less than 13 years and 13 years or more. Economic hardship was investigated by asking women how easy it would be for them to pay a bill of 25.000 NOK (4230 US $) within a week. This amount was then adjusted for the other countries using the consumer price index (CPI). The answering option “very difficult” was defined as experiencing economic hardship. A history of any abuse was defined a positive answer to having experienced emotional, physical or sexual abuse as an adult or child (19). Abuse in the health care was coded in the same way but kept as a separate variable. Women indicating that beside their partner they had no one to confide in were categorised as not having social support. Women were asked if they during the last 12 months had experienced the post- traumatic stress symptoms of avoidance, intrusions and numbness. A positive answer to any of these defined a woman as having posttraumatic stress symptoms (20). Questions of negative life events experienced in the last 12 months included nine specific items such as serious illness, death, injuries, divorce, family and work related problems as well as one item called “other”. Besides indicating if they had experience the event (yes=1 or no=0), women evaluated their experience (not too bad=1, bad=2 and very bad=3). Women who indicated having experienced an event without reporting the evaluation were coded as 1 for that event. The total score ranged from 0 to 27. We defined a total score of ≥6 (the 90th percentile) as suffering from life events.

Women were asked about the mode of delivery for their first and last birth. Any previous emergency caesarean was coded as previous emergency CS. Any previous planned CS and no previous emergency CS was coded as previous planned CS. Any previous instrumental vaginal birth and no previous CS was coded as previous instrumental birth. The category previous normal vaginal birth included therefor women having indicated only this method of delivery. Experience of previous childbirth was assessed by one question and the woman was said to have a negative birth experience if she described it as 'mostly negative' or 'very negative' and not 'mostly positive' or 'very positive', which were the other alternative answers.

Ethics

All women included in the study consented to participate and allowed the extraction of data on their birth. The study was conducted in accordance with the ethical guidelines developed by WHO (21), which highlight the importance of ensuring women's confidentiality and privacy. The information letter instructed the women to complete the form in a place where she could be undisturbed and included telephone numbers and e-mail addresses to contact if needed. Additionally, in Belgium, Estonia and Sweden the participants had the opportunity to complete the questionnaires at the clinic, and measures were installed to avoid accompanying persons to be with them. Formal approvals of local ethical committees were obtained at all sites (Supplementary material). Data was anonymised before analyses.

Statistical analyses

Twelve percent (12.6) of the total population had 1–6 missing values of the 33 items of W-DEQ. The majority of women, 588 (8.6%) lacked only one item, 161 (2.3%) lacked two items, 73 (1.1%) three items and less than 1% (47) more than three items. Missing values for W-DEQ, ≤ 6 items, were replaced by the series mean, i.e. mean for whole group for each respective item. There were few missing values for the other variables in the study, 1.1% for EDS, 0.2% for age, 0.7% for education, 0.6% for gestational age (GA) at the time of filling out the form. The W-DEQ scores were normally distributed for Belgium and Sweden and minimally skewed for the other countries. To quantify the

prevalence of FOC both mean (SD) and median (Quartiles) were used. Cross-tabulation and Pearson's Chi square test were performed to compare the prevalence of severe FOC between countries. Cronbach's Alpha was assessed country wise for the complete W-DEQ and for the factors which emerged from the factor analysis. Logistic binary regression analyses were used to estimate the association between country and severe FOC as well as the association with a number of socio-economic and other background factors. These analyses were also performed for each of the countries separately and stratified for parity. The reference group for the comparison of the level of severe FOC across countries was Norway as they had the largest participation group. These analyses were adjusted for the a priori chosen variables of age, education and gestational age. All analyses were two-sided at $\alpha = 0.05$ using the statistical program PASW 19.

Exploratory factor analysis was conducted on the 33-item W-DEQ. For multiparous women the first seven factors had eigenvalues greater than 1 (Kaiser's criterion), which accounted for 62% of the variance. For primiparous women the first six factors had eigenvalues greater than 1, which accounted for 56% of the variance. In view of the conceptual clarity of the resulting components, and following examination of the scree plots for both primiparous and multiparous women, six factors were extracted, accounting for 56% of the variance. Principle Component Analysis (PCA) with orthogonal rotation (varimax method) was subsequently performed, with factor loadings greater than 0.30 being retained. A Cronbach's alpha reliability statistic of 0.70 was considered as the minimum acceptable criterion of instrument internal reliability (Kline 1993, 2000).

Results

Socio-demographic, obstetric and other relevant factors by severe FOC are presented in Table 1. Eleven percent (768) of all the women in our study reported severe FOC, 11.4% among primiparous and 11.0% among multiparous women. The prevalence of severe FOC in the six European countries among primiparous women varied from 4.5% in Belgium to 15.6% in Estonia and among multiparous women from 7.6% in Iceland to 15.2% in Sweden (Table 2). The 33-item W-DEQ internal reliability in

the present study was high for each of the participating countries (Table 2), Cronbach's α = 0.925 for the whole study sample. There were significant differences between the countries for the scoring of the W-DEQ for both the mean (SD) (Table 2) and median (Figure 1) for both primiparous (P<0.001) and multiparous women (P=0.001). Country background was associated with severe FOC (Table 3). After adjustment for age, education and gestational age, only primiparous women from Belgium had significantly less severe FOC, OR 0.35 (0.20–0.52) (Table 3) compared to Norwegian primiparous women. Having a planned pregnancy and being married or co-habiting, were significantly negatively associated with severe FOC, AOR respectively 0.72 (0.60–0.87) and 0.63 (0.46–0.86) (Table 4). However, country-wise analyses stratified for parity showed that a planned pregnancy did not reach statistically significant association with FOC for primiparous women in any of the countries (Suppl. Table S2). Suffering from economic hardship, a history of abuse and no social support were positively associated with severe FOC (Table 4). The strongest associations for both primiparous and multiparous women were between FOC and symptoms of depression, post-traumatic stress and suffering from life-events. For multiparous women a previous negative birth experience resulted in a five times increased likelihood for severe FOC (AOR 5.11 95% CI 4.07–6.42). In the analyses by country and parity this association was significant for all multiparous women except for those from Belgium (Suppl. Table S2).

Table 4 presents factor loadings for all the items of the W-DEQ and Cronbach's Alpha values for the six factors. Cronbach's α reliability for the six factors was acceptable. Taking into account previous publications of factor analyses on the W-DEQ (22-24), the factors were interpreted as : F1 *Lack of self-efficacy*, F2 *Loneliness*, F3 *Negative appraisal*, F4 *Lack of positive anticipation,* F5 *Fear*, F6 *Concern for the child*. No items were removed as none had communalities less than 0.3. Factor analyses as described above was repeated for each of the participating countries and yielded essentially the same factors in each of the countries although these factors were not made up of all the same original items in all the countries (Suppl. Table S3). We used One Way Anova analyses with Bonferroni Post hoc test to assess differences between the participating countries for the mean of

the 6 factors identified (Table 5). *Lack of self-efficacy* (F1) had most items loaded to it and therefore the highest mean. Icelandic women expressed least lack of self-efficacy (P 0.05). Danish women had least expectations of being lonely (F2) (P 0.05) where Belgium had the highest mean for this factor. Estonian women had a significantly more *Negative appraisal* (F3) of their birth compared to participating women from the other countries (P 0.05). Norwegian women had the lowest mean for *Lack of positive anticipation* (F4) (P 0.05). Icelandic women had the lowest mean for the factor *Fear* (F5), followed by Belgian women in contrast to Swedish women who scored highest. Danish women scored significantly higher on *Concern for the child* (F6) (*P 0.05*).

Discussion

The prevalence of severe FOC varied between the six European countries in our study. However, after adjusting for age, education and gestational age only primiparous women in Belgium were significantly less likely to have severe FOC compared to the reference group of Norwegian primiparous women. Fear consisted of similar, but not identical, factors (components) in the six participating countries, while the prominence of the factors varied significantly across countries.

Using the same measuring instrument for measuring fear in six European countries is unique for this study. The instrument used to measure FOC was originally developed for Sweden and may not capture all the components FOC consists of in other countries (1). Internal validity was high as measured by the Cronbach's Alpha. External validity and reliability have only been measured in Sweden (1). The W-DEQ explores some components of fear by asking similar questions just using words with different nuances for the same concept, which may be a challenge for the translation. Translation can introduce error and a question can receive a totally different meaning as appears to have happened before with the translation of the W-DEQ from Swedish to English (24). However, the similar adjusted odds ratios for the associated factors and similar factors of fear extracted across the countries in our study suggest that with good translation the W-DEQ functions well in various languages.

The levels of FOC for Denmark, Norway and Sweden were similar level to those reported in previous studies from these countries (3, 7, 12, 25). We found no scientific publications on the prevalence of FOC for Belgium, Iceland and Estonia to which we could compare our results. A high proportion of Estonian women reported severe FOC. In contrast to Sweden, in Estonia there are no specialised clinics for women with FOC, nor is the request for CS due to fear common, even though the term "horror partus" (FOC) is well established. The high level is therefore unlikely to be due to the focus/importance given to this issue. Estonian women scored highest on lack of self-efficacy, which included items pointing to lack of confidence, composure, independence and strength. They also scored highest on negative appraisal, indicated they did not expect a positive experience with feelings of pride and joy. The results from this study indicate that more research is needed in Estonia on FOC as it affects a considerable proportion of the population.

The characteristics of women associated with severe FOC were similar to those reported in other studies (10, 26). Except for a qualitative study which selected women among respondents to our questionnaire in Denmark, no previous study has investigated the association between fear of childbirth and experience of abuse in the health care (27). Among primiparous women, this was significant for the Nordic countries in our study, but not for Estonia and Belgium. In contrast, for multiparous women the association was only significant in Norway and Sweden. The abuse in the health care may have occurred in relation to a previous pregnancy or delivery (27). A previous negative birth experience was strongly associated with FOC for all women, except Belgians. In fact, Belgian women had lowest level of FOC. In contrast to the other participating countries, almost all Belgian women receive all their antenatal care from one obstetrician who also supervises their subsequent birth at the hospital (9). Thus, Belgium has highly medicalized care and exceptional continuity of carer (9). None of the other countries achieves the same level of continuity of carer, except for a minority of women participating in special midwifery-led care models (12, 28, 29). This suggests that predictability of carer and philosophy of care may reduce fear (30). It may also indicate

that meeting carers from different professions with differing philosophy at different times during the same pregnancy may increase fear.

In agreement with other research, our findings suggest that obstetric complications, such as a previous emergency CS, contribute to fear of childbirth (6, 31). However, other research suggests that a previous subjective negative birth experience appears of greater importance than mode of delivery or obstetric complications, which is supported by our findings (31).

The large sample size is a major strength of this study. This allowed us to perform factor analysis separately for primiparous and multiparous women, which yielded the same factors with the same factor loadings for both groups. The factors/components which emerged in our factor analyses compare well with the ones in a smaller Norwegian study of 1680 pregnant women (22). Apart from the items they removed from the scale only two items loaded differently. Both items 6 (afraid) and 12 (tense) loaded under the factor *fear* in their study while item 6 in our study came under loneliness and item 12 under *lack of self-efficacy*. Two other much smaller studies, a British and Australian one, have published a factor analysis of the W-DEQ (23, 24). The factors in all three previous studies are similar, e.g. *Lack of positive anticipation* and *Fear*. What Fenwick et al. (23) and Johnson and Slade (24) called isolation we named loneliness in agreement with the more recent Norwegian study (22). The developers of the W-DEQ drew upon the appraisal theory when developing their instrument (1). Briefly, this theory states that cognitive appraisal processes are a principal factor in determining how people react to stressors, and thus determine the development and maintenance of anxiety (32). The social cognitive theory on self-efficacy as described by Bandura is congruent with the cognitive appraisal theory of Lazarus as it too is about the cognitive appraisal of an event (33). According to Bandura self-efficacy is the belief of how people think they will cope with a given situation (33). Bandura even states that this appraisal may influence how people in fact will cope in this given situation (33).The items of the factor self-efficacy very much relate to how women think they will cope with items such as the anticipation of being confident, composed and

strong. Other factors, such as the one we called *loneliness,* consist in a greater degree of feelings. The only factor identical in the participating countries in our study was the once called *concern for the child.*

Women were recruited while attending routine antenatal care, suggesting generalizability of our findings to the "ordinary" women in the same area/country. However, the recruitment hospital in Denmark is a highly specialised hospital and although effort was made to only include women from the local area and not referrals, it is possible that local women chose this hospital because it offers the most advanced care in the area. This may be reflected in the results which show that compared to the other countries, Danish women did not anticipate feeling lonely during labour to the same extend as in the other countries, but scored highest on fear for the child's wellbeing. Swedish women scored highest on loneliness and negative anticipation, which could be an expression for women's fear for insufficient one-to-one care during labour. The proportion of women with an immigrant background (defined as participants for whom the language of the country is not their mother tongue) was largest in the Swedish sample and perhaps this too is reflected in these scores. In addition, the recruitment site in Sweden has a larger immigrant population than most other cities in Sweden and our findings may therefore not be generalizable for the whole of Sweden but only for this area. Belgium is divided into three language areas (Flemish, French and German) and our sample comes from the Flemish speaking side only, thus limiting the generalizability of the findings. In Estonia, the proportion of Russian participants of 20% is similar to the proportion of the Russian population in Estonia. In Estonia and Norway, we recruited at several sites in the country. While we only recruited women in the capital of Iceland and the sample was small, it is around the capital area most people live and in relation to its' total population, the sample from Iceland is larger than in any of the other participating countries. Thus, the findings for Estonia, Norway and Iceland may be more generalizable for the whole country than the findings for Denmark, Sweden and Belgium.

Six percent of the participants had not reached 17 weeks gestation when filling out the W-DEQ version A. Some may argue that FOC increases as birth approaches. So we assessed the level of FOC by week of gestation in pregnancy for filling out the W-DEQ. In our data the level of FOC was 10.8% for women at ≤ 13 weeks gestation, 10.3% for those between 13 and 17 weeks gestation and 11.8% for women at ≥32–37 weeks gestation. Secondly, we adjusted for gestational age in our regression analyses as reported. Gestational age for filling out the form had no impact after controlling for education.

A limitation of this study is the lack of knowledge of women's fear of medical interventions and injury to themselves and the unpredictability of the birthing process, which are not covered by specific questions in the W-DEQ. Some of these factors were removed from the W-DEQ during the original development of the scale because they lacked discriminative property (1). Neither has this study explored why women who scored high on the W-DEQ had fear of childbirth, except for investigating the association with a limited number of associated background variables. Of particular interest is the role of information (by carers, the press, friends and family), informed choice and the cultural view of childbirth, which may vary considerably between the participating countries.

Sever FOC is more than ordinary worries and for the women it affects it a major issue. Of the participating countries in our study, only Sweden and Norway have widespread, established approaches of care for women with severe FOC. This specialised care was in part established to counsel women who requested birth by elective CS due to FOC and without a medical indication (3). I appears that in the other participating countries in this study, severe fear of childbirth is not recognised as an issue which requires a formal approach, possibly because few women request a birth by CS for this reason.

Conclusion

Although the level of severe FOC varied across countries, it was a phenomenon seen in each of the participating countries. In addition, our study also suggests that the content of FOC varies across countries.

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Table 1. Socio-demographic, obstetric and other related information for nulliparous and multiparous women with severe fear of childbirth (W-DEQ score ≥85) and the full sample (column %)

	Primiparous women	Multiparous women	Full sample

	with severe fear of childbirth n=388	with severe fear of childbirth n=381	N=6870
	n(%)	n(%)	n(%)
Age			
<25	99 (25.6)	25 (6.6)	865 (12.6)
25-30	166 (43.0)	111 (29.2)	2827 (41.2)
31-35	95 (24.6)	171 (45.0)	2243 (32.7)
>35	26 (6.7)	73 (19.2)	921 (13.4)
Education			
<13 years	138 (36.1)	166 (43.6)	1926 (28.2)
≥13 years	244 (63.9)	212 (55.6)	4894 (71.2)
Economic hardship			
No	245 (63.1)	242 (63.5)	5137 (74.8)
Yes	143 (36.9)	123 (32.3)	1733 (25.2)
Civil status			
Married/co-habiting	350 (90.2)	362 (95.0)	6554 (95.4)
Single	38 (9.8)	19 (5.0)	316 (4.6)
Planned pregnancy			
No	103 (26.6)	86 (22.8)	1309 (18.7)
Yes	284 (73.4)	292 (77.2)	5643 (80.8)
Gestational age			
<17 weeks	29 (6.2)	20 (5.3)	413 (6.0)
17-28 weeks	280 (72.4)	252 (67.0)	4844 (70.5)
>28 weeks	83 (21.4)	104 (27.7)	1570 (22.9)
Post Traumatic Stress symptoms (PTS)			
No	308 (79.4)	268 (70.3)	6049 (88.0)
Yes	80 (20.6)	113 (29.7)	821 (12.0)
Edinburgh Depression Scale score ≥ 7			
No	298 (77.2)	287 (77.2)	6191 (90.1)
Yes	88 (22.8)	85 (22.8)	603 (8.9)
History of any abuse			
No	189 (48.7)	207 (54.3)	4486 (65.3)
Yes	199 (51.3)	174 (45.7)	2384 (34.6)
History of abuse in the health care			
No	275 (70.9)	258 (67.7)	5514 (80.3)
Yes	113 (29.1)	123 (32.3)	1356 (19.7)
Counselling for fear			
No	351 (90.5)	303 (79.5)	6526 (95.0)
Yes	37 (9.5)	78 (20.5)	344 (5.0)
Social support			
No	23 (5.9)	36 (9.4)	274 (4.0)
Yes	365 (94.1)	345 (90.6)	6596 (96.0)
Suffering from Life Events			
No	305 (78.6)	316 (82.6)	6173 (89.9)
Yes	83 (21.4)	65 (17.1)	697 (10.1)
Preferring birth by Caesarean section (CS)			
No	3280 (96.1)	3126 (91.4)	6442 (93.8)
Yes	132 (3.9)	296 (8.6)	428 (6.2)
Previous birth method*			
Spontaneous vaginal	NA	234 (61.9)	2442 (70.6)
Instrumental vaginal	NA	49 (13.0)	410 (11.9)

Elective Caesarean Section (CS)	NA	19 (5.0)	146 (4.2)
Emergency Caesarean Section	NA	76 (20.1)	436 (12.7)
Negative birth experience*			
No	NA	181 (47.5)	2685 (77.6)
Yes	NA	200 (52.5)	773 (22.4)

*Multiparous women only

Table 2. Country-wise proportion of women with severe fear of childbirth (≥85 W-DEQ), percentage, mean (SD) and Cronbach's Alpha for the 33-item W-DEQ by parity

	Primiparous women n=3412					Multiparous women n=3458				
	n	% with ≥85 W-DEQ	Mean (SD)	median (IQR)	Cronbach's Alpha	n	%with ≥85 W-DEQ	Mean (SD)	Median (IQR)	Cronbach's Alpha
Belgium	448	4.5%	55.8 (17.1)	56 (23.9)	0.888	380	8.4%	53.5 (22.4)	51.6 (30.0)	0.923
Iceland	228	9.6%	51.4 (22.0)	49 (29.7)	0.933	357	7.6%	48.3 (24.1)	46.0 (30.7)	0.945
Denmark	731	9.4%	57.8 (20.9)	57 (28.0)	0.921	521	8.8%	53.2 (22.2)	51.0 (28.0)	0.925
Estonia	423	15.6%	61.3 (24.5)	60 (31.0)	0.933	473	14.2%	57.8 (25.8)	54.0 (33.1)	0.939
Norway	1019	12.7%	60.6 (20.6)	59 (27.0)	0.918	1332	11.2%	55.3 (23.6)	53.0 (32.8)	0.933
Sweden	563	14.6%	63.4 (21.7)	63 (29.0)	0.919	395	15.2%	57.0 (25.0)	54.0 (33.0)	0.932
Total	3412	11.4%	59.3 (21.3)	58 (28.6)	0.917	3458	11.0%	54.6 (23.9)	52.0 (32.0)	0.930

Table 3. The OR (crude and adjusted) for severe fear of childbirth (≥85 W-DEQ) by country for primiparous and multiparous women using the largest group as the reference

	Primiparous women with severe fear of childbirth n=388		Multiparous women with severe fear of childbirth n=381	
	Crude OR (95% CI)	Adjusted OR* (95% CI)	Crude OR (95% CI)	Adjusted OR* (95% CI)
Belgium	0.32 (0.20–0.52)	0.35 (0.21–0.57)	0.73 (0.49–1.09)	0.71 (0.46–1.08)
Iceland	0.74 (0.46–1.19)	0.73 (0.45–1.19)	0.65 (0.42–1.00)	0.66 (0.43–1.02)
Denmark	0.72 (0.53–0.98)	0.78 (0.57–1.08)	0.77 (0.54–1.09)	0.87 (0.61–1.25)
Estonia	1.27 (0.92–1.76)	1.19 (0.86–1.67)	1.31 (0.96–1.79)	1.24 (0.96–1.86)
Norway	1	1	1	1
Sweden	1.18 (0.87–1.58)	1.16 (0.84–1.57)	1.42 (1.03–1.96)	0.88 (0.41–1.88)

*adjusted for age, education and gestational age, Norway is reference group

Table 4. Factors associated with suffering from severe fear of childbirth, crude and adjusted OR

	Crude OR (95% CI)	Adjusted OR (95% CI)α	Adjusted OR (95% CI)β	Adjusted OR (95% CI)ϱ	Adjusted OR (95% CI)Ω
Married or co-habiting	0.55 (0.41–0.74)	0.54 (0.40–0.74)	0.55 (0.40–0.74)	0.63 (0.46–0.86)	0.64 (0.45–0.87)
Planned pregnancy	0.67 (0.56–0.80)	0.67 (0.56–0.80)	0.67 (0.56–0.80)	0.72 (0.60–0.87)	0.74 (0.60–0.87)
Economic hardship	1.86 (1.58–2.17)	1.85 (1.57–2.18)	1.88 (1.59–2.21)	1.69 (1.43–2.01)	1.70 (1.44–2.03)
Any life-time abuse	1.92 (1.65–2.23)	1.91 (1.64–2.23)	1.61 (1.64–2.22)	1.81 (1.55–2.11)	1.81 (1.55–2.11)
Abuse in health care	1.97 (1.67–2.33)	1.98 (1.68–2.34)	1.97 (1.67–2.33)	1.95 (1.65–2.31)	1.97 (1.66–2.33)
No Social support	2.27 (1.69–3.07)	2.28 (1.69–3.07)	2.26 (1.67–3.05)	1.95 (1.43–2.65)	1.98 (1.45–2.69)
PTS symptoms	2.92 (2.43–3.51)	2.90 (2.42–3.49)	2.85 (2.37–3.43)	2.72 (2.25–3.28)	2.74 (2.27–3.30)
EDS ≥ 7	3.85 (3.17–4.69)	3.82 (3.14–4.65)	3.79 (3.11–4.62)	3.59 (2.94–4.39)	3.62 (2.96–4.42)
Suffering from Life Events	2.41 (1.97–2.94)	2.39 (1.96–2.92)	2.40 (1.96–2.94)	2.28 (1.86–2.79)	2.28 (1.86–2.79)
Instrumental vaginal*	1.28 (0.92–1.78)	1.29 (0.93–1.80)	1.31 (0.94–1.82)	1.35 (0.96–1.88)	NA
Elective CS*	1.41 (0.86–2.33)	1.41 (0.85–2.33)	1.43 (0.86–2.36)	1.55 (0.93–2.57)	NA
Emergency CS*	1.99 (1.50–2.64)	2.02 (1.52–2-68)	2.06 (1.55–2.74)	2.13 (1.60–2.84)	NA
Negative birth experience*	4.83 (3.87–6.02)	4.93 (3.95–6.15)	5.04 (4.03–6.30)	5.11 (4.07–6.42)	NA

*multiparous women only, reference group for mode of delivery is spontaneous vaginal birth
α Adjusted for age
β Adjusted for age and gestational age
ϱ Adjusted for age, gestational age and education
Ω Adjusted for age, gestational age, education and parity
NA Not appropriate

Table 5. Factor loadings for the 6 extracted factors and reliability of the 33 items of the W-DEQ

Item number and content (α for full sample)	Primiparous women	Multiparous women	Full sample
	Factor loading*	Factor loading*	Factor loading*
F1 Lack of self-efficacy (.86)			
5. Not confident	.70	.70	.72
22. No self-confidence	.68	.68	.70
10. Not independent	.68	.68	.68
17. Not relaxed**	.65	.65	.67
4. Not strong	.61	.61	.62
16. Not composed	.61	.61	.60
9. Not safe	.49	.49	.53
23. No trust**	.44	.44	.43
12. Tense	.40	.40	.41
26. Not let happen	.38	.38	.37
F2 Loneliness (.81)			
7. Deserted	.69	.69	.72
11. Desolate**	.65	.65	.64
15. Abandoned	.64	.64	.64
20. Hopelessness	.60	.60	.58
8. Weak**	.59	.59	.61
3. Lonely	.52	.52	.53
6. Afraid	.47	.47	.51
F3 Negative appraisal (.85)			
14. Not proud	.81	.81	.82
18. Not happy	.80	80	.81
13. Not glad	.79	.79	.80
21. No longing for child**	.57	.57	.60
1. Not fantastic	.43	.43	.47
F4 Lack of positive anticipation (.78)			
29. Not natural	.80	.80	.80
30. Not obvious	.73	.73	.72
28. Not enjoyable	.72	.72	.71
31. Dangerous**	.49	.49	.53
F5 Fear (.71)			
25. Behave badly**	.68	.68	.67
27. Lose control	.66	.66	.70
24. Pain	.59	.59	.53
19. Panic	.48	.48	.48
2. Frightful**	.36	.36	.36
F6 Concern for the child (.86)			
32. Child die	.91	.91	.92
33. Child injured	.90	.90	.91

*Principal component analysis with varimax rotation

** These items were removed in the Norwegian paper after confirmatory factor analyses.

Table 6. Comparing factors, mean (SD) for participants in the 6 participant countries

	Belgium	Iceland	Denmark	Estonia	Norway	Sweden	*P**
F1 Lack of self-efficacy	22.0 (6.7)	18.9 (8.9)	21.7 (7.7)	23.5 (8.4)	22.9 (8.1)	23.1(7.8)	0.05
F2 Loneliness	10.6 (5.6)	9.6 (5.2)	7.1 (5.5)	9.0 (7.2)	10.4 (6.0)	10.4 6.3)	0.05
F3 Negative appraisal	6.1 (5.1)	5.4 (4.5)	6.6 (4.6)	9.1 (5.2)	7.6 (4.9)	6.8 (5.3)	0.05
F4 Lack of positive anticipation	4.6 (3.9)	5.6 (3.8)	6.0 (4.1)	5.6 (4.7)	4.1 (3.9)	6.6 (4.3)	0.05
F5 Fear	9.6 (3.9)	8.2 (4.2)	11.2 (4.2)	10.7 (4.7)	10.9 (4.4)	11.4 (4.2)	0.05
F6 Concern for the child	1.7 (2.3)	1.7 (2.3)	3.3 (2.8)	1.4 (2.2)	2.3 (2.6)	2.0 (2.5)	0.05

*One way ANOVA comparing means with Bonferroni Post hoc test