



Prenatal fear of childbirth among pregnant women and their spouses in Kenya

David Onchonga¹

Doctoral School of Health Sciences, Faculty of Health Sciences, University of Pécs, Hungary

ARTICLE INFO

Keywords:

Fear of childbirth

Pregnant women

Spouses

Fear of Birth Scale (FOBS)

Kenya

ABSTRACT

Objective: The study sought to explore the prenatal fear of childbirth and its contributing factors among pregnant women and their spouses in Kenya.

Methods: 254 pregnant women and their spouses participated in this cross-sectional analytical study. A researcher-developed questionnaire was used alongside the Fear of Birth Scale (FOBS) for data collection.

Results: 58.6% of pregnant women and 45.7% of their spouses reported high fear of childbirth with primiparous spouses having high fear of childbirth compared to multiparous spouses. Also, the findings revealed a significant relationship between fear of childbirth among pregnant women and variables such as level of education ($p = 0.022$), parity ($p < 0.001$), previous mode of childbirth ($p < 0.001$), going for a routine prenatal check-up ($p < 0.001$), and having a positive feeling about the expected delivery ($p < 0.001$). For the spouses, the level of education ($p < 0.001$), the previous childbirth experience ($p < 0.001$), and feelings about the forthcoming childbirth ($p < 0.001$), were significantly associated with prenatal fear of childbirth. Spearman's correlation test results indicated a significant positive correlation between prenatal fear of childbirth among pregnant women and their spouses ($r = 0.182$, $p < 0.001$).

Conclusion: The study found a significant positive correlation between the fear of childbirth among pregnant women and their spouses. There is a need to address the fear of childbirth not only among pregnant women but also their spouses. This might help to reduce the fear of childbirth, considering the significant role men play in supporting their spouses in the family as well as agents of change.

Introduction

Fear of childbirth (FOC) among pregnant women was first studied in Sweden in 1981 by Areskog and others, [1] and since then, there has been increased international attention on how FOC contribute to childbirth experiences in both primipara and multipara women [2]. Studies have indicated that most women of reproductive age become pregnant at least once in their lifetime, and this significantly impacts their lives, their new-born babies, and their families [3].

A systematic review and meta-analysis study conducted in 2016 on the worldwide prevalence of FOC among pregnant women indicated approximately 14%, in which 6–10% exhibited severe FOC [4]. In Europe, the overall prevalence of FOC was 11%, with primipara women having 11.4% while multipara women had 11% [5]. This study found significant differences across the six countries studied. Belgium, for example, had the lowest level of FOC for primipara women at 4.5%, while Estonia had about 15.6%.

Although much focus has been on Scandinavian countries such as Sweden [6], Denmark [7], and Norway [8], there are individual studies in countries like Iran [9] where 19.6% and 6.1% experienced moderate and severe FOC respectively. In Australia [10], the overall prevalence of FOC was 24%, with 31.5% of primipara reporting high levels of FOC. In Kenya [11], approximately 22.1% had a high level of FOC, while 8% recorded severe FOC. Similar studies in Malawi [12] showed the prevalence of FOC at 20%.

The existing research has indicated that socio-cultural factors and healthcare services are likely to influence the extent to which individual pregnant women experience childbirth fears [13]. Other factors predisposing pregnant women to FOC include; negative previous childbirth experience [14], low confidence on the existing healthcare facilities and providers [12], inadequate preparedness (both physically and mentally) to undergo the childbirth process [15], fear of death, fear of losing control during active labour, and fear of prolonged labour pains [16].

Research has shown a correlation between fear of childbirth and

E-mail address: onchonga.david@etk.pte.hu.

¹ Address: Vörösmarty Mihály utca 4, 7621 Pécs, Hungary.

<https://doi.org/10.1016/j.srhc.2020.100593>

Received 21 June 2020; Received in revised form 9 December 2020; Accepted 29 December 2020

Available online 3 January 2021

1877-5756/© 2021 The Author(s). Published by Elsevier B.V. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

emotional distress, which leads pregnant women to request or prefer caesarean section as the less painful mode of delivery [17]. Also, other demographic factors determining the level of FOC may include the level of education [18], inadequate or lack of social support [19], negative stories from peers and mentor mothers about painful unsuccessful pregnancies [20], employment status, violence and sexual abuses leading to unplanned pregnancies [21], marital status, and age at first-time pregnancies [22].

In the last three decades, most studies have focused on childbirth fears among pregnant women without much reference to their spouses whom, in great consideration, are part and parcel of the childbirth process [23] in the broader spectrum of reproductive, maternal, and neonatal childhealth.

Men significantly contribute to the wellbeing of their spouses and new-born babies, both directly and indirectly. In that regard, their involvement in maternal health issues promotes a healthier engagement both at the family and community levels. Research has demonstrated that when men are actively involved in maternal and child health services, more positive health benefits are exhibited among pregnant women as a result of improved social support [24].

Despite their role, the FOC among men has not been widely studied compared to pregnant women. The intensive literature review found few studies on the fear of childbirth among men [25-29]. Among the interviewed men, some reasons for their FOC were; attending labour wards with their spouses, fear of becoming first-time fathers, challenges in previous childbirth processes, the anticipated outcome of the current pregnancy, maternal complications, fear of loss of their spouses, and loss of the new-born [30].

In Kenya, like most African countries, the subject of FOC among men as support partners in maternal and child health has not received the much-needed attention. The intensive literature review carried out on this subject did not find any published studies in Kenya regarding prenatal fear of expectant women and their partners. Therefore, this study sought to investigate prenatal FOC among pregnant women and their spouses, and the associated factors. Unlike the previous study in Kenya which used Wijma Delivery Experience Questionnaire [11], to measure FOC among pregnant women, the current study used the Fear of Childbirth Scale (FOBS), which is a two item visual analogue scale (VAS). FOBS was used in this study as it has been acknowledged to be a culturally transferrable tool, which is feasible, easy and fast to administer [31].

Methods

This study was part of broad research on the impact of integrated prenatal education on FOC among women of reproductive age in Kenya. In the current study, a sample of 289 pregnant women and their spouses was computed using a method of sampling from a known population [32] In the study area 2737 women gave birth in the year 2019, during the period of June to August 2019, a total of 289 pregnant women attending the antenatal clinic were invited to participate in the current study. The study was conducted in a maternal and child health clinic in a county referral hospital. After the antenatal care clinic sessions, the midwives (who were part of the study team and had been oriented on the objectives of the study and trained on data collection procedures) explained to the pregnant women about the study and requested them to participate voluntarily. Often, men do not accompany their spouses to the antenatal care clinics. In that regard, the pregnant women were asked to discuss the study with their

spouses and request them to accompany them in their subsequent antenatal care clinic appointments. Finally, 254 couples consented to participate.

Pregnant Women that could speak either in English or Kiswahili language, were between 17 and 22 weeks pregnant, were not having any psychiatric conditions, and were at least 18 years of age were included in the study. For the spouses, the study included those above the age of 18,

had no psychiatric conditions and could read and write, either in English or Kiswahili. Pregnant women who were below 18 years old, were having psychiatric problems and wouldn't speak either in English or Swahili languages were excluded from the study.

Data collection

Data was collected using a researcher-developed questionnaire and Fear of Birth Scale (FOBS).

A researcher-developed questionnaire captured the socio-demographic characteristics of pregnant women such as age, level of education, health insurance cover, residency, employment status, parity, pregnancy status, the preferred mode of delivery, previous childbirth experience, and feelings about the forthcoming baby. For their spouses, the questions included; age, level of education, residency, employment status, previous childbirth experience, and their feelings regarding the forthcoming baby.

FOBS is a visual analog scale (VAS), initially developed and tried by Haines et al., [33] among pregnant women. The FOBS scale consists of two 100 mm visual analog scales (VAS), which are summed and averaged to get a score. The study respondents are required to answer the question "How do you feel right now about the approaching birth?" and are asked to place a mark on the two scales, which have the following words: calm/worried and no fear/strong fear. The cut-off points of ≥ 50 were used to classify respondents as having the fear of childbirth, with those having a score of <50 having no FOC [34]. This cut-off point was used in the current study following the recommendation by the developers of the tool and the published studies on the same topic [25,33,35]. The FOBS questionnaire is a validated tool which is freely available for academic purposes.

Statistical analysis

Descriptive and analytical statistics were conducted for all data using SPSS version 23.0. The mean, percentages, and frequencies were used to describe data. Spearman's correlation coefficient was used to measure the strength of the relationship between FOC among the study participants. Mann-Whitney *U* test [36] and the Kruskal-Wallis test [37], which are nonparametric methods designed to detect whether, two or more samples come from the same distribution or to test whether medians between comparison groups are different, under the assumption that the shapes of the underlying distributions are the same; were used in the current study. All estimates were reported with 95% confidence intervals. Statistical significance was assumed for *p*-values < 0.05 .

Ethical approvals

The Jaramogi Oginga Odinga Teaching and Referral Hospital Institutional Ethical Review Committee (ERC.IB/VOL.1/69) approved this study.

Results

A total of 254 pregnant women and their spouses participated, which is a response rate of 88%. The mean age of the pregnant women and their spouse was 25.27 ± 4.008 and 30.04 ± 19.73 , respectively. Among pregnant women, 36.61% ($n = 93$) had a primary education certificate, 25.20% ($n = 64$) had a health insurance cover, and 56.69% ($n = 144$) were residing in rural areas. For spouses, 35.43% ($n = 90$) had a secondary school certificate as indicated in Table 1.

Relationship of prenatal fear of childbirth among pregnant women and their spouses

The relationship of fear of birth scores between pregnant women and their spouses were tested. The result indicated that 58.6% (median = 50)

Table 1
Demographic characteristics of study participants.

Variable	Description	Pregnant women (n = 254)	Spouses (n = 254)
Age	Mean	25.27 ± 4.008	30.04 ± 19.73
	None	65 (25.9)	52 (20.47)
Education	Primary	93 (36.61)	76 (29.92)
	secondary	49 (19.29)	90 (35.43)
	Tertiary	47 (18.50)	36 (14.17)
Residency	Rural	144 (56.69)	147 (57.87)
	Peri-urban	73 (28.74)	64 (25.20)
	Urban	37 (14.57)	43 (16.93)
Religion	Christian	232 (91.34)	230 (90.55)
	Muslim	9 (3.54)	11 (4.33)
	No religion	10 (3.94)	7 (2.76)
Health insurance	Traditional	3 (1.18)	6 (2.36)
	Yes	64 (25.20)	51 (20.08)
Employment	No	190 (74.80)	203 (79.92)
	Yes	110 (43.32)	107 (42.13)
Economic challenges	No	144 (56.69)	147 (57.87)
	yes	98 (38.58)	99 (38.98)
		156 (61.42)	155 (61.02)

of the pregnant women and 45.7% (median = 50) of their spouses had reported having fear of childbirth. Spearman correlation was performed, and the results indicated a significant positive correlation between prenatal fear of childbirth among pregnant women and their spouses ($r = 0.182$, $p < 0.001$) as shown in Table 2.

Factors associated with prenatal fear of childbirth among pregnant women

Respondent’s level of education ($p = 0.022$), residency ($p < 0.001$), having health insurance cover ($p < 0.001$), feelings about the forthcoming childbirth ($p < 0.001$), regular pregnancy check-up ($p < 0.001$) were significantly associated with FOC. Pregnant women whose level of education was low and those that did not have health insurance cover were more likely to have higher FOC compared with those who had. Also, Pregnant women who did not attend regular prenatal check-ups had a higher level of FOC compared with those who attended. Equally, the previous mode of delivery ($p < 0.001$), parity ($p < 0.001$), and planned pregnancy were significantly associated with prenatal FOC. Pregnant women whose pregnancy was not planned had a higher FOC. There was no significant association between religion ($p = 0.075$); employment status ($p = 0.892$); and preferred mode of delivery ($p = 0.595$), and FOC as indicated in Table 3.

Factors associated with prenatal fear of childbirth among spouses

Factors contributing to FOC among spouses of pregnant women were also investigated. Spouses who had low level of education ($p = 0.001$), and those residing in rural areas ($p < 0.001$) recorded high FOC. Equally so, the spouses who had no health insurance cover ($p = 0.002$) and had less positive experience from the previous childbirth ($p < 0.001$), were noted to have high FOC. Furthermore, spouses who had no positive feelings about the forthcoming birth ($p < 0.001$) had high FOC. The

Table 2
Relationship of FOBS among pregnant women and their spouses.

Fear of childbirth	Pregnant women n (%)	Spouses n (%)	statistics	Correlation statistics
Fear (FOBS ≥ 50)	149 (58.6)	116 (45.7)	$z = -2.928$	$r = 0.182^a$
No Fear (FOBS < 50)	105 (41.3)	138 (54.3)	$p = 0.003$	
FOBS Median	50	50		

^a spearman correlation test.

Table 3
Factors associated with childbirth related fears of pregnant women.

Variable	Description	n (254)	FOBS Median	Statistics	p
Education ¹	None	65	40	$\chi^2 = 5,209$	0.022
	Primary	93	50		
	secondary	49	50		
Residency ¹	Tertiary	47	50	$\chi^2 = 36,432$	< 0.001
	Rural	144	30		
	Peri-urban	73	50		
Religion ¹	Urban	37	60	$\chi^2 = 6,900$	0.075
	Christian	232	47		
	Muslim	9	40		
Health insurance ²	No religion	10	50	$Z = -3,942$	< 0.001
	Traditional	3	60		
	Yes	64	40		
Employment ²	No	190	50	$Z = -1,135$	0.892
	Yes	110	50		
	No	144	40		
Feelings about forthcoming birth ¹	Positive	173	45	$\chi^2 = 19,021$	< 0.001
	Somewhat positive	42	45		
	Not positive	59	50		
Preferred mode of birth ²	Vaginal birth	193	40	$Z = -5,531$	0.595
	Caesarean Section	61	50		
	Regular pregnancy check-up ²	Yes	163		
No	91	53			
Previous mode of birth ²	Vaginal birth	111	30	$Z = -7,628$	< 0.001
	Caesarean Section	22	60		
Parity ²	Primipara	122	60	$Z = -11,819$	< 0.001
	Multipara	132	30		
Participate in Physical Activity ²	Yes	113	40	$Z = -1,718$	0.086
	No	141	50		
Planned pregnancy ²	Yes	130	40	$Z = -2,101$	0.036
	No	124	50		

¹ Mann-Whitney U test

² Kruskal- Wallis test

respondents’ employment status ($p = 0.5$), religion ($p = 0.367$) and economic challenges ($p = 0.485$) did not have any association with fear of childbirth among the spouses (Table 4).

Discussion

The current study sought to discern the prenatal FOC and contributing factors among pregnant women and their spouses in Kenya. This was the first study on the FOC among pregnant couples. A total of 254 couples took part in this cross-sectional analytical study. A researcher-developed questionnaire was used alongside the FOBS to collect data.

The result indicated that 58.6% of pregnant women had FOC. Similar studies have given varying results with a study in Malawi reporting relatively similar findings [12]. Also, a recently published study in Turkey [35] indicated FOC among pregnant women at 82.6%, which is somewhat higher compared to the findings in this study. Also, in Iran [38], in a similar study conducted in 2016, 89.3% of participants (studied pregnant women) reported childbirth fears. Comparing the FOC in the above countries with the findings from developed countries such as Denmark [39], Norway [40] and Finland [41], the FOC is relatively

Table 4
Factors associated with FOC of spouses.

Variable	Description	(n = 254)	FOBS median	Statistics	P
Education ¹	Primary	76	40	$\chi^2 = 11,924, df = 1$	<0.001
	secondary	52	50		
	Tertiary	36	50		
Residency ¹	Rural	147	30	$\chi^2 = 24,516, df = 1$	< 0.001
	Peri-urban	64	50		
	Urban	43	60		
Religion ¹	Christian	230	47	$\chi^2 = .814, df = 1$	0.367
	Muslim	11	40		
	No religion	7	50		
Health insurance ²	Traditional	6	60	Z = -3,158	0.002
	Yes	51	40		
Employment ²	No	203	50	Z = -.674	0.500
	Yes	107	50		
Economic challenge ²	No	147	40	Z = -.699	0.485
	Yes	155	50		
Previous birth experience ²	No	99	40	Z = -11,528	< 0.001
	positive	124	20		
Feelings about forthcoming birth ¹	Less positive	36	60	$\chi^2 = 17,747, df = 1$	< 0.001
	Positive	143	40		
	Somewhat positive	42	50		
	Not positive	69	50		

¹ Mann-Whitney U test

² Kruskal- Wallis test

low in developed countries. Researchers have argued that the nature of the available healthcare systems and the cultural dynamics could cause high rates of fears among pregnant women in developing countries [15].

In this study, significant relationships between FOC and a previous mode of childbirth, parity, level of education, routine prenatal clinic check-ups, and having a planned pregnancy were reported. Similar results have been documented in other studies; for example, Akhlaghi et al., (2012) noted a positive and significant relationship between the individual's level of education and FOC [42]. However, other studies have given contrary results to these findings [43].

In the current study, the FOC was manifested more among primipara women compared to multipara women. Zar et al., [44] and other studies found similarities with the current findings, but other studies have shown no differences [33]. Several reasons can explain relatively high FOC among first-time mothers. They include: uncertainties of childbirth outcomes; cultural expectations among communities where expectant women live, especially in rural communities; shared experience from mother mentors; and previous life-threatening medical conditions before becoming pregnant [15]. In this study, pregnant women with high FOC preferred a less painful mode of delivery. A study by Saito et al., noted that women with high FOC have a longer duration of active labour, which may lead to postpartum depression hence a relatively higher chance of opting for caesarean delivery [45]. Pregnant women in the current study that had positive feelings about their forthcoming child reported lower levels of FOC. Previous studies have reported similar findings [46].

The level of FOC among men in the study was 45.7%. Similar studies have indicated different levels of FOC among men. In South Africa [47], men who exhibited fear of childbirth were 13%. In Sweden, a qualitative study on an intense fear of childbirth among men indicated fear to be mainly associated with the health and life of both their partner and child. However, the main concern was the wellbeing of their wives [25].

In the current study, participant's residency, level of education, having health insurance cover, the experience of previous childbirth of their spouses, and feelings about the forthcoming birth were significantly associated with prenatal FOC among spouses. The respondents that had a lower level of education indicated a higher level of FOC. These findings disagree with similar studies in Turkey, which stated that a higher level of education was associated with higher levels of FOC [35].

The current study found that men felt uncomfortable, fearful, and helpless during childbirth. Their thoughts were correlated with anxieties about their spouses' aptitude to handle the childbirth pains, the newborn's welfare, and the father himself. These findings agree with a similar Finnish study on fathers' experience of childbirth [48].

In the current study, high FOC was exhibited among spouses that had less positive childbirth experience from the previous childbirth. Similar studies have indicated similar findings [29]. Therefore, psychosocial support to the couples during antenatal care clinics, especially to those who have had a previously less positive childbirth experience is needed. In the current study, couples that exhibited high FOC preferred caesarean section. Similar studies agree with the current findings [11,40,49].

Strengths and limitations

The current study provides novel findings on the levels of prenatal fear of childbirth among pregnant women and their spouses in Kenya, considering there are no other studies done before. The current study used FOBS for data collection. There are other data collection tools, which have been developed and used in similar studies; therefore, a comparison between studies that used different tools should be taken with caution as various tools have different interpretations. The generalizability will only be recommended with study findings that have used the same tool (FOBS).

Conclusion

This study about prenatal FOC among pregnant women and their spouses in Kenya revealed that fear may cause considerable pain among spouses. A high level of fear implies emotional grief that spouses experience during the childbirth process. Although wives were noted to have relatively higher FOC than their husbands, the FOC rates for men were equally high.

Assessing all pregnant women and their spouses' feelings in the face of the coming childbirth, and offering those who are fearful personalized psychosocial support might help in reducing the levels of FOC. It is apparent from the result of this analytical study that healthcare providers and more so midwives need to be conscious of the special needs of pregnant women and their spouses expecting their first child. This is because the rates of FOC were noted to be high among the primipara women and their spouses. There is a need to offer support to couples' specific needs about childbirth by making prenatal care clinics client-centred. This might encourage more couples to come for prenatal care services.

In the reviewed literature, a gap was identified on prenatal education among couples diagnosed with high fear of childbirth. Therefore, future research focusing on closing the gap is needed.

Declaration of Competing Interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- [1] Areskog B, Uddenberg N, Kjessler B. Fear of Childbirth in Late Pregnancy. *Gynecol Obstet Invest* 1981;12:262-6. <https://doi.org/10.1159/000299611>.

- [2] Soet JE, Brack GA, DiIorio C. Prevalence and Predictors of Women's Experience of Psychological Trauma During Childbirth. *Birth* 2003;30:36–46. <https://doi.org/10.1046/j.1523-536X.2003.00215.x>.
- [3] Huizink AC, Mulder EJH, Robles de Medina PG, Visser GHA, Buitelaar JK. Is pregnancy anxiety a distinctive syndrome? *Early Hum Dev* 2004;79:81–91. <https://doi.org/10.1016/j.earlhumdev.2004.04.014>.
- [4] O'Connell MA, Leahy-Warren P, Khashan AS, Kenny LC, O'Neill SM. Worldwide prevalence of tocophobia in pregnant women: systematic review and meta-analysis. *Acta Obstet Gynecol Scand* 2017;96:907–20. <https://doi.org/10.1111/aogs.13138>.
- [5] Lukasse M, Schei B, Ryding EL. Bidens Study Group. Prevalence and associated factors of fear of childbirth in six European countries. *Sex Reprod Healthc* 2014;5:99–106. <https://doi.org/10.1016/j.srhc.2014.06.007>.
- [6] Larsson B, Hildingsson I, Ternström E, Rubertsson C, Karlström A. Women's experience of midwife-led counselling and its influence on childbirth fear: A qualitative study. *Women and Birth* 2018;32:e88–94. <https://doi.org/10.1016/j.wombi.2018.04.008>.
- [7] Kjærgaard H, Wijma K, Dykes A, Alehagen S. Fear of childbirth in obstetrically low-risk nulliparous women in Sweden and Denmark. *J Reprod Infant Psychol* 2008;26:340–50. <https://doi.org/10.1080/02646830802408498>.
- [8] Storkens HT, Eberhard-Gran M, Garthus-Niegel S, Eskild A. Fear of childbirth; The relation to anxiety and depression. *Acta Obstet Gynecol Scand* 2012;91:237–42. <https://doi.org/10.1111/j.1600-0412.2011.01323.x>.
- [9] Mortazavi F, Journal JA I. Childbirth fear and associated factors in a sample of pregnant Iranian women. *Oman Med J* 2018;33:497–505.
- [10] Toohill J, Fenwick J, Gamble J, Creedy DK. Prevalence of childbirth fear in an Australian sample of pregnant women. *BMC Pregnancy Childbirth* 2014;14:275. <https://doi.org/10.1186/1471-2393-14-275>.
- [11] Onchonga D, MoghaddamHosseini V, Keraka M, Várnagy Á. Prevalence of fear of childbirth in a sample of gravida women in Kenya. *Sex Reprod Healthc* 2020;24:100510. <https://doi.org/10.1016/j.srhc.2020.100510>.
- [12] Khwepeya M, Lee GT, Chen SR, Kuo SY. Childbirth fear and related factors among pregnant and postpartum women in Malawi. *BMC Pregnancy Childbirth* 2018;18:10.1186/s12884-018-2023-7.
- [13] Stoll K, Fairbrother N, Thordarson DS. Childbirth Fear: Relation to Birth and Care Provider Preferences 2018;63:58–67. <https://doi.org/10.1111/jmwh.12675>.
- [14] Bhatt H, Pandya S, Kolar G, Nirmalan PK. The impact of labour epidural analgesia on the childbirth expectation and experience at a tertiary care center in southern India. *J Clin Diagnostic Res* 2014;8:73–6. <https://doi.org/10.7860/JCDR/2014/8039.4111>.
- [15] Onchonga D, Várnagy Á, Keraka M, Wainaina P. Midwife-led integrated pre-birth training and its impact on the fear of childbirth. A qualitative interview study. *Sex Reprod Healthc* 2020;25:100512. <https://doi.org/10.1016/j.srhc.2020.100512>.
- [16] MoghaddamHosseini V, Makai A, Varga K, Ács P, Prémusz V, Várnagy Á. Assessing fear of childbirth and its predictors among Hungarian pregnant women using Wijma Delivery Expectancy/Experience Questionnaire subscales. *Psychol Health Med* 2019;24:879–89. <https://doi.org/10.1080/13548506.2019.1572904>.
- [17] Sydsjö G, Sydsjö A, Gunnervik C, Bladh M, Josefsson A. Obstetric outcome for women who received individualized treatment for fear of childbirth during pregnancy. *Acta Obstet Gynecol Scand* 2012;91:44–9. <https://doi.org/10.1111/j.1600-0412.2011.01242.x>.
- [18] Storkens HT, Eberhard-Gran M, Garthus-Niegel S, Eskild A. Fear of childbirth; the relation to anxiety and depression. *Acta Obstet Gynecol Scand* 2012;91:237–42. <https://doi.org/10.1111/j.1600-0412.2011.01323.x>.
- [19] Mohammaditabar S, Kiani A, Heidari M. The survey on tendencies of primiparous women for selecting the mode of delivery. *JbmsOrg* 2009;11:54–9.
- [20] Fisher C, Hauck Y, Fenwick J. How social context impacts on women's fears of childbirth: A Western Australian example. *Soc Sci Med* 2006;63:64–75. <https://doi.org/10.1016/j.socscimed.2005.11.065>.
- [21] Larkin P, Begley CM, Devane D. Women's experiences of labour and birth: an evolutionary concept analysis. *Midwifery* 2009;25:e49–59. <https://doi.org/10.1016/j.midw.2007.07.010>.
- [22] Ryding EL, Wirfelt E, Wångborg I-B, Sjögren B, Ryding EL, Wirfelt E, et al. Personality and fear of childbirth. *Acta Obstet Gynecol Scand* 2007;86:814–20. <https://doi.org/10.1080/00016340701415079>.
- [23] Kaye DK, Kakaire O, Nakimuli A, Osinde MO, Mbalinda SN, Kakande N. Male involvement during pregnancy and childbirth: Men's perceptions, practices and experiences during the care for women who developed childbirth complications in Mulago Hospital, Uganda. *BMC Pregnancy Childbirth* 2014;14:1–8. <https://doi.org/10.1186/1471-2393-14-54>.
- [24] Abhishek Singh FR. Men's Involvement during Pregnancy and Childbirth: Evidence from Rural Ahmadnagar, India. *Popul Rev* 2009;48:83–102. <https://doi.org/10.1353/prv.0.0016>.
- [25] Eriksson C, Salander P, Hamberg K. Men's experiences of intense fear related to childbirth investigated in a Swedish qualitative study. *J Men's Heal Gend* 2007;4:409–18. <https://doi.org/10.1016/j.jmhg.2007.07.045>.
- [26] Hildingsson I, Johansson M, Fenwick J, Haines H. Childbirth fear in expectant fathers: findings from a regional Swedish cohort study. *Midwifery* 2014;30:242–7. <https://doi.org/10.1016/j.midw.2013.01.001>.
- [27] Schytt E, Bergström M. First-time fathers' expectations and experiences of childbirth in relation to age. *Midwifery* 2014;30:82–8. <https://doi.org/10.1016/j.midw.2013.01.015>.
- [28] Åsenhed L, Kilstam J, Alehagen S, Baggens C. Becoming a father is an emotional roller coaster - an analysis of first-time fathers' blogs. *J Clin Nurs* 2014;23:1309–17. <https://doi.org/10.1111/jocn.12355>.
- [29] Fenwick J, Bayes S, Johansson M. A qualitative investigation into the pregnancy experiences and childbirth expectations of Australian fathers-to-be. *Sex Reprod Healthc* 2012;3:3–9. <https://doi.org/10.1016/j.srhc.2011.11.001>.
- [30] Eriksson C, Westman G, Hamberg K. Content of childbirth-related fear in Swedish women and men - Analysis of an open-ended question. *J Midwifery Women's Heal* 2006;51:112–8. <https://doi.org/10.1016/j.jmwh.2005.08.010>.
- [31] Haines HM, Pallant JF, Fenwick J, Gamble J, Creedy DK, Toohill J, et al. Identifying women who are afraid of giving birth: A comparison of the fear of birth scale with the WDEQ-A in a large Australian cohort. *Sex Reprod Healthc* 2015;6:204–10. <https://doi.org/10.1016/j.srhc.2015.05.002>.
- [32] Noordzij M, Tripepi G, Dekker FW, Zoccali C, Tanck MW, Jager KJ. Sample size calculations: Basic principles and common pitfalls. *Nephrol Dial Transplant* 2010;25:1388–93. <https://doi.org/10.1093/ndt/gfp732>.
- [33] Haines H, Pallant JF, Karlström A, Hildingsson I. Cross-cultural comparison of levels of childbirth-related fear in an Australian and Swedish sample. *Midwifery* 2011;27:560–7. <https://doi.org/10.1016/j.midw.2010.05.004>.
- [34] Hildingssona Ingegerd, Haines Helen, Annika Karlströmb AN. Presence and process of fear of birth during pregnancy—Findings from a longitudinal cohort study | Elsevier Enhanced Reader. *Women and Birth* 2017;30(5):e242–7. <https://doi.org/10.1016/j.wombi.2017.02.003>.
- [35] Serçekuş P, Vardar O, Özkan S. Fear of childbirth among pregnant women and their partners in Turkey. *Sex Reprod Healthc* 2020;24:100501. <https://doi.org/10.1016/j.srhc.2020.100501>.
- [36] HW Kruskal WW. On a test of whether one of two random variables is stochastically larger than the other. *Ann Math Stat* 1947;18:50–60.
- [37] Kruskal WH, Wallis WA. Use of Ranks in One-Criterion Variance Analysis. *J Am Stat Assoc* 1952;47:583–621. <https://doi.org/10.1080/01621459.1952.10483441>.
- [38] Soltani F, Eskandari Z, Khodakarami B, Parsa P, Roshanaei G. Factors contributing to fear of childbirth among pregnant women in Hamadan (Iran) in 2016. *Electron Physician* 2017;7:4725–31. <https://doi.org/10.19082/4725>.
- [39] Laursen M, Hedegaard M, Johansen C. Danish National Birth Cohort. Fear of childbirth: predictors and temporal changes among nulliparous women in the Danish National Birth Cohort. *BJOG An Int J Obstet Gynaecol* 2008;115:354–60. <https://doi.org/10.1111/j.1471-0528.2007.01583.x>.
- [40] Adams SS, Eberhard-Gran M, Eskild A. Fear of childbirth and duration of labour: a study of 2206 women with intended vaginal delivery. *Br J Obstet Gynaecol* 2012;119:1238–46. <https://doi.org/10.1111/j.1471-0528.2012.03433.x>.
- [41] Rouhe H, Salmela-Aro K, Toivanen R, Tokola M, Halmesmaki E, Saisto T. Obstetric outcome after intervention for severe fear of childbirth in nulliparous women - Randomised trial. *BJOG An Int J Obstet Gynaecol* 2013;120:75–84. <https://doi.org/10.1111/1471-0528.12011>.
- [42] Farideh A, Naghmeh M, Taghi SM, Fatemeh S. Relation between depression, anxiety, self-esteem, marital satisfaction, demographical factor and maternal complications with fear of childbirth in nulliparous women. *J Fundam Ment Heal* 2012;14:122–31.
- [43] Heimstad R, Dahloe R, Laache I, Skogvoll E, Schei B. Fear of childbirth and history of abuse: implications for pregnancy and delivery. *Acta Obstet Gynecol Scand* 2006;85:435–40. <https://doi.org/10.1080/00016340500432507>.
- [44] Zar M, Wijma K, Wijma B. Pre- and Postpartum Fear of Childbirth in Nulliparous and Parous Women. *Scand J Behav Ther* 2001;30:75–84. <https://doi.org/10.1080/02845710121310>.
- [45] Nerum H, Halvorsen L, Sørli T, Øian P. Maternal request for cesarean section due to fear of birth: Can it be changed through crisis-oriented counseling? *Birth* 2006;33:221–8. <https://doi.org/10.1111/j.1523-536X.2006.00107.x>.
- [46] Saisto T, Halmesmaki E, Halmesmaki E. Fear of childbirth: a neglected dilemma. *Acta Obstet Gynecol Scand* 2003;82:201–8. <https://doi.org/10.1034/j.1600-0412.2003.00114.x>.
- [47] Chalmers B, Meyer D. What men say about pregnancy, birth and parenthood. *J Psychosom Obstet Gynaecol* 1996;17:47–52. <https://doi.org/10.3109/01674829609025663>.
- [48] Vehviläinen-Julkunen K, Liukkonen A. A Fathers' experiences of childbirth. *Midwifery* 1998;14:10–7. [https://doi.org/10.1016/S0266-6138\(98\)90109-7](https://doi.org/10.1016/S0266-6138(98)90109-7).
- [49] Serçekuş P, Okumuş H. Fears associated with childbirth among nulliparous women in Turkey. *Midwifery* 2009;25:155–62. <https://doi.org/10.1016/j.midw.2007.02.005>.