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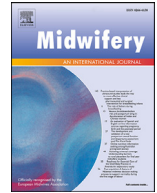
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Fear of childbirth among pregnant women in Eastern Ethiopia: A community-based study

Adisalem Dereje^a, Merga Dheresa^b, Assefa Desalew^b, Abera Kenay Tura^{b,c,*}

^a Department of Midwifery, College of Medicine and Health Sciences, Dire Dawa University, Dire Dawa, Ethiopia

^b School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

^c Department of Obstetrics and Gynecology, University Medical Centre Groningen, University of Groningen, Groningen, the Netherlands

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ABSTRACT

Introduction: Fear of childbirth refers to feelings of uncertainty and anxiety before, during, or after childbirth by thinking about future labor and birth or experience of others. Evidence on burden of fear of childbirth and its associated factors is limited in Ethiopia. In this study, we assessed magnitude of fear of childbirth and its associated factors among pregnant women in Eastern Ethiopia.

Methods: A community-based cross-sectional study was conducted among randomly selected pregnant women recruited from Kersa Health and Demographic Surveillance System—an open cohort consisting of continuous registry of health and demographic conditions in eastern Ethiopia. Women were interviewed and fear of childbirth was assessed using the Wijma Delivery Expectancy Questionnaire. Data were entered using EpiData 3.1 and analyzed using SPSS 20. Factors associated with fear of childbirth were identified using binary and multiple logistic regression and described using adjusted odds ratio (aOR) along with 95% confidence interval (CI). Finally, statistical significance was set at $p < 0.05$ in the multiple logistic regression.

Results: Of a total of 476 pregnant women included in the study, 111(23.3%; 95% CI 19.3–26.9) had fear of childbirth. Fear of childbirth was more likely among women who had no antenatal care (aOR = 2.6; 95% CI: 1.22–5.50), no husband support (aOR = 5.7; 95% CI: 2.32–13.10), unplanned pregnancy (aOR = 7.8; 95% CI: 3.92–15.42), and had history of complication in labor and pregnancy (aOR = 10.4; 95% CI: 5.20–20.81).

Conclusion: A quarter of pregnant women in eastern Ethiopia had fear of childbirth. Helping women to have positive pregnancy experience requires strengthening antenatal care, partner support, and prevention of unwanted pregnancy.

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Introduction

Although childbirth is a normal physiologic process, it is also associated with pain, happiness, and managing expectation with regard to the labour or its outcome—putting the woman almost alone to deal with. Fear of childbirth (FOC) refers to feelings of uncertainty and anxiety before, during, or after childbirth by thinking about future labor and birth or experience of others' fearful response to childbirth and labor (Nilsson et al., 2018; O'Connell et al., 2017). Fear of childbirth is a complex and multi-

faceted problem that has been described as anxiety caused by the appraisal of a possible future birth and is associated with woman's expectations of specific childbirth experience (Hall et al., 2009; Wijma et al., 1998). In addition to resulting in severe pain during labor and childbirth, increasing duration of labor, using anesthesia, and increasing risk of cesarean section (Beiranvand et al., 2017; Kabukcu et al., 2019; Madiha et al., 2019; Mazúchova et al., 2017; Nilsson et al., 2018; Okumuş and Sahin, 2017; Phunyammalee et al., 2019; Serçekuş et al., 2020)—FOC is associated with adverse birth outcomes affecting woman's health and wellbeing in the perinatal period and beyond (Hall et al., 2009).

While the fear can be viewed as a continuum, ranging from negligible to extreme fear (Handelzalts et al., 2015; Klabbbers et al., 2016), understanding the burden of the problem and its associated factors is essential for supporting at risk women or those having FOC and for designing appropriate interventions. Fear of childbirth is reported to be associated with lack of counseling during pregnancy (Andaroon et al., 2017), lack of childbirth ex-

Abbreviations: aOR, adjusted odds ratio; CI, Confidence Interval; cOR, crude odds ratio; FOC, Fear of childbirth; SVD, Spontaneous Vaginal Delivery; KHDSS, Kersa Health, and Demographic Surveillance System; WDEQ, Wijma Delivery Expectancy Questionnaire.

* Corresponding author at: School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Ethiopia, Harar, Ethiopia, P.O. Box: 235.
E-mail address: a.k.tura@umcg.nl (A.K. Tura).

perience, perception of complicated previous labor, fear of pain associated with giving birth (Azimi et al., 2018; El-Aziz et al., 2016), episiotomy, lacerations, perineal tear during child birth (Khwepeya et al., 2020), and psycho-social and cultural factors (MoghaddamHosseini et al., 2019; Phunymmalee et al., 2019). Moreover, family support (Mazúchova et al., 2017; Mortazavi and Agah, 2018; Okumuş and Sahin, 2017; Soltani et al., 2017) and perceived social support (Azimi et al., 2018) have an impact on FOC. As a result, addressing FOC requires addressing mental health needs of pregnant and laboring women during prenatal consultations or follow up of labor.

Although considerable attention is given to reducing maternal and child morbidity and mortality in Ethiopia, maternal mental health problems seem to be neglected (Gelaye et al., 2016). In a country with high burden of maternal mortality, addressing the mental health needs of women and assessing the burden of FOC is essential. The population of pregnant women in Ethiopia is diverse, with different lifestyle factors, cultures, and economic statuses which differently affect fear of childbirth. In addition, revealing the burden and factors associated with FOC in a local context play an important role in prevention and prioritization of interventions. In this study, we assessed burden of FOC and its associated factors among pregnant women participating in the ongoing Kersa Health and Demographic Surveillance System (KHDSS), Eastern Ethiopia.

Methods

Study settings

This was community-based cross-sectional study among pregnant women participating in the ongoing KHDSS. KHDSS, an open cohort established in 2007, currently operates in three districts in eastern Ethiopia: Kersa, Harar and Haramaya. Demographic and health survey is a longitudinal population-based health and vital event registration system that monitors demographic and health events in a geographically defined population. The KHDSS is composed of 48 kebeles (the smallest administrative unit in Ethiopia) covering 60571 households (Assefa et al., 2016; Girma Gudata et al., 2021). In this study, we included a sample of 476 pregnant women randomly selected from the three sites in July 2021.

Population and sampling

All pregnant women residing in the KHDSS constituted the source population whereas pregnant women residing in the selected kebeles of the KHDSS during the study period were the study population. Women living in villages under the KHDSS enumeration and registered in the KHDSS database were eligible. Women who were unable to consent were excluded. Sample size was computed using single population formula with the assumption of 95% CI, proportion of FOC 24.2% and 10% non-response rate ($n = 482$). Using a simple random sampling technique, we selected 15 kebeles from the three sites. Total number of pregnant women and their identification was obtained from the KHDSS database. Then, after proportionally allocating sample size for each selected kebele, eligible participants were recruited using a computer generated simple random sampling technique.

Measurements

Data were collected through face-to-face interview using a pre-tested structured questionnaire. The validated Wijma Delivery Expectancy Questionnaire (WDEQ) was used for data collection (Gelaw et al., 2020; Yetwale and Melkamu, 2021). The WDEQ contains 33-items measuring severity of FOC from 1 (none) to 5

Table 1

Socio-demographics characteristics of pregnant women in KHDSS Eastern Ethiopia, 2021 ($n = 476$).

Variables	Categories	Frequency	Percentage (%)
Age (years)	<18	23	4.8
	18-35	421	88.4
	>35	32	6.7
Residence	Urban	48	10.1
	Rural	428	89.9
Marital status	Married	465	97.7
	Others	11	2.3
	Educational status	No formal education	227
Occupation	Primary	191	40.1
	Secondary or above	58	12.2
	Housewife	453	95.2
	Other	23	4.8

(extreme) in a self-reported scale (Khwepeya et al., 2020). We calculated the mean score FOC and rated degree of fear as follows: low (<38), moderate (38–65.9), high (66–84.9), and severe degree (≥ 85) (Kabukcu et al., 2019). Fear of childbirth, which was scored out of 165, was dichotomized and coded as Yes if scored ≥ 85 in the WDEQ or No otherwise (Mortazavi and Agah, 2018; O'Connell et al., 2019). In addition, the Oslo Social Support Scale—a three-item questionnaire—was used to assess psychosocial distress. The sum score, which ranges from 3–14, was rated as: poor support (3–8), moderate support (9–11), and strong support (12–14) (Andaroon et al., 2017; Onchonga, 2021). Husband support was assessed using a single question as reported by the woman about whether her husband is supportive of the pregnancy. In addition, attendance of antenatal care—at least one visit to a health facility—and being counselled during their visit were collected as reported by the woman. Data were collected by trained KHDSS regular data collectors using the local language (Afan Oromo). The questionnaire was pretested before the actual data collection and modifications were made as required.

Data processing and analysis

All collected data were cleaned and edited on a daily basis. Data were entered using Epi-Data 3.1 and analyzed using SPSS 20. Cross-tabulation was performed to determine sample characteristics. Descriptive statistics were used to describe characteristics using tables, figures, and text. Fear of childbirth was dichotomized as Yes (coded as 1) if the score was ≥ 85 or No (coded as 0) otherwise. Factors associated with FOC were assessed using bivariate and multivariable logistic regression. All variables with p -value < 0.25 in the bivariate regression were added to the multivariable analysis after checking for multicollinearity. Association was described using adjusted odds ratio (aOR) along with 95% confidence interval (CI). Multi-collinearity was checked using the variance inflation factor (> 10) and standard error (> 2). Goodness-of-fit was checked using the Hosmer-Lemeshow test (> 0.05). Finally, statistical significance was set p -value < 0.05 in the final model.

Results

Sociodemographic and obstetric characteristics

From a total of 482 eligible pregnant women approached, 476 (98.8%) were included while six women declined to participate. The mean age of participants was 26.22 (± 5.39) years, ranging from 17 to 40 years. Majority of the women were 18–35 years old (88.4%), rural residents (89.9%), married (97.7%) and housewives (95.2%). Almost half (47.7%) of the respondents have no formal education (Table 1).

Table 2
Current and past obstetric conditions of pregnant women in Hararghe Health and Demographic Surveillance System, Eastern Ethiopia, 2021 (n = 476).

Variable	Categories	Frequency	Percent
Gravidity	0	97	20.4
	1	97	20.4
	2-4	251	52.7
	>4	128	26.9
Parity	1	96	20.2
	2-4	212	44.5
	>4	71	14.9
	First	54	11.3
Trimester of pregnancy	Second	239	50.2
	Third	183	38.4
	Health institution	258	68.1
Place of past delivery	Home	121	31.9
	SVD	310	80.8
Mode of past delivery	Caesarean section	40	10.5
	Assisted vaginal	29	7.65
	Yes	131	34.6
Previous history of complication in labor and delivery	No	248	65.4
	Yes	97	20.4
Obstetric complication in current pregnancy	No	379	79.6
	Yes	43	11.3
History of stillbirth	No	336	88.7
	Yes	83	21.9
History of abortion	No	296	78.1
	Yes	312	65.5
Planned pregnancy	No	164	34.5
	Yes	186	39.1
Husband support	No	290	60.9
	Yes	217	46.0
ANC follow up	No	259	54.0

SVD, spontaneous vaginal delivery; ANC, antenatal care.

Ninety-seven (20.4%) of the women were primiparous. Half (50.2%) of the women were in the second trimester. More than a third (36.5%) of the study participants previously gave birth at home. Eight in ten (80.8%) the women gave birth through spontaneous vaginal delivery in the previous pregnancy. Two-third of the pregnancies were planned (65.5%) and only less than half (46%) of the women had at least one antenatal care. Regarding social support, 361 (75.8%) reported poor social support followed by moderate (17.4%) and strong (6.7%) social support. Overall, six of ten (60.9%) participants reported “no support” from their husbands (Table 2).

Fear of childbirth and associated factors

Of the 476 study participants, 155 (32.6%) had <38 WDEQ (low degree of fear), 118 (24.8%) had 38-65 WDEQ (moderate degree of fear), and 92 (19.3%) had 66-84 WDEQ (high degree of fear), and 111 (23.3%) had ≥85 WDEQ (severe degree of fear) of childbirth. Overall, a total of 111(23.3%; 95% CI:19.3-26.9) of the women included in our study had FOC (Figure 1). Fear of childbirth was found to be associated with no antenatal care, unplanned pregnancy, no husband support, and history of complications during birth. Women who had a history of complications in labor were 9.67 times (aOR = 9.67; 95% CI: 4.76-19.64) more likely to have FOC compared with their counterparts. Pregnant women with unplanned pregnancy were 8 times (aOR = 8.44; 95% CI: 4.15-17.17) more likely to have FOC as compared to pregnant women with planned pregnancies. Women who reported no husband support were 6 times (aOR = 6.04; 95% CI: 2.40-5.18) more likely to have FOC compared to those who reported having husband support. Similarly, women with no antenatal care were 2 times (aOR = 2.41, 95% CI: 1.13-5.15) more likely to have FOC compared with women who had at least one antenatal care (Table 3).

Fear of Childbirth

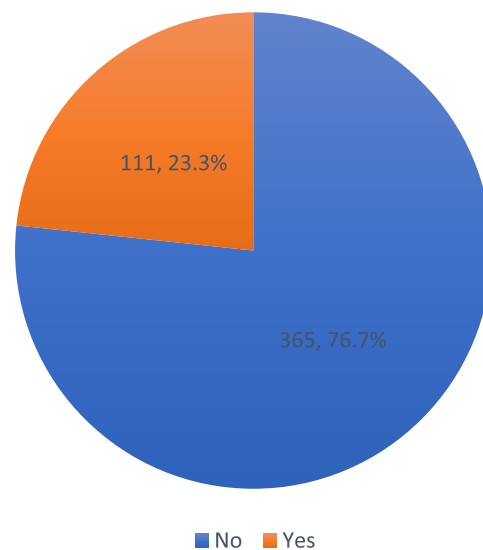


Fig. 1. Magnitude of fear of childbirth among pregnant woman in Eastern Ethiopia, 2021 (n = 476).

Discussion

This study was conducted to assess the burden of FOC and its associated factors among pregnant women participating in the ongoing KDS-HRC in Eastern Ethiopia. We found that a quarter of pregnant women who participated in this study are suffering from FOC. Fear of childbirth was higher among women with no antena-

Table 3
Factors associated with FOC among pregnant in KDHS, Eastern Ethiopia ($n = 476$).

Variable	Categories	FOC		cOR (95%CI)	aOR (95%CI)	p-value
		Yes	No			
Educational status	No formal education	62	165	2.05(0.95-4.41)	0.62(0.05-7.98)	0.13
	Primary	40	151	1.44(0.65-3.18)	0.45(0.04-5.88)	0.07
	Secondary or above	9	49	1	1	0.11
Parity	0	16	81	0.34(0.17-0.70)	1.55(0.17-2.94)	0.41
	1	15	81	0.32(0.15-0.67)	0.42(0.17-1.05)	0.18
	1-4	54	158	0.59(0.33-1.05)	0.69(0.33-1.43)	0.35
	>4	26	45	1	1	
ANC follow up	No	85	174	3.59(2.25-5.93)	2.41(1.13-5.15)	0.03
	Yes	26	191	1	1	
Type of pregnancy	Unplanned	82	83	9.64(6.13-16.32)	8.44(4.15-17.17)	0.00
	Planned	29	283	1	1	
Had husband support	No	102	188	10.67(5.23-21.74)	6.04(2.40-5.18)	0.01
	Yes	9	177	1	1	
History of abortion	Yes	28	55	1.74(1.02-2.96)	1.28(0.58-2.80)	0.53
	No	67	229	1	1	
History of complication in labor and delivery	Yes	70	61	9.79(4.76-16.68)	9.67(4.76-19.64)	0.00
	No	26	222	1	1	

FOC, Fear of Childbirth; ANC, antenatal care; aOR, Adjusted Odds Ratio; cOR, Crude Odds Ratio; CI, Confidence interval.

tal care, unplanned pregnancy, history of obstetric complications, and no husband support as compared to their counterparts.

Our finding is in line with a study conducted in Arba Minch, Ethiopia (24.5%) (Gelaw et al., 2020) and Jinka town, southern Ethiopia (24.2%) (Yetwale and Melkamu, 2021), Australia (24%) (Toohill et al., 2014) and Malawi, (20%) (Khwepeya et al., 2018). However, it is slightly higher than the reported findings from Thailand (16.1%) (Phunyammalee et al., 2019), Ireland (5.3%) (O'Connell et al., 2019), China (2.2%) (Huang et al., 2021), and Kenya (8%) (Onchonga et al., 2020). This variation could be explained by differences in antenatal care, sociocultural conditions, preconception care, and birth planning and preparedness. Given the majority of women in other settings are receiving proper care during their antenatal care compared to our settings, prenatal counseling might improve women's FOC. Moreover, our finding is lower than findings from Iran (89.3%) (Soltani et al., 2017), Portugal (28%) (Prata et al., 2016), and Egypt (55.33%) (Nasr et al., 2020). This might be related to geographical and socio-cultural differences as well as partner or social support.

Consistent with other findings, women with history of complications during birth were more likely to have FOC than their counterparts (Kaya and Evcili, 2020; Khwepeya et al., 2018; Toohill et al., 2014; Yetwale and Melkamu, 2021). Therefore, prenatal counseling should be coupled with the routine pregnancy screening of prior complications. In addition, women with unplanned pregnancy were more likely to have FOC, which is supported by findings from Turkey (Barton et al., 2017; Karaçam et al., 2011; Kaya and Evcili, 2020), Europe (Lukasse et al., 2014), Thailand (Phunyammalee et al., 2019), and Ethiopia (Gelaw et al., 2020). This may be associated with increased stress among women with unplanned pregnancy (Karaçam et al., 2011).

Given FOC is affected by several factors, women who got support from significant others were more likely to report less FOC (Collins et al., 1993; Gao et al., 2015; Marcelina et al., 2019; Molgora et al., 2018; Mortazavi and Agah, 2018). Strong husband support can strengthen women's physiology of pregnancy and its outcomes, thus reducing FOC (Størksen et al., 2015). Husband's support can also help women manage their fear and thus minimize FOC (Marcelina et al., 2019). Helping women to be happy throughout pregnancy and convincing them that they had abundant support should be part of couple counseling during prenatal care and beyond. In agreement with a study from Kenya (Onchonga, 2021), we found that women with no antenatal care were more likely

to report FOC. Antenatal care would give women the opportunity to have information about pregnancy and its process, early identification and care-seeking for complications, screening for health problems, and overall birth preparedness and complication readiness (Ali et al., 2020). Fear of childbirth should be something that healthcare professionals need to be aware of and take steps to ensure that pregnant women receive adequate health education and counseling to allay these fears for better labor and perinatal outcomes (Konje et al., 2018).

The strength of this study was the use of a validated tool for assessing FOC. The use of stable population-based cohort would also enable us to draw a representative sample. Our study, however, has also some limitations. *First*, the findings are based on self-reports by the woman and therefore may be prone to a social desirability bias. *Second*, as this study is a snapshot of a woman's feelings at a certain point of time in her pregnancy, we cannot comment on whether the fear is transient or will sustain throughout her pregnancy.

Conclusion

One in every four women in eastern Ethiopia had FOC indicating the need for psycho-social management during prenatal care or labor. Due attention should be given to women with no prenatal care, have history of obstetric complications, had unplanned pregnancy, and reported to have no husband support. Screening of mental health problems in pregnancy, including fear of childbirth, should be part of the routine prenatal care. Strengthening partner support and availing of contraception for preventing unintended pregnancy are essential for addressing fear of childbirth and supporting women go through a joyful pregnancy and labor. A follow up study for assessing whether the reported FOC is transient or persist throughout pregnancy and labor is warranted.

Ethical approval

Prior to the data collection, the study protocol was approved by the Institutional Health Research Ethics Review Committee of the College of Health and Medical Sciences, Haramaya University, Ethiopia (Ref No: IHRERC/114/2021). Written informed consent was obtained from all study participants after purpose and procedure of the study was explained. Confidentiality of participants was kept through the use anonymous questionnaire.

Author's contribution

AD conceived and designed the study, acquired data, analyzed, and interpreted the findings. AKT contributed to the design of the study, data analysis and interpretation. AKT, MD, and AD revised and provided critical intellectual feedback. AKT and AD drafted the manuscript. All the authors have read and approved the manuscript for submission.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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