Original article

Psychological distress in women with obstetric fistula in Ethiopia: a multi-center, facility-based, cross-sectional study

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Abstract

Background: Women with obstetric fistula share a common experience of physical and psychosocial morbidity, social isolation, and rejection by family and local society. However, there are only a few studies that focus on women with this condition in Ethiopia. Accordingly, the aim of this study was to examine the presence of psychological distress in women with obstetric fistula in Ethiopia.

Methods: The study employed a multi-center, facility-based, cross-sectional study design. The study was conducted at six fistula repair hospitals in Ethiopia and 219 women with obstetric fistula took part in the study. The data were collected during the women's admission for obstetric fistula surgical repair. A structured questionnaire was used to obtain socio-demographic information and the medical history of the respondents. Symptoms of depression and anxiety over the past two weeks were measured using the Patient Health Questionnaire and the Generalized Anxiety Disorder scales, respectively. We chose the score cut-off point of 10 or above to define the symptoms over the past two weeks. The data were entered into Epi-Data version 3.2 software and exported to SPSS version 20 for further analysis.

Results: Of the 219 women interviewed, 58% and 47% reported a history of symptoms of depression and anxiety, respectively. They also reported significantly lower social support. Symptoms of anxiety and depression were significantly associated with social support (P = 0.008, P = 0.001).

Conclusions: Women with obstetric fistula are predisposed to high levels of psychological distress. Clinicians should manage women with obstetric fistula through targeted and integrated mental health interventions to address their mental health needs. [*Ethiop. J. Health Dev.* 2018;32(4):210-217]

Key words: Anxiety, depression, Ethiopia, obstetric fistula, women

Introduction

An obstetric fistula is an abnormal opening between a woman's vagina and bladder and/or rectum through which her urine and/or faces continually leak (1). An obstetric fistula is caused by continuous pressure exerted on the vaginal wall and bladder/rectum by the impacted head of the flutes, which leads to decreased circulation and the breakdown of vaginal tissue. Over time, the tissue gives way, leaving a hole through which urine or stool leak.

Obstetric fistula is a serious and tragic complication of childbirth, affecting an estimated 50,000 to 100,000 women worldwide each year (2, 3). The highest incidence of obstetric fistula is found in low-income countries of Asia and Sub-Saharan Africa. It is recorded that more than 2 million young women in these low-income countries live with untreated obstetric fistula (3). Ethiopia is among the few countries with a high prevalence of untreated obstetric fistula, with an estimated incidence of 3,500 new cases per year, a prevalence of 37,500 untreated fistula, (range 36–39,000) and 161,000 cases of urinary incontinence (4). An obstetric fistula is most often the result of prolonged and unrelieved obstructed labor (5, 6). Women who develop fistula usually experience multiple days of painful labor, commonly resulting in the death of the baby, and physical complications such as infection and infertility (1, 7). During obstructed labour and subsequent delivery, many women face significant psychological stressors. Evidence has shown that negative childbirth experience is a predictor of mental disorder symptoms, such as depression and anxiety (8).

Sufferers of obstetric fistula are often subject to severe social stigma due to their smell perceptions of uncleanliness, and a mistaken assumption of venereal disease and, in some cases, infertility. Many marriages do not survive due to the pressure of ongoing physical and emotional health issues (8). Being regarded as unclean and sexually undesirable affects women psychologically. Women with obstetric fistula are socially stigmatized and marginalized, psychologically affected, and economically deprived (9-11). Such situations are correlated with mental health problems (12-14). Obstetric fistula associated with mental health problems is one of the most burdensome medical conditions among women in their early productive years. Studies in low-income countries, including Ethiopia, report that women with fistula have a significantly higher incidence of symptoms of depression, psychosocial dysfunction and anxiety (11, 15). These feelings of psychological distress may affect individual performance of daily activities; worsen interpersonal relationships; and even lead to self-neglect and suicidal thoughts (16).

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Lack of social support, stigma, and feelings of shame following the experience of obstetric fistula are correlated with poor mental disorders and in some cases of suicide (9, 12). Symptoms of depression were inversely correlated with social support. Women who undergo a severe medical problem are less likely to develop depression if they have social support after developing an obstetric fistula (17). According to Weston *et al.*, symptoms of depression are significantly associated with a lack of social support following fistula and living with fistula (16). Women with an obstetric fistula may lose their jobs or will not be able to carry out economic tasks they used to do. The inability to work can push women further into poverty and, in turn, affect their psychosocial performance.

The Ethiopian Federal Ministry of Health is undertaking a strategy to eliminate obstetric fistula by 2020. Most women with confirmed obstetric fistula are referred to Hamlin Fistula Ethiopia, the main provider of treatment in the country, which offers surgical repair. The physical intervention strategy alone may not end the challenges that women with fistula face. Most of the time, health care professionals usually focus on women's physical condition yet ignore the associated mental health problems, such as depression and anxiety. The continued focus on physical intervention means that women will continue to suffer the burden of the associated mental health, which can compromise the recovery process. Despite this burden, which is prevalent in most developing Sub-Saharan Africa countries, including Ethiopia (11, 16), there is a limited amount of literature on the magnitude of psychological distress experienced by women with obstetric fistula. Thus, this study examined the psychological distress (symptoms of anxiety and depression) of women with obstetric fistula in Ethiopia. The results of this study provide contemporary evidence, add to our understanding of the psychological distress of women with obstetric fistula, and identify opportunities for support and treatment for this population group.

Methods and materials

Study setting and design: Women with obstetric fistula were studied using a multi-center, facility-based, cross-sectional study design. The study was conducted at six fistula repair hospitals in Ethiopia, located in Amhara, Tigray, Oromia, Addis Ababa, Harar and SNNPR. These six hospitals are a world-class centers of excellence for treating women with obstetric fistula. They provide surgical repair of obstetric fistula free of charge through the support of government legislation and the support of non-governmental organizations (NGOs). Once admitted to a fistula ward, patients generally undergo repetitive surgery within two weeks and remain in the ward up to four weeks following surgical repair.

Sample size determination: To determine the appropriate sample size, different measures were considered, such as controlling the Type I error ($\alpha = 0.05$), Type II error ($\beta = 0.2$), correlation (effect size) = 0.3, and the ratio of indicators to a latent variable while controlling the family-wise error rate = 3.18. The calculated minimum sample size was 200. However, the lesson from previous literature is that large sample sizes are critical in measuring symptoms of anxiety and depression. The fear was that the sample size would lack adequate power to measure these symptoms. Because of this, all newly registered women who were diagnosed with fistula and were scheduled for surgical repair at the six fistula hospitals within a six-month period (from 1 January to 31 June 2017) were included.

Population and sampling technique: To be eligible, participants had to be women who had a minimum of three months' experience with a fistula; newly registered with a physician-confirmed diagnosis of fistula, and who were waiting for obstetric surgical repair. A total of 320 individuals visited the six fistula hospitals for obstetric fistula care during a six-month period. One hundred and one (101) of them were excluded because they did not meet one or more of the eligibility criteria, i.e. they had fistula for less than three months (n = 24); their cases were not new (on retreatment or repeated surgery) (n = 49); or their condition was not an obstetric fistula (n = 28). Ultimately, 219 individuals fulfilled the eligibility criteria to participate in the study. The study participants, women diagnosed with fistula, were recruited from multiple hospitals and participated in the study (19).

Data collection tool and process: To collect relevant data, interviews were conducted at the fistula hospitals using a structured and pre-coded questionnaire. The questionnaire was structured into three parts: (1) socio-demographic; (2) obstetric and gynaecologic history; and (3) symptoms of psychological distress (depression and anxiety). The questionnaire covered various variables and measurements. The researchers measured symptoms of depression and anxiety using the Patient Health Questionnaire 9-item (PHQ-9) and Generalized Anxiety Disorder 7-item (GAD-7) assessment, respectively. The score of each measurement scale was used for depression symptoms (0 to 27) and anxiety symptoms (0 to 21) in the analysis. The measurement item (PHQ-9 and GAD_7) is widely used in different research and validated in different settings and population groups (20-22). PHQ-9 and GAD-7 has been validated in Ethiopia using different cut-off points (cut-off point five or above and cut-off point 10 or above) (23-26). We chose the score cut-off point of 10 or above to define the mean depression and anxiety symptoms because of concerns about the overlap of symptoms between obstetric fistula and the somatic symptoms of psychological distress, such as loss of appetite, weight loss and fatigue (19,27).

The questionnaire was translated into local languages (Amharic, Afaan Oromo & Tigrigna), and back-translated into English to check its consistency. The researchers selected six psychiatric nurse research assistants. The researchers provided the research assistants with three days of training on how to approach respondents and obtain consent, administer questionnaires, and carry out research according to

ethical principles. The questionnaire was administered during the women's admission. Research assistants screened eligible women, explained the aim of the research project, and invited them to participate in the study. When the person expressed interest to participate, the research assistants obtained their consent and conducted the interviews. The initial interviews were performed under researcher guidance and supervision. The researchers made regular visits (once every week) to the hospitals to make sure that the data collection was going as planned. Supervision meetings were held with data collectors every month.

Data management and analysis: The researchers assessed the quality, accuracy and completeness of the collected data using range plausibility and cross-validation checks. Data were checked, coded and entered into Epi-Data version 3.2. The accuracy of data entry was checked by running frequency analysis and making range checks every time data were entered. The data entry errors were corrected by cross-checking with the completed questionnaires. After completing data entry, the data were exported to SPSS version 20 for analysis. Explanatory factor analysis was carried out with maximum likelihood extraction and oblimin rotation, and the numbers of factors were determined using eigenvalue, scree plot and parallel analysis. Confirmatory factorial analysis was run using AMOS version 22 computer software to test the overall goodness of fit. Internal consistency was checked using Cronbach's alpha. The prevalence of depression and anxiety symptoms among women with obstetric fistula at admission was determined by computing the proportion of respondents scoring ten or more on the PHQ-9 and GAD-7 scale. Respondents of this study were classified into two groups: those who scored 10 or above on the PHQ-9 and GAD-7 scales had symptoms of depression or anxiety over the past two weeks; and those who scored less than 10 had no symptoms.

Ethical considerations: Ethical approval was obtained from the University of South Africa, Department of Health Studies Research Ethics Committee (HSHCD/551/2016) and Hamlin Fistula Hospital ethical review board (IRERC/2016/011/Hamlin). Before data collection, all eligible respondents were informed about the aims of the study, voluntary participation, the right to withdraw at any time without giving a reason and assured of the confidentiality of the information to be collected. Women were also provided with information leaflets. Those who agreed to participate signed a consent form or gave their verbal consent.

Results

Socio-demographic characteristics: The mean age of the respondents was 28 years ± 7.7 standard deviation (SD). Approximately 36% of the respondents were in the 26-30 years' age bracket, while 17% of the respondents were under 21 years. The majority of the respondents (85%) were rural residents. Of all the respondents, Orthodox Christians constituted 35%, followed by Muslims at 32% and Protestants at 31%. Most of the respondents (74%) had not attended any level of education (unable to read and write). Almost all of the respondents had been or were still married (93%), of whom 20% were divorced/widowed at the time of the study, while 13% were not living with their sexual partners/husbands (Table 1).

Table1: **Socio-demographic characteristics of the study respondents (n = 219)**

Characteristics	Number	Percent (%)
Current age		
<25+	77	35.2
26-30	79	36.1
>31+	63	28.8
Residence		
Urban	31	14.1
Rural	188	85.8
Educational status		
Unable to read and write	162	74.0
Read and write or primary	57	26.0
Religion (n=214)		
Orthodox	75	35.05
Muslim	69	32.24
Protestant	68	31.8
Others	2	0.9
Ever married		
Yes	203	92.7
No	16	7.3
Current marital status		
Married	159	72.6
Divorced/Widowed	44	20.1
Single	16	7.3

Gynaecologic and obstetric history of women with obstetric fistula: At the time of the study, most respondents (60%) were living with their sexual partners/husbands, and the mean number of children was 2.8 ± 2.6 SD (range: 0-10). The mean ages of respondents at their first marriage and first delivery was 16 years ± 3.1 SD and 19 years ± 3.6 SD, respectively. A total of 13% of the respondents had

their first child when they were younger than 15 years old, and 57% of them had their first child when they were 16-20 years old (Table 2). Only 38.3% of respondents had lived with obstetric fistula for more than one year, whereas the rest (61.8%) had lived with obstetric fistula for a year or less. Most of the respondents (72%) reported that they had a labour duration of 24 or more hours. Thirty-nine percent (39%) of the respondents had delivered through Cesarean section (CS). Seventy-two percent (72%) of the respondents had experienced stillbirth delivery outcome, of which 26% had experienced stillbirth more than once (Table 2).

Table 2: **Gynecological and obstetric history of women with obstetric fistula**

Characteristic	Number	Percent (%)
Age at first marriage (year) (n = 219)		
<18	108	49.3
18+	111	50.7
Average age at first marriage		16.4 years (SD = 3.02)
Age at first delivery (Year) (n=219)		
<18	67	30.6
18+	152	69.4
Average age at first delivery		19.25 years (SD = 3.6)
Antenatal attendance (last child) (n=214)		
0	86	40.2
1-3	63	29.4
4+	65	30.4
Number of live births (n=176)		
1-2	85	48.3
3-5	59	33.5
>5	32	18.2
Fistula duration (year) (n=217)		
<1 year	134	61.8
1-5 years	46	21.2
>5 years	37	17.1
Average duration of the fistula		2.3 years (SD = 3.5), median = 0.75
Labor duration (time spent during their last delivery, in hours) (n=213)		
<24	59	27.7
24+	154	72.3
Mode of delivery (last delivery) (n=210)		
Normal vaginal delivery	93	44.3
CS delivery	81	38.6
Other mode of delivery	36	17.1
Place of delivery (last delivery) (n=210)		
Home	58	27.6
Hospital	127	60.5
Health center	20	9.5
Health post	5	2.4
Delivery outcome (last birth) (n=194)		
Stillbirth	140	72.2
Livebirth	54	27.8
Number of stillbirth experiences (n=154)		
1	114	74.0
2+	40	26.0

PHQ-9 and GAD-7 scale reliability test*:* The PHQ-9 and GAD-7 had a clear single structure, explaining 34.9% and 26% of the variance respectively, based on the explanatory analysis. The researchers conducted confirmatory factorial analysis using Maximum Likelihood Solution with a standardized solution to report the statistical estimates of the free parameters. The sample size of the study was appropriate to proceed with confirmatory factorial analysis (Bartlett's test of sphericity (P = 0.001) and Kaiser-Mayer-Olkin(KMO) = 0.881). The finding shows that the chi-square values of the confirmatory analysis were not significant. This indicates that the observed and implied variance–covariance matrices were similar, meaning the data fit the proposed confirmatory factorial analysis. Considering practical significance and that the value of Root Mean Square Error of Approximation (RMSEA) was <0.05, values of Goodness of Fit Index (GFI) and comparative fit index (CFI) were above 0.90 and the value of Chi Sq/df was <5 (Table 3). The loading items of symptoms of depression ranged from 0.49 to 0.72, while anxiety symptoms ranged from 0.57 to 0.72. Overall, the PHQ-9 items showed good internal consistency (Cronbach's alpha = 0.808) and test re-test reliability (interclass correlation coefficient = 0.318). The anxiety measurement scale (GAD-7 items) also had a good internal consistence (Cronbach's alpha = 0.82) and test re-test reliability (interclass correlation coefficient = 0.37). The PHQ-9 and GAD-7 items appear to be a reliable and represent valid instruments to measure symptoms among women with obstetric fistula in Ethiopia.

Table 3: **The fit indices for the psychological distress scale to address the validity of the structure of the measurement scale, (n = 219)**

Index	Depression	Anxiety
Absolute fit		
Chi sq	6.824	7.2
Df	3	4
P-value	0.078	0.126
RMSEA	0.032	0.061
Goodness of fit index (GFI)	0.988	0.987
Incremental fit		
Adjusted goodness of fit index (AGFI)	0.938	0.95
Comparative fit index(**CFI)**	0.985	0.989
Tucker Lewis index (TLI)	0.949	0.973
Normed fit index(NFI)	0.974	0.977
Parsimonious fit		
Chi sq/df	2.275	1.8

***Association between, patient gynecologic and obstetric history and psychological distress symptoms among women with obstetric fistula*:**
Women with obstetric fistula usually experience a significant number of potentially traumatic cases and exhibit significant symptoms of depression and anxiety. The prevalence of symptoms of depression among women with obstetric fistula, using a cut-off value of 10 or above, was 58% (95% CI: 51%-65%). The prevalence of anxiety symptoms among women with obstetric fistula using a cut-off value of 10 or above was 47% (95% CI: 40%-53%). 'Anxiety symptoms' is associated with women who had been living with fistula for more than 1 year (P = 0.004), reported receiving little or no social support (P = 0.001) and had a stillbirth outcome (P = 0.049). There was no significant difference in symptoms of depression among women living with obstetric fistula for less or more than 1 year (P = 0.242) (Table 4). Women with obstetric fistula also reported that significantly less social support affected the prevalence of depression and anxiety symptoms (P = 0.024, P = 0.001, respectively). The mean Social Support Scale (OSS-3) score was 10.30 (SD = 2.65) and ranged from 3 to 14. The distribution of the depression and anxiety symptoms sub-scale, according to their OSS-3 grouping, is shown in Table 4. The mean depression and anxiety symptoms scores decreases progressively with increasing social support. The mean difference was statistically significant (t-test = 61.01; P = 0.000).

Table 4: **Exploratory association between patient gynecologic and obstetric history and psychological distress [a,b,c,d] sub-scale.**

Characteristic	Depression (%)	P value	Anxiety (%)	P value
Fistula duration				
<1+ year	120 (60)	**0.242**	98 (56.3)	**0.004**
>1 year	80 (40)		76 (43.7)	
Delivery outcome (last birth)				
Stillbirth	128 (72.7)	**0.578**	118 (75.6)	**0.049**
Livebirth	48 (27.3)		38 (24.4)	
Social support				
Poor	50 (25)	**0.024**	48 (27.6	**0.001**
Intermediate	77 (38.5)		68 (39.1	
Strong	73 (36.5)		58 (33.3	
	*T-test = 61.01; P = <0.000)			

[a] Values are given as number (percentage) unless otherwise indicated.
[b] Women with minimal depression were grouped together with those without depression to form a 'minimal or no depression' cohort, whereas those with mild, moderate, moderately severe, or severe depression constituted the 'depression' cohort (n = 219).
[c] Women with minimal anxiety were grouped together with those without anxiety to form a 'minimal or no anxiety' cohort, whereas those with mild, moderate, or severe anxiety constituted the 'anxiety' cohort (n = 219).
[d] Women with minimal PTSD were grouped together with those without PTSD to form a 'minimal or no PTSD' cohort, whereas those with mild, moderate, moderately severe, or severe PTSD constituted the 'PTSD' cohort (n = 219).

Discussion
There is a little existing preliminary evidence suggesting that women with obstetric fistula have a significantly higher incidence of depression and anxiety symptoms. The overall purpose of this study was to examine the prevalence of depression and anxiety symptoms in women with obstetric fistula without considering clinical diagnosis. The findings show that women with obstetric fistula have a high prevalence of depression and anxiety symptoms. Similar studies found that women with obstetric fistula have high depression and anxiety symptoms (9, 15,

28), and high rates of general mental health impairment (16).

In keeping with previous research, this study highlighted known demographic and childbearing characteristics linked to obstetric fistula and psychological effects, including depression and anxiety symptoms (6, 7, 9). Seventy-two percent (72%) of the respondents had experienced stillbirth delivery outcome. Evidence has shown that negative childbirth experience is a predictor of mental disorder symptoms, such as depression and anxiety (8).

Previous studies reported that, women with obstetric fistula have significant lower social support; this deficit is a possible explanation for elevations in psychological symptoms (11, 29). In this study, women with obstetric fistula have less social support, which affected the prevalence of depression and anxiety symptoms. Previous studies indicate that women who undergo a severe medical condition are less likely to develop symptoms of depression if they have social support after the event (30). Pervious evidence suggests that women with a low level of social support have a high level of depression and anxiety symptom, and a significant proportion of women end up divorced or separated from their partners (29, 31). Other pervious evidences reported that social isolation and stigma often lead to psychological trauma, including depression and anxiety, in some cases suicide (9, 12).

One explanation for the higher rates of symptoms of depression and anxiety in the present study could be the comparatively higher rate of divorce reported by participants (20.5%) compared with that reported by Weston *et al.* (16) in their cohort (11%). In our study, 13% of the study participants were not living with their sexual partners/husbands due to their smell perceptions of uncleanliness, and a mistaken assumption of venereal disease. Psychological distress is significantly associated with marital status. For example, divorced women are more likely to develop psychological distress than women in other categories. The loss of a spouse or lover has been identified as one of the most stressful life events (32).

women with obstetric fistula may have been more or less likely to provide honest responses to some of the sensitive issues such as 'feeling afraid', 'being so restless', 'feeling bad about yourself' and 'thoughts that you would be better off dead' because of face-to-face interviews. The investigators tried to increase honest responses by hiring female interviewers who had previous experience working with women with obstetric fistula. All interviews were conducted with privacy to assure respondents that their responses were private and confidential.

Study limitations

There were some limitations to the current study. First, the study used a cross-sectional study design; it's affected in chicken egg dilemmas. For example, women with obstetric fistula or symptoms of psychological distress are more likely to see their situation negatively – 'negative recall bias'. Furthermore, symptoms of psychological distress or obstetric fistula cases may lead to low social support.

Another limitation of this study is determining the magnitude of psychological distress prior to surgical repair, which might reduce or increase after their surgical repair. The women were assessed pre-operatively when they are likely to have been experiencing transient elevated anxiety due to the forthcoming procedure (as well as being out of their home environment).

A further limitation is related to measuring psychological distress. The study measured psychological distress (depression and anxiety symptoms) by interviewing the respondents, without considering a clinical diagnosis or assessment of associated functional impairment. The symptoms might be high or low than the actual symptoms.

Finally the Amharic and Oromifa versions of the scale were validated; in addition, the researchers used new translations (in Tigrigna) of the mental health measures. The cut-off validated in one language may not be valid in a different language. This bias may also reduce the validity of the findings.

Conclusions:

Despite limitations, this study concluded that women with obstetric fistula have a high prevalence of psychological distress, even after controlling for demographic and traumatic exposure variables. Psychological distress was significantly associated with low social support and divorced marital status. Women with obstetric fistula require more psychological therapy; clinicians should monitor women with obstetric fistula for comorbid psychological distress, and should address common mental health problems through targeted and integrated mental health treatment. The training of midwives should also integrate common mental health treatment in the treatment of women with obstetric fistula.

Declaration of interests

We hereby declare that we have no conflict of interest.

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