

Prevalence of Depression and Associated Factors among Patients with Obstetric Fistula at Hamlin Fistula Treatment Centers, Ethiopia: A Facility Based Cross-sectional Study

Melsew Getinet Tsegaw*

Department of public health, Kea-Med Medical College, Addis Ababa, Ethiopia

*Corresponding author: melsewg@gmail.com

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Abstract Objective: The aim of this research was to assess the prevalence of depression and associated factors among patients with obstetric fistula in Hamlin Fistula treatment centers in Ethiopia. **Methods:** A cross-sectional study design was employed. Study participants of the project were patients with obstetric fistula from the treatment centers of Hamlin fistula Ethiopia. Participants were interviewed using validated structured Amharic version patient health questionnaire for depression (PHQ-9). As many women were illiterate, the questionnaires were completed by a nurse. During a 2-month period, from July to August 2016, all women presenting with only obstetric fistula to Addis Ababa Fistula Hospital, Bahir-Dar Hamlin Fistula Center, Yirgalem Hamlin Fistula Center and Harara Hamlin Fistula center participated. Logistic regression analysis was used. Odds ratios with 95% confidence intervals were calculated to identify associated factors. **Results:** 167 women with obstetric fistula were screened for probable depressive disorder. The prevalence of depression was 73.7%. After adjusting for possible confounders, depression (PHQ-9 score of ≥ 5) was significantly associated with perceived lack of social support ($P=0.014$), history of stillbirth ($P=0.017$), primi-parous ($P=0.008$), separation/divorce ($P=0.02$) and stay length at home with fistula for over 3 months ($P=0.002$). **Conclusion and Recommendation:** The study revealed a high prevalence of depression in patients with obstetric. A stillbirth history, perceived lack of social support, Separation/divorce with a husband, Parity history of one, living with fistula for over 3 months before reporting to a hospital were found to be the factors associated with depression among patients with obstetric fistula. Integrating psychiatric care and treatment including family support with the routine medical care is strongly recommended.

Keywords: depression, obstetric fistula, psycho-social consequences, medical consequences, hamlin fistula Ethiopia

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1. Introduction

Women with Obstetric fistula (OF) in developing countries are mostly poor, malnourished, lack basic education and live in rural areas. They are also mostly rejected by their husband's family and/or immediately divorced as a result of stigmatizing condition of obstetric fistula and failure to their perceived duty to bear live children and feel still worse [1]. In some studies [2,3], vesico-vaginal fistula (VVF) was reported as a dehumanizing a Condition with several impacts in women including major psychosocial dysfunction. For example, in Nigerian Fistula patients, a divorce rate of 22.1% was reported by OF patients. VVF is also associated with being unemployed (61% of fistula patients in Sokoto, Nigeria were Housewives) and illiteracy (86% of patients in the Nigerian Ilorin were illiterate) [3].

According to few studies conducted in Ethiopia, fistula related depression remains a persistent problem [4,5,6]. Urinary and/or fecal incontinence, failure to have normal reproductive function, increased risk of renal disease and other chronic medical conditions are the effects of obstetric fistula in untreated cases [7]. In addition to the medical imminent problems, psychosocial disturbances are devastating consequences of fistula [4,7].

By the year 2007, an article published on the health and social problems of obstetric fistula patients in Ethiopia revealed that 92 % of patients exhibited symptoms of depression, out of these, 28% had suicidal ideation. However, the qualitative aspect of this study showed, the surgical treatment brought social and family aspects of health improvement with some sexual and social problems remained [4].

In a case-control study among women with Genital tract fistula (GTF) recruited at Dhaka Medical College,

Bangladesh and Addis Ababa Fistula Hospital (AAFH), Ethiopia, 97% of the cases were screened positive for mental health dysfunction using a general health questionnaire (GHQ-28). The explicit comparison between GTF cases and staff members of respective hospitals (controls) revealed that women with fistula are far more at a higher risk of mental health dysfunction than those without [5].

Clinical depression as a consequence of genital tract fistula affects 10-30% of women older than 50 years with incontinence reaffirmed positive result. Likewise, those women suffering from severe incontinence are 80% more likely to have risk of depression than those who did not have leakage of urine and or faces. On the other hand, women patients from Bangladesh were seen separately taking their religion in to account as a factor which may affect their temptation to committing suicide in the depression domain, but most of them reported voluntarily that they had suicidal ideation [5,8].

In a medical records review that had examined the clinical features of patients diagnosed with Vesico-vaginal Fistula (VVF) in South East Nigeria, patients with VVF have a perception that societal reaction towards their condition was rejection with a frequency score of 44.29%. On the other hand, 73.81% of patients diagnosed with VVF were having depression as a major clinical consequence [9]. A review on the psycho-social and medical consequences of obstetric fistula around Northwestern Nigeria indicated that divorce and loss of baby were the most frequent consequences [7]. In a study in the rural part of Ethiopia, it was reported that 56.4% of untreated patients with obstetric fistula had symptoms of depression and 51.3% of them had a plan to commit suicide [4].

According to a study in the University of Gondar (UOG) all of the sampled women with both urinary and fecal incontinence reported to have depression; while 97 % of women with urinary incontinence secondary to OF and 67.7% of women with profound pelvic organ prolapse (POP) were depressed. In connection with this, the paper has depicted that residence, marital status; occupational status and age of the women at the onset of fistula were associated with depression [6]. Depression status is also affected by individual difference, and the person's perception to the problem. Hence, reduced self-image, perception of being unfit for dating anymore and inability to self-care would increase the risk of depression among fistula patients. Moreover, this perception will be worsened by co-existing conditions such as lack of social support, divorce and socioeconomic dependence among fistula patients [6].

Although there is burgeoning evidence on the prevalence of depression and associated factors in patients with obstetric fistula elsewhere, mental health research in Ethiopia is limited.

2. Methods

A cross-sectional facility based study was employed. The study was conducted at Hamlin Fistula Ethiopia (HFE) treatment centers. HFE treatment centers include AAFH which acts as a center of excellence for fistula treatment, care and training. HFE also includes five regional obstetric fistula centers. These are: Bahirdar Hamlin Fistula center (BHFC), Mekele Hamlin Fistula Center

(MHFC), Harar Hamlin fistula center (HHFC), Yirgalem Hamlin Fistula center (YHFC) and Metu Hamlin Fistula Center (MeHFC). Recently, HFE foundation operates with three organizational establishments: 1. Addis Ababa Fistula Hospital at which advanced surgical repair and training is provided (under it, five regional fistula treatment centers are included); 2. The Hamlin College of Midwives (HCM) established in 2007 provides training for midwives; and 3. The Desta Mender center (Village of Joy) which provides rehabilitation, training and long term support for post-operative women with incontinence.

All women with obstetric fistula presenting to the AAFH and the rest regional hospitals between July and August, 2016 were included in to the study. The total patients admitted in each center during the two months period of data collection were as follows: BHFC-22 patients, YHFC- 33 patients, Mekelle HFC -9 patients, HHFC -12 patients, and AAFH including Desta mender-91 patients. But patients admitted in Metu HFC were 4 that these patients were not screened. Therefore, a total of 167 patients were included in to the study.

A structured Patient Health Questionnaire (PHQ-9) screening tool for depression was used. A depressive disorder was considered if the score of PHQ-9 was found to be 5 or more. The PHQ-9 is a multi-purpose instrument that can be used for screening, diagnosing, monitoring and measurement of severe depression in clinical practice. The tool includes DSM-IV depression diagnostic criteria along with other leading major depressive symptoms in to a brief self-report tool [10]. The validity of PHQ-9 scores ≥ 5 was reported to have a sensitivity and specificity of 88% for major depression [10].

Some of the questions were also collected from individual patient's medical records that were filled within the structured questionnaire, in purpose to learn about general medical condition of the patient and the type of fistula by trained health professionals. A total of 167 women with obstetric fistula were enumerated from all over the Hamlin Fistula Treatment centers.

Data collectors were recruited as interviewers and each of them had history of work as Psychiatry consulting nurses in the respective HFCs. A total of 5 interviewers were recruited and trained in each center for half day by the principal investigator. The training comprised interpretation and detailed explanation of every question with clear understanding by the interviewers. The data collection was conducted between July and August, 2016.

Data was entered, coded and analyzed using SPSS, version 20. Descriptive statistics, like frequencies and percentages were used to present the categorical independent variables, and mean/standard deviation was used to describe a continuous variable. Logistic regression statistics was used as a primary method of analysis. Odds ratios (OR) were computed with the 95% confidence interval (CI) to see the association between depression and independent variables. Independent factors, with a P-value <0.2 obtained in the bivariate logistic regression were all entered into the multivariable logistic regression model. Adjusted odds ratios (AOR) with 95% confidence interval were calculated for the significant predictive variables, and statistical significance was accepted at ($P < 0.05$).

Ethical clearance approval for the research was obtained from Hamlin Fistula Ethiopia (HFE) research committee.

The participants from the respective hospitals received verbal information about the objective of the interview. They were also informed that participation is voluntary, and that all data collected was to be handled confidentially. Patients were identified using bed numbers. The list of the patients of these medical records and interviews were not in any way possible to be identified and disclosed. On the way while collecting data, arrangement for psychiatric consultation was attempted to let patients get better support in times when patients were found to be suicidal.

3. Results

3.1. Socio-demographic Characteristics of Participants

A total of 167 women with obstetric fistula were included. Of this, 138(82.6%) of them were from the rural part of Ethiopia and almost three-fourth (76%) of the women had no basic education at all. Majority (80.8%) of the women current age was from 19-35 years. Close to half (48.5%), and more than one-fourth (25.7%) of the participants were Orthodox Christians and protestants respectively. The other one fourth (24.5%) was Muslim

religion followers. As for the Ethnicity of the study participants, almost two third of the women were Oromo (34.7%) and Amhara (34%). Nearly one third (31.9%) of the women were from the other ethnic groups including Southern Nations and Nationalities people (SNNP), Benishangul Gumuz, Gambella and Tigray regions.

3.2. Depression and Associated Factors among Obstetric Fistula Patients

The overall prevalence of depression among obstetric fistula patients was 73.7%. In a multiple logistic regression analysis, the psychosocial factors including a stillbirth history during fistula occurrence (AOR 8.75; 95% CI: 1.48-51.6) Perceived lack of social support (AOR 7.50; 95% CI; 1.49-37.56), and separation and or divorce with the husband (AOR 6.91; 95% CI; 1.35-35.2) were statistically significant associated factors with depression among obstetric fistula patients. In line with this, the adjusted analysis also showed that reporting to one of Hamlin fistula treatment centers after 3 months of occurrence of the obstetric fistula (AOR 13.61; CI: 2.70-68.57) and only one full term delivery history (AOR 10.95; CI: 1.88-63.64) were statistically significant obstetric and gynecologic predictors of depression among obstetric fistula patients.

Table 1. Socio-demographic characteristics of women with Obstetrics Fistula at Hamlin Fistula Ethiopia treatment centers (n=167)

Characteristics	Frequency (n=167)	Percent (%)
Age(years) during interview		
<18	18	10.77
18-25	75	44.9
26-35	59	35.3
36-45	11	6.58
≥46	4	2.39
Religion		
Orthodox	81	48.5
Protestant	43	25.7
Muslim	41	24.6
Others	2	1.2
Ethnicity		
Oromo	58	34.7
Amhara	57	34.1
Tigre	6	3.6
SNNPR	21	12.6
Benishangul	9	3.4
Gambella	9	3.4
Others	7	4.2
Residence		
Rural	138	82.6
Urban	29	17.4
Educational status		
No education	125	74.9
Read & write	19	11.4
Primary education	16	9.6
Secondary education and above	7	4.2

Table 2. Bivariate and multivariate logistic regression analysis of factors associated with Depression among women with obstetric fistula in Hamlin Fistula Ethiopia (n=167), July & August 2016

Variable	Total no	PHQ-9 \geq 5 Number	COR (95% CI)	AOR (95%CI)	P-value
Residence					
Rural	138	106	2.338(1.011-5.406)	0.776(0.075-8.05)	0.83
Urban	29	17	1.00	1.00	
Level of education					
Read or primary and above	40	21	1.00	1.00	
Unable to read and write	127	102	3.69(1.728-7.887)	2.68(0.431-16.74)	0.29
Loss of baby (Stillbirth)					
Yes	124	114	43.067(16.18-58.9)	8.75(1.48-51.6)	0.017*
No	43	9	1.00	1.00	
Perceived lack & or no social support					
Yes	98	92	18.796(7.25-48.72)	7.50(1.49-37.56)	0.014*
No	69	31	1.00	1.00	
Separation and or divorce with a husband					
Yes	112	101	13.77(6.044-31.39)	6.91(1.357-35.2)	0.02*
No	55	22	1.00	1.00	
Foot drop					
Yes	69	56	1.99(0.952-4.17)	0.56(0.081-3.92)	0.56
No	98	67	1.00	1.00	
Parity					
One	109	102	25.67(10.085-65.3)	10.9(1.88-63.64)	0.008*
Two and above	58	21	1.00	1.00	
Stay length with fistula at home					
\leq 3months	59	25	1.00	1.00	
$>$ 3 months	108	98	13.328(5.808-30.5)	13.6(2.70-68.57)	0.002*

COR = odds ratio; CI = confidence interval.

AOR=adjusted odds ratio

*Significant at $P < 0.05$.

4. Discussions

Considerably, it was found difficult to make comparisons of depression prevalence among obstetric fistula patients across other studies including fistula care and treatment facilities. This was because of limited number of studies, variability in the screening tools for depression and differences in the socio-cultural characteristics. Despite these facts, the prevalence of depression was higher among the current study patients with obstetric fistula comorbidity than those with other medical conditions including incontinence secondary to pelvic organ prolapse [6,11,12,13,14] leading to a psychiatric health concern that the prevalence of depression was disproportionately higher. This is indeed due to, the perceived thought in obstetric fistula patients like reduced self-image, being unfit for dating anymore and inability to self-care that would heightened the risk of depression among fistula patients [6, 7, 9].

The current study showed a prevalence of 73.7% of depression among obstetric fistula patients which was similar with the prevalence report of depressive symptoms among obstetric fistula patients in Kenya (72.9%) which used the same screening tool and with the same cut-off point [15]. Similarly, a report from Nigeria [9] described that 73.8% of patients diagnosed with obstetric VVF had depression as a clinical consequence. However, the current study prevalence is by far lower than other reports in Ethiopia [16] as in the health and social problems study

which reported 92% of depression rate in the rural Ethiopia among fistula patients before treatment. Other facility based mental health screening report had revealed that 97% of GTF patients in Ethiopia and Bangladesh were positive for possible psychiatric morbidity [5]. However, it had been noted that many of the studies didn't show the psychiatric morbidity status of obstetric fistula patients before and after treatment. Remarkably, in some of the surveys, fistula patients continued to score high for mental health dysfunction suggesting that treatment offered seems to be not a major confounding factor for mental health dysfunction [17].

A 73.9% prevalence of depression was by far lesser than other similar study among women with pelvic organ prolapse and obstetric fistula patients in Ethiopia which was close to 100% for those of the women with obstetric fistula only [6]. However, this inconsistency would be attributed to the smaller sample size of obstetric fistula patients or screening tool used by the previous study.

In the bivariate analysis, the only demographic factors significantly associated with depression were residence and educational level that women in the rural setting and those who had no education were likely to be depressed than those in urban setting and had education of primary and above. Conversely after adjustment, there was no significant association between depression and any of the demographic variables. This is similar with a survey report in post natal women from Bahrain that there was no

significant association between demographic factors and depression [13].

In contrast with other studies [6,15], the multivariate analysis in the current study didn't show a significant relationship between age of the women at interview and depression among obstetric fistula patients.

Women who were not currently together with their husband (either separated or divorced) were by far more likely to be depressed than those who were still together with their husband. This is similar to a report from Ethiopia among pelvic organ prolapse and obstetric fistula patients [6]; where women who were not together with their husband were 3 times more likely to be depressed than those currently married. One of the most frequently reported social consequences of obstetric fistula was divorce/separation [7,9,16]. The psychosocial reaction including depression because of loss of the most loved ones was the primary price that women with obstetric fistula had to pay for the attachment to whom they value the most [7,9]. Persistent urine/feces leakage often strenuously affected the psychosocial feelings of the women, thus being one of the most proximal factors for the high separation/divorce rates [7]. These all could probably be some of the reasons for the high prevalence of depression among the women whose marital relation was affected (either separated or divorced).

One of the strongest predictive factors of depression in obstetric fistula patients in the current study was perceived lack of social support (either from a husband or relatives). This was in accordance with a report from Kenya that lack of social support following fistula was found to be significantly associated with depression among OF patients [15]. In another, it was also in keeping with a report from Bahrain where perceived lack of social support from a husband was a strong predictive factor of depression among post natal women [13]. It is often imminent that, patients with obstetric fistula were likely to perceive lack of social support, divorced and socioeconomic dependent [6]. This is probably the reason why depression was higher in this study among obstetric fistula patients with lack of social support history.

Depression was also significantly associated with stillbirth. This may be due to the fact that the women were young and probably with better self-image before this unanticipated event, and in fact, after delivery of a stillborn baby the women would probably see themselves as cursed and unable to give birth afterwards [16]. In a report from Bangladesh and Ethiopia, more than 98% of the women screened positive for psychiatric morbidity had history of stillbirth [5]. Similarly in Nigerian Fistula patients it was revealed that loss of a baby following the antecedent event of fistula was the most frequent and traumatic psychosocial consequence [7]. These all may probably be a reason for the obtained strong association between depression and stillbirth or the high prevalence of depression among those women with history of stillbirth.

In the current research, parity history of the woman was examined and thus, parity history of only one was significantly associated with depression after obstetric fistula. This would be because of the fact that most of the women after fistula remained with a childlessness feeling which in turn affects their social status including their marital relationship [18]. In the other round, being unable

to have any more children was reported to be the overall concern of the women as a psychosocial feeling in primi-parous women [7,19]. This would be due to the reason that, a woman with no child at all having fistula would be suffering from a childlessness feeling and as such depression became high among these women with obstetric fistula.

The other risk factor found in this study was living with fistula at home for more than 3 months before treatment, and this at least agrees with a report from Kenya that those women lived with fistula for over 3 months were strongly associated with depression following fistula [15]. This would be attributed to the medical and psychosocial problems encountered during the relatively longer time of stay.

This research had come up with a finding that depression was more likely associated with psychosocial consequences after obstetric fistula than medical consequences. If there is a need to confirm and become conclusive of the extent of depression magnitude among obstetric fistula patients as in this report and others in Ethiopia, making it community based or including the rest fistula treatment centers would be important.

5. Limitations of the Study

Noticeably, the inclusion of both the pre-operative and post-operative women would have biased the findings. Furthermore, the study design was cross-sectional, thus it is not possible to determine that depression is pre-existing or currently and some associated factors are risk or consequences. In addition to these, the study is hospital rather than community based and therefore, it cannot be representative to the general fistula patients in the country. The study admits that it used a small sample size which ended up with the odds ratios of wide confidence interval that made it unpowered to explain the relationship between the outcome variable and the independent factors.

6. Conclusions

The study revealed a high prevalence of depression in obstetric fistula patients. However, In comparison with other similar mental health status screening surveys reported in Ethiopia, the prevalence of depression among obstetric fistula patients in this study was relatively lower.

A stillbirth history, perceived lack social support, Separation/divorce with a husband, Parity history of one, living with fistula for over 3months before reporting to a hospital were found to be the most important associated factors of depression among obstetric fistula patients.

7. Recommendations

Incorporating a psychiatric care and treatment including family support with the routine medical care is strongly recommended to all Hamlin Fistula Ethiopia centers and other fistula care and support settings.

Additional social support and counseling services are highly recommended to improve the mental health of obstetric fistula patients.

Further research is required to describe the clinical stages of depression and to know what factors are associated with that of the major depressive disorders in fistula patients.

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Acronyms

AAFH	Addis Ababa Fistula Hospital
AAU	Addis Ababa University
ANC	Antenatal care
BHFC	Bahir Dar Hamlin fistula center
DSM-IV	Diagnostic and statistical manual mental disorders
EPNDS	Edinburgh post natal depression scale
ETB	Ethiopian birr
GHQ-28	General Health Questionnaire twenty eight
GTF	Genital tract fistula
HCM	Hamlin college of Midwives
HFE	Hamlin Fistula Ethiopia
HFCs	Hamlin fistula centers
HHFC	Harer Hamlin Fistula center
MHFC	Mekelle Hamlin fistula center
OF	Obstetric fistula
OR	Odds ratio
OL	Obstructed labor
PHQ-9	Patient health questionnaire nine
PND	Post natal depression
POP	Pelvic organ prolapse
RVF	Recto Vaginal Fistula
UOG	University of Gondar
USAID	United states agency for international development
VVF	Vesico-vaginal fistula
WAHA	Women Health and Alliance
WHO	World health Organization
YHFC	Yirgalem Hamlin Fistula Center

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