

Postpartum Depression and Associated Factors among Mothers Who Gave Birth in the Last 12 Months in Mogadishu Somalia, Community Based Cross-Sectional Study

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Abstract

Postpartum depression (PPD) is a term applied to describe depressive symptoms occurring during the first year of the postpartum period and is characterized by low mood, loss of enjoyment, reduced energy, and activity, marked functional impairment, reduced self-esteem, ideas or acts of self-harm or suicide. The women's change into motherhood is a difficult period that involves significant changes in the psychological, social and physiological aspects, and is considered to increase vulnerability for the development of mental illness. In Somalia, 1 in 20 women aged 15 - 49 die due to pregnancy- or birth-related complications every year. This makes being pregnant in Somalia a risk that has its own stress and anxiety. Objective: To evaluate postpartum depression and associated factors among mothers who gave birth in the last 12 months in Mogadishu, Somalia. Methodology: The study is analytic cross sectional study design in which postpartum depression and its associated factors are measured. We used Cochran's formula ($Z^2 p(1 - p)/d^2$). Results: One fifth of the study population was found to have postpartum depression and the factors relating to it included marital status, substance abuse, mode and place of delivery. Conclusion: This shows that neglected mental health of the mothers in Somalia has its burden on the society. Recommendation: Mental health care

component should be integrated with maternal care programs available in the country to work on prevention and control of motherhood related stress and depression among mothers who are giving birth under the very difficult circumstances in the country.

Keywords

Mental Health, Depression, Childbirth, Postpartum, Postpartum Depression, Stress, Anxiety

1. Introduction

1.1. Background

Postpartum depression (PPD) is a term applied to describe depressive symptoms occurring during the first year of the postpartum period and is characterized by low mood, loss of enjoyment, reduced energy, and activity, marked functional impairment, reduced self-esteem, ideas or acts of self-harm or suicide [1] [2] [3].

Giving birth and having a new baby are emotive experiences, and many women are vulnerable to psychological problems during this time [4] [5].

More recently, researchers have shown that anxiety symptoms and disorders are as common as depression in the postpartum period [6]. Levels of posttraumatic stress disorder (PTSD) following childbirth are also of clinical significance [7].

Postpartum depression (PPD) occurring within the first year after delivery, affects 10% to 25% of women globally [8]. Although PPD is most often associated with maternal mental illness, other indications of mental illness are important to consider [9].

The women's change into motherhood is a difficult period that involves significant changes in the psychological, social and physiological aspects, and considered increase vulnerability for the development of mental illness [10].

Postpartum depression can start at any time within the first year after delivery and continue for several years. In Western countries, the prevalence of PPD varies from 10% to 15% during the first year after birth [11]. According to a systematic review of 47 studies from 18 low and lower-middle income countries, the prevalence is 18.6% (95% CI 18.0 - 19.2). Moreover, another review involving 143 studies from 40 countries found a broader variety of PPD prevalence rates, ranging from 0.5% to around 60% [12].

Postpartum depression becomes serious public health concern in the developing world and is predicted to become the most common cause of disability by the year 2020 associated with increased mortality through suicide also; it contributes to other associated disease [13].

It is one of the most common complications of childbearing and is associated with impairments in mother-infant interactions that can lead to severe consequences for the infant such as illness, developmental delay, and poor growth [14].

In Somalia, 1 in 20 women aged 15 - 49 die due to pregnancy- or birth-related complications every year. This makes being pregnant in Somalia risky and dangerous which carries its own stress and anxiety.

With a total fertility ratio of 6.7 children per woman, a maternal mortality ratio over 1000 deaths per 100,000 live births, high rates of sexual and gender-based violence, and the lowest contraceptive prevalence rate in the world, women's reproductive health indices in Somalia prove alarming. The voices of women living in Somalia have long been neglected [15].

Statement problem

The early postpartum period is a crucial time to improve the health and survival of the newborn and the mother [16].

The women's change into motherhood is a difficult period that involves significant changes in the psychological, social and physiological aspects, and considered increase vulnerability for the development of mental illness [10].

In lifetime, women experienced depression two times more likely than men due to their reproductive nature, caring and rearing of children.

Postpartum depression becomes serious public health concern in the developing world and is predicted to become the most common cause of disability by the year 2020 associated with increased mortality through suicide also; it contributes to other associated diseases [13].

In Somalia 1 in 20 women aged 15 - 49 die due to pregnancy- or birth-related complications every year. This makes being pregnant in Somalia risky and dangerous that has its own stress and anxiety.

With a total fertility ratio of 6.7 children per woman, a maternal mortality ratio over 1000 deaths per 100,000 live births, high rates of sexual and gender-based violence, and the lowest contraceptive prevalence rate in the world, women's reproductive health indices in Somalia prove alarming. The voices of women living in Somalia have long been neglected [15].

There is knowledge gap in understanding the burden of postpartum depression among recently delivered women in Somalia. Mental health of the mother will not be preserved until it's addressed first.

1.2. Aim of the Study

To evaluate postpartum depression and associated factors among mothers who gave birth in the last 12 months in Mogadishu Somalia

1.3. Specific Objectives

- 1) To assess the demographic factors associating with postpartum depression among mothers who gave birth in the last 12 months in Mogadishu, Somalia.
- 2) To determine obstetric factors associating with postpartum depression among mothers who gave birth in the last 12 months in Mogadishu, Somalia.
- 3) To find out the postpartum depression among mothers who gave birth in the last 12 months in Mogadishu, Somalia.

2. Literature Review

In recent years, mental illness in pregnant and postpartum women has become a public health concern. Mental health problems, such as anxiety and depression, are twice as likely to affect women as men [17]. Depression is one of the greatest causes of worldwide maternal mental illness in women of childbearing age.

Postpartum depression (PPD) is a significant public health problem which affects approximately 13% of women within a year of childbirth. Although rates of depression do not appear to be higher in women in the period after childbirth compared to age matched control women (10% - 15%), the rates of first onset and severe depression are elevated by at least three-fold [18].

Depression at this critical period of life carries special meanings and risks to the woman and her family. It is possible to identify women with increased risk factors for PPD, but the unacceptably low positive predictive values of all currently available antenatal screening tools make it difficult to recommend them for routine care [19].

Several postpartum screening tools exist but the optimal time for screening and their applicability to multicultural populations are not yet established. Meta-analysis of depression screening programs generally conclude that depression screening must be combined with systemic paths for referral of cases and well defined and implemented care plans to achieve outcome benefits [20].

Unfortunately PPD remains under diagnosed and undertreated. Research suggests that PPD is amenable to the same treatment interventions as general depression but few randomized controlled trials exist to guide practice and policy for this population [21].

Evidence exists for short term negative effects of maternal PPD on the emotional, behavioral, cognitive, and interpersonal development of young children, but these appear to be time limited. However, prolonged or recurrent periods of maternal depression appear to be more likely to cause longer term effects on children [22].

Public health interventions to reduce or mitigate the impact of PPD on the mother-infant relationship or growth and development of children are nascent and current evidence makes it difficult to recommend them as standard practice [23].

The association between the postpartum period and mood disturbances has been noted since the time of Hippocrates (Miller, 2002). Women are at increased risk of developing severe psychiatric illness during the puerperium. Studies have shown that a woman has a greatly increased risk of being admitted to a psychiatric hospital within the first month postpartum than at any other time in her life [24].

Up to 12.5% of all psychiatric hospital admissions of women occur during the postpartum period. However recent evidence from epidemiological and clinical studies suggests that mood disturbances following childbirth are not significantly different from affective illnesses that occur in women at other times. Population based studies in the USA and the United Kingdom, for instance, have revealed similar rates of less severe depressive illness in puerperal and nonpuer-

peral cohorts. Also, the clinical presentation of depression occurring in the puerperium is similar to major depression occurring at other times, with symptoms of depressed mood, anhedonia, low energy and suicidal ideation [25].

Postpartum depression (PPD) is the most common morbidity among new mothers. PPD is associated with adverse infant and maternal health outcomes including lower breastfeeding initiation rates and early breastfeeding cessation, poor mother-child bonding and interactions and infant developmental disorders or impaired child development [26].

The effects of PPD are not limited to the mother. The newborn, other family members and society as a whole are also affected by extension. Where the mother is unable to breastfeed or to produce enough milk, the infant's health, growth and cognitive development are at risk. The mother and baby are unable to bond [27].

The mother's poor nutrition, as a result of appetite loss or comfort eating, can lead to increased risks of diseases such as anemia, malnutrition or obesity and hypertension. The family can be affected through neglect of family duties and financial strain due to the treatment costs for PPD and low productivity at work [28].

While the cause of PPD remains unknown, it is linked to changes that women go through after delivery. These changes include having to juggle a constantly crying baby, painful and cracked nipples, a painful delivery wound (where a caesarian section or an episiotomy was performed), inadequate breast milk, demands from other family members and sleepless nights, among others. The constant fatigue and stress can slowly lead to depression. PPD can progress to postpartum psychosis if not treated in time [29].

The fate of pregnant women and mothers is particularly precarious in Somalia, as one in 12 women die due to pregnancy-related causes. In 2015, Somalia's maternal mortality rate was 732 deaths per 100,000 live births, making it the third-highest maternal mortality rate in the world.

Access to maternal health services and antenatal care coverage remain low [30].

Only about 26 percent of Somalis have antenatal care coverage, and the number of necessary emergency care facilities for obstetrics is 0.8 per 500,000 people. This means the number of facilities is 4.2 facilities short of the international standard of five facilities per 500,000 people [31].

With a total fertility ratio of 6.7 children per woman, a maternal mortality ratio over 1000 deaths per 100,000 live births, high rates of sexual and gender-based violence, and the lowest contraceptive prevalence rate in the world, women's reproductive health indices in Somalia prove alarming. The voices of women living in Somalia have long been neglected.

3. Methodology

3.1. Study Site and Design

The study is community based focusing on recently delivered mothers in the last

12 months that are living in Mogadishu. Mogadishu is the capital city of Somalia; a home for over 2 million residents according to Somalia PESS population estimate 2020.

Woman of child bearing age living in Mogadishu are 548,984 based on calculation from the Somalia PESS population estimate 2020.

The study is analytic cross sectional study design in which postpartum depression and its associated factors are measured at the same time.

3.2. Study Target Population and Sample Size Calculation

The target of population of the study are recently delivered women (the last 12 months) living in Mogadishu. There is no statically proven estimation number or a study done before regarding recently delivered women in Mogadishu making our target population number unknown.

Since the target population is unknown we used Cochran's formula ($Z^2 p(1 - p)/d^2$). Taking the non-respondent rate in consideration addition of 5% making the calculated sample size 404.

3.3. Sampling Procedure

The study is community based undertaken in Mogadishu and according to Somali PESS population estimate 2020 there are 17 districts. The 17 districts in Mogadishu are grouped randomly into three strata and from each stratum one district was randomly selected (Wardhiigleey, Hamarjajab and Kaaraan).

After randomly selecting the districts two sub districts was randomly selected from each district (Arjantiin and Faanoole from Kaaraan, Hantiwadaag and Horseed from Wardhiigleey, Gaheyr and Horseed from Hamarjajab .Their proportion in the sample size was calculated in respect to the total population number of each district.

3.4. Entry Criteria

All recently delivered women living in Mogadishu that are willing to participate in the study.

3.5. Exclusion Criteria

Those delivered less than 2 weeks and those who are unable to participate in the study for severe medical condition or unable to communicate and those refused to participate in the study were excluded.

3.6. Data Collection Method

In collecting data questioner was utilized to find out postpartum depression and associated factors among mothers who gave birth in the last 12 months in Mogadishu, Somalia.

The demographic and economic characteristics of the mother were assessed following SDHS 2020 with customization. The mother was also asked about her obstetric condition during the last pregnancy.

In assessment of postpartum depression EPDS was adopted to find out the depression of the recently delivered mothers. The Edinburgh Postnatal Depression Scale (EPDS) was developed to assist health professionals in detecting mothers suffering from PPD.

3.7. Data Analysis

In the analysis the raw data was entered to the SPSS program of statistics version 20, in order to analyse data. After data entry, the data was processed and the required information was obtained through the SPSS program. A descriptive statistics and comparison between the groups were made using the binary logistic regression. Association between dependent and independent variables was analyzed by calculating the Odds ratios and 95% confidence level. The processed information was presented through tables and charts.

3.8. Ethical Consideration

Ethical approval for the study was obtained from the researchers and ethics committee of Ministry of health. Participants were informed about the study and all data was collected anonymously to preserve confidentiality.

4. Results and Study Findings

4.1. Socio-Demographic Characteristics

Most of the respondents were in the age group 25 - 34 (50.1%). 58.4% of the respondents lived in Kaaraan, 25% lived in Wardhiigley and 16.6% lived in Hamar Jajab. 64.4% of the respondents were married whilst 23.5% were divorced and 12.1% were widowed.

The majority of the respondents were unemployed (66.1%) and 33.1% were employed. Most of respondents had completed primary school (31.2%). Another 25% of them have completed secondary school whilst only 9.7% and 13.9% have completed a diploma and bachelors degree, respectively. 19.8% can't read nor write according to the survey regarding their educational status.

The monthly income of the respondents were mostly low income receiving in between \$50 - \$350 (90.8%) whilst 8.2% had an income between \$350 - \$700. Only 1% of the respondents had an income greater than \$701. The socio-demographic characteristics are presented in **Table 1**.

4.2. Obstetric and Behavioral Characteristics

Those pregnancies that were planned consisted of 80.9% whilst unplanned pregnancies consisted of 9.1%. According to the outcome of their last pregnancy 89.9% were live births, 6.7% were aborted or still births whilst 3.4% died in the 1st 12 months of life. Regarding the post partum period of the last pregnancy 39.9% of the respondents were <8 months and <12 months whilst 30.9% were between month 3 and 5. 16.3% of the respondents were >5 months to 8 months and 12.9% were <3 months.

Table 1. Socio-demographic characteristics.

Characteristic	Frequency	Percentage
Age of Mothers		
15 - 24	148 (M = 27.52)	36.6%
25 - 34	203 (M = 27.52)	50.2%
35 - 49	53 (M = 27.52)	13.1%
District		
Kaaraan	236	58.4%
Wardhiigley	101	25%
Hamarjajab	67	16.6%
Marital status		
Married	260	64.4%
Divorced	95	23.5%
Widowed	49	12.1%
Education Level		
Can't read nor write	80	19.8%
Primary school	126	31.2%
Secondary school	103	25.5%
Diploma	39	9.7%
Bachelor degree or above	56	13.9%
Occupation status		
Unemployed	267	66.1%
Employed	137	33.9%
Monthly income		
50 - 350\$	367 (M = 233.32)	90.8%
351 - 700\$	33 (M = 233.32)	8.2%
701 - 1000\$	4 (M = 233.32)	1%

According to the number of parities 57.2% of the respondents had 2 - 4 whilst 23% had >4 parities. The respondents that had 1 parity accounted for the smallest group with 19.8%.

Speaking of the mode of delivery 39.9% of the respondents delivered vaginally whilst cesarean section and instrumental deliveries consisted of 30% and 30.1%, respectively.

65.1% of the respondents didn't have a history of an abortion whilst 34.9% did. When asked the place of delivery 85.1% of the respondents delivered in a health facility while the remaining 14.9% delivered at home.

Regarding presence of chronic illnesses the respondents that did not have a chronic illness constituted 59.2% whilst the respondents that did have a chronic illness constituted 40.8%.

Respondents with a previous history of depression were the majority with

68.1% whilst the respondents that didn't have a history of previous depression were 31.9%. When asked if they had encountered a stressful life event the respondents that answered yes constituted 50.2% whilst the respondents that answered no constituted 49.8%.

Regarding the respondent's social support the respondents with moderate support consisted of 58.4% whilst the respondents with poor social support consisted of 41.6%. None of the respondents had strong social support. When asked about substance abuse 94.6% of the respondents didn't have substance abuse behaviors whilst 5.4% did have substance abuse behaviors. These Obstetric and behavioral characteristics are presented in **Table 2**.

Table 2. Obstetric and behavioral characteristics.

Variable		Frequency	Percentage
Type of pregnancy	Planned	327	80.9%
	Unplanned	77	9.1%
Last pregnancy outcome?	Live birth	363	89.9%
	Aborted or still birth	27	6.7%
	Died in the 1 st 12 month of life	14	3.4%
Postpartum period	<3 months	52	12.9%
	3 - 5 months	125	30.9%
	>5 months - 8 months	66	16.3%
	>8 months - 12 months	161	39.9%
Number of parity	1	80	19.8%
	2 - 4	231	57.2%
	>4	93	23%
Mode of delivery	Vaginal delivery	161	39.9%
	Cesarean section	121	30%
	Instrumental delivery	122	30.1%
History of abortion	Yes	141	34.9%
	No	263	65.1%
Place of delivery	Health facility	344	85.1%
	Home	60	14.9%
Presence of chronic illness	Yes	165	40.8%
	No	239	59.2%
Stressful life event	Yes	203	50.2%
	No	201	49.8%
Social support	Poor	168	41.6%
	Moderate	236	58.4%
	Strong	0	0%
Substance abuse	Yes	22	5.4%
	No	382	94.6%

Prevalence of Post-partum depression

According to the EPDS depression scores 80% of the respondents did not have post partum depression whilst 20% of the respondents have Post partum depression. The prevalence is presented in **Table 3**.

4.3. Bivariate Analysis

In this section, the association between postpartum depression and its determinants was assessed.

Among all variables from both demographic and obstetric related factors using binary logistic regressions it shown that 11 variables were found to have association with postpartum depression among respondents using odds ratio of more than 1, among those found to have association with Postpartum depression only 6 had statically significantly association using CI of 95% and P value of less than 0.05.

Regarding the age group of the participants the logistic regression test showed that there is no statistical significant association between age of the respondents and postpartum depression since the P value is greater than 0.05 (0.567). Depression and age group of the respondents are not statistically associated.

In relation to the districts and it's relation to postpartum depression the statistical analysis using chi square test has shown that there is no significant association between them since the P value is greater than 0.05.

Speaking of marital status the odds ratio have shown that divorced and widowed were nearly 5 times more likely to have postpartum depression compared to married respondents 4.764 CI (1.92 - 11.44) it's shown there statically significant association between marital status of respondents and postpartum depression since the P value is less than 0.05 (0.03).

In the assessment of education level and its association with post-partum depression the odds ratio has shown that respondents that can't read and write were 1.34 times more likely to have postpartum depression however there is no statically significant association between educational level and post-partum depression since the P value is greater than 0.05 (0.0782).

The binary logistic regression has shown that there is no statically significant association between occupational status and postpartum depression since the P value is greater than 0.05 (0.679).

Monthly income has shown to have no statically significant association with post-partum depression since the P value is greater 0.05 (0.672) however the odds ratio has shown that mothers with less monthly income are nearly twice

Table 3. Prevalence of post-partum depression.

Post-partum depression (EPDS > 12)	Frequency	Percentage
No	323	80%
Yes	81	20%
Total	404	100%

likely to develop postpartum depression compared to counters 1.984 CI (1.61 - 4.42). Demographic characteristics and its association with postpartum depression are tabulated in **Table 4**.

Obstetric related factors and its association with postpartum depression has been assessed using binary logistic regression method.

Odds ratio has shown that mothers who had un planned pregnancy were 1.66 times more likely to have developed postpartum depression compared to the those with planned pregnancy 1.66 (0.787 - 3.64). On the other hand, it's was found that there statically significant association between type of pregnancy and postpartum depression since the P value is greater than 0.05 (0.0884).

It's shown that post-partum period of the mother has no statically significant association with postpartum depression since the P value is greater than 0.05 (0.096).

Speaking of parity (number of children), the logistic regression has shown that number of parity has no statistical significant association with postpartum depression of the mother since the P value is greater than 0.05 (1.443).

Table 4. Demographic characteristics and its association with postpartum depression.

Factors associated with of PPD	Sig or P value	Odds ration CI
Age of Mothers		
15 - 24	0.567	0.364 CI (0.46 - 2.69)
25 - 34		
35 - 49		
District		
Kaaraan	0.178	1.264 CI (1.1 - 4.86)
Wardhiigley		
Hamarjajab		
Marital status		
Married	0.03	4.764 CI (1.92 - 11.44)
Divorced		
Widowed		
Education Level		
Can't read nor write	0.0782	1.34 CI (0.76 - 5.6)
Primary school		
Secondary school		
Diploma		
Bachelor degree or above		
Occupation status		
Unemployed	0.679	1.13 CI (0.96 - 3.36)
Employed		
Monthly income		
50 - 350\$	0.072	1.984 CI (1.61 - 4.42)
351 - 700\$		
701 - 1000\$		

In respect to mode of delivery the chi square test has shown that mode of delivery of the mother has statically significant association with postpartum depression hence the P value is less than 0.05 (0.03).

Outcome of the last pregnancy (Neonate) has shown to have no statically significant association with post-partum depression since the P value is greater 0.05 (0.0594) however the odds ratio has shown that mothers that have abortions are nearly four and half times more likely to have an Depression compared to the other respondents 4.431 CI (0.74 - 7.86).

The binary logistic regression has shown that history of abortion, history of chronic illness, stressful life event, social support and previous depression has no statically significant association with postpartum depression of mothers since the P value of each is more than 0.05 (0.565, 0.911, 0.756, 0.411, and 0.061 respectively) however the odds ratio found to that have different levels of association with postpartum depression; 1.774 (0.466 - 3.148), 1.469 CI (0.434 - 1.96), 1.14 CI (0.547 - 2.691), 1.651 CI (0.323 - 1.589) and 2.44 CI (0.59 - 1.88).

Substance abuse has been found by chi square test to have statically significant association with postpartum depression since the P value is less than 0.05 (0.01). Mothers with substance abuse are 7.34 times more likely to have postpartum depression compared to others. These obstetric factors and its association with postpartum depression are presented in **Table 5**.

Table 5. Obstetric factors and its association with postpartum depression.

Factors associated with of PPD	Sig or P value	Odds ratio and CI
Type of Pregnancy		
Planned	0.0884	1.66 CI (0.787 - 3.64)
Un planned		
Last pregnancy outcome		
Live birth	0.0594	4.431 CI (0.74 - 7.86)
Aborted or still birth		
Died in the 1 st 12 months of live		
Postpartum period		
<3 months	0.096	0.466 CI (0.785 - 3.868)
3 - 5 months		
>5 months - 8 months		
>8 months - 12 months		
Number of parity		
1	1.443	0.678 CI (0.493 - 1.143)
2 - 4		
>4		
Mode of delivery		
Vaginal delivery	0.03	6.77 CI (2.14 - 9.67)
Cesarean section		
Instrumental delivery		
History of abortion		
Yes	0.565	1.774 (0.466 - 3.148)
No		

Continued

Delivered at		
Health facility	0.02	5.667 CI (1.93 - 12.86)
Home		
Previous depression		
Yes	0.061	2.44 CI (0.59 - 1.88)
No		
Any known chronic illness		
Yes	0.911	1.469 CI (0.434 - 1.96)
No		
Stressful life event		
Yes	0.756	1.14 CI (0.547 - 2.691)
No		
Substance abuse		
Yes	0.01	7.34 CI (1.021 - 13.740)
No		
Social support		
Poor	0.441	1.651 CI (0.323 - 1.589)
Moderate		
Strong		

4.4. Multivariate Analysis

Variables with significant level of P value of <0.25 have being entered in the multivariate analysis to exclude cofounding variable. Six variables have been used for the multivariate analysis; monthly income, previous depression, postpartum period, last pregnancy outcome, type of pregnancy, educational level, and district

After the multivariate analysis only monthly income and last pregnancy outcome was found to have statically significant association with postpartum depression with P value significance level of 0.034 and 0.044 respectively (**Table 6**).

5. Discussion, Conclusion & Recommendation**5.1. Discussion**

The magnitude of postpartum depression was 20% of 404 respondents which was much higher than and little lower than previous studies conducted in Uganda on 2006 [32] and 2021 [33] respectively in which the prevalence of Postpartum depression was found to be 6% and 27% of their study participants respectively.

The prevalence of postpartum depression in this study is much lower than studies conducted in Nigeria [34], Latin America [35], Bangladesh [36] and Pakistan [37] in which the prevalence in these studies was 35.6%, 35% - 47%, 28% - 57%, and 35% - 47% respectively. However, the prevalence of PPD in our study was similar to the findings of the study conducted in Ethiopia which found 22.4% of PPD among study participants [38].

Our prevalence is much higher than studies done in India (12%) [39], Sudan

Table 6. Factors associated with of PPD.

Factors associated with of PPD	Sig or P value	Adjusted ods ratio
Type of Pregnancy regency		
Planned	0.0563	1.66
Un planned		
Last pregnancy outcome		
Live birth	0.044	4.431
Aborted or still birth		
Died in the 1 st 12 months of live		
Postpartum period		
<3 months	0.143	0.466
3 - 5 months		
>5 months - 8 months		
>8 months - 12 months		
Previous depression		
Yes	0.212	2.44
No		
Monthly income		
50 - 350\$	0.034	6.021
351 - 700\$		
701 - 1000\$		
Education Level		
Can't read nor write	0.0521	1.828
Primary school		
Secondary school		
Diploma		
Bachelor degree or above		
District		
Karan	0.0897	1.223
Wardhigley		
Hamar jajab		

(9.2%) [40], Greenland (8.6%) [41]. The higher prevalence can be explained by many factors including the facts that the study is community based and most of the participants (over 90%) were in low income category having an average income of less than 350\$ per months.

The study inclusion was mothers delivered for the last 12 months which gives more sample than studies including only mothers delivered for last 6 months.

The utilized scale for measuring the prevalence of postpartum depression can also be factor for the disturbance of the findings to higher and lower prevalence studies. The scale is not culturally coped with Somali community. This could either give higher or lower magnitude than actual burden of PPD in the community.

Being married was linked with less chance of having postpartum depression. Divorced and widowed mothers were nearly 5 times more likely to have post-

partum depression compared to others. This could be explained by the weight of lonely parenting and taking care of the babies without any support under tough conditions in poor society like Somalia.

Previous depression among mothers was found to have more than 2 times more likelihood to develop PPD compared to center parts, similar to the finding of study in Ethiopia in which the occurrence of postpartum depression was high among women who were previously diagnosed for depression. This is also explained in studies conducted in China and Canada [38].

Last pregnancy outcome was found to have association with postpartum depression; mothers who had abortion or still birth were nearly 5 times more likely to have PPD compared to the counter parts.

Substance abuse has being linked with postpartum depression since it was found in this study users mothers were 7 times more likely to have postpartum depression compared to the non users [42]. The study findings is similar to the finding of the study in Ethiopia in which substance abuser mothers were nearly 5 times more likely to have PPD [43].

5.2. Conclusion

One fifth of the study population was found to have postpartum depression using EPDS. This shows that neglected mental health of the mothers in Somalia has its burden on the society. The prevalence of postpartum depression is high according to this study which demands cautiously planned strategies to eliminate the threat and make safe motherhood possible.

Factors relating with postpartum depression that have found by this study are, marital status, Substance abuse, place of delivery and mode of delivery.

Giving birth to child is big moment in mothers and she must have the support she needs for optimal parenting. The psychological transformation of the mothers during and after child birth should be given greater attention and that is what this study foremost of the factors related to the postpartum depression were preventable and/or modifiable factors emphasizing the need for action and consideration for mothers mental health.

5.3. Recommendations

1) Measure should be taken to enhance mothers delivering at health centers in aspects of disseminating equipped health centers with capacity of maternal care as well as production of well-trained skilled birth attendants since mothers are still giving birth at homes by non-skilled traditional birth attendant whom with the mother goes through dangerous obstetric complication that damages which indeed causes mental health damage.

2) Motherhood and parenting possess huge psychological transformation, peer discussion support should be organized for the before, during and after child birth for optimal emotional and psychological support.

3) Mental health care component should be integrated with maternal care

programs available in the country to work on prevention and control of motherhood related stress and depression among mothers who are giving birth under the very difficult circumstances in the country.

4) Family planning and ensuring that mothers have their right to plan for pregnancy is needed for optimal psychological stability of the mother. Community awareness, pills that enforce women rights for family planning and child spacing as well as providing the means to have safe family planning methods should be worked on with all stake holders including community leaders, women rights organization local authorities and federal parents members to ensure sustainable family planning programs for all mothers in Somalia.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Dear Sir/Madam

Before administering the survey cover the following:

- Introduce yourself and where you are from.
- Share with the interviewee that the purpose of the survey is to assess the magnitude of depression and associated factors among mothers who gave birth in the last 12 months in Banadir - Mogadishu.
- Only mothers who gave birth in the last 12 months should be interviewed.
- Emphasize that the information shared will be kept confidential.
- Share with the interviewee that the interview will take approximately 30 minutes.
- At the end of the introduction ask if the respondent is willing to participate in the survey, and be sure to thank them for their time.

Please take your time and mark responses on the survey and write clearly when required.

PART ONE: General and Socio-Demographic Questions.

- 1) Age
 - a) { }
- 2) Marital status
 - a) Married { }
 - b) Widowed { }
 - c) Divorced { }
- 3) Educational Status
 - a) Can't read and write { }
 - b) Primary { }
 - c) Secondary { }
 - d) Diploma { }
 - e) Degree and Above { }
- 4) Occupational Status
 - a) Employee { }
 - b) Unemployed { }
- 5) Monthly income
 - a) { }

PART TWO: Obstetrics and behavioral characteristics

- 1) Pregnancy type?
 - a) Planned { }
 - b) Unplanned { }
- 2) Last Pregnancy outcome?
 - a) Live { }
 - b) Aborted/still birth { }
 - c) Died in 1st 12 months of live { }
- 3) Post-natal period?
 - a) <3 months { }

- b) 3 - 5 months { }
- c) 6 - 8 months { }
- d) 9 - 12 months { }
- 4) Number of parities?
 - a) 1 { }
 - b) 2 - 4 { }
 - c) >4 { }
- 5) Mode of delivery?
 - a) Vaginal { }
 - b) Cesarean section { }
 - c) Instrumental delivery { }
- 6) History of abortion?
 - a) Yes { }
 - b) No { }
- 7) Place of delivery?
 - a) Health facility { }
 - b) Home { }
- 8) Presence of chronic illness?
 - a) Yes { }
 - b) No { }
- 9) History of previous depression?
 - a) Yes { }
 - b) No { }
- 10) Stressful live event?
 - a) Yes { }
 - b) No { }
- 11) Social support?
 - a) Poor { }
 - b) Moderate { }
 - c) Strong { }
- 12) Substance use?
 - a) Yes { }
 - b) No { }

PART THREE: Features of Post-Partum Depression.

- 1) I have been able to laugh and see the funny side of things:
 - a) As much as I always could ____ (0) { }
 - b) Not quite so much now ____ (1) { }
 - c) Definitely not so much now ____ (2) { }
 - d) Not at all ____ (3) { }
- 2) I have looked forward with enjoyment to things:
 - a) As much as I ever did ____ (0) { }
 - b) Rather less than I used to ____ (1) { }
 - c) Definitely less than I used to ____ (2) { }

- d) Hardly at all ____ (3) { }
- 3) I have blamed myself unnecessarily when things went wrong:
- a) Yes, most of the time ____ (3) { }
- b) Yes, some of the time ____ (2) { }
- c) Not very often ____ (1) { }
- d) No, never ____ (0) { }
- 4) I have been anxious or worried for no good reason:
- a) No, not at all ____ (0) { }
- b) Hardly ever ____ (1) { }
- c) Yes, sometimes ____ (2) { }
- d) Yes, very often ____ (3) { }
- 5) I have felt scared or panicky for no good reason:
- a) Yes, quite a lot ____ (3) { }
- b) Yes, sometimes ____ (2) { }
- c) No, not much ____ (1) { }
- d) No, not at all ____ (0) { }
- 6) Things have been getting to me:
- a) Yes, most of the time I haven't been able to cope at all ____ (3) { }
- b) Yes, sometimes I haven't been coping as well as usual ____ (2) { }
- c) No, most of the time I have coped quite well ____ (1) { }
- d) No, I have been coping as well as ever ____ (0) { }
- 7) I have been so unhappy that I have had difficulty sleeping:
- a) Yes, most of the time ____ (3) { }
- b) Yes, sometimes ____ (2) { }
- c) No, not very often ____ (1) { }
- d) No, not at all ____ (0) { }
- 8) I have felt sad or miserable:
- a) Yes, most of the time ____ (3) { }
- b) Yes, quite often ____ (2) { }
- c) Not very often ____ (1) { }
- d) No, not at all ____ (0) { }
- 9) I have been so unhappy that I have been crying:
- a) Yes, most of the time ____ (3) { }
- b) Yes, quite often ____ (2) { }
- c) Only occasionally ____ (1) { }
- d) No, never ____ (0) { }
- 10) The thought of harming myself has occurred to me:
- a) Yes, quite often ____ (3) { }
- b) Sometimes ____ (2) { }
- c) Hardly ever ____ (1) { }
- d) Never+