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ORIGINAL RESEARCH

Prevalence and Associated Factors of Postpartum Depression among Postpartum Women in Mahatma Gandhi Memorial Hospital of Addis Ababa, Ethiopia: An Institutional Based Cross-Sectional Study

Nardos Tesfahun[1] and Dereje Bayissa Demissie[2*]

[1]Santé Medical College School of Health Science, Department of Public Health, Addis Ababa, Ethiopia

[2]Associate Professor of Maternity and Reproductive Health, School of Nursing, St. Paul's Hospital Millennium Medical College, Addis Ababa Ethiopia

***Corresponding author:** *Dereje Bayissa Demissie, BSc, MSc/MRH, PhD, Associate Professor of Maternity and Reproductive Health Nursing, Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia*

Abstract

Background: Postpartum depression (PPD) is a universal mental illness that explains various groups of depressive symptoms and syndromes that occur during the first year after birth. Untreated postpartum depression has serious long-term adverse effects on both the mothers and their children. Despite its massive effects, particularly in low- and lower-income countries, women and clinicians do not adequately understand it.

Objective: To assess postpartum depression and its associated factors in mothers attending the Mahatma Gandhi Memorial Hospital of Addis Ababa, Ethiopia.

Method: A facility-based cross-sectional study was conducted at Mahatma Gandhi Memorial Hospital among 344 systematically randomly selected postpartum women, and data were collected using a structured interviewer-administered questionnaire. The collected data were cleaned, edited, and fed into a computer for analysis, using Statistical Package for Social Science (SPSS) version 23.0. To identify factors associated with postpartum depression, binary logistic regression and multiple regression analyses were performed at a level of significance of p-value < 0.05 adjusted odds ratios (AOR) with 95% CI was used in the final model.

Results: The complete response rate was 97.4% (of 335/344). This study determined the magnitude of postpartum depression and found that 87 participants (25.97%) had postpartum depression. Higher educational level was a protective factor, with the dependent variable having 0.243 (75.7%) odds of post-partum depression [AOR = 0.243(95% C.I: 0.1-0.6)], difficulty with income [AOR = 2.0 (95% C.I: 1.0-3.8)], hospitalized children [AOR = 2.6 (95% C.I: 1.2-6.0)], and unplanned pregnancy [AOR = 2.0 (C.I: 1.0-4.1)] were associated with postpartum depression. Those who had unsatisfied marital relations [AOR = 3.6 (95% C.I: 1.7-7.6)] had higher odds of postpartum depression compared to their counterparts, and relative mental illness [AOR = 11.9 (95% C.I: 2.5-57.3)] were more likely to be depressed.

Conclusion and recommendations: Postpartum depression is a common mental health problem at the postpartum period by revealing the prevalence and factors that determine postpartum depression. Therefore, policymakers and health planners should strengthen the integration of mental health services with existing maternal health care and inter-sector collaboration between women's affairs and health institutions to decrease Postpartum depression among postpartum women.

Keywords

Depression, Maternal mental health, Postpartum depression

Abbreviations

AOR: Adjusted Odds Ratio; CDC: Communicable Disease Controls; CI: Confidence Interval; EPDS: Edinburg Postnatal Depression Scale; ETB: Ethiopian Birr; FMOH: Federal Ministry of Health; LLICs: Low- and Lower-Income Countries;

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IPV: Intimate Partner Violence; PNC: Postnatal Care; PND: Postnatal Depression; PPD: Postpartum Depression; SPSS: Statistical Package for Social Sciences; WHO: World Health Organization

Plain Language Summary

Postpartum depression is a prevalent mental health issue that affects mothers and their children during the first year after childbirth. A study conducted at Mahatma Gandhi Memorial Hospital found that 25.97% of postpartum women experienced depression. Factors contributing to this include difficulties with income, hospitalized children, and unplanned pregnancies. Higher education was found to be a protective factor, while relative mental illness and dissatisfaction with marital relationships were significant. Policymakers and health planners should strengthen the integration of mental health services with maternal healthcare and collaborate with women's affairs and health institutions. The government should enable women to attend school and work together to ensure financial stability. Family guidance should raise awareness of unplanned pregnancies and counseling regarding marriage. Accredited training providers should provide continuous training to healthcare providers to modify their client care. Regular preventive screenings should be performed during antenatal and postnatal follow-up. Religious institutions, society leaders, and parents should increase their perception of the impact of happy marriages. Further research on postpartum depression is needed to identify associated risk factors.

Background

Postpartum depression is a universal mental illness that affects women of any age, race, or gender. or social background within the first year after birth and is characterized by crying more often than usual, sadness, disturbed sleep or appetite, irritability, disconnection from the baby, feeling guilty about not being a good mother, and doubting the ability to care for the baby [1]. A systematic review revealed that after childbirth, women experience a large drop in estrogen, progesterone, and thyroid levels, which leads to fatigue and depression. These rapid hormonal changes, along with changes in blood pressure, immune system functioning, and metabolism that new mothers experience may trigger postpartum depression [2].

Most women experience some symptoms of baby blues immediately after childbirth. The baby's blues are perfectly normal, but if symptoms do not disappear after a few weeks or worsen, the woman may suffer from postpartum depression. They may feel more tearful, overwhelmed and emotionally fragile [2].

According to a CDC report in 2012, the global estimation of postpartum depression ranges from 5% to-25% but the procedural discrepancy with the studies formulates the real prevalence rate as unclear [3].

Almost all women are vulnerable to mental health problems during pregnancy and after childbirth in the first year. However, there are major factors that lead to postpartum depression. These contributing factors include poverty [4-6] recently, substance use [7-9], unintended pregnancy [7-13], low social support [4,7,9,11-14], young age [7,10,15], preventable marital condition [8,10,11,14], domestic violence [7,15-17], previous psychiatric illness [4,7,9,11], unemployment [13,18], and loss of a baby or having an infant hospitalized [5,8,10,11,14,18]. Postpartum depression, as a disorder of public health importance, affects the perception of women's quality of life. A study revealed that 21.8% of postpartum depression had significantly poor perceptions in all four domains, that is, in the physical health, psychological, social relationships, and environmental domains [19].

Mothers with postpartum depression tend to interact less with their babies and are less likely to breastfeed, play, and read to their children. A study on the effect of PND on breastfeeding revealed that 80% of mothers dropped exclusive breastfeeding within the first three months [20].

The birth of a newborn baby is considered a joyful event; therefore, mothers maybe embarrassed to express their depressive feelings, which can be a barrier to the early detection and treatment of postpartum depression. Postpartum depression requires urgent efforts from health care professionals and health decision makers to screen for and identify this highly prevalent, high-burden, preventable condition, and then apply measures to decrease its effects on mothers, babies, and the entire family [4]. The provision of care varies depending on sociodemographic and cultural factors; therefore, it is difficult to determine the prevalence and associated risk factors of PPD worldwide. Despite its massive effects, little is known regarding postpartum depression in Ethiopia. Therefore, this study aimed to address this gap.

Method

Study setting and period

A facility-based cross-sectional study design was employed at the Mahatma Gandhi Memorial Hospital, Addis Ababa, from September 2020 to October 2020. Mahatma Gandhi Memorial Hospital is located in Kirkos sub-city and beside of Red Cross near the Addis Ababa stadium. It is the only Government Maternity and neonatal Hospital in Ethiopia. According to information from the Medical Director, the hospital has approximately 450 clinical and nonclinical staff. The monthly delivery attendance at the hospital is approximately800, including spontaneous vaginal delivery and cesarean section. It has over 1000-beds and performs monthly outpatient consultations of about 50,000 and inpatient admissions of around 5,000.

Study population

The source populations were all women who came for postnatal care and vaccination services within 12 month after delivery in Mahatma Gandhi Memorial Hospital of Addis Ababa, Ethiopia and all women who received postnatal care and vaccination services.

The study population consisted of all sampled women who visited the postnatal care and vaccination service within 12 months after delivery at the Mahatma Gandhi Memorial Hospital of Addis Ababa, Ethiopia.

Inclusion criteria

All women who visited postnatal care and vaccination services within 12 months of delivery in the selected institutions during the data collection period and consented to participate in the study were included.

Exclusion criteria

Women who were seriously sick or unable to respond to questions were excluded from the study.

Operational and terms definition

Postpartum partum depression, according to the Edinburgh postnatal depression Scale (EPDS), questions 1, 2, and 4 were scored as 0, 1, 2, and 3, with the first choice scored as 0 and the last choice scored as 3. Questions 3, 5-10 were reversely scored, with the first and last choices scored as 3 and 0, respectively. After summing all scores, women who scored ≥ 13 were considered to have postpartum depression.

Postpartum depression: Women who experience depressed mood, excessive crying, difficulty bonding with the baby, withdrawing from family and friends, loss of appetite or eating much more than usual, inability to sleep, overwhelming fatigue, or loss of energy.

Normal postpartum (not depressed): Mothers who scored < 13 on the cut-off point of the EPDS.

Domestic violence: Any behaviour within an intimate relationship that causes physical, psychological, or sexual harm, and is reported by mothers with yes or no items. Mothers were categorized as victims of domestic violence when they experienced any harm (physical, psychological, or sexual) in their intimate relationship.

Social support: The perception and actuality that one is cared for with assistance from other people.

Data collection instruments and methods

A structured interviewer-administered questionnaire was used to gather information from mothers who came for postnatal and vaccination services based on validated tools adopted from previously published literature and the Edinburgh Postnatal Depression Scale guidelines (EPDS). Training was provided to the data collectors for one day before the survey. This process occurred throughout the data collection period and culminated at the end of the study period. The data were checked daily for completeness and entered into a computer. It is composed of two sections.

The questionnaire was designed in English, translated into the local Amharic language, and then back-translated into English by a third person (general practitioner) to check for consistency. The tool consists of five parts. Part one involved eight questions about sociodemographic characteristics, Part 2 involved seven questions concerning obstetric factors, and part three consisted of two questions on past psychiatric history and part four involved five questions related to social support.

The 10 questions of the Edinburgh Postnatal Depression Scale (EPDS) are a valuable and efficient way to identify patients at risk of postnatal depression. This indicates how the mother felt during the previous 7 days. Cronbach's alpha reliability Items test results for the Edinburgh Postnatal Depression Scale (EPDS) was 0.757.

Sample size determination

The required sample size was determined using a single-population proportion formula; the proportion of postpartum depression in Mizan-Tepi was 33.82%. Considering a 5% non-response rate, the final sample size was 344.

Sampling procedure and technique

First out of ten sub-cities found in Addis Ababa city government, three sub cities namely Kirkos, Arada and Gulele were selected using simple random sampling method. Second, out of three institutions (Mahatma Gandhi Memorial Hospital, Yekatit 12 Hospital Medical College, and St. Paul's Hospital Millennium Medical College) found in the three selected sub-cities, Mahatma Gandhi Memorial Hospital was selected using a lottery method. Systematic random sampling was used to select women included in the study. To identify the interval, the average number of women expected per day was divided by the number of women to be interviewed per day from the respective institution, using the office hours we were taking the first client and every third woman who visited the postnatal care and vaccination service of the hospital during the data collection period were included and interviewed.

Quality assurance

To ensure data quality, a pre-test was conducted at Zewditu Memorial Hospital, and the accuracy of responses, language clarity, and appropriateness of the data collection tools were considered prior to the actual data collection. In addition, data were collected by BSc Nurses, and training was provided for one day on information about the research objective, eligible study subjects, data collection tools and procedures, and interview methods. The confidentiality of the

participants throughout the data collection process was also discussed during training. The researcher checked for completeness and consistency of the questionnaires on the day of collection to ensure the quality of the data, and also visited the data collectors as many times as possible to check whether they collected the data appropriately.

Data analysis

The data were coded, cleaned, and entered using Epi-data version 3.1 and exported to the Statistical Package for Social Science (SPSS) version 23.0. Inconsistencies and missing values were assessed using running frequencies and other data explorations. Bivariate analysis was performed to determine which independent variables were associated with the dependent variable. Independent variables with marginal associations p-value < 0.25) in the bivariate analysis, which are biologically plausible, and those variables that showed significant association in previous studies were entered into a multivariable logistic regression analysis to detect associations with postpartum depression. Finally, adjusted odds ratios (AOR) with 95% CI were estimated to assess the strength of associations, and statistical significance was declared at a p-value < 0.05. The results are presented in Tables, figures, and text.

Results

Socio-demographic characteristics

A total of 344 post-partum women were requested to participate in this study, out of which 335 (97.4%) responded fully to all questions. The mean age of the respondents was 28.05 (Standard deviation, SD = 4.530) and the median age was 28 years (range; 18-38 years). Of the study participants, 284 (84.8%) were married. Majority, 280 (83.6%) had attended formal education. One hundred nineteen (35.5%) respondents were unemployed. One hundred and eleven (33.1%) participants said that it was difficult to manage their income (see Table 1).

Obstetric and clinical characteristics

Obstetric and clinical characteristics of the study participants are shown in Table 2. Of all the respondents, 83 (24.8%) reported that it was their first pregnancy and 85 (25.4%) declared that it was unplanned.

Furthermore, one-fourth of the participants, 89 (26.6%) had a history of abortion, and 68 (20.3%) were delivered by cesarean section. In addition, 69 (20.6%) had suffered from illnesses during their pregnancy, 18 (5.4%) mothers mentioned that they experienced the death of a child, and 44 (13.1%) had hospitalized their babies in their lifetime (See Table 2).

Personal and family history of depression among postpartum women

Family and previous history of depression among the participants are presented in Table 3. A total of 45 (13.4%) had a history of postpartum depression. In addition, 46 participants (13.7%) had a family history of depression (Table 3).

Social support among postpartum women

The social support participants gained during pregnancy and childbirth is presented in Table 4. Seventy-one participants (21.2%) of the study subjects reported experiencing domestic violence. Most participants were satisfied with their marriage; however, 67 (20%) reported that their relationship with their husband was unsatisfactory, and 74 (22.1%) of the respondents lacked assistance from their husbands. It has also been reported that 40 (11.9) of the respondents' relatives

Table 1: Socio-Demographic characteristics among postpartum women's, from Mahatma Gandhi memorial hospital of Addis Ababa, Ethiopia, (N = 335).

Characteristics		Frequency	Percent
Age in years	15-24	69	20.6%
	25-34	232	69.3%
	≥ 35	34	10.1%
Marital status	Married	284	84.8%
	Unmarried	51	15.2%
Education Status	No formal education	55	16.4%
	Primary School	63	18.8%
	Secondary School	86	25.7%
	Diploma	79	23.6%
	Degree and above	52	15.5%
Occupational Status	Employed	216	64.5%
	Unemployed	119	35.5%
Difficult with income	Yes	111	33.1%
	No	224	66.9%

Table 2: Participants obstetric and clinical characteristics among postpartum women's, from Mahatma Gandhi memorial hospital of Addis Ababa, Ethiopia, (N = 335).

Characteristics		Frequency	Percent
Number of Pregnancy	1	83	24.8%
	2-3	219	65.4%
	≥ 4	33	9.8%
Unplanned pregnancy	Yes	85	25.4%
	No	250	74.6%
Mode of delivery	Vaginal	243	72.5%
	Cesarean Section	68	20.3%
	Instrumental delivery	24	7.2%
History of abortion	Yes	89	26.6%
	No	246	73.4%
Illness during Pregnancy	Yes	69	20.6%
	No	266	79.4%
Experience death of a baby	Yes	18	5.4%
	No	317	94.6%
Any of children Hospitalized	Yes	44	13.1%
	No	291	86.9%

Table 3: Personal and family history of depression among postpartum women's, from Mahatma Gandhi memorial hospital of Addis Ababa, Ethiopia, (N = 335).

Characteristics		Frequency	Percent
Previous history of Depression	Yes	45	13.4%
	No	290	86.6%
Relatives suffered from mental illness	Yes near relatives	11	3.3%
	Yes distant relatives	35	10.4%
	No	289	86.3%

Table 4: Social support among postpartum women's, from Mahatma Gandhi memorial hospital of Addis Ababa, Ethiopia, (N = 335).

Characteristics		Frequency	Percent
Abuse/domestic violence	Yes	71	21.2%
	No	264	78.8%
Satisfy with Marriage	Yes	268	80%
	No	16	4.8%
	More or less	51	15.2%
Husband support	Yes	261	77.9%
	No	74	22.1%
Relatives present during labor	Yes	295	88.1%
	No	40	11.9%

were not present at the health facilities during labor (see Table 4).

Prevalence of postpartum depression

Of all respondents, 87 (25.97%) had postpartum depression, and the postnatal depression score ranged from 0 to 27 in the overall sample (Table 5). A total of 108 (32.2%) participants scored ≤ 5. Nine respondents (2.68%) scored ≥ 20 points. while only one (0.29%) scored 27. with a cutoff point ≥ 13, 87 (25.97%) patients scored above the cutoff point and were considered to have postpartum depression (Figure 1).

This study determined the magnitude of postpartum depression and found that 87 (25.97%) participants had postpartum depression, with a 95% CI of (21.5 to 31.0%).

Table 5: EPDS (Edinburgh postnatal depression scale) responses among postpartum women's, from Mahatma Gandhi memorial hospital of Addis Ababa, Ethiopia, (N = 335).

Characteristics		Frequency	Percent
Experienced laugh and see funny side of things	As much as always I could	203	60.6
	Not quite so much now	44	13.1
	Definitely not so much now	54	16.1
	Not at all	34	10.1
Look forward with enjoyment to things	As much as I ever did	152	45.4
	Rather less than I used to	62	18.5
	Definitely less than I used to	78	23.3
	Hardly at all	43	12.8
Blamed yourself unnecessarily	No never	154	46.0
	Not very often	58	17.3
	Yes sometimes	84	25.1
	Yes most of the time	39	11.6
Been anxious or worried for no good reason	No not at all	159	47.5
	Hardly ever	81	24.2
	Yes sometimes	72	21.5
	Yes very often	23	6.9
Felt scared or panic for no good reason	No not at all	149	44.5
	No, not much	55	16.4
	Yes, sometimes	100	29.9
	Yes, quite a lot	31	9.3
Things have been on top of you	No I have been coping	130	38.8
	No most of the time	46	13.7
	Yes sometimes I haven't been coping as well as usual	125	37.3
	Yes most of the time I haven't been able to cope at all	34	10.1
Difficult to sleep	No, not at all	89	26.6
	Not, very often	70	20.9
	Yes sometimes	134	40.0
	Yes most of the time	42	12.5
Felt sad or miserable	No, not at all	149	44.5
	Not, very often	70	20.9
	Yes, quite often	84	25.1
	Yes, most of the time	32	9.6
So unhappy you have been crying	No, never	195	58.2
	Only occasionally	89	26.6
	Yes quite often	33	9.9
	Yes, most of the time	18	5.4
Thought of harming your self	Never	325	97
	Hardly ever	6	1.8
	Sometimes	4	1.2
	Yes, quite often	0	0

Table 6: Multivariable logistic regression analysis of postpartum depression (N = 335).

Variable	Category	PPD		AOR	95% CI	P-value
		Yes	No			
Educational Status	No formal education	23	32	1.00		
	Primary School	21	42	0.443	0.187, 1.048	0.064
	Secondary School	16	70	0.243	0.100, 0.588	0.002**
	Diploma	19	60	0.237	0.089, 0.630	0.004**
	Degree and above	8	44	0.26	0.081, 0.839	0.024*
Difficult with income	Yes	43	68	2.007	1.049, 3.840	0.035*
	No	44	180	1		
Hospitalized Children	Yes	19	25	2.645	1.153, 6.066	0.022*
	No	68	223	1		
Unplanned pregnancy	Yes	33	52	2.099	1.063, 4.145	0.033*
	No	54	196	1		
Relative mental illness	Yes near relatives	8	3	11.942	2.486, 57.375	0.002**
	Yes distant relatives	16	19	3.039	1.269, 7.276	0.013*
	No	63	226	1		
Marriage Satisfaction	No	6	10	1.565	0.435, 5.631	0.493
	More or less	21	30	3.597	1.695, 7.635	0.001***
	Yes	47	221	1		

***pv < 0.001, **p < 0.01, *p < 0.05, CI: Confidence Interval; COR: Crude Odd Ratio; AOR: Adjusted Odd Ratio, pv: p-value

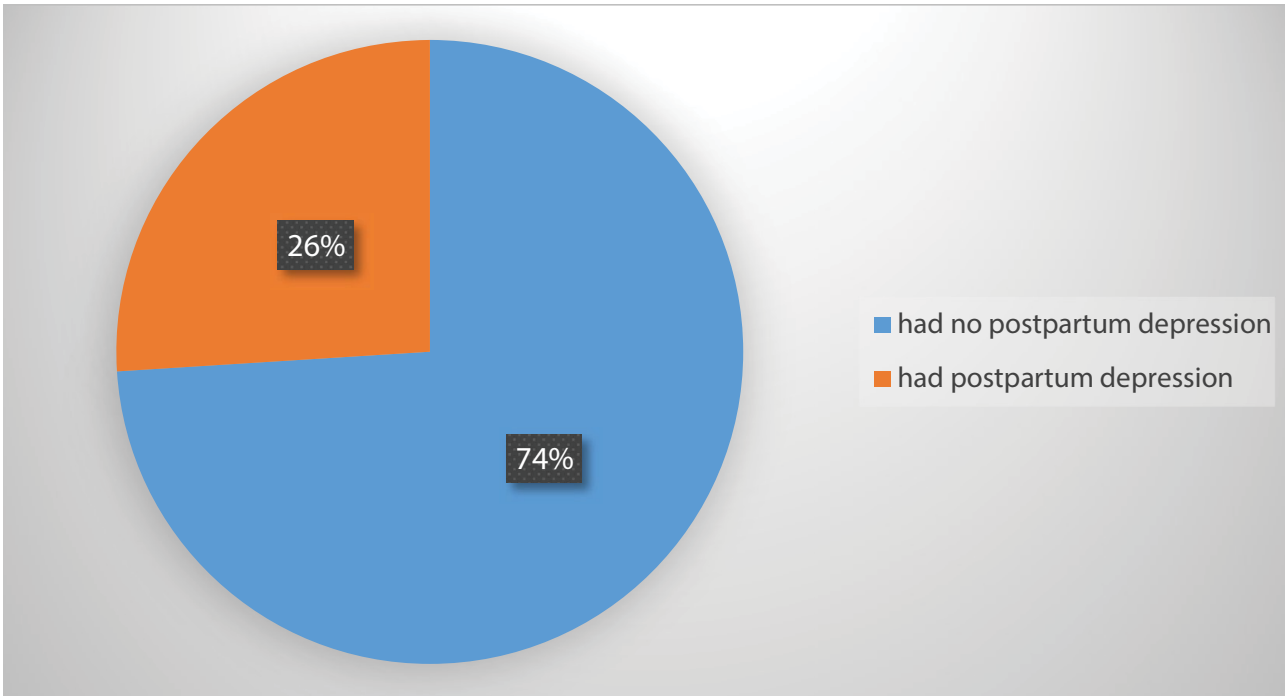

Figure 1: Categorical prevalence was not mentioned 26% had postpartum depression and 74% had no postpartum depression.

Factors associated with postpartum depression at binary logistic regression analysis

Binary Logistic regression was performed to assess the association between each independent variable and outcome variable (postpartum depression) with (p-value < 0.25). Variables that showed a significant level of significance (p-value < 0.05) were added to the multivariable regression model.

This model contained seven independent variables (educational status, income difficulty, history of hospitalized children, mode of delivery, unplanned

pregnancy, history of relative mental illness, and marital satisfaction).

Factors associated with postpartum depression at multivariable logistic regression analysis

Multivariate analysis showed that the six variables were significantly associated with postpartum depression. The mode of delivery was not significantly associated with postpartum depression, although it was associated with binary logistic regression analysis (Table 6).

Discussion

The findings of this study indicate the prevalence and associated factors of postpartum depression among a sample of postnatal women who gave birth at the Mahatma Gandhi Memorial Hospital of Addis Ababa, Ethiopia. The study participants were women who visited postnatal and vaccination services.

The study included 87 (25.97%) patients with a 95% CI of (21.5 to 31.0%). The participants were depressed during the postpartum period. These values are higher than those reported in similar studies conducted in northern Jerusalem Nablus (9%), Bangladish (20%), Kenya (18.7%), Nekemit (20.9%), Debrebirhan (15.6%), Sudan (9.2%), Tanzania (20.5%), and Soddo (12.2%) [4,6,9,14,16,21-23]. This result implies that a significant proportion of women experience postpartum depression; hence, maternal mental health problems are becoming a substantial concern for which services are urgently required. However, it was lower than that reported in studies conducted in East South Africa Eswatin (47.4%), Mizan tepi (33.82%), the West coast of India Gujarati (48.5%), and Bale (31.5%) [10,13,24,25]. Discrepancies in estimation might be due to the different tools, cutoff point values used to classify mothers as depressed or not depressed, assessment period, methods, and economic status. One-fourth of the study participants had postpartum depression. This finding was in line with the studies conducted in Nepal (30%), India (22%), Syria (28.2%), Addis Ababa (23.3%), Bench maji (22.4%) and Ankasha (23.7%) [7,8,11,18,26,27].

This study found that participants who attended higher levels of school were less likely to report postpartum depression than those who attended lower levels of education. [AOR = 0.243 (95% C.I: 0.1-0.6)]. This result is in agreement with that of a cross-sectional study conducted among 410 postnatal women in India. PPD increased with higher levels of maternal education. It was 9-17 times higher in the secondary, higher secondary, and degree levels than in the primary level [28]. This might be due to the fact that educated women were more involved in outside work, so they had less time to manage the baby as well as household work. Work-related stress might also be a contributing factor. However, this finding was in line with other findings in Japan, where lower education level was a risk factor for postpartum depression. In view of the low mobility of education levels, this finding suggests the potential importance of collecting information regarding education levels at the earliest opportunity [29].

Another significant association found in this study was difficulty in managing income, in which postpartum depression was significantly higher among participants who had income problems [AOR = 2.0 (95% C.I: 1.0-3.8)] than their respective reference groups. This result is consistent with studies conducted in Bangladesh, Turkey, Addis Ababa, and Ankasha [5,6,8,11]. The reason for women's depression might be that mothers who have money constraints are overstressed, giving their children all things that they think.

Furthermore, participants who had hospitalized children were found to be significantly associated with the outcome variable [AOR = 2.6 (95% C.I: 1.16-6.0)]. This result was consistent with a study conducted among postnatal women in Turkey, Ankasha and Debrebirhan [5,11,14]. This might be because negative life events have the greatest influence on an individual's mental status. It also might be because they were frightened about the loss of their infant and the economic payment for the baby's treatment.

Mothers who had unwanted pregnancies were also a determinant factor for postpartum depression [AOR = 2.0 (95% C.I: 1.0-4.1)]. This finding is in agreement with many studies conducted in different areas, such as swatin, addis ababa, bench maji, Nekemit, Mizan and Ankasha [7-11,13]. This might be because unplanned pregnancy has a greater effect on maternal health by negatively affecting mothers' psychology, and it can also cause economic burden and social judgment, which in turn can cause postpartum depression.

Another significant association found in this study was between depression and a history of relative mental illness, in which postpartum depression was significantly higher among participants who had close relatives with mental illness. [AOR = 11.9 (95% C.I: 2.5-57.3)]. This finding is consistent with that of another study conducted at the University of Colorado on the Heritability of postpartum depression, which implied that PPD is a serious, relatively common disorder that has lifelong implications for women and their families. Although anecdotal evidence suggests that PPD is inherited, epidemiological evidence supporting this claim remains inconclusive. Women's personal and perhaps family history may put them at increased risk of PPD and can be a valuable tool, serving to heighten awareness of the disorder's early symptoms and treatment options [30]. Another study conducted in the Johns Hopkins School of Medicine on Family history, not lack of medication use, was associated with the development of postpartum depression in a high-risk sample and found that 53.3% of those who developed

PPD had an immediate family member with a history of PPD. A family history of PPD was associated with PPD development in women who were clinically well before delivery. The use of psychiatric medications during pregnancy may not protect against PPD in high-risk women, particularly in those with a family history of PPD [31].

Other variables that were significantly associated with post-partum depression were unhappy relationships with husbands [AOR = 3.5 (95% C.I: 1.6-7.6)]. This finding is in line with studies done in Kenya, Addis Ababa and Kampala [8,21,31]. The reason for this dissatisfaction might be due to women's over-expectations of marriage.

Conclusion

Postpartum depression is a common mental health problem at the postpartum period. This study found that 25.97% of respondents had postpartum depression, which is a significantly high value. This study also reported that different factors contributing to the occurrence of postpartum depression, such as difficulty with income, hospitalized children, and unplanned pregnancy, were associated with postpartum depression. Higher education level was found to be a protective factor against PPD. Relative mental illnesses and unsatisfactory marital relationships were highly significant in this study.

Strengths and Limitations of the Study

The Study addressed women not only in the first 6 weeks after delivery but also 12 months after delivery. Data were collected using a standardized validated tool.

Limitations of the Study

The study could not show cause-and-effect relationships, for example, to decide whether PPD is a risk or consequence.

Recommendation

Policymakers and health planners should strengthen the integration of mental health services with existing maternal healthcare and inter-sector collaboration between women's affairs and health institutions to decrease Postpartum depression among postpartum women.

The Ministry of Health should prepare policies for integrating mental health services with prenatal care, especially postpartum care.

The government should enable women to attend schools and work collaboratively to be self-sufficient and financially stable.

Family guidance should create further awareness about unplanned pregnancies and marriage counseling in the community using different mass media.

Accredited training providers should provide continuous training for all healthcare providers, especially nurses, midwives, and health officers, to modify client care by including psychological support with PNC.

Healthcare providers should pay attention to and perform regular preventive screening during antenatal and postnatal follow-ups for women with hospitalized children, a history of mental health problems, and relatives with mental illness.

Stakeholders

Religious institutions, society leaders, and parents should increase their perceptions of the impact of happy marriages among the society.

Further research on postpartum depression using different study designs, setups, and sample sizes is needed to investigate the future risk factors associated with postpartum depression.

Author Contributions

'NT contributed to the conception, design, and conduct of the study, analyzed and interpreted the data, and prepared the manuscript; DBD contributed to the design and conduct of the study, analyzed and interpreted the data, and prepared the manuscript. All authors have read and approved the final manuscript.

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Ethical Considerations

Ethical approval was obtained from the research ethics committee of Santé Medical College School of Health Science Department of Public Health. Ethical clearance was obtained from Addis Ababa Public Health Research and Emergency Management Directorate. Permission was obtained from the responsible body of Mahatma Gandhi Memorial Hospital. Written informed consent was obtained from each participant after the investigator explained the nature, purpose, and procedure of the study. Data providers' anonymity and confidentiality were strictly maintained. Participants were assured that their participation was voluntary

and that they had the right to withdraw or refuse to provide information at any time in the study without any penalty.

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Competing Interests

The authors declare there are no competing interests.

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