Postpartum depression and associated factor among mothers attending public health centers of Yeka sub city, addis ababa Ethiopia

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A B S T R A C T

Postpartum depression (PPD) is a major public health concern that affects both the mother's health and the development of the child.Postpartum depression is defined by the American Psychiatric Association (APA) as the development of a Major Depressive Episode (MDE) within four weeks of birth. The rate of postpartum depression statistics is lacking in developing countries. This indicates that the data can be much higher if diagnosed and reported.There for this study assessed the magnitude of postpartum depression and its associated factors among mothers attending selected public health center of Yeka sub city, Addis Ababa, Ethiopia.

Method and materials: An institutional-based cross-sectional approach was conducted from December 2021 to January 2022 among 454 postpartum women. A single population proportion equations was used to calculate the sample size for this investigation.A multi-stage sampling method was applied based on the health center they are attending.One of the eleven sub-cities in Addis Abeba, Ethiopia, was chosen for this procedure using a simple random selection technique. Furthermore, four health centers from the selected sub-city were chosen using simple random selection.For data collection, structured questioners were utilised.The Edinburgh Postnatal Depression Scale, also known as the EPDS, was used to assess participants' postpartum depression. The data was validated, coded, and entered into Epi-data before being exported to SPSS for analysis. Bivariable and multivariable logistic regression were used. *P*-values less than 0.05 were deemed statistically significant.

Result: The overall prevalence of postpartum depression was 23.8 % [95 % CI (20–27.8)].Being single [AOR = 7.4, 95 % CI (4.2–12.9)], having complications during pregnancy [AOR = 2.1, 95 % CI (1.16–3.82)], Bottle feeding immediately after birth [AOR = 0.3, 95 % CI (0.13–0.66)], and having low perceived psycho-social support [AOR = 3.5, 95 % CI (1.4–8.5)] were significantly associated with postpartum depression.

Conclusion and recommendation: The current study found that post postpartum depression is highly prevalent among women. As a result, we recommend that to have regular screening, follow up and mental health care in postnatal periods of pregnancy. Because the period following childbirth is stressful, especially for new mothers, emotional and psychosocial support should be provided both in the community and in health care settings. **Keywords:**Postpartum depression, Women, Edinburgh Postnatal Depression Scale (EPDS),Ethiopia.

1. Introduction

Postpartum depression is defined by the American Psychiatric Association (APA) as the development of a Major Depressive Episode (MDE) within four weeks of birth [1].Depression is the most prevalent affective disease; it can range from Mild (bordering on normalcy) depression to severe (psychotic) depression accompanied by hallucinations and delusions [2].Postpartum depression (PPD) is a major public health concern that affects both the mother's health and the development of the child [3]Chronic dismay, feelings of

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guilt, sleep difficulties, suicidal thoughts, worry about hurting the infant, loss of appetite and reduced sexual desire, difficulty reasoning rationally or making choices, and the occurrence of obsessive or inflated ideas are all symptoms of post-partum depression [4].Neuropsychiatric disorders, particularly ones that may occur throughout after childbirth, account for around 14 % of the global disease burden [5].Depression is the third greatest cause of disability worldwide, trailing only lower back pain and headache disorders. Depression also contributes significantly to the worldwide disease burden. In 2017, depression affected 264 million individuals worldwide [6].

Postpartum depression affects 37.7 % of women in Chile and 3.1 % in Singapore [7], while the prevalence of PPD within Asian women ranges from 6.1 % to 67.4 % [8,9].According to cross-sectional research, depression in the postpartum period affects 27.7 % of Ugandans [10], 35.6 % of Nigerians [11], 18.7 % of Kenyans [12], 30.5 % of Zimbabweans [13], 30 % of Tanzanians [14], 10.9 % of Sudanese [15], 31 % of Botswana [16], and 23.36 % of Cameroonians [17].Furthermore,cross-sectional study in Southwest Ethiopia showed 33.82 % prevalence [18], Debre Berhan, Ethiopia 15.6 % [19], North West Ethiopia 23.7 % [20] and 23.3 % Addis Ababa [21].

More over, Socio-demographic features such as like younger maternal age [20,22], maternal age >35 [23], women who are un-married or separated, Lower level of education [24], unemployed women [25,26], Women who had low income [24] been discovered to be linked to postpartum depression.In contrast, depressive symptoms such as previous depression history [27], women with a a prior record of postpartum depression [28,29]family history of depression [30,31] are the factors linked with postpartum depression.

Obstetric complications such as risky pregnancy, labour complications, and breastfeeding problems [25], unplanned pregnancy and miscarriage or still birth [18,32], fetal sex [11], having birth complications or baby death at birth [12], mode of delivery [33], women with ill infants and hospitalized [19], and mode of breastfeeding [33]. Finally, psychosocial issues such as women who received no or minimal support and Women's relationships with their husbands [24,34] were found to enhance the incidence of PPD.

Even though some interventions are a shining light on the problem, PPD still remained undetected because women or mothers experiencing symptoms of PPD remains unrecognized and poorly understood due to the lack of information provided to them during ANC follow-up.Since PPD is not being recognized by both health professionals and the mothers themselves, it's not being properly treated. Thus, the purpose of the research is to assess the incidence of postpartum depression and its related characteristics within women visiting public health facilities in the Yeka subcity of Addis Abeba, Ethiopia.

2. Materials and methods

2.1. Study setting

From December 2021 to January 2022, the study was carried out at health centers in the Yeka sub-city of Addis Abeba, Ethiopia. There are 11 sub-city and 116 woreda municipalities in Addis Abeba, as well as 12 state-owned hospitals, 98 public medical centers, 31 privately owned hospitals, and 700 private medical clinics of various level.Yeka Sub-City is an area in Addis Ababa, the main city of Ethiopia. The Sub-City has 15 public health institutions.Under the Ethiopian healthcare system, each health care facility is intended to serve 25 000 people. However, each health center in a metropolitan area is anticipated to serve between 40 000 and 50 000 people. Midwifery nurses, nurse practitioners, health officers, lab technicians, and pharmacists. Additionally, Emergency surgeons and anaesthesia professionals are on staff at several public health facilities [35].

2.2. Study design and population

Institutional based cross-sectional study was carried out.

2.3. Study population

2.3.1. Inclusion criteria
The investigation included all women in the aftermath of delivery up to one year following birth who lived in Yeka sub-city and were available throughout the data collection period.

2.3.2. Exclusion criteria
Those who were unable to converse because of to a serious health condition were not eligible.

2.4. Sample size determination

[21], This study's sample size was determined using a single population proportion formula with the following assumptions: p = 23.3 % [21], a confidence interval of 95 %, and a five percent margin of error. Using the single population percentage, the number of samples size needed is 275. The total sample size was 454, after accounting for the design effect of 1.5 and the 10 % non-response rate.

2.5. Sampling procedure

The public health facilities were chosen using a multiple-stage sampling process. Initially, one sub-city (Yeka) was chosen using a simple random sampling approach from among the ten discovered in Addis Abeba. Then, using a lottery system, four health centers were chosen from a total of 11 discovered in Yeka sub-city.were included in the research we conducted throughout the data gathering

period. The total quantity of postnatal women who attended the public healthcare facilities which were questioned in each health institution was allocated proportionally, and an estimate was established based on the quantity of postnatal women who attended each public health facility in the three months prior to the survey.

2.6. Data collection instrument and procedure

The data was obtained using a structured questioner among women attending immunization clinic from selected health centers. The question was distributed through direct interview. The contents of the questioner have 5 sections which are the sociodemographic, previous history of psychiatric history, obstetric and infant factors, psychosocial factors, and EPDS scale.The 10-question The Edinburgh Postnatal Depression Scale (EPDS) is an instrument designed to aid in the identification of suspected postnatal depression symptoms.EPDS score between 1 and 9 shows the existence of certain distress symptoms that may be short lived and are less likely to impair daily capacity to perform within the home or at workplace.EPDS scores of 10–12 indicate a relatively high likelihood of depression, whereas EPDS scores of 13 and higher indicate probable depression.The cutoff point for PPD screening was 12 with an overall score of 30 as a score for feasibility.The cut off point used for this study is > 12 having depression and≤12 have no depression. Positive score (1,2,3) on question number 10 show risk of self-harm or suicide [24,36].

2.7. Data collection

Data was collected using BSC nurses in immunization clinic and with supervision of one health officer in each health center. The interview took place from January to February 2022.This survey had 446 participants, yielding a response rate of 97.3 %. Additionally, the study participants included in this study were women up to a year after birth.

2.8. Study variable

Postpartum depression was the dependent variable in this research. Independent variables include: socio-demographic variables: (Age, marital status, educational status, economic status), Prior psychiatric history, Obstetric and infant factors: (unplanned pregnancy, pregnancy problems, mode of delivery, breastfeeding practice and infant death or illness), Psycho-social factors (marital satisfaction, support from husband, care from family, and assistance from friends).perceived social support was assessed using (multidimensional scale of perceived social support). The scale has a total of 12 elements, with four items for each sub-scale. To calculate mean scores: Significant Other Sub-scale: Sum across items 1, 2, 5, & 10, then divide by 4. Family Sub-scale: Sum across items 3, 4, 8, & 11, then divide by 4. Friends Sub-scale: Sum across items 6, 7, 9, & 12, then divide by 4. Total Scale: Sum across all 12 items, then divide by 12. any mean scale score ranging from 1 to 2.9 considered low support; a score of 3–5 considered moderate support; a score from 5.1 to 7 considered high support [37].

2.9. Statistical analysis

After ensuring that the obtained data was complete and consistent, it was entered into Epi-data version 3.02 and exported to SPSS version 25 for analysis.To express descriptive results, frequency with percent and mean with standard deviation were computed. A binary logistic regression was performed to determine the crude association between each independent variable by viewing the crude odds ratio (COR) result.Variables in the bi-variable analysis with a p-value< 0.25 were candidates for multi-variable binary logistic regression analysis and adjusted odds ratio (AOR) with 95 % CI were calculated. For the multi-variable analysis, variables with a p-value< 0.05 were considered statistically significant.

2.10. Data quality management

To assure the data quality, all parts of the measuring instrument used in the study or questionnaire was first prepared in English then translated to Amharic and back again to English to prevent possible misunderstanding and misinterpretation. Brief training and explanation on the objective of the study and the questioner was given to 8 BSc nurses and 4 health officers at the 4 selected health centers.The questioner was also pretested, and regular supervision of the data collection process was also made to increase the completeness, accuracy, and consistency of the data. The EPDS data collection tool is valid in Ethiopia with EPDS generated sensitivity, specificity and misclassification rates of 78.9 %, 75.3 % and 24.0 %, respectively.To check the reliability of the data we calculated cronbach alpha result of EPDS tool in this study is 0.81.

2.11. Ethical consideration

The study was approved by the ethics committee of sante medical collage, department of reproductive health" with ethical clearance Number SMC/RH/5/23. Additionally, ethical clearance was obtained from Addis Ababa public health research and emergency management directorate. Further more, authorization was obtained from the selected health centers. Written informed consent was obtained from all the study participants and from the legal guardians of the participants who were below 16 years of age, and their names were not written on the questionnaire.Every participant was informed about the right to decline their participation at any time. The participants were briefed in detail about the independence of the study from the service they get. And most of all, they were

informed that, the information provided were strictly confidential.

3. Results

3.1. Socio-demographic characteristics

Table 1 shows that a total of 446 participants were enrolled in this study, making 97.3 % response rate. All the participants were female and the mean age of participants were 1.07 with standard deviation of 0.704. Among those who took From the total participants, 344 (77.1 %) were married. One third (33.6 %) of the participants attended secondary education while their spouses were (39.7 %). About Half of the study subjects were between the ages of 25 and 34.

3.2. Obstetric characteristics

Table 2 shows that all the participants (100 %) have given birth. Most of the respondents 287 (64.3 %) had more than one child and had planned pregnancy. About one third 148 (33.2 %) had complication during pregnancy and Hypertension accounted for 78 (17.4 %) of the complication. Three hundred twenty (71.7 %) had spontaneous virginal delivery and three hundred fifty-eight (80 %) started breast feeding immediately after childbirth.

4. Previous psychiatric characteristics

Table 3 shows Sixty-one (13.7 %) and seventy-seven (17.3 %) of the respondents stated that they had personal history of depression and family history of mental illness, respectively.

5. Perceived psycho-social support characteristics

Table 4. The total mean score of MSPSS was 5 ± 1.1, significant others sub-scale was 5.16 ± 1.211, Friends sub scale was 4.7 ± 1.327 and Family sub-scale was 4.7 ± 1.327. Majority of the participants 279 (62.6 %) had high social support while 35 (7.8 %) had low social support.

Table 5 Shows 7.8 % has low Perceived Psycho-social Support while 29.6 % has moderate support.

The overall prevalence of women with risk of postpartum depression among the participants was 23.8 % [95 % CI (20, 27.8)]. Eight (1.8 %) of participants were "unable to laugh and see funny side of things "and ten (2.2 %) had "difficulty in looking forward with

Table 1

Sociodemographic characteristics of women during the postpartum period characteristics among women in postpartum period, in selected health centers of Yeka sub city, Addis Ababa, Ethiopia, 2022. (N = 446).

Variables	Category	Frequency	Percentage
Age	15–24	95	21.3
	25–34	223	50
	≥35	128	28.7
Marital status	Married	344	77.1
	Single	109	22.9
Educational level	No formal education	55	12.3
	Primary education	57	12.8
	Secondary education	150	33.6
	Collage/University	184	41.3
Occupation	Housewife	100	22.4
	Government	167	37.5
	Self employed	137	30.7
	Student	42	9.4
Occupation of spouse	Governmental	165	37
	Student	116	26
	Self-employed	104	23.3
	other	61	13.7
Educational level of spouse	No formal education	6	1.3
	Primary education	56	12.6
	Secondary education	177	39.7
	Collage/University	207	46.4
Income	≤3200	117	26.2
	3201–7800	209	46.9
	7801-10,900	73	16.4
	≥10 900	47	10.5
Gender of your baby	Male	221	46.6
	Female	225	50.4
Desired sex of baby	Yes	396	88.8
	No	50	11.2

Table 2

Obstetric characteristics of women during the postpartum period, in selected health centers of Yeka sub city, Addis Ababa, Ethiopia, (N = 446).

Variables	Category	Frequency	Percentage
Do you have children	Yes	446	100
Number of children	Nulliparous (1)	159	35.7
	Multiparous (2–3)	184	41.2
	Multiparous (≥4)	103	23.1
Planned Pregnancy	Yes	287	64.3
	No	159	35.7
Complications during pregnancy	Yes	148	33.2
	No	298	66.8
Type of complication during pregnancy	Bleeding	54	12.1
	Hypertension	78	17.4
	Infection	16	3.6
	No Complication	298	66.9
Place of delivery	Governmental hospital	163	36.5
	Health center	194	43.5
	Private facility	87	19.5
	Home	2	4
Mode of delivery	Spontaneous vaginal	320	71.7
	Caesarean section	126	28.3
Complication after childbirth	Yes	117	26.2
	No	329	73.8
Type of feeding immediately after birth	Breast-feeding	358	80.3
	Bottle-feeding	88	19.7
Trouble feeding baby	Yes	189	42.4
	No	257	57.6
Infant illness after birth	Yes	254	57
	No	192	43

Table 3

Previous Psychiatric characteristics of women during the postpartum period, in selected health centers of Yeka sub city, Addis Ababa, Ethiopia, (N = 446).

Variables	Category	Frequency	Percentage
Personal History of depression	Yes	61	13.7 %
	No	385	86.3 %
Family History of mental illness	Yes	77	17.3 %
	No	369	82.7 %

Table 4

Perceived Psycho-social Support characteristics of women during the postpartum period, in selected health centers of Yeka sub city, Addis Ababa, Ethiopia, (N = 446).

MSPSS	Mean ± SD	Range
Family support subscale	4.7 ± 1.327	1–7
Friends support subscale	4.7 ± 1.327	1–7
Significant support subscale	5.16 ± 1.211	2–7
Total social support score	5 ± 1.1	2–7

Table 5

Total Score of Perceived Psycho-social Support of women during the postpartum period, in selected health centers of Yeka sub city, Addis Ababa, Ethiopia, (N = 446).

Variables	Category	Frequency	Percentage
Perceived Social Support	Low support	35	7.8
	Moderate support	132	29.6 %
	High support	279	62.6 %

Prevalence of women with the risk postpartum depression.

enjoyment in things". Among the participants 22 (4.9 %) had "the thought of self harm". Experiencing laugh and seeing funny side of things of participants was 0.73 h (SD ± 0.83). Participants who Look forward with enjoyment to things was with a mean value of 0.65 (SD ± 0.877). The mean scores of Blaming yourself unnecessarily, Been anxious or worried for no good reason, Felt scared or panic for no good reason, Things have been on top of you, Difficult to sleep, Felt sad or miserable were 1.43(SD ± 0.911), 1.17 (SD ± 0.96),1.75

(SD ± 0.886),1.66 (SD ± 0.955), 2.16 (SD ± 0.97) and 2.08 (SD ± 0.925) respectively. In the present study, being So unhappy having been crying with mean value of 2.4 and standard deviation of 0.825 and Thought of harming your self was with mean value of 2.76 and standard deviation of 0.530 .Finally, Edinburgh postnatal depression scale in Table 6 shows that 50 % women Experienced laugh As much as always could.

5.1. Factors associated with postpartum depression

The bi-variable logistic regression analysis in Table 7, nine variables showed significant association as presented in Table 7. All variables with (p value < 0.25) in the bi-variable analysis were added in the multi-variable analysis. From total nine variables included in the logistic regression model; four variables were found to be statistically significant. Accordingly, marital status, Complication during pregnancy, type of feeding immediately after birth and perceived psychosocial support were demonstrated to have statistically significant association with postpartum depression.

Single were seven times [AOR = 7.4, 95%CI (4.2, 12.9) more likely to experience post-partum depression than married women. Participants having complication during pregnancy were two times [AOR = 2.1, 95%CI (1.16, 3.82) more likely to encounter post-partum depression than a person with out complication during pregnancy. It was also identified that participants with bottle feeding immediately after birth were 0.3 times more likely to increase the odds of post-partum depression than their counterparts. Finally, Women with low psycho-social support were 4 times [AOR = 3.5, 95 % CI (1.4–8.5)] more likely to incur post-partum depression than a Women with high psycho-social support.

6. Discussion

The present study was intended to investigate the prevalence and associated factors of postpartum depression among mothers in

Table 6
EPDS (Edinburgh postnatal depression scale) responses of women during the postpartum period among women in postpartum period, in selected health centers of Yeka sub city, Addis Ababa, Ethiopia, (N = 446).

Variables	Category	Frequency	Percentage
Experienced laugh and see funny side of things	As much as always could	223	50
	Not quite so much now	130	29.1
	Definitely not so much now	85	19.1
	Not at all	8	1.8
Look forward with enjoyment to things	As much as I ever did	268	60.1
	Rather less than I used to	78	17.5
	Definitely less than I used to	90	20.2
	Hardly at all	10	2.2
Blamed yourself unnecessarily	Yes, most of the time	65	14.6
	Yes, some of the time	191	42.8
	Not very often	125	28
	No, never	65	14.6
Been anxious or worried for no good reason	No, not at all	142	31.8
	Hardly ever	121	27.1
	Yes, sometimes	149	33.4
	Yes, very often	34	7.6
Felt scared or panic for no good reason	Yes, quite a lot	29	6.5
	Yes, sometimes	157	35.2
	No, not much	156	35
	No, not at all	104	23.3
Things have been on top of you	Yes, most of the time I haven't been able to cope at all	60	13.5
	Yes, sometimes I haven't been coping as well as usual	124	27.8
	No, most of the time I have coped quite well	169	37.9
	No, I have been coping as well as ever	93	20.9
Difficult to sleep	Yes, most of the time	28	6.3
	Yes, sometimes	95	21.3
	Not very often	99	22.2
	No, not at all	224	51.2
Felt sad or miserable	Yes, most of the time	18	4
	Yes, quite often	120	26.9
	Not very often	116	26
	No, not at all	192	43
So unhappy you have been crying	Yes, most of the time	25	5.6
	Yes, quite often	23	5.2
	Only occasionally	148	33.2
	No, never	250	56.1
Thought of harming your self	Yes, quite often	22	4.9
	Sometimes	62	13.9
	Hardly ever	71	16
	Never	291	65.2

Table 7

Bivariate and multivariate logistic regression analysis of postpartum depression (N = 446).

Variable	Categories	Women with the risk of PPD		COR (CI 95 %)	AOR (CI 95 %)
		No (%)	Yes (%)		
Age	15–24	58	37	3.6 (1.93–6.92)	2.3 (0.97–5.66)
	25–34	173	50	1.6 (0.92–2.9)	1.8 (0.86–3.6)
	≥35	109	19	1	1
Marital status	married	297	47	1	1
	single	43	59	8.6 (5.2–14.6)	7.4 (4.2–12.9)[a]
Educational level	No formal education	47	8	0.7 (0.3–1.8)	0.6 (0.2–1.8)
	Primary education	38	19	2.2 (1.2–4.4)	1.8 (0.8–4.1)
	Secondary education	104	46	2.1 (1.2–3.3)	1.06 (0.5–2.1)
	College/University	151	33	1	1
Planned pregnancy	Yes	229	58	1	1
	No	111	48	1.7 (1.1–2.6)	1.2 (0.6–2.4)
Complication during pregnancy	Yes	101	47	1.8 (1.2–2.9)	2.1 (1.16–3.82)[a]
	No	239	59	1	1
Mode of delivery	Spontaneous	232	88	1	1
	Caesarian section	108	18	0.4 (0.2–0.7)	0.51 (0.254–1.06)
Type of feeding immediately after birth	Breast feeding	262	96	1	1
	Bottle feeding	78	10	0.3 (0.1–0.7)	0.3 (0.13–0.66)[a]
Infant illness after childbirth	Yes	175	79	2.7 (1.6–4.4)	1.7 (0.93–3.1)
	No	165	23	1	1
Psycho-social support	Low support	15	20	5.5 (2.6–11.5)	3.5 (1.4–8.5)[a]
	Moderate support	100	32	1.3 (0.8–2.1)	0.75 (0.4–1.4)
	High support	225	54	1	1

COR:Crud odds ratio,AOR:Adjusted odds ratio.

[a] *Significant at P-value < 0.05.*

public health facilities of Yeka sub city. As a result, global score of Edinburgh Postnatal Depression Scale recognized 23.8 % [95 % CI (20, 27.6)] of participants to suffer from postpartum depression in preceding one month before the study. This observation is consistent with the outcomes of the following investigations., 23 % in Canada [38], 23.4 % in Cameroon [17] and 23.3 % in Addis Ababa [21]. In contrast the current study is less than studies in Chile (37.7 %), Nigeria (35.6 %) [33], Zimbabwe (30.5 %), Uganda (27.7 %) [10], 25 % North west Ethiopia [39] and South west Ethiopia (33.82 %) [18]. The differences in prevalence of postpartum depression among studies may be due to differences in study population, sample size and use of different cut-off points in studies using EPDS, as well as cultural factors, different study area, and difference in investigation tool. For example, in the Nigerian study, the sample size is different [33]. The study in Zimbabwe included both urban and rural populations, resulting in a higher prevalence than our study, which solely included urban residents [33]. However, unlike the current study, which employed a health center as the study site, the study in southwest Ethiopia used a hospital, which could explain the difference [18].Nonetheless, the current study's prevalence of PPD was higher than that of three other studies done in different parts of Ethiopia, including Harar [40], Debre Berhan [41], and eastern Ethiopia [42] PPD incidence was found to be 13.11, 15.6, and 16.3 %, respectively. This disparity could be attributed to methodological and socio-demographic variations among study participants.

The present study identified marital status, complication during pregnancy, type of feeding immediately after birth and perceived psycho-social support as determinant factors of Postpartum depression.

Being Unmarried and divorced were associated with an increased odds of Post-Partum Depression.Similar findings were reported from a study done in south west Ethiopia [18], China [22] and Czech Republic [31].This could be due to the death of a significant other, which places a psychological and financial strain on the women, as well as a lack of support from a previous relationship.

This study also discovered that moms who experienced problems throughout their pregnancy were twice as likely to be depressive as mothers who did not experience complications. Studies in Bangladesh [32], Kenya [12], Nigeria [33], and Debre Birhan, Ethiopia [19] found the same association as the current study.Pregnancy complications can include any condition that necessitated hospitalization or a Caesarean section. Anaemia can result from severe vaginal bleeding or postpartum haemorrhage, and women are more likely to feel tiredness, impaired cognitive abilities and emotional issues as a result of PPD [43].The plausible reason for this could be because a mother's body undergoes an exciting transition that is both physical and emotional, and the existence of complications can lead to despair [34].

As of the present study's result, mothers who didn't start breast feeding immediately after birth have demonstrated higher odds postpartum depression than mothers who started breast feeding immediately after birth. This is congruent with studies in China [22], Pakistan [44] and systemic review in middle east [34].The logical explanation is that good nursing involves skin-to-skin contact, which enhances mother-infant bonding. Skin-to-skin contact influences maternal-infant touch behaviours, particularly affectionate touch, through increasing oxytocin release. Oxytocin is a hormone that is created during and after childbirth. It increases sociability and trust among people while decreasing fear and anxiety [24].

Mothers who had low social support were five times more likely to be depressed than women with moderate/high social support. This finding is in line with studies in Nigeria [33], North west Ethiopia [20], China [22], middle east [34] and Canada [45]. The justification for this finding could be because mothers feel safer and more protected which increases their self-esteem [10,46].

Furthermore, mothers begin to open out about their concerns and trouble [13,34].Women should be healing from the stress of pregnancy, birth, and physiological adaption after childbirth throughout the post-partum period. To alleviate postpartum stress, moms should seek social support from their husbands/partners, family members, and friends. Social support can help to prevent PPD and its consequences, as well as improve mothers' positive self-images and quality of life [47].

Finally, this study is not without limits. Because the study is cross-sectional, the cause-effect link between independent variables and postpartum depression cannot be demonstrated. Another problem of this study could be recall bias.Furthermore, different data collectors were used, which may have contributed to interviewer bias.

7. Conclusion and Recommendation

One quarter of the women in this study showed postpartum depression and had significant associations with being single and divorced, having complication during pregnancy, not breast feeding after birth and having low perceived psycho social support.As a result, we recommend that to have regular screening, follow up and integrated mental health care in postnatal periods of pregnancy. Because the period following childbirth is challenging, particularly for new mothers, emotional and psycho-social help should be given in the community as well as in health care settings to lower the threat of depression.Finally, future researchers should explore other potential risk variables not discovered in this study.

Ethics approval and consent to participate

The study was approved by the ethics committee of sante medical college, department of reproductive health with ethical clearance Number SMC/RH/5/23 and all experiments were performed in accordance with relevant guidelines and regulations.Written informed consent was obtained from all the study participants and from the legal guardians of the participants who were below 16 years of age.

Consent for publication

Not applicable.

Data availability statement

Data will be made available up on request.

Additional information

No additional information is available for this paper.

CRediT authorship contribution statement

Winta Tesfaye: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Bezawit Ashine:** Writing – review & editing, Writing – original draft, Validation, Resources, Methodology, Formal analysis, Data curation, Conceptualization. **Hiwot Tezera:** Writing – review & editing, Writing – original draft, Validation, Resources, Methodology, Formal analysis, Data curation, Conceptualization. **Tseganesh Asefa:** Writing – review & editing, Writing – original draft, Validation, Resources, Methodology, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

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

Acronyms/abbreviations

AOR   Adjusted Odds Ratio
COR   Crude Odds Ratio

CS	Cesarean-section
DSM	Diagnostic and Statistical Manual of Mental Disorders
EPDS	Edinburg's postnatal depression scale
HS	Health center
ICD	International classification of Disease
MSPSS	Multidimensional Scale of Perceived Social Support
PPD	Postpartum depression
WHO	World Heath Organizations

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