Postpartum depression and associated factors in Afar Region, northeast Ethiopia

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ABSTRACT

Background: To effectively address the burden of postpartum depression (PPD), it is crucial to gain a comprehensive understanding of its magnitude and the factors associated with it in the pastoral and hot region of the Afar Region. This will help identify the progress made thus far and highlight areas that require further attention to accelerate efforts toward reducing the impact of PPD. Notably, no previous study has examined the prevalence and associated factors of PPD specifically in pastoral communities within Ethiopia, including the Afar Region. Accordingly, we investigated the prevalence and associated factors of PPD among postpartum women in the Afar Region, Northeast Ethiopia.
Methods: An institution-based cross-sectional study was conducted in the Awsi Rasu Zone of Afar Regional State from June to July 2021. The study employed a systematic random sampling method to select a total of 302 postpartum mothers who had visited the Expanded Program of Immunisation (EPI) clinics in public health facilities within the Awsi Rasu Zone of the Afar Region. The measurement of PPD was performed using the Edinburgh Postnatal Depression Scale (EPDS). Multivariable binary logistic regression modelling was used to investigate associations between sociodemographic, obstetric and health service, and psychosocial factors with PPD.
Results: The overall prevalence of PPD was 37.4% with a 95% confidence interval (CI) from 32.0% to 43.0%. Postpartum women who attained high school education were associated with a lower odds of PPD compared to those who did not attain formal schooling (adjusted odds ratio [AOR] = 0.31; 95% CI: 0.12, 0.82). Postpartum women with a family history of mental illness (AOR = 2.34; 95% CI: 1.24, 4.41), those who had trouble in infant feeding (AOR = 4.26; 95% CI: 2.32, 7.83), and those who experienced intimate partner violence (AOR = 3.09; 95% CI: 1.58, 6.04) were positively associated with PPD.
Conclusion: The results of our study revealed that the prevalence of PPD in the Awsi Rasu Zone of the Afar Region is higher than both the national and global averages. The findings also

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highlighted the need for targeted interventions addressing the needs of pastoral postpartum women who experience various stressors, such as feeding difficulties and intimate partner violence.

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1. Introduction

Postpartum depression (PPD) is the second most common complication associated with childbirth after caesarean section [1] and is characterised by symptoms such as fatigue, social withdrawal, sadness, changes in sleeping and eating patterns, anxiety, and guilt (inability to care for the infant), and crying [2,3]. Beck described PPD as a thief that steals motherhood [4]. Although the precise cause of depression remains unknown, postpartum women face an elevated risk of developing depression due to a combination of genetic and environmental factors [5–8]. For instance, women with a family history of mental illness have an increased susceptibility to PPD, as they may share certain genes with their relatives that make them more vulnerable to mental health conditions. Additionally, they may also encounter stressful life events and other environmental risk factors [9].

PPD exerts detrimental effects on various aspects of a woman's life, as well as her partner/spouse, the infant, older children, and the entire family unit [10,11]. Previous studies have documented the adverse consequences of PPD, including a decline in women's overall quality of life [12,13] and strained relationships with their partners and sexual well-being [14,15]. Moreover, heightened rates of addictive behaviors [16] and have been reported among affected individuals [17]. Because depressed mothers talk less to their infants, express fewer positive facial emotions, and show less positive physical affection, PPD can have permanent effects on their children's psychological and physical well-being [18–20]. Previous researchers indicated that children of mothers with PPD are associated with a raised rate of insecure infant attachment [21], impaired cognitive development [22], and an elevated rate of behavioural and emotional problems [23,24].

PPD is common, affecting more than 17% of postpartum women worldwide [18], and depressive episodes can be as much as two times higher than in other periods of a woman's life [25]. The global magnitude of PPD increased by 18.4% between the years 2005 and 2015 [26]. Wide variations in PPD have also existed across global regions, and Southern Africa recorded the highest with 40%, while Oceania had the lowest prevalence of PPD (11.1%) [18].

In Ethiopia, a systematic review conducted by Tolossa et al. revealed varying prevalence rates of PPD across different regions. The study reported a range of 12.2% in the Soddo district [27] to 33.8% in the Mizan Tepi Hospital study [28]. Additionally, the overall prevalence of PPD in Ethiopia was found to be 22.9% [29], which was higher than the global (17.2%) [18] and sub-Saharan Africa averages (13.5%) [30]. The Afar Regional National State is one of the hottest regions in Ethiopia, and the burden of maternal depression is anticipated to be higher due to the reasons as follows: (i) a higher level of intimate partner violence (IPV) [31,32]; (ii) an increased serotonin production due to high temperatures [33]; and iii) sleeping difficulties attributed to excessive heat [34].

Understanding the magnitude and associated factors of PPD in the pastoral and hot region of the Afar Region is essential to identify
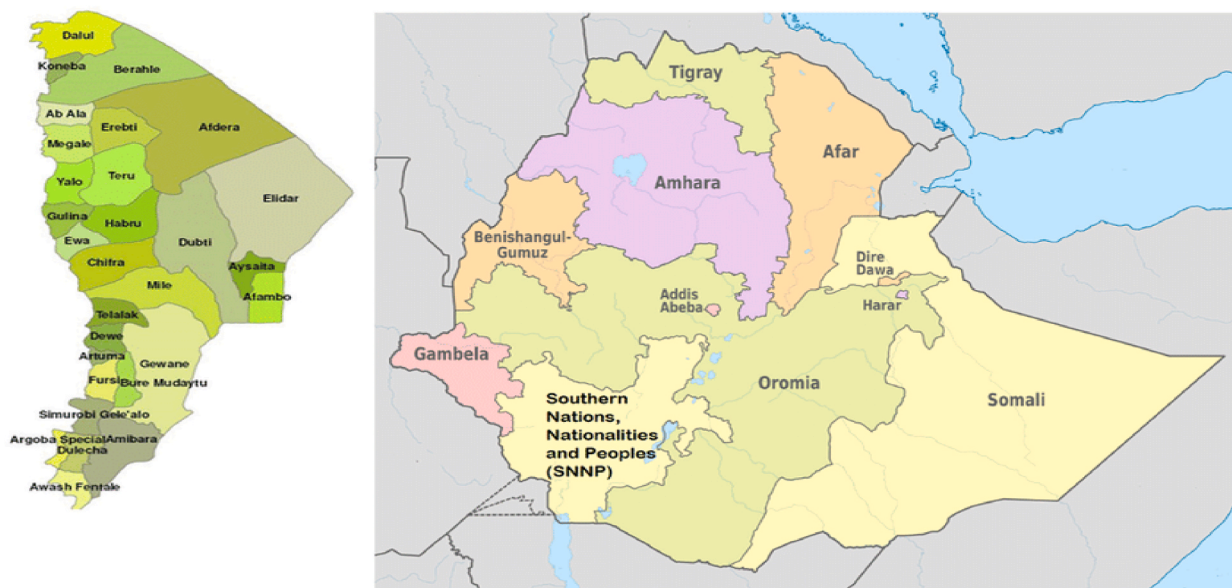

Fig. 1. The administrative map of the Afar National Regional State in Ethiopia.

current gains and future gaps for accelerating efforts in reducing the burden of PPD. However, none of the previously published studies have investigated the prevalence and associated factors of PPD in pastoral communities (including the Afar region). Findings from this study will provide valuable insights for improving patient care, informing local decision-making, and guiding future research endeavours. Accordingly, this study aimed to assess the prevalence and associated factors of PPD among postpartum women who visited the EPI units in the public health facilities of the Awsi Rasu Zone, Afar Region, Northeast Ethiopia.

2. Methods

2.1. Study setting and study period

The Afar National Regional State (ANRS) is located in the Great East African Rift Valley (GEARV) and shares borders with Eritrea (Northeast), Tigray (Northwest), Oromia (South), Somali (Southeast), Amhara (West), and Djibouti (East) [35]. The ANRS has an estimated population size of nearly two million, with over 85% of the Afar population relying on livestock production, including camel, goat, and cow rearing [36]. Due to its arid or semi-arid climate and limited rainfall, the ANRS faces significant challenges, including malnutrition, infections, and poor maternal and child survival, making the region highly susceptible to adverse health conditions [35].

The Awsi Rasu is one of the five administrative zones in the Afar Region (i.e., a zone is the second-level administrative unit in Ethiopia) with an estimated population size of 498,873 Within the Awsi Rasu Zone, there are three public hospitals, one private maternity hospital, and 25 health centers offering a range of health services, including prevention, treatment, and rehabilitation [37] (Fig. 1). The study was conducted from June to July 2021.

2.2. Study design and population

An institution-based cross-sectional study was conducted to investigate the prevalence and associated factors of PPD among mothers who visited the Expanded Program of Immunization (EPI) clinics in public health facilities of the Awsi Rasu of Afar Region. All postpartum women who visited EPI clinics of health facilities in the Awsi Rasu Zone were considered as the source population and those randomly selected to be included in the study were the sample population. Postpartum women who were seriously sick during the data collection period and unable to hear were excluded.

2.3. Sample size determination and sampling procedure

To determine the required sample size, we used a single population proportion formula, considering a 95% confidence interval (CI), a margin of error of 0.05, a PPD rate of 23.3% [38], and a 10% non-response rate. Based on this calculation, a sample size of 302 postpartum mothers was established. The participants were selected from six health centers (Logia Health Center, Mille Health Center, Eliwuha Health Center, Afambo Health Center, Ada'ar Health Center, and Berga Health Center) and two hospitals (Aysaita Primary Hospital and Dubti Referral Hospital). A systematic random sampling technique was used to recruit the study participants by utilising the previously registered one-month case flow of patients in each health facility. For the survey, the first study participant was selected through a lottery method, and then the subsequent consecutive participants were obtained using a systematic random sampling technique with a sampling interval (k) of two.

The allocations of the specific number of participants from each health facility were as follows: Aysaita Primary Hospital: 45 participants; Dubti Referral Hospital: 50 participants; Logia Health Center: 40 participants; Mile Health Center: 36 participants; Afambo Health Center: 45 participants; Eliwuha Health Center: 36 participants; Adar Health Center: 27 participants; and Berga Health Center: 23 participants.

2.4. Study variables

2.4.1. Dependent variable

The dependent variable in this study was PPD, measured using the Edinburgh Postnatal Depression Scale (EPDS). The EPDS consists of a set of 10 screening questions designed to assess symptoms of emotional distress in mothers during the postpartum period. It is important to note that the EPDS is not intended for diagnostic purposes but rather to assist healthcare professionals in screening for PPD in conjunction with routine clinical evaluation. The EPDS comprises 10 short statements, each with four possible answers, indicating how the mother has felt during the previous week. The mother responds with a score of 0, 1, 2, or 3, and the total score is calculated by summing the scores for each of the 10 items [38]. Based on previously published studies in Ethiopia [39], we used a score of 13 as the cutoff point to define potential postpartum depression [40,41]. The EPDS scale is validated in Ethiopia [42].

2.4.2. Independent variables

The independent variables were broadly classified as sociodemographic, obstetric and health service, and psychosocial factors. Sociodemographic factors included women's age, women's education, women's occupation, partner's education, marital status, ethnicity, sex of the baby, and preference for the gender of the baby. Obstetric and health service factors included the number of pregnancies, the number of alive children, desire for the pregnancy, history of abortion, ANC follow-up, place of birth, birth assistance, mode of birth, duration of labour, birth complications, the difficulty of infant feeding, and history of infant illness.

Psychosocial factors included IPV (physical, sexual and emotional violence) and social support (emotional and practical support

from husband, mother, father, friend, and other closed ones).

Psychosocial factors are defined as follows.

- **Physical violence** includes but is not limited to scratching, pushing, shoving, throwing, grabbing, biting, choking, shaking, hair-pulling, slapping, punching, hitting, burning, use of a weapon (gun, knife, or other objects), and use of restraints or one's body, size, or strength against another person [43].
- **Sexual violence** was defined as forcing or attempting to force a person to take part in a sex act, sexual touching, or a non-physical sexual event (e.g., sexting) when the person does not or cannot consent [43].
- **Emotional violence** was defined as the use of verbal and non-verbal communication with the intent to harm another person mentally or emotionally and/or to exert control over another person [43].
- **Social Support** was measured by six questions which had 5 ordinal choices and with a minimum score of 6 and a maximum of 30. Postpartum women who scored above the mean for social support questions were grouped as 'average support', otherwise grouped as 'below average support' [44].

2.5. Data collection tools and techniques

Considering the low level of women's literacy in Ethiopia, we used an interviewer-administered questionnaire for the data collection process. The questionnaire comprised four sections: sociodemographic information, obstetric and health service details, psychosocial factors, and the EPDS scale for measuring PPD. Initially prepared in English, the questionnaire was later translated into the local languages (Afaraf and Amharic) and then back-translated to English to ensure its consistency. Supplementary file 1 provides the questionnaire used for this study.

Table 1
Socio-demographic characteristics of postpartum women in Awsi Rasu Public health facilities of Afar Region, Northeast Ethiopia, 2021. (N = 302).

Variables	n (%)	Postpartum depression	
		Yes, n (%)	No, n (%)
Women's age			
15–18	14 (4.6)	7 (50.0)	7 (50.0)
19–24	96 (31.8)	57 (59.4)	39 (40.6)
25–34	156 (51.7)	55 (35.3)	101 (64.7)
35–45	36 (11.9)	12 (33.3)	24 (66.7)
Marital status			
Married	167 (55.3)	48 (28.7)	119 (71.3)
Single	55 (18.2)	25 (45.5)	30 (54.6)
Divorced	45 (14.9)	19 (42.2)	26 (57.8)
Widowed	35 (11.6)	21 (60.0)	14 (40.0)
Ethnicity			
Afar	115 (38.1)	48 (41.7)	67 (58.3)
Amhara	97 (32.1)	23 (23.7)	74 (76.3)
Oromo	52 (17.2)	27 (51.9)	25 (48.1)
Tigray	38 (12.6)	15 (39.5)	23 (60.5)
Women's education			
No formal schooling	56 (18.5)	25 (44.6)	31 (55.4)
Primary Education	90 (29.8)	38 (42.2)	52 (57.8)
Secondary education	72 (23.8)	23 (31.9)	49 (68.1)
College or higher	84 (27.8)	27 (32.1)	57 (67.9)
Husband's education			
No formal schooling	31 (10.3)	10 (32.3)	21 (67.7)
Primary Education	34 (11.3)	9 (26.5)	25 (73.5)
Secondary education	80 (26.5)	36 (45.0)	44 (55.0)
College or higher	157 (52.0)	58 (36.9)	99 (63.1)
Women's occupation			
Housewife	121 (40.1)	50 (41.3)	71 (58.7)
Civil servant	89 (29.5)	26 (29.2)	63 (70.8)
Merchant	42 (13.9)	19 (45.2)	23 (54.8)
Maidservant	32 (10.6)	13 (40.6)	19 (59.4)
Student	18 (6.0)	5 (2.8)	23 (72.2)
Sex of the baby			
Male	153 (50.7)	49 (32.0)	104 (68.0)
Female	149 (49.3)	64 (43.0)	85 (57.1)
Preference for the gender of the baby			
Preferred	219 (72.5)	80 (36.5)	139 (63.5)
Not preferred	83 (27.5)	33 (39.8)	50 (60.2)

NB: Primary education indicates 1–8th grades; secondary education indicates 9–12th grades.

2.6. Data quality control

The tool was pre-tested on 15 postpartum women from health facilities other than the selected ones, and necessary amendments were made based on the feedback received during the pre-test. The data collectors (8 diploma nurses) and supervisors (holders of a bachelor's degree in midwifery) received appropriate training on the main aims of the research, participant recruitment, data collection instruments, and procedures, as well as interview techniques. To ensure quality, the data were checked daily for completeness, consistency, and accuracy. Interviews were conducted in private rooms or alone to maintain participants' privacy. Before analysis, the principal investigator entered and cleaned the data.

2.7. Data management and analysis

Data were cleaned, coded, and entered into Epi info version 4.2, and exported to Statistical Package for Social Science (SPSS) version 25 for the final analysis [45]. Multivariable binary logistic regression modelling was used to investigate the relationship between explanatory variables (including sociodemographic, obstetric and health service factors, and psychosocial factors) and PPD.

Table 2
Obstetric and health service characteristics of postpartum women in Awsi Rasu Public Health facilities of Afar Region, Northeast Ethiopia, 2021. (N = 302).

Variables	n (%)	Postpartum depression	
		Yes, n (%)	No, n (%)
Number of pregnancy			
One pregnancy	68 (22.5)	22 (32.4)	46 (67.7)
2-4 pregnancies	199 (65.9)	79 (39.7)	120 (60.3)
≥5 pregnancies	35 (11.6)	12 (34.3)	23 (65.7)
Number of alive children			
One child	95 (31.5)	34 (35.8)	61 (64.2)
2-4 children	188 (62.3)	75 (39.9)	113 (60.1)
≥5 children	19 (6.3)	4 (21.1)	15 (78.9)
History of abortion			
No	252 (83.4)	87 (34.5)	165 (65.5)
Yes	50 (16.6)	26 (52.0)	24 (48.0)
Desired the pregnancy			
No	63 (20.9)	22 (34.9)	41 (65.1)
Yes	239 (79.1)	91 (38.1)	148 (61.9)
Antenatal care follow up			
No	64 (21.2)	33 (51.6)	31 (48.4)
Yes	238 (78.8)	80 (33.6)	158 (66.4)
Place of birth			
Hospital	131 (43.4)	45 (34.5)	86 (65.6)
Health center	115 (38.1)	42 (36.5)	73 (63.5)
Privet clinic	28 (9.3)	11 (39.3)	17 (60.7)
Home	28 (9.3)	15 (53.6)	13 (46.4)
Birth assistance			
Midwifery	174 (57.6)	57 (32.8)	117 (67.2)
Health officer	41 (13.6)	16 (44.4)	20 (55.6)
Nurse	36 (11.9)	15 (36.6)	26 (63.4)
Doctor	26 (8.6)	11 (42.3)	15 (57.7)
TBA	25 (8.3)	14 (56.0)	11 (44.0)
Mode of birth			
SVD	191 (63.2)	65 (34.0)	126 (66.0)
Instrumental	62 (20.5)	15 (30.6)	34 (69.4)
Caesarean section	49 (16.2)	33 (43.2)	29 (46.8)
Duration of labour			
Normal	169 (56.0)	45 (26.6)	124 (73.4)
Prolonged	133 (44.0)	68 (51.1)	65 (48.9)
Develop birth complication			
No	182 (60.3)	60 (33.0)	122 (67.0)
Yes	120 (39.7)	53 (44.2)	67 (55.8)
Types of complication			
Haemorrhage	45 (37.5)	23 (51.1)	22 (48.9)
Sepsis	38 (31.7)	13 (34.2)	25 (65.8)
Hypertension	37 (30.8)	17 (46.0)	20 (54.0)
Difficulty of infant feeding			
No	170 (56.3)	41 (24.1)	129 (75.9)
Yes	132 (43.7)	72 (54.6)	60 (45.5)
Infant illness at any time after birth			
No	163 (54.0)	55 (33.7)	108 (66.3)
Yes	139 (46.0)	58 (41.7)	81 (58.3)

Frequencies and percentages were used to describe the study participants. The results from the regression modeling were reported using odds ratios (ORs) and 95% CIs, with statistical significance set at a P-value <0.05.

2.8. Ethical consideration

The study adhered to ethical protocols by obtaining ethical clearance from the Research and Ethics Review Committee of Samara University, College of Medicine and Health Sciences (with approval number ERC 0026/2021). The ethical clearance letter for this study can be found in Supplementary File 2. Additionally, a permission letter was obtained from the Afar Regional Health Bureau. Before conducting the interviews, the study participants were provided with comprehensive information, and their verbal informed consent was obtained. The respondents were also informed of their right to withdraw from the study at any stage. To ensure confidentiality, personal identifiers such as names and dates of birth were excluded from the questionnaire. Participants who obtained a score of ≥13 on the EPDS scale were referred to a nearby health facility for further psychosocial support and appropriate care. All procedures were conducted following relevant guidelines and regulations.

Table 3
Psychosocial characteristics of postpartum women in Awsi Rasu Public health facilities of Afar Region, Northeast Ethiopia, 2021. (N = 302).

Variables	n (%)	Postpartum depression	
		Yes, n (%)	Yes, n (%)
Family history of mental illness			
No	229 (75.8)	74 (32.3)	155 (67.7)
Yes	73 (24.2)	39 (53.4)	34 (46.6)
Intimate partner violence			
No	220 (72.8)	65 (29.5)	155 (70.5)
Yes	82 (27.2)	48 (58.5)	34 (41.5)
Type of violence			
Physical	20 (24.4)	10 (50.0)	10 (50.0)
Sexual	16 (19.5)	14 (87.5)	2 (12.5)
Emotional	46 (56.1)	24 (52.2)	22 (47.8)
Overall social support			
Below average support	143 (47.4)	51 (35.7)	92 (64.3)
Average support	159 (62.6)	62 (39.0)	97 (61.0)
I have friends who support me			
Never	19 (6.3)	12 (63.2)	7 (36.8)
Rarely	20 (6.6)	4 (20.0)	16 (80.0)
Some of the time	80 (26.5)	25 (31.3)	55 (68.8)
Most of the time	87 (28.8)	35 (40.2)	52 (58.0)
Always	96 (31.8)	37 (38.5)	59 (61.5)
My family will support me			
Never	9 (3.0)	4 (44.4)	5 (55.6)
Rarely	30 (9.9)	18 (60.0)	12 (40.0)
Some of the time	78 (25.8)	27 (34.6)	51 (65.4)
Most of the time	87 (28.8)	32 (36.8)	55 (63.2)
Always	98 (32.5)	32 (32.6)	66 (67.4)
My husband helps me a lot			
Never	33 (10.9)	13 (39.4)	20 (60.6)
Rarely	46 (15.2)	15 (32.6)	31 (67.4)
Some of the time	77 (25.2)	34 (44.2)	43 (55.8)
Most of the time	46 (15.2)	19 (41.3)	27 (58.7)
Always	100 (33.1)	32 (32.0)	68 (68.0)
There is a conflict with my husband			
Never	52 (17.2)	12 (32.1)	40 (76.9)
Rarely	94 (31.1)	29 (30.8)	65 (69.1)
Some of the time	81 (26.8)	36 (44.4)	45 (55.6)
Most of the time	42 (13.9)	22 (52.4)	20 (47.6)
Always	33 (10.9)	14 (42.4)	19 (57.6)
I feel loved by my husband			
Never	24 (7.9)	16 (30.8)	36 (69)
Rarely	19 (6.3)	19 (34.5)	36 (65.5)
Some of the time	71 (23.5)	26 (30.6)	59 (69.4)
Most of the time	96 (31.8)	30 (52.6)	27 (47.4)
Always	92 (30.5)	22 (41.5)	31 (58.5)

3. Results

3.1. Characteristics of participants

A total of 302 study participants responded to the survey with a response rate of 100%. About 51.7% of postpartum women were in the age group 25–34 years, and 27.8% attained college or higher education. About 40.1% of postpartum women were housewives in occupation [Table 1].

3.2. Obstetric and health service characteristics

About 62.3% of study participants had a total of 2–4 children, and the majority (78.8%) of them had at least one ANC visit for the current baby. Almost four out of five women desired the pregnancy (79.1%), and 63.2% gave birth through standard vaginal delivery. About 57.6% of women reported birth assistance by midwives, and 72.5% desired the gender of the baby (Table 2).

3.3. Psychosocial characteristics

About 60.3% of postpartum women experienced complications for the current birth, and out of these, 37.5% developed haemorrhage. A history of difficulty in infant feeding was reported by 56.3% of postpartum women, and 46.0% reported a history of infant illness (Table 2). Nearly one-fourth of postpartum women reported a family history of mental illness (24.2%), and about 47.4% had below-average social support. Eighty-two experienced IPV (27.2%), and out of these, 56.1% reported emotional violence and 24.4% physical violence (Table 3).

Table 4
Factors associated with postpartum depression among postpartum women in the Awsi Rasu Zone of Afar Region, Northeast Ethiopia, 2021 (N = 302).

Variables	COR (95% CI)	AOR (95% CI)
Women's education		
No formal schooling	1.00	1.00
Primary education	0.91 (0.46, 1.78)	0.49 (0.19, 1.25)
Secondary education	0.58 (0.28, 1.19)	0.31 (0.12, 0.82)
Diploma or higher	0.59 (0.29, 1.18)	0.54 (0.20, 1.44)
Husband's education		
No formal schooling	1.00	1.00
Primary education	0.76 (0.25, 2.21)	0.57 (0.14, 2.23)
Secondary education	1.72 (0.72, 4.11)	1.47 (0.46, 4.76)
Diploma or higher	1.23 (0.54, 2.79)	1.14 (0.37, 3.46)
Sex of the infant		
Male	1.00	1.00
Female	1.60 (1.00, 2.56)	1.22 (0.69, 2.18)
Number of pregnancies		
One pregnancy	1.00	1.00
2–4 Pregnancies	1.38 (0.77, 2.46)	1.75 (0.86, 3.55)
5+ Pregnancies	1.09 (0.46, 2.59)	0.99 (0.35, 2.75)
Preference for the gender of the baby		
Not preferred	1.00	
Preferred	0.87 (0.52, 1.46)	1.08 (0.57, 2.07)
Antenatal care follow-up		
No	1.00	1.00
Yes	0.48 (0.27, 0.83)	0.67 (0.33, 1.35)
Mode of birth		
Standard vaginal delivery	1.00	1.00
Casearean section	0.86 (0.43, 1.68)	0.93 (0.41, 2.09)
Instrumental	2.21 (1.23, 3.95)	1.63 (0.81, 3.28)
Difficulty in infant feeding		
No	1.00	1.00
Yes	3.78 (2.31, 6.17)	4.26 (2.32, 7.83)
Family history of mental illness		
No	1.00	1.00
Yes	2.40 (1.40, 4.11)	2.34 (1.24, 4.41)
Overall social support		
Below average support	1.00	1.00
Average support	1.15 (0.72, 1.84)	1.23 (0.69, 2.21)
Intimate partner violence		
No	1.00	1.00
Yes	3.37 (2.00, 5.70)	3.09 (1.58, 6.04)

3.4. Prevalence of postpartum depression

The overall prevalence of PPD was 37.4% with a 95% CI from 32.0% to 43.0%. The prevalence of PPD was higher among women who did not have formal schooling (44.6%), while those who attained secondary education had a lower prevalence of PPD (31.9%) [Table 1]. Postpartum women who did not have ANC follow-up (51.6%) and gave birth at home (53.6%) had a higher prevalence of PPD, while those who had ANC follow-up (33.6%) and gave birth at a hospital had a lower prevalence of PPD (34.5%) [Table 2]. Postpartum women with a family history of mental illness (53.4%) and those who experienced IPV (58.5) had a higher prevalence of PPD, as compared to their counterparts (Table 3).

3.5. Factors associated with postpartum depression

Our study showed that postpartum women who attained a secondary education had a lower odds of PPD compared to those who had no formal education (AOR = 0.31; 95% CI: 0.12, 0.82). Postpartum women who had a family history of mental illness were associated with a higher odds for PPD compared to those who did not have a family history of mental illness (AOR = 2.34; 95% CI: 1.24, 4.41). The likelihood of PPD was higher among postpartum women who experienced difficulty in infant feeding compared to those who did not experience difficulty in infant feeding (AOR = 4.26; 95% CI: 2.32, 7.83). Postpartum women who experienced IPV were associated with higher odds of PPD compared to those who did not experience IPV (AOR = 3.09; 95% CI: 1.58, 6.04) [Table 4].

4. Discussion

Our study revealed a higher prevalence of PPD compared to the national average in Ethiopia (37.4% vs 22.0%) [46]. Nevertheless, the prevalence rate was similar to a study conducted in Nigeria (35.6%) [47]. Conversely, studies conducted in Sudan [48] and Kenya [49] reported lower rates of PPD compared to our findings. The disparity in prevalence rates with other studies in Ethiopia could potentially be attributed to the extremely hot weather conditions of the study area [33]. Additionally, differences in socioeconomic conditions may have also contributed to the observed variations across local and global studies.

The study showed that postpartum women who attained secondary education were less likely to develop PPD. This is consistent with the global works of literature [50,51] and previously published studies in Ethiopia [52,53]. Low women's education can contribute to postpartum mood disruptions through economic stress (due to unemployment) [54], poor health literacy [55], unavailable or inadequate childcare, and limited partner or social support (due to an imbalance in decision-making power) [55–57]. Findings from the current study suggest the need for a community-based PPD screening program for postpartum women from socioeconomically disadvantaged (including women's low education) households.

The present study showed a positive relationship between PPD and a family history of mental illness. This is in line with a recent systematic review of the relationship between a family history of psychiatric disorders and PPD that showed a doubled risk among women with a family history of psychiatric disorders compared to those without [58]. The combined interaction between genetic and environmental factors could explain the observed relationship between PPD and a family history of mental illness. Women with a family history of mental illness may share some genes with family members, and at the same time, they may also share stressful life events and other environmental exposures [9]. The findings from this study confirm the need for screening of PPD in a community setting (e.g., health post in an Ethiopian setting) using two simple questions: history of individual and family mental disorders for targeting at-risk women using psychosocial and psychological interventions.

Our study findings indicated a positive association between postpartum women who reported difficulties in infant feeding and PPD. This finding aligns with previously published studies conducted in Ethiopia [59] and Kenya [60]. The link between breastfeeding and maternal mental health has been documented in global works of literature [61,62]. The positive relationship between difficulty in infant feeding and PPD can be attributed to challenges in coping with excessive infant crying due to insufficient breastmilk production [62]. Difficulties in soothing and calming a crying baby can act as additional stressors for the mother, leading to complications such as poor latching, insufficient feeding, nipple injuries, and potentially triggering depressive episodes [62]. Therefore, early identification and appropriate midwifery support are recommended for mothers facing breastfeeding difficulties, as this can contribute to promoting positive maternal mental health during the postpartum period.

The study revealed a positive association between exposure to any form of IPV, including physical, sexual, or emotional violence, and PPD. This is consistent with a recent systematic review conducted in Ethiopia [63]. The relationship between IPV and PPD can be understood in three pathways. Firstly, exposure to IPV can cause an imbalance between childbearing demands and available resources for stress coping, thus increasing women's vulnerability to mental health problems (including PPD) [64]. Secondly, IPV also negatively influences their trust in others and with a negative impact on their level of life satisfaction, leading to depressive symptoms [65]. Lastly, prior evidence also demonstrated the bidirectional relationships between IPV and PPD. Postpartum women with PPD are associated with irritability, loss of joy, and unusual pessimism, which may be unreasonable for the spouses and with subsequent exposure to IPV and PPD [65]. The findings from our study emphasize the need for further qualitative investigations to better comprehend the complex relationship between IPV and PPD among postpartum pastoral women.

This study has limitations. First, the cross-sectional nature of the study design makes it difficult to confer the direction of causality, nevertheless, the findings are consistent with other studies conducted in Ethiopia [52,53,63]. Second, a recall bias in remembering some of the symptoms of PPD might be a possible limitation of the study. However, we restricted the current study to the last week before the data collection. Despite limitations, this pioneering study on PPD in the pastoral community remains significant. The findings offer valuable insights and support for policymakers and practitioners in these areas.

5. Conclusion

Our study findings indicate that the prevalence of PPD in the Awsi Rasu Zone of the Afar Region surpasses both national and global averages. Furthermore, we observed that postpartum women who had completed secondary education had a lower likelihood of developing PPD compared to those without formal schooling. Conversely, postpartum women with a family history of mental illness and those who experienced intimate partner violence (IPV) were more likely to experience PPD compared to their counterparts. Additionally, women who encountered difficulties in infant feeding were positively associated with PPD. These findings underscore the importance of targeted interventions that address the specific needs of pastoral postpartum women who face various stressors, including challenges with feeding and IPV.

Ethical approval

Ethical approval for this study was obtained from the research ethics review committee of Samara University, College of Medicine and Health Sciences (with approval number ERC 0026/2021).

Author contribution statement

Yisahak Mulugeta Sisay; Kedir Y. Ahmed: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Ahmed Adem Mohammed: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Ibrahim Mohammed Ibrahim; Gebru Getachew: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

Data availability statement

Data will be made available on request.

Consent for publication

Not applicable.

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.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2023.e19914.

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