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Magnitude and Factors Associated with Postpartum Depression among Women Who Gave Birth in the Last 12 Months in Asella Town Public Health Facility, Arsi Zone, Oromia, Southeast Ethiopia, 2025.

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ABSTRACT

Background Postpartum depression is a common condition that would likely remain undetected if symptoms are less severe, and could become severe or chronic if not recognized and treated. Being the most prevalent form of mental illness during the postpartum period, it may happen as early as two weeks postpartum.

Objective: To assess the magnitude and factors associated with postpartum depression among women who gave birth in the last 12 months, attending for postnatal care and vaccination services in public health facilities of Asella town, Arsi zone, southeast Ethiopia, 2025.

Methods: An institutional cross-sectional study was conducted among 304 postpartum women attending public health facilities in Asella Town, with a 99% response rate. Participants were selected using systematic random sampling, and data were collected through face-to-face interviews with the Edinburgh Postnatal Depression Scale and structured questionnaires using Kobo Toolbox. Tools were translated into Amharic and Afan Oromo, and pre-tested on 5% of the sample. Trained diploma nurses conducted the interviews under supervision. Data were analyzed using SPSS version 26, with EPDS ≥ 13 indicating postpartum depression. Variables with $p < 0.25$ in bivariate analysis were included in multivariate logistic regression, and significance was declared at $p < 0.05$. Results were reported as adjusted odds ratios and Crude Odds ratios with 95% confidence intervals.

Result: The prevalence of postpartum depression in this study was 27.6% (95% CI: 22.75%–33.08%). Significant predictors included financial problems (AOR = 2.72, 95% CI: 1.39–5.33), separation or divorce (AOR = 4.52, 95% CI: 1.98–10.34), unplanned pregnancy (AOR = 3.05, 95% CI: 1.39–6.71), death of a baby (AOR = 2.43, 95% CI: 1.14–5.18), and history of depression (AOR = 2.04, 95% CI: 1.03–4.04) respectively.

Conclusion: Postpartum depression is a significant maternal health concern in Asella Town, in which one out of four mothers is affected. Low economy, marital instability, unplanned pregnancy, loss of a baby, and prior depression were the main determinants. This highlights the need for routine screening and integration of maternal mental health into postnatal care.

Keywords: Postpartum depression, Maternal mental health, Postpartum period, Asella.

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ACRONYMS

AHC	Asella Health Center
ANC	Antenatal Care
AOR	Adjusted Odds Ratio
ARTH	Asella Referral and Teaching Hospital
CDCP	Centers for Disease Control and Prevention
CI	Confidant Interval
COR	Crude Odd Ratio
DSM	Diagnostic and Statistical Manual
EPDS	Edinburgh Post-natal Depression Scale
ETB	Ethiopian Birr
HHC	Halila Health Center
MDD	Major Depressive Disorder
PNC	Post-Natal Care
PPD	Postpartum Depression
SPSS	Statistical Package for Social Science
WHO	World Health Organization

1. INTRODUCTION

1.1. Background

Postpartum depression (PPD), also known as postnatal depression, is a non-psychotic depressive disorder of variable severity. It can begin as early as two weeks after delivery and can persist indefinitely if left untreated. Depressive disorders are the leading cause of global disability, and PPD is a clinical depression with symptoms that can include extreme sadness and despair lasting longer than two weeks (1,2). The World Health Organization (WHO) has characterized it as “a special state of mental health disorder and a variant of depression”. Nearly one-fifth of the global disease burden has been ascribed to neuropsychiatric disorders, including those disorders that occur during the postpartum period. These estimates indicate the importance of addressing mental disorders in public health(3).

According to a standardized diagnostic and statistical manual (DSM), postpartum depression is one type of depressive episode that occurs within one year of childbirth. However, it can also manifest as the occurrence of a major depressive episode within four weeks after delivery(4). The fundamental neurobiological changes result from developmental connections between genetic susceptibility and environmental factors rather than a simple chemical imbalance(5).

According to a Centers for Disease Control and Prevention (CDC) report in 2012, the global estimation of postpartum depression ranges from 5% to 25%, but the procedural discrepancy with the studies makes the real prevalence rate unclear(6).

It is possible to identify women with increased risk factors for PPD, but the unacceptably low positive predictive values of all currently available antenatal screening tools make it difficult to recommend them for routine care. Several postpartum screening tools exist, but the optimal time for screening and their applicability to multicultural populations are not yet established (7). A screening tool permits formal evaluation of changes in somatic functioning (sleep, appetite, weight). The Edinburgh Postnatal Depression Scale is a ten-item self-report questionnaire designed specifically for the detection of depression in the postpartum period. It has been validated (8), computerized, and translated into more than 12 languages. Responses are scored 0, 1, 2, or 3, with a maximum score of 30; scores ≥ 12 or 13 identify most women with postpartum depression. Women who report depressive symptoms without suicidal ideation or major functional impairment

(or score between 5 and 9 on the EPDS) are reevaluated within one month to determine the state of depression (2).

Even though postpartum depression is the major maternal mental health problem following childbirth, little was known about the magnitude of the problem and contributing factors in Ethiopia in general, and it was not investigated in the study area in particular; therefore, this study aimed to fill this gap.

1.2. Statement of the Problem

Post-partum depression is a global public health issue. The World Health Organization (WHO) reported that for women of reproductive age, depression becomes the leading cause of disease burden (9). Postpartum nonpsychotic depression is a considerable public health problem and the most common complication of childbearing age that affects approximately 10–15% of postpartum women. In developing countries, the magnitude of postpartum depression is almost double that of the developed world. The effect of postpartum depression on the mother, her marital relationship, and her children makes it an important condition to diagnose, treat, and prevent (10,11). Untreated postpartum depression can have a prolonged adverse effect on the mother and her children. Pregnant mothers' ongoing depression can contribute to emotional, behavioral, cognitive, and interpersonal problems (12).

Postpartum depression affects the welfare of mothers, partners, family members, and the growth and development of babies. In addition, it affects mothers' ability to parent their children. Postpartum women show hostile and disengaged parenting behavior, and a decrease in mothers' caregiving ability for the infant (13).

Different studies indicate that the development of postpartum depression leads to reduced infant growth and malnutrition due to early weaning and poor infant feeding practices (14,15). Furthermore, due to its occurrence at a crucial period for an infant's physical, psychological, and mental development, it causes children to have cognitive, emotional, and behavioral problems (16).

The studies found that postnatal depression was associated with high degrees of chronicity, disability, and disturbances of the mother-infant relationship (17). Postpartum common mental disorders, such as depression and anxiety, are increasingly recognized for their burden in low-

resource countries such as Ethiopia. However, the magnitude of postpartum depression in Ethiopia is not well established, so identifying the magnitude of postpartum depression and associated factors in our country is essential to minimize mental illness that is related to mothers who give birth. Estimates for depression during and after pregnancy have ranged from 9% to 20%, and for postpartum common mental disorder, the estimates have been as high as 33%. Even if these problems are there, there is no good awareness and satisfactory intervention, especially for those who live in remote areas from the health center (18).

In developing countries, including Ethiopia, PPD is often neglected in the health care system, and there is no screening during postnatal follow-up, and no referral of PPD cases for appropriate mental health services(19). Despite the wide-ranging variations in the prevalence and associated factors of postpartum depression, there is no review has been conducted to estimate postpartum depression in Ethiopia. Thus, reliable estimates of postpartum depression are required for the development of national and international health policies to improve maternal mental health services. Therefore, this study will aim to estimate the prevalence of postpartum depression and its associated factors among postpartum women in Asella Town, South East Ethiopia.

1.3 Significance of The Study

This study is important to address a key gap in research on PPD, determining the magnitudes and key contributing factors of PPD among women in Asella town. The findings will provide valuable evidence to guide healthcare policies, improve maternal mental health services, and support regular PPD screening in postnatal care.

The study will help raise awareness among healthcare providers about the often-overlooked aspects of PPD. Promoting early detection and intervention to enhance maternal and child health outcomes. Additionally, it will serve as a foundational reference for future research, enabling comparisons across different regions and healthcare facilities in Ethiopia. The finding from this study will have valuable evidence for policymakers, healthcare professionals, and academic institutions, including Arsi University, to emphasize the need for integrated mental health support in maternal care programs. Ultimately, this research aims to influence decision-makers to prioritize PPD screening and management, which will enhance the well-being of mothers, infants, and families in Ethiopia.

2. LITERATURE REVIEW

Postpartum depression is a significant public health concern and one of the major causes of maternal morbidity after childbirth(20). It negatively affects the mother's emotional well-being, infant care, and family relationships. Understanding the factors associated with PPD is essential, particularly in low- and middle-income countries like Ethiopia(21). This literature review magnitude and examined socio-demographic, psychosocial, obstetric, and medical factors associated with postpartum depression. Relevant articles were systematically searched from databases such as Google Scholar and PubMed, and more than 50 studies were reviewed based on their quality, relevance, and completeness of data. The findings were synthesized to provide a comprehensive understanding of postpartum depression and its associated factors, with a focus on informing maternal mental health interventions in Asella Town.

2.1 Magnitude of Postpartum Depression

Postpartum depression varies greatly around the world. It is more common in low- and middle-income countries than in high-income countries. Systematic reviews show that about 10% of women in developed nations experience PPD. In developing regions, this rate increases to nearly 20%. These differences highlight issues like access to healthcare, economic conditions, and cultural views on mental health(22,23). Regional studies further emphasize these differences.

The prevalence of postpartum depression among the Asian population shows wide variation. Low prevalence has been noted in China, 6.7% (24) and 14.3% in Japan (25) while India has ranged from 11% to 16% (26). A far higher prevalence has been found in Bangladesh (27), followed by Vietnam at 27.6%(28)and Nepal at 30%(29). Further, rural mothers in South India were noted to have a prevalence of 28.3% (30).

African studies also document extensive variation in the prevalence of postpartum depression. For instance, a Ghana facility-based cross-sectional study in Ghana reported a relatively low prevalence of 7%(31), whereas a Ugandan multi-facility study estimated it to be much higher at 27.1% (22).In Kenya, the prevalence was 18.7%(23)whereas a similar study conducted in Eritrea reported 7.4%.(32). These country discrepancies can be accounted for in terms of differences in study settings, research approaches, socio-cultural settings, and maternal health systems.

In Ethiopia, the prevalence of postpartum depression has been reported variably to be between 12.2% to 33.8% (33,34). A facility-based study conducted in Addis Ababa documented a prevalence of 23.3%(35), whereas a study conducted in Debre Birhan reported 15.6% (3). Community-based studies conducted in Gondar have found a prevalence of 25% (36), whereas studies conducted in Southwest Ethiopia found the highest prevalence of 33.8% (33). These differences suggest the potential influence of regional differences in contextual and healthcare system factors.

2.2 Factors associated with post-partum depression

2.2.1 Sociodemographic Factors

Postpartum depression prevalence and risk differ significantly across sociodemographic conditions. Maternal age was said to have a complex relationship with PPD risk. The age of the mother, 20-29 years, was 60% less at risk compared to older women, according to Nepalese research(29). South India was said to have high susceptibility among both young mothers (<20 years) and elderly mothers (>30 years)(37). This U-shaped age-risk pattern contrasts with A community-based cross-sectional study done among 460 mothers of Mizan-Aman town, southern Ethiopia, in which the youngest (18-23 years) had a 3.89% linearly increasing risk(38).

Economic factors are the stable, strongholds of risk in each population that has been studied. Numerous research findings indicate that poverty adds 12-60% risk for PPD, with the strongest effects occurring in South Asian contexts. The study was done in a rural tertiary care hospital of Mandya District, Karnataka state, India. Rural Indian poverty was associated with a 31.4% higher risk for PPD(30), while Nepalese data suggested even greater economic risk(29). Economic instability appears to enhance other factors of risk through stress and decreased access to care pathways.

Family composition and social support networks show marked regional variation in their relationships with PPD. Urban mothers in Indian studies, 23.3% were diagnosed to have postpartum depression, highlighting the dual role of joint families, which can be supportive but also increase stress through traditional gender roles. The birth of female infants in patriarchal societies is a unique risk factor, particularly if there are no sons(39). In contrast, Ethiopian studies emphasize that a study done in Debre Birhan found a PPD prevalence of 11.7% higher, highlighting different

social risk factors such as widowhood and social isolation(40). This implies that different protective mechanisms would be necessary in different situations.

Educational level emerges as a protective factor, though with varying thresholds. North Indian women with less than five years of education had a significantly higher risk for PPD(41). While other research suggests that any educational disadvantage could amplify vulnerability. Educational attainment can influence economic status and gender norms, particularly in contexts where female education remains low.

The aggregate findings highlight the intricate ways in which sociodemographic predictors are interwoven to influence risk for PPD. While some patterns of economic influences are cross-culturally uniform, others, most importantly, risk-based on age, exhibit considerable regional variability. These findings underscore the importance of screening instruments and interventions that are sensitive to both local sociocultural determinants and universal stressors, such as poverty and social support.

2.2.2 Pregnancy and Childbirth History

Growing evidence underscores the role that pregnancy and childbirth experiences play in influencing susceptibility to postpartum depression (PPD). Complications during pregnancy also increase risk, as in Nepalese studies, where health complications during pregnancy yielded 2.16-3.86% higher PPD rates(29) and Indian studies that found medical complications increased the chances by 17.4%. Different studies within different populations reveal that unplanned pregnancy has a significant effect on PPD risk, (42). A descriptive cross-sectional study conducted in Jordan and an institution-based cross-sectional study conducted in Debre Birhan, Ethiopia, indicated that 3.4% to 4.5% were associated with postnatal depression, where pregnancies were unplanned(40). In the other study institution-based cross-sectional study was done in three hospitals of Southwest Ethiopia reported that Unplanned pregnancy 4.49 % and unstable marital condition 6.02% were significantly associated with postpartum depression(38).

Childbirth outcome and neonatal health become equally critical determinants. Negative birth history reports are especially strongly associated with the onset of PPD. Low birth weight is also a concern among South Indians. Additional neonatal complications like sleep disturbances (3.72

times higher risk) and maternal discontentment with medical care (22.13% higher risk) further contribute to raising this vulnerability (42). In other research findings done in Hiwot Fana Specialized University Hospital, Eastern Ethiopian studies identified that hospitalization of the infant increased risk nearly four times, while infant mortality increased exposure 4.12 times. Premature birth increased PPD risk by 5.74%, And Educational status, number of births, age, place of delivery, and sex of newborn had no significant association with PPD (43). A study done in southwest Ethiopia reported that experiencing the death of an infant, 4.12 %, was significantly associated with postpartum depression (38).

The overall evidence points to some key patterns. Neonatal and medical complications and poor outcomes have dose-dependent correlations with the severity of PPD. Regional patterns occur, with South Asian groups being more influenced by neonatal complications, and African research highlighting infant mortality and the quality of healthcare. Notably, a number of the risk factors, such as social support and satisfaction with care, are modifiable, with clear intervention potential.

2.2.3 Psychosocial factors

Psychosocial factors play a significant role in the development of postpartum depression. In the research finding conduct in South Indian contexts exhibit robust gender-related stressors, wherein the birth of female children, particularly in the absence of male children, increases the risk for PPD by 3.6% and Postnatal depression was significantly associated with mood swings during antenatal period, staying with the family of birth during pregnancy and away from their husbands, and was significantly higher among women who perceived their life as stressful and having a low self-esteem.(42). In A community-based cross-sectional study conducted in Mizan-Aman Town, Southern Ethiopia, an unsatisfactory marital relationship 2.72% and poor social support 4.30% were significantly associated with postpartum depression. And women who perceived their life as stressful and had low self-esteem(38). These findings highlight the way social support and expectations function as mediators for the impact of biological determinants.

Postpartum depression (PPD) emerges from a complex interaction of psychological and social factors that affect mothers during the perinatal period. Research consistently demonstrates that maternal mental health is particularly vulnerable to emotional instability, lack of social support,

and pre-existing psychological conditions. Studies across diverse cultural contexts reveal similar risk patterns - Vietnamese women reporting family dissatisfaction and social isolation showed elevated PPD rates(28). Indian mothers experiencing antenatal mood disturbances, spousal separation, chronic stress, and diminished self-esteem were significantly more likely to develop postnatal depression(42). These findings highlight how psychosocial stressors compound biological vulnerabilities during this sensitive period.

Beyond maternal factors, paternal postpartum depression also warrants attention. A cross-sectional study in Ireland showed that the prevalence of paternal postnatal depression was 12% using the Edinburgh Postnatal Depression Scale cut-off score of 12 or above. The factors found to increase the risk of paternal postnatal depression included having an infant with sleep problems, and a previous history of depression was associated with postpartum depression(44).

A community-based cross-sectional study conducted among 460 mothers in Mizan-Aman Town, Southern Ethiopia, revealed several factors strongly associated with postpartum depression (PPD). These included: a child having sleeping problems 3.72%, and a history of previous depression 7.38% were significantly associated with postpartum depression(38).

These findings reveal PPD as an interactive process rather than a standalone maternal condition. The consistent identification of psychosocial stressors - including relationship conflict, social isolation, and Desire for the gender of the last baby. Current evidence emphasizes the centrality of family-focused mental health care that addresses the psychological needs of parents during the postpartum period. Future studies need to continue to articulate how these variables vary across different cultural and socioeconomic milieus to inform more targeted prevention and treatment programs.

2.3 Conceptual Framework

This conceptual framework is developed after reading different literatures (1,3,19,21,22,35,37–39,45)

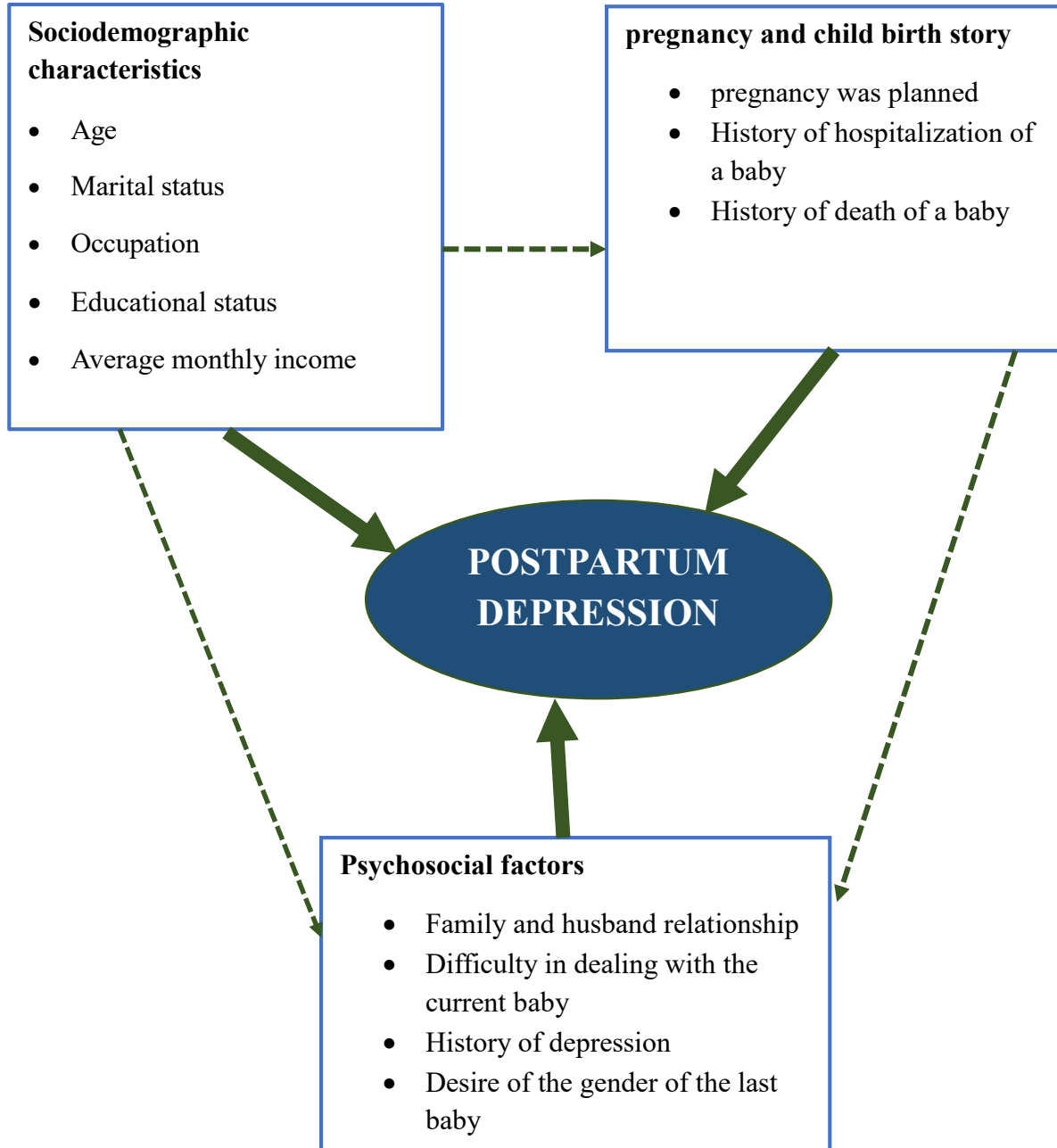


Figure 1: Conceptual framework which shows the predictors of postpartum depression among women who gave birth in the last 12 months, attending Asella public health facility.

3. OBSTRUCTIVES

3.1 General Objective

- To assess magnitude and factors associated with postpartum depression among women who gave birth in the last 12 months in Asella town public health facility, Arsi zone, Oromia, southeast Ethiopia, 2025.

3.2 Specific Objectives

- To determine the magnitude of postpartum depression among women who gave birth in the last 12 months, attending PNC and Vaccination service in Asella Town Public Health Facility, Arsi zone, Oromia, Southeast Ethiopia, 2025.
- To identify factors associated with postpartum depression among women who gave birth in the last 12 months, attending PNC and Vaccination service in Asella Town Public Health facility, Arsi zone, Oromia, Southeast Ethiopia, 2025.

4. METHODS

4.1 Study Area

The research was conducted in Asella town, Oromia Regional State, Ethiopia. Asella town is located in the Oromia region, approximately 159 km southeast of Addis Ababa and 75 km from Adama. Geographically, it lies at 7.57°N latitude and 39.7°E longitude, with an altitude of 2,430 meters above sea level. According to the 2022 population projection, the town has a total of 139,537 residents, of whom 69,459 are male and 70,078 are female(46). Among the total population, 25,105 are women of reproductive age, and 3,652 are infants aged 0–12 months. In terms of health service facilities, Asella has one government hospital, two government health centers.

4.2. Study design and period

An institution-based cross-sectional study was conducted from September 1–30, 2025.

4.3. Source and study population

4.3.1. Source population

All women who had given birth in the last 12 months and who came for postnatal care and vaccination services in the Asella Town public health facilities were included.

4.3.2. Study population

Women who had given birth within the last 12 months and were attending postnatal care and vaccination services at public health facilities in Asella Town were selected using a systematic random sampling technique during the data collection period.

Inclusion Criteria

Women who had given birth in the last 12 months and attended postnatal care and vaccination services in the Asella Town public health facilities during the data collection period.

Women with no prior diagnosis of severe psychiatric disorders (e.g., schizophrenia, bipolar disorder).

Exclusion Criteria

Women with active psychosis or severe cognitive impairment after delivery were excluded.

4.4. Sample size determination and Sampling technique

4.4.1. Sample size determination

The required sample size was determined by using a single population proportion formula

$$n = \frac{(Z_{1-\alpha/2})^2 p (1-p)}{d^2}$$

with the following assumptions: $(Z_{\alpha/2})$ = value for the 95% CI, =1.96, the proportion of postpartum depression; similar study at Addis Abeba, Ethiopia (P=23.8%) (35), d=margin of error taken as 5%; by adding 10% as nonresponse rate. The calculation was as follows

$$n = \frac{(1.96)^2 0.238 (1-0.238)}{(0.05)^2}$$

Required sample size=279

After adding 10% for non-response, the final sample size was **307**.

Table 1 sample size determination for second objectives, magnitude, and factors associated with post-partum depression among women who gave birth in the last 12 months in Asella town public health facility, Oromia, southeast Ethiopia, 2025.(47)

Variables	Confidence level		P1	P2	AOR	Sample size	Reference
History of substance use	95	80	21.0	40.6	2.57	192	
Income difficulty	95	80	42.9	66.8	2.68	150	
Last infant illness	95	80	50.4	67.9	2.08	270	
Social support	95	80	65.3	85.6	3.16	158	

P1, proportion of exposure among controls,

P2, Proportion of exposure among cases

AOR = Adjusted Odds Ratio

The desired sample size was calculated for both objectives, and the larger sample size, which was obtained from objective one, was used, and the research final sample size was **307**.

4.4.2. Sampling procedures

Asella Referral and Teaching Hospital, Halila Health Center, and Asella Health Center were selected as the primary study sites. The sample size was proportionally allocated to these three public health facilities.

A systematic sampling technique was employed to select participants by determining the K^{th} interval. The K value was calculated by dividing the total number of postpartum mothers who visited each public health facility for postnatal care and vaccination services in a given month by the sample size allocated to each facility. For instance, ARTH ($1387/149 = 9$), HHC ($658/71 = 9$), and AHC ($810/87 = 9$), resulting in a consistent K value of 9 across all facilities. The first postpartum woman was selected by the lottery method, and thereafter, every 9th woman was included until the required sample size was achieved.

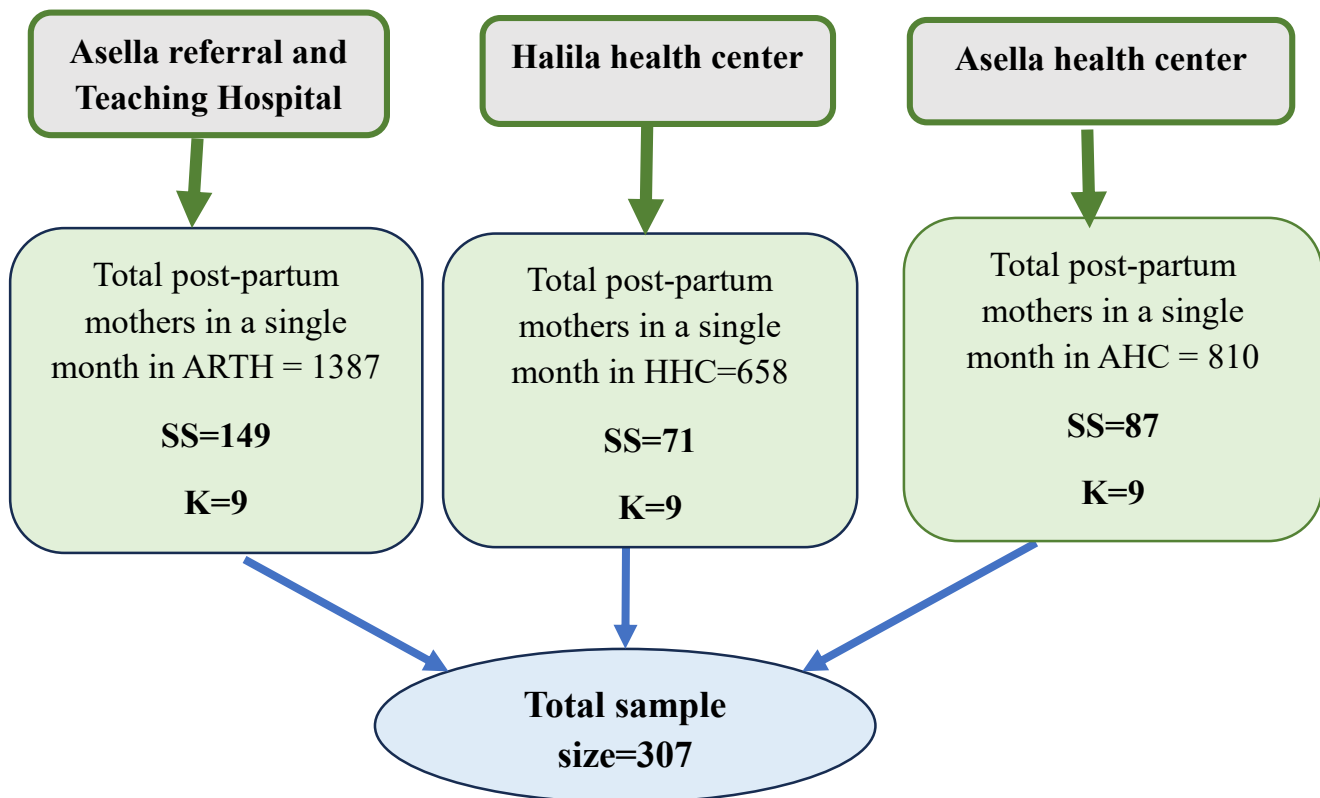


Figure 2 Sampling technique for magnitude and factors associated with post-partum depression among women who gave birth in the last 12 months in Asella town public health facility, Oromia, southeast Ethiopia, 2025

4.5. Study variables

4.5.1. Dependent variables

Postpartum depression

4.5.2. Independent variables

Socio-demographic factors:

- a. Age
- b. Occupation
- c. Residence
- d. Income
- e. Marital status
- f. educational status

Pregnancy and birth-related factors:

- a. Number of pregnancies
- b. any experience death of a baby
- c. any of the babies hospitalized
- d. whether planned pregnancy
- e. whether the desired gender of the baby
- f. whether the newborn is delivered before 9 months
- g. mode of delivery
- h. Place of delivery
- i. History of depression
- j. chronic medical illness

Relationship with her husband and her family members:

- a. Relationship with husband
- b. Help and support provided by husband
- c. Relationship with own family
- d. Relationship with mother-in-law
- e. Relationship with husband's family in general

Psychosocial and psychological factor:

- a. Personal mental Hx
- b. Family mental Hx
- c. death of a dear person
- d. recurrent verbal abuse
- e. accidents or injuries
- f. Physical abuse
- g. abandons a dear person
- h. Workplace problems
- i. separation or divorce
- j. severe illness of you or a dear person
- k. difficulty in dealing with your children
- l. financial problems
- m. housing problems

4.6. Operational definitions

Postpartum Depression is a medical condition that many women get after having a baby. It's strong feelings of sadness, anxiety (worry), and tiredness that last for a long time after giving birth. PPD can happen any time after childbirth. It often starts within 1 to 3 weeks of having a baby(48).

Edinburgh Postnatal Depression Scale, a 10-item Likert-scale questionnaire (scores 0–30). Screening was conducted after two weeks postpartum, which indicates how the postpartum mother has felt during the previous 7 days, with a cutoff score of ≥ 13 . Mothers who scored above the cutoff point will be considered to have postpartum depression. The EPDS generated sensitivity and specificity of 78.9% and 75.3%, respectively(49).

Non postpartum depressed: Mothers who scored below 13 on the EPDS were considered not to have postpartum depression(50).

4.7. Data collection procedures

This study used a structured, interviewer-administered questionnaire adapted from validated instruments in published literature.(19,26,45) The English version was translated into Amharic and Afan Oromo by language experts and then back-translated to ensure accuracy. The final Amharic and Afan Oromo versions were used for data collection.

A pre-test involving 5% of the sample size was conducted at Gonde Health Center to assess clarity and reliability, and necessary adjustments were made before the main data collection. Data were collected by five diploma nurses who were not affiliated with the study sites. Supervision was provided by a senior nurse and the principal investigator, with daily monitoring to ensure data consistency and completeness.

A total of 304 respondents completed the study, resulting in a response rate of 99%.

4.8. Data analysis procedures

Data were entered, edited, cleaned, and analyzed using the Kobo collection tool and SPSS (version 26). The Edinburgh Postnatal Depression Scale (EPDS) was used to screen for depressive symptoms, with a cutoff point of ≥ 13 .

Logistic regression analysis was employed to calculate associations. Independent variables with a p-value less than 0.25 in the bivariate analysis were included in the multivariate logistic regression analysis to generate odds ratios.

Model fitness was confirmed with the Hosmer-Lemeshow goodness-of-fit test ($p = 0.143$), confirming the model to be adequate. Associated factors of postpartum depression were identified using adjusted odds ratios (AOR) with 95% confidence intervals (CI). A p-value of less than 0.05 was considered statistically significant. Results were presented in tables, figures, frequencies, percentages, and cross-tabulations.

4.9. Data Quality Assurance

Pre-test of the survey was conducted on 5% of the total sample size at Gonde Health Center, which had similar characteristics but was not included in the study site. Problems that were faced during the pre-test survey were resolved before the start of the actual survey. Expert opinion guaranteed content validity and internal consistency was adequate (Cronbach's $\alpha = 0.78$). Five diploma nurses were employed in data collection. Data collection was strictly supervised by the assigned supervisors and the principal investigator.

The general supervision and coordination of the entire process of data collection were left to the principal investigator. The principal investigator, on a daily basis, checked the data collected for accuracy, completeness, and clarity and made necessary corrections before data collection the following day.

4.10. Ethical consideration

An ethical assurance letter was obtained from the Arsi University College of Health Sciences Research and Community Service IRB committee, and the ethical clearance letter was presented to the Asella Town Health Office to grant official permission to undertake research activities in the public health centers. Written informed consent was obtained from each participant after the investigator explained the nature, purpose, and procedure of the study. The signature of each participant indicated their willingness to participate.

All study participants were informed that the data would be kept private and confidential and used only for research purposes. They were also assured of their right to refuse participation or withdraw from the study at any time if they felt uncomfortable.

5. Results

5.1 Socio-Demographic characteristics

Out of the total sample, 304 postpartum women participated in the study, representing a 99% response rate. Most of the participants were young, with nearly two-thirds being aged 15–23 years. A mean age of 29.83 years ($SD \pm 8.42$), ranging from 15 to 44 years.

The majority of study participants were married 210 (69.1%). As for education, roughly one-third were able to read and write, and more than one-quarter were graduates. More than half of the participants reside in urban areas 180 (59.2%), whereas 124(40.8%) were in rural areas.

Occupationally, most 74(24.3%) were housewives. In terms of income, the majority of study participants, 167 (54.9%), made less than 5,000 ETB monthly, reflecting that the majority of the participants came from low-income families.

Table 2 Socio-demographic characteristics of the study population in Asela town public health facility from September 1-30, 2025 GC. (N=304)

Variables		Frequency	Percentage
Age	15-24	118	38.8
	25-34	114	37.5
	>35	72	23.7
Ethnicity	Oromo	132	43.4
	Amhara	104	34.2
	Tigray	32	10.5
	Gurage	30	9.9
	Other	6	2
Marital status	Single	27	8.9
	Married	210	69.1
	Divorce	59	19.4
	Widowed	8	2.6
Religion	Orthodox	122	40.1
	Muslim	118	38.8
	Protestant	62	20.4
	Other	2	0.7
Educational status	Unable to read & write	29	9.5
	Only reading & writing	97	31.9
	Elementary school	45	14.8
	High school & preparatory	52	17.1
	College graduate	81	26.6
Residency	Urban	180	59.2
	Rural	124	40.8
Family Monthly income	0-5,000	167	54.9
	5,001-10,000	103	33.9
	>10,001	34	11.2
Occupation	House wife	74	24.3
	Farmers	35	11.5
	Private workers	64	21.1
	Student	25	8.2
	Government workers	63	20.7
	Merchant	37	12.2
	Other	6	2

5.2Pregnancy and birth-related characteristics

Over half of the women, 167(54.9%), had a history of 1–2 pregnancies. About one in ten 34 (11.2%) were primigravida. 45 (14.8%) had a hospitalized child during the postnatal period.

Most of the pregnancies had been planned 184 (60.5%). Over half, 158(52%) of the women, had the sex of their last child not the desired sex. The majority of the respondents, 192 (62.2%), delivered through vaginal delivery.

On psychosocial and health factors, 98(32.2%) had a history of depression, and 58(19.1%) had a chronic illness. Evaluations of medical care during delivery varied, with 128(42.1%) considering it as good.

Table 3 Pregnancy and birth-related factors of the study population in Asella town public health facility from September 1-30, 2025.

Variables		Frequency	Percentage
Number of pregnancies	1-2	167	54.9
	3-4	118	38.8
	>=5	19	6.3
Any of the babies hospitalized	yes	45	14.8
	no	259	85.2
Planned pregnancy	yes	184	60.5
	no	120	39.5
Desired gender of the last baby	Desired	113	37.2
	undesired	158	52
	I don't mind	33	10.9
premature delivery	Yes	42	13.8
	No	262	86.2
Place of birth of last baby	Home	78	25.7
	health institution	221	72.7
	Others	5	1.6
History of depression	Yes	98	32.2
	No	206	67.8
Medical care during labor and delivery	Poor	83	27.3
	Satisfactory	59	19.4
	Good	128	42.1
	very good	34	11.2
chronic medical illness	Yes	58	19.1
	No	246	80.9
Mode of delivery	Spontaneous Vagina delivery	192	62.2
	Cesarean section	105	34.5
	Instrumental delivery	7	2.3

5.3 Marital and Family Relationship Satisfactions of participants

The study found that many women experienced relationship challenges after childbirth, mainly due to reduced emotional closeness and communication with their husbands. Most respondents described their marital relationship as only satisfactory, 129(42.4%), and nearly half, 148 (48.7%),

rated their husbands' support as satisfactory. Relationships with their own families were mostly positive, 141(46.4%), while relationships with their husbands' families were more mixed. About 53(17.4%) of the women reported poor relations, pointing to some extended family tensions.

Table 4 Marital and Family Relationship Satisfactions of the Participants in Asella Town Public Health Facility from September 1-30, 2025

Variables			Frequency	Percentage
Relationship with husband	Very Poor		25	8.2
	Poor		116	38.2
	Satisfactory		129	42.4
	Good		33	10.9
	Very good		1	0.3
Help and support provided by husband	Very Poor		25	8.2
	Poor		62	20.4
	Satisfactory		148	48.7
	Good		68	22.4
	Very good		1	0.3
Relationship with own family	Very Poor		8	2.6
	Poor		38	12.5
	Satisfactory		94	30.9
	Good		141	46.4
	Very good		23	7.6
Relationship with husband's family in general	Very Poor		7	2.3
	Poor		53	17.4
	Satisfactory		140	46.1
	Good		94	30.9
	Very good		10	3.3

5.4 Psychosocial and psychological Characteristics

The study identified various psychosocial and life problems among the mothers. A minority, but notable proportion, reported either a family history of mental illness 49 (16.1%) or a personal history of mental illness 46, (15.1%). A quarter of 78 (25.7%) reported having a baby who had died after birth,

Physical abuse by their husbands or intimate partners was suffered by 75 (24.7%), and 61 (20%) had suffered accidents or injuries. Over a quarter 81 (26.6%) had Workplace problems, and almost a third 94 (30.9%) had suffered separation or divorce.

Financial problems were reported by more than one-third of the post-partum women, 102 (33.6%). Housing problems were also common, affecting nearly one-quarter of the respondents, 80 (26.3%). These findings indicate that many women experienced economic and housing-related challenges after childbirth.

Table 5 Psychosocial and psychological characteristics of the participants in Asella town public health facility from September 1-30, 2025.

Variables		Frequency	Percentage
Personal mental Hx	Yes	46	15.1
	No	258	84.9
Family mental Hx	Yes	49	16.1
	No	255	83.9
Death of a baby	Yes	78	25.7
	No	226	74.3
Recurrent verbal abuse	Yes	70	23
	No	234	77
Accidents or injuries	Yes	61	20
	No	243	80
Physical abuse	Yes	75	24.7
	No	229	75.3
Abandon a dear person	Yes	55	18.1
	No	249	81.9
Workplace problems	Yes	81	26.6
	No	222	73.4
Separation or divorce	Yes	94	30.9
	No	210	69.1
Severe illness of you or a dear person	Yes	85	28
	No	219	72
Difficulty in dealing with your children	Yes	78	25.7
	No	226	74.3
Housing problems	Yes	80	26.3
	No	224	73.7
Financial problems	Yes	102	33.6
	No	202	66.4

5.5. Prevalence of post-partum depression

The prevalence of postpartum depression among the surveyed mothers was 27.6% (95% CI: 22.75%–33.08%), with 84 out of 304 participants identified with postpartum depression. The EPDS results revealed a wide range of emotional struggles. About one-third 100 (32.9%) reported being able to laugh and see the funny side of things as usual, while a similar proportion 95(31.3%) reported not at all. Nearly half, 135 (44.4%), looked forward to things with enjoyment as much as ever. Self-blame was reported “not very often” by 118 (39%) of participants. Anxiety for no reason was absent in 139 (45.7%). Regarding coping with Stress, 125(41%) reported managing well. Nearly half of the participants, 133(43.8%), reported not experiencing a lack of sleep, and sadness was not experienced in 104(34.2%). Crying due to unhappiness occurred only occasionally in 103 (33.9%), while nearly half, 142(46.7%), never had thoughts of self-harm.

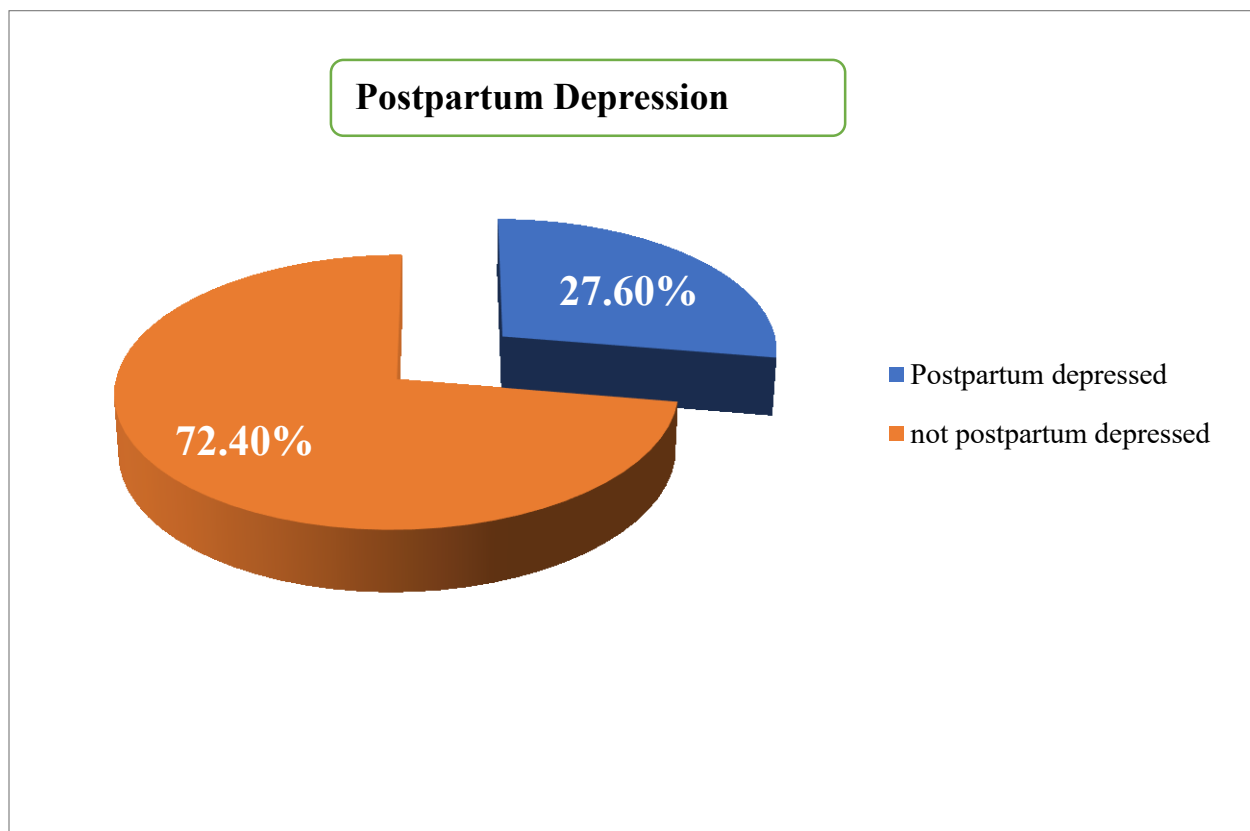


Figure 6 magnitude of post-partum depression among women who gave birth in the last 12 months in Asella town public health facility, Oromia, southeast Ethiopia, 2025. (N=304)

Table 6 EPDS (Edinburgh postnatal depression scale) responses among women who gave birth in the last 12 months in Asella town public health facility, Oromia, southeast Ethiopia, 2025.
(N=304)

Characteristics	Frequency	Percent
Experienced, laugh, and see the funny side of things		
As much as always, I could	100	32.9
Not quite so much now	80	26.3
Definitely not so much now	29	9.5
Not at all	95	31.3
Look forward to things with enjoyment		
As much as I ever did	135	44.4
Rather less than I used to	80	26.3
Definitely less than I used to	33	10.9
Hardly at all	56	18.4
Blamed yourself unnecessarily		
No never	101	33
Not very often	118	39
Yes, some of the time	46	15.2
Yes, most of the time	39	12.8
Been anxious or worried for no good reason		
No, not at all	139	45.7
Hardly ever	101	33.2
Yes sometimes	34	11.2
Yes, very often	30	10.9
Felt scared or panicked for no good reason		
No, not at all	135	44.4
No, not much	111	36.5
Yes, sometimes	45	14.8
Yes, quite a lot	13	4.3
Things have been on top of you		
No, I have been coping	125	41

No, most of the time	64	21.1
Yes, sometimes I haven't been coping as well as usual	69	22.2
Yes, most of the time I haven't been able to cope at all	46	15.2
Difficult to sleep		
No, not at all	133	43.8
Not very often	72	23.7
Yes sometimes	67	22
Yes, most of the time	32	10.5
Felt sad or miserable		
No, not at all	104	34.2
Not very often	82	27
Yes, quite often	76	25
Yes, most of the time	42	13.8
So unhappy, you have been crying		
No, never	115	37.8
Only occasionally	103	33.9
Yes, quite often	70	23
Yes, most of the time	16	5.3
Thought of harming yourself		
Never	142	46.7
Hardly ever	69	22.7
Sometimes	72	23.7
Yes, quite often	21	6.9

5.6 Factors Associated with Postpartum Depression

Ten variables were found to be associated with postpartum depression at the bivariate level ($p < 0.25$) and were therefore included in the multivariate logistic regression analysis. In the final model, several factors remained statistically significant, with a p-value of less than 0.05. Mothers who had financial problems were about 2.7 times more likely to develop postpartum depression compared to their counterparts (AOR = 2.72, 95% CI: 1.39–5.33, $p = 0.003$). Separation or divorce was also a strong predictor, with separated or divorced mothers having 4.5 times higher odds of postpartum depression (AOR = 4.52, 95% CI: 1.98–10.34, $p < 0.001$). Similarly, mothers with unplanned pregnancies had three times higher odds of postpartum depression (AOR = 3.05, 95% CI: 1.39–6.71, $p = 0.006$). The death of a baby was another significant factor, increasing the likelihood of postpartum depression by more than twofold (AOR = 2.43, 95% CI: 1.14–5.18, $p = 0.021$). In addition, mothers with a history of depression were twice as likely to experience postpartum depression compared to those without such a history (AOR = 2.04, 95% CI: 1.03–4.04, $p = 0.042$).

Table 7 Bivariate and multivariate logistic regression analysis of postpartum depression (N=304).

Variables	Depressed n (%)	Not Depressed n (%)	COR (95% C.I)	AOR (5% CI).	P-value
Financial problems					
Yes	45(44.1)	57(55.9)	3.30 (1.95–5.57)	2.723(1.392–5.327)	0.003*
No	39(19.3)	163(80.7)	1	1	
Separation or divorce					
Yes	58(61.7)	36(38.3)	11.4(6.36-20.45)	4.52(1.975–10.344)	0.001*
No	26(12.4)	184(87.6)	1	1	
Babies hospitalized					
Yes	29(64.4)	16(35.6)	13.33(6.51–27.2)	1.228(0.599–2.517)	0.575
No	31(22)	228(88)	1	1	
Planned pregnancy					
Yes	21(11.4)	163(88.6)	1	1	
No	63(52.5)	57(47.5)	8.58(7.07–9.91)	3.051(1.388–6.708)	0.006*
Death of a baby					
Yes	40(51.3)	38(48.7)	4.61 (2.64–8.04)	2.430(1.140–5.181)	0.021
No	42(18.6)	184(81.4)	1	1	
Physical abuse					
Yes	39(52)	36(48)	4.43 (2.54–7.74)	1.584(0.762–3.292)	0.218
No	45(19.7)	184(80.3)	1	1	
History of depression					
Yes	57(58.1)	41(41.9)	7.29(4.22–12.60)	2.036(1.027–4.038)	0.042
No	33(16.1)	173(83.9)	1	1	
Accidents or injuries					
Yes	22(36.1)	39(63.9)	1.65 (0.91–2.99)	1.838(0.816–4.144)	0.142
No	62(25.5)	181(74.5)	1	1	
Premature delivery					
Yes	19(45.2)	23(54.8)	3.18 (1.62–6.26)	1.660(0.316–1.378)	0.269
No	54(20.6)	208(79.4)	1	1	
Chronic medical illness					
Yes	23(39.7)	35(60.3)	1.99 (1.09–3.63)	1.874(0.393–1.941)	0.740
No	61(24.8)	185(75.2)	1	1	

Note: COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence Interval; statistically significant at $p < 0.05$.

*** $p < 0.01$**

6. DISCUSSION

This study found that the Magnitude of postpartum depression among women in Asella town public health facilities was 27.6%. This finding suggests that more than one-quarter of mothers in the study setting presented with depressive symptoms, which is a critical public health issue.

The result of this study is consistent with findings from Uganda, 27.1% and Vietnam, 27.6%(22,28), thus further proving that the incidence of PPD is particularly higher in low- and middle-income countries. This similarity may reflect shared socioeconomic challenges, limited access to mental health services, and comparable cultural attitudes toward motherhood and emotional expression. Within Ethiopia, the prevalence observed in this study is comparable to reports from Gondar, which was 25% and in Addis Ababa, 23.3% (17,51), indicating that the prevalence of PPD is generally similar across different Ethiopian urban settings. The observed consistency across these studies could be attributed to similarities in study design, the use of comparable screening tools such as the Edinburgh Postnatal Depression Scale (EPDS), and overlapping sociodemographic characteristics of the study populations. In contrast, the prevalence of postpartum depression was 33.8% in Southwest Ethiopia, which was slightly higher than the current study finding, whereas the prevalence observed in Debre Berhan, 15.6% was considerably lower (3,38). The differences between studies may be attributed to variations in sample size, study area, timing of data collection, and the EPDS threshold value of the Edinburgh Postnatal Depression Scale.

Several factors were significantly associated with postpartum depression in this study. First, financial problems were found to place PPD at almost three times greater risk. This was similar to findings from studies conducted in Mizan Aman, Ethiopia, and Nepal(29,38) . Economic hardship can generate chronic stress, limit access to healthcare, and exacerbate feelings of inadequacy, all of which contribute to maternal depression.

Second, separation or divorce was strongly associated with PPD in this study, with affected mothers having 4.5 times higher odds of depression compared to their married counterparts. This finding agrees with studies in Debre Tabor, Ethiopia, and India(1,26), where the absence of spousal support and unstable marital conditions were significant risk factors. Lack of emotional, financial,

and social support from a partner during the sensitive postpartum period may leave women feeling isolated and helpless, contributing to depressive symptoms.

Third, an unplanned pregnancy increased the risk of PPD by threefold. Similar results were reported in Southwest Ethiopia, Jordan, and Debre Berhan(38,40,52). Unintended pregnancies were linked with higher rates of maternal depression. Unplanned pregnancies may lead to stress, guilt, or social pressure, which heightens the likelihood of depressive symptoms.

The death of a baby was significantly associated with PPD; mothers who had lost a child were twice as likely to experience depression compared to those without such a history. This finding aligns with evidence from Hiwot Fana Hospital, Eastern Ethiopia, and Southwest Ethiopia(38,43). where infant death was a strong predictor of maternal depression. Grief, guilt, and unresolved trauma likely contribute to these outcomes.

Finally, a history of depression was a significant predictor. Those mothers who had a history of depressive attack were twice as likely as those who did not have one to develop PPD. This study findings agreed with the findings conducted in Mizan Aman and international studies(38,53,54), where a past mental health condition was a strong determinant of postpartum depression. This highlights the importance of mental health screening during pregnancy and postpartum care.

In contrast, some factors, such as premature delivery, chronic medical illness, and physical abuse, were not significantly associated with PPD after adjusting for confounders. These findings differ from some Ethiopian and international studies, suggesting that contextual differences and protective cultural or family mechanisms may influence these associations.

Overall, the findings underscore that a combination of socioeconomic stressors, marital instability, reproductive history, and prior psychological vulnerability influences postpartum depression in this setting.

7. CONCLUSION

The research showed that postpartum depression affected more than one out of four mothers in Asella town. Predictors of PPD in this study were financial problems, separation or divorce, unplanned pregnancy, death of a baby, and a history of depression as significant predictors of PPD.

The high prevalence of PPD observed in this study underscores the need for routine screening, psychosocial counseling, and integration of mental health services among mothers in the existing reproductive health care services.

Post-partum depression in this setting is not only a medical problem but also a reflection of socioeconomic, psychosocial, and reproductive health challenges faced by mothers. Addressing these determinants will be critical for improving maternal well-being, family stability, and child development outcomes.

8. Recommendations

For Health Facilities and Policymakers, incorporate PPD screening into routine postnatal care using standardized instruments that include EPDS. Improve referral systems so women diagnosed with PPD can be referred appropriately for counseling, psychosocial interventions, or psychiatric care. Make provision for maternal mental health services and interventions, especially for mothers at risk, including the most vulnerable mothers facing financial burdens, unplanned pregnancies, or marital instability.

For Health Care Providers, give special attention to high-risk women in the form of early follow-up and supportive counseling, such as those with a history of depression or with the loss of a baby.

For the Community and Families, promote family and partner participation in maternal care, which will bring emotional and material support to women. Develop women's support groups or peer networks where mothers can share experiences, receive encouragement, and build resilience.

For Future Researchers, conduct longitudinal studies to assess the long-term implications of identified risk factors and to establish causal relationships. Utilize qualitative studies to examine the cultural, social, and emotional dimensions of PPD that quantitative measures may not capture through questionnaires. Evaluate the effectiveness of screening and intervention programs for PPD in Ethiopia, to inform evidence-based policies and practices.

9. Strengths and limitations

9.1 Strengths

This study provides important evidence on the magnitude and factors associated with postpartum depression among mothers attending public health facilities in Asella Town, where limited data were previously available. The use of the Edinburgh Postnatal Depression Scale, a standardized and validated screening tool, enhanced the reliability and comparability of findings with other studies.

9.2 Limitation

The cross-sectional design limits the ability to establish causal relationships between associated factors and postpartum depression. In addition, since the study was facility-based, it might not fully represent mothers who do not attend postnatal care services, possibly leading to selection bias.

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11. ANNEXES (English version)

Annex 1: English version Information Sheet and Consent Form

Arsi University Institute of Health

College of Public Health and Medical Sciences

1. Information Sheet and informed consent form for the hospital manager

My name is Tina Solomon (BSc N), and I am studying at Arsi University, Institute of Health Sciences. I kindly request you to permit me to conduct the study in this hospital on the Magnitude and factors associated with postpartum depression among women who gave birth in the last 12 months in the Asela town public health facility, 2025.

Purpose of the study

The purpose of this study is to write a thesis as a partial requirement for the fulfillment of a Master's of Public Health for the principal investigator.

This study will provide an evidence base from which further studies can be done and compared, not just at this hospital, but from other hospitals in Ethiopia. It serves as an initial step to do further research and a pioneering study for our junior students and other investigators toward future studies in related subjects. It also expands our knowledge about the various aspects of PPD among Asela women in order to focus on coming research. This study is expected to unveil and draw the attention of health facility practitioners to many ignored aspects of PPD and its associated factors, to give them more focus towards the integration of PPD screening during the care of pregnant and postpartum women.

Procedure and duration

Postpartum mothers will be interviewed using a structured questionnaire.

The Edinburgh Postnatal Depression Scale (EPDS) will be used to screen for depressive symptoms, and the data collector will fill out a questionnaire within 15 minutes.

Benefits and risks

The findings from this research may reveal important information for hospital managers There is no risk at all from this study.

Confidentiality and Rights

The information postpartum mother will provide us will be confidential. There will be no information that will identify the mother in particular. Participation in this study is fully voluntary. The mother has the right to decide whether to participate or not in this study.

Declaration of informed voluntary consent

I have read the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating, and the contact address for any questions. I have been allowed to ask questions about things that may have been unclear. I was informed that I have the right to stop this study from being conducted in this hospital at any time. Therefore, I declare my voluntary consent for the student to conduct the study in this hospital with my initials (signature) as indicated below.

Signature of participant ----- Signature of data collector-----

Date / / .

Annex 2: English version of Questionnaire

Section one: socio-demographic information:

Table 8 Socio-demographic characteristics of the study population at the Asela town public health facility from September 1 to 30, 2025.

Variables	Response
1. Age (yrs)	
2. Ethnicity	1. Oromo 2. Amhara 3. Tigray 4. Gurage 5. others
3. Marital Status	1. Single 2. Married 3. Divorced 4. Widowed
4. Residence	1. urban 2. rural

5. Educational Status	1. unable to read and write 2. only reading and writing 3. Elementary school 4. High school and preparatory 5. College graduate
6. Family Monthly Income	- ETB/month
7. occupation	1. housewife 2. Farmer 3. Private office worker 4. student 5. Government worker 6. merchant 7. other
8. Religion	1. Orthodox 2. Protestant 3. Muslim 4. Others

Section two: Pregnancy and birth-related factors

Table 9: Pregnancy and birth-related factors of the study population in Asella town public health facility from September 1-30, 2025.

Variable	Response
1. Number of pregnancies	_____
2. Any experience death of a baby	1. yes 2. no
3. Any of the babies hospitalized	1. yes 2. no
4. Planned pregnancy	1. yes 2. no
5. Desired gender of the last baby	1. Desired 2. undesired 3. I don't mind
6. premature delivery	1. yes 2 .no
7. Mode of delivery last baby	1. Vaginal 2. Cesarean section 3. Instrumental delivery

8. Place of birth of last baby	1. home 2. health institution 3. others
9. History of depression	1. yes 2. no
10. Medical care during labor and delivery	1. Poor 2. Satisfactory 3. Good 4. very good
11. chronic medical illness	1. Yes 2. No

Table 10 Marital and Family relationship satisfactions of the participants in Asella town public health facility from September 1-30, 2025.

Variable	Categories
1. Relationship with husband	1. Very Poor 2. Poor 3. Satisfactory 4. Good 5. Very good
2. Help and support provided by husband	1. Very Poor 2. Poor 3. Satisfactory 4. Good 5. Very good
3. Relationship with own family	1. Very Poor 2. Poor 3. Satisfactory 4. Good 5. Very good
4. Relationship with husband's family in general	1. Very Poor 2. Poor 3. Satisfactory 4. Good 5. Very good

Section three: psychosocial and psychological factors

Table 11: Psychosocial and psychological characteristics of the participants in Asella town public health facility from September 1-30, 2025.

Variable	Response
1. Personal mental Hx	1. Yes 2. 0 No
2. Family mental Hx	1. yes 2. 0 No
3. Death of a baby	1. yes 2. 0 No
4. recurrent verbal abuse	1. yes 2. 0 No
5. Accidents or injuries	1. yes 2. 0 No
6. Physical abuse	1. yes 2. 0 No
7. Abandon a dear person	1. yes 2. 0 No
8. Workplace problems	1. yes 2. 0 No
9. separation or divorce	1. yes

	2. 0 No
10. Severe illness of you or a dear person	1. Yes 2. 0 No
11. Difficulty in dealing with your children	1. yes 2. 0 No
12. Financial problems	1. yes 2. 0 No
13. Housing problems	1. yes 2. 0 No

Table 12 EPDS (Edinburgh postnatal depression scale) responses among women who gave birth in the last 12 months in the Asella town public health facility from September 1- 30, 2025 GC.

The Edinburgh Postnatal Depression Scale:

1. The mother is asked to check the response that comes closest to how she has been feeling in the previous 7 days.
2. All the items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others. (Answers come from the mother or pregnant woman.)
4. The mother should complete the scale herself,

Symptoms	Response
1. I have been able to laugh and see the funny side of things	0. As much as I always could 1. Not quite so much now 2. Definitely not so much now. 3. Not at all.
2. I have looked forward with enjoyment to things	0. As much as I ever did. 1. Rather less than I used to 2. Definitely less than I used to 3. Hardly at all.
3. I have blamed myself unnecessarily when things went wrong.	0. Yes, most of the time 1. Yes, some of the time. 2. Not very often. 3. No, never
4. I have been anxious or worried for no good reason	0. No not at all. 1. Hardly ever. 2. Yes, sometimes. 3. Yes, very often.
5. I have felt scared or panicky for no very good reason.	0. Yes, quite a lot. 1. Yes, sometimes.

	2. No, not much. 3. No, not at all.
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6. Things have been getting on top of me.	0. Yes, most of the time I haven't been able to cope at all 1. Yes, sometimes I haven't been coping as well as usual. 2. No, most of the time I have coped quite well 3. No, I have been coping as well as ever
7. I have been so unhappy that I have had difficulty sleeping.	0. Yes, most of the time 1. Yes, sometimes 2. Not very often. 3. No, not at all.
8. I have felt sad or miserable	0. Yes, most of the time 1. Yes, quite often 2. Not very often 3. No, not at all.
9. I have been so unhappy that I have been crying	0. Yes, most of the time 1. Yes, quite often 2. Only occasionally 3. No, never
10. The thought of harming myself has occurred to me	0. Yes, quite often 1. Sometimes. 2. Hardly ever 3. Never

**Thank You for Your
Cooperation! Assurance
of Principal Investigator**

The undersigned agrees to accept responsibility for the scientific, ethical, and technical conduct of the research project and for the provision of required progress reports as per the terms and conditions of the Health Science Institute in effect at the time of grant is forwarded as a result of this application.

Name of the
resident:

Date: _____ -

Signature: _____

Approval of Advisors

Name of the first
advisor: _____

Date: _____

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Name of the second advisor: _____

Date _____ Signature _____

Annex 4: Amharic (local language) version questionnaire

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Annex 5: Afan Oromo (local language) version information sheet and consent

Inistiitiyuutii Fayyaa Yuunivarsiitii Arsii

Kolleejjii Fayyaa Hawaasaa fi Saayinsii Meedikaalaa

1. Waraqaa Odeeffannoo fi unka hayyama beekumsa qabu hogganaa hospitaalaaf

Maqaan koo Tiinaa Solomoon (BSc N) jedhama, Yuunivarsiitii Arsii, Inistiitiyuutii Saayinsii Fayyaatti barachaa jira. Dubartoota ji'oota 12 darban keessatti dhaabbata fayyaa hawaasaa magaalaa Asallaa keessatti da'an irratti Guddinaa fi dhimmoota dhiphina dahumsa boodaa wajjiin walqabatan irratti qorannoo hospitaala kana keessatti akkan gaggeessu akka naaf hayyamtan kabajaan isin gaafadha.

Kaayyoo qorannichaa

Kaayyoon qorannoo kanaa qorataa ijoodhaaf Mastersii Fayyaa Hawaasaa guutuuf akka barbaachisummaa gartokkeetti barruu qorannoo (thesis) barreessuudha.

Qorannoon kun hospitaala kana qofa osoo hin taane, hospitaalota Itoophiyaa biroo irraa qorannoo dabalataa irraa hojjetamuu fi wal bira qabamee ilaalamuu danda'u bu'uura ragaa ni ta'a. Barattoota keenya sadarkaa gadii fi qorattoota biroo qorannoo dabalataa fi qorannoo qajeelchaa ta'ee gara qo'annoo gara fuula duraatti gosoota barnootaa walqabatan irratti akka tarkaanfii jalqabaatti tajaajila. Akkasumas qorannoo dhufu irratti xiyyeeffachuuf jecha waa'ee gama adda addaa PPD dubartoota Asallaa biratti beekumsa keenya bal'isa. Qorannoon kun, yeroo kunuunsa dubartoota ulfaa fi da'umsa boodaa keessatti qorannoo PPD walitti makuuf xiyyeeffannoo guddaa akka

isaaniif kennuuf, gama PPD fi wantoota isaa wajjiin walqabatan hedduu tuffataman irratti xiyyeeffannaa ogeeyyii dhaabbilee fayyaa ni mul'isa, ni harkisa jedhamee eegama.

Hojimaataa fi yeroo turtii

Haadholiin da'umsa boodaa gaaffilee caaseffama qabu fayyadamuun ni taasifama.

Iskeeliin dhiphina sammuu dahumsa boodaa Edinburgh (EPDS) mallattoolee dhiphina sammuu qorachuuf kan oolu yoo ta'u, namni odeeffannoo walitti qabu daqiiqaa 15 keessatti gaaffilee ni guuta.

Faayidaa fi balaa

Argannoon qorannoo kanarraa argame hoggantoota hospitaalaaf odeeffannoo barbaachisaa ta'e mul'isuu danda'a Qorannoon kun balaan tasumaa hin jiru.

Iccitii fi Mirga

Odeeffannoon haati da'umsa boodaa nuuf kennitu iccitii ta'a. Odeeffannoon addatti haadha adda baasu hin jiraatu. Qorannoon kun hirmaannaan guutummaatti fedhii ofiitiin kan raawwatamudha. Haati qorannoo kana irratti hirmaachuu fi dhiisuu murteessuuf mirga qabdi.

Labsii hayyama tola ooltummaa ibsu

Waraqaa odeeffannoo hirmaattotaa dubbiseera. Kaayyoo qorannichaa, hojimaata, balaa fi faayidaa, dhimmoota iccitii, mirga hirmaachuu, fi gaaffii kamiyyuu sirriitti hubadheera. Wantoota ifa ta'uu dhiisuu danda'an irratti gaaffii akkan gaafadhu carraan naaf kennameera. Qorannoon kun yeroo kamiyyuu hospitaala kana keessatti akka hin gaggeeffamne dhaabuuf mirga akkan qabu naaf himameera. Kanaafuu, barataan kun akka armaan gaditti ibsametti qubee jalqabaa (mallattoo) kootiin hospitaala kana keessatti qo'annoo akka gaggeessuuf fedhii kootiin hayyama koo nan ibsa.

Mallattoo hirmaataa ----- Mallattoo daataa walitti qabaa----- .

Guyyaa / / .

Annex 6: Afan Oromo (local language) version questionnaire

Kutaa tokkoffaa: odeeffannoo hawaas-dimoogiraafii: .

_Gabatee 17Amaloota hawaas-dimoogiraafii uummata qorannoo dhaabbata fayyaa hawaasaa magaalaa Asela keessatti, 2025 GC.

Jijjiiramoota	Deebii
1.Umurii (waggaa) .	
2.Sabummaa	1. Afaan Oromoo 2. Amaaraa 3. Tigraay 4. Gurage 5. kaan
3.Haala Gaa'elaa	1. kan hin herumne 2. Kan fuudhe 3. Hiikkaan

	4. Dubartii abbaan manaa irraa du'e
4. Mana jireenyaa	1. magaalaa 2. baadiyyaa
5. Haala Barnootaa	1. dubbisuu fi barreessuu dadhabuu 2. dubbisuu fi barreessuu qofa 3. Mana barumsaa sadarkaa tokkoffaa 4. Mana barumsaa sadarkaa lammaffaa fi qophii 5. Kolleejjii irraa eebbifame
6. Galii Maatii Ji'aa	- ETB/ji'a
7. hojii	1. haadha manaa 2. Qotee bulaa 3. Hojjetaa waajjira dhuunfaa 4. barataa 5. Hojjetaa mootummaa 6. daldalaa 7. kan biroo
8. Amantii	1. Ortodoksii 2. Pirootestaantii 3. Muslima

	4. Kanneen biroo
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Kutaa lama: Ulfaafi wantoota da'umsaan walqabatan

Gabatee 18: Ulfaa fi da'umsaan walqabatee dhimmoota baay'ina qorannoo dhaabbata fayyaa hawaasaa magaalaa Asela keessatti, 2025.

Jijjiiramaa	Deebii
1. Baay'ina ulfaa	_____.
2 Du'a daa'ima	1. Eeyyee 2. Lakki
3. Daa'imman hospitaala seenan jira	1. Eeyyee 2. Lakki
4. Ulfa karoorfame	1. Eeyyee 2. Lakki
5. daa'ima dhumaa Saala barbaadamu dha	1. Kan barbaadamu 2. hin barbaadamne 3. Ani hin dhibu
6. yeroo malee da'uu	1. eeyyee 2. .lakk
7. Haala da'umsa daa'ima dhumaa	1. Qaama saalaa 2. Baqaqsanii hodhuu 3. Meeshaaleen
8. Bakka dhaloota daa'ima dhumaa	1. mana

	2. dhaabbata fayyaa 3. kan biro
9. Seenaa dhiphina sammuu qabda	1.Eeyyee 2.Lakki
10. yeroo dahumsaa Kunuunsa yaalaa jira	1. Gadi bu'a dha 2. Quubsaa dha 3. Gaarii 4. baay'ee gaarii
11. dhukkuba yaalaa yeroo dheeraa	1.Eeyyee 2.Lakki

Gabatee 19Itti quufinsa hariiroo gaa'ilaa fi maatii hirmaattoota dhaabbata fayyaa hawaasaa magaalaa Aselaa, 2025.

Jijjiiramaa	Ramaddiiwwan
1.Hariiroo abbaa warraa waliin	1. Baay'ee gadi bu'a dha 2. Gadi bu'a dha 3. Quubsaa dha 4. Gaarii 5. Baay'ee gaarii
2.Gargarsaa fi deeggarsa abbaan warraa kennu	1. Baay'ee gadi bu'a dha 2. Gadi bu'a dha 3. Quubsaa dha 4. Gaarii 5. Baay'ee gaarii
3.Maatii ofii waliin walitti dhufeenya qabaachuu	1. Baayyee gaarii mitti 2. Baay'ee gadi bu'adha 3. Quubsaa dha 4. Gaarii 5. Baay'ee gaarii
4.Walumaa galatti maatii abbaa warraa wajjin walitti dhufeenya qabaachuu	1. Baayyee gaarii mitti 2. Gaarii mitti 3. Quubsaa dha 4. Gaarii 5. Baay'ee gaarii

dhimmoota saayikooshawaasummaa fi xiinsammuu

Gabatee 20: Amaloota xiin-hawaasummaa fi xiin-sammuu hirmaattoota dhaabbata fayyaa hawaasaa magaalaa Aselaa irraa eegalee.

Jijjiiramaa	Deebii
1.Seena Sammuu Dhukkubsachuu qabachuu ishee	1. Eeyyee 2. 0 Lakk
2.Seena Sammuu Dhukkubsachuu maati qabachuu	1. Eeyyee 2. 0 Lakk
3. daa'ima du'an boqatee jira	1. Eeyyee 2. 0 Lakk
4.jechaan irra deddeebiin arrabsamuun jira	1. Eeyyee 2. 0 Lakk
5.balaa ykn miidhamuu jira	1. Eeyyee 2. 0 Lakk
6.miidhaa qaamaa	1. Eeyyee 2. 0 Lakk
7.nama jaallatu dhiisuun jira	1. Eeyyee 2. 0 Lakk
8.rakkoo bakka hojii jira	1. Eeyyee 2. 0 Lakk
9.adda bahuu ykn wal hiikuu jira	1. Eeyyee

	2. 0 Lakk
10. Namni dhihoo dhukkuba cimaadhan dhukkubsatuu jira	1. Eeyyee 2. 0 Lakk
11. Ijoollee keessanii wajjin walitti dhufeenya qabaachuu irratti rakkina jira	1. Eeyyee 2. 0 Lakk
12. Rakkoo maallaqaa	1. Eeyyee 2. 0 Lakk
13. Rakkoo mana jireenyaa	1. Eeyyee 2. 0 Lakk

Gabatee 21EPDS (edinburgh postnatal depression scale) dubartoota ji'oota 12 darban keessatti dhaabbata fayyaa hawaasaa magaalaa Asela keessatti da'an gidduutti, 2025 GC.

Iskeelii Dhiphina Da'umsa Boodaa Edinburgh:

1. Haati kun deebii guyyoota 7 darban keessatti miira ishee itti dhagahamaa tureetti dhihoo ta'e akka ilaaltu gaafatamti.
2. Meeshaaleen hundi guutamuu qabu.
3. Haati deebii ishee namoota biroo wajjin akka hin mari'anne of eeggannoo gochuun barbaachisaadha. (Deebiin haadha ykn dubartii ulfaa irraa dhufa.)
4. Haati ofumaa gaafii xumuruu qabdi, .

Mallattoolee dhukkubaa	Deebii
1.gama waan nama kofalchiisuun ilaaluu danda'a	Akka hedduu akka An yeroo hundumaa ni danda'a ture Guutummaatti miti amma baay'ee Sirriimatti hangas miti amma. Miti tasumaa .
2.Gara fuulduraatti waan ummamuu gammachuudhaan eggaan jira	0. Akka baay'ee akka An godhee beeka. 1. Irra gad bu'aa irra An fayyadame gara 2. Sirriimatti gadi An fayyadame gara 3. Akka hintaanetti itti hunda.
3. Dogoggori yeroo ummama sababa tokko malee ofaan komadha	0. Eeyyee, irra caalaan yeroo 1. Eeyyee, muraasa kan yeroo . 2. Miti baay'ee yeroo hedduu. 3. Lakki , gonkumaa
4.Sababa tokko malee yaadda'aa ykn yaadda'e - jira	0. Lakki gonkumaa 1. umaa miti . 2. Akka hintaanetti yoomiyyuu. 3. Eeyyee, yeroo tokko tokko. 4. Eeyyee, baay'ee yeroo hedduu.

5. Sababa tokko malee sodaa ykn rifachuun natti dhaga'ameera.	0. Eeyyee, baay'ee. 1. Eeyyee, yeroo tokko tokko. 2. Lakki, Baay'ee miti. 3. Lakki, tasumaa miti.
6. Wantoota qaba been argachuu gubbaatti kan koo .	Eeyyee, harka calu kan -icha yeroo An hin qaban been danda'uu tasumaa dandamachuuf Eeyyee, yeroo tokko tokko An hin qaban been dandamachuu danda'uu akkasumas akka baramaetti. 3. Lakki, irra caalaan yeroo An qaba baay'ee dandamachuu danda'eera gaarii 4. Lakkii, ani qaba been dandamachuu danda'uu akka gaarii akkuma yeroo kaanii
7 .Gammachuu dhabuu kootiin rakkina hirriba na mudate jira	0. Eeyyee, irra caalaan yeroo 1. Eeyyee, yeroo tokko tokko 2. baay'ee miti 3. Lakki, gonkumaa miti .
8. Aarii fi gaddi natii dhaga'ame jira	0. Eeyyee, yeroo hedduu 1. Eeyyee, gahaadhumatti yeroo hedduu 2. baay'eesii miti 3. Lakki, gonkumaa miti .
9. Gammachuu dhabuu kootiin boo'aa ture	0. Eeyyee, yeroo hedduu 1. Eeyyee, gahaadhumatti yeroo hedduu 2. yeroo tokko tokko qofa 3. Lakki , gonkumaa
10. Yaadni of miidhuu natti dhufeera	0. Eeyyee, yeroo baay'ee 1. Yeroo tokko tokko. 2. Gonkumaa hin 3. Gonkumaa

Galateeffachuu Ati,

F Kan kee Gamtoomina!

Mirkaneessuu kan

Qorataa Muummee

Kan armaan gaditti mallatteesse itti gaafatamummaa saayinsii, naamusaa fi teeknikaa fudhachuuf walii galeera dabarsuu kan pirojektii qorannoo fi dhiyeessii gabaasa adeemsa hojii barbaadamu akka haalawwanii fi dambiiwwan Inistiitiyuutii Saayinsii Fayyaa yeroo sanatti hojiirra oolaa ture kan gargaarsi bu'aa iyyata kanaatiin kan darbu ta'a.

Maqaa jiraataa:_____ Guyyaa:-_____

Mallattoo:_____

Mirkaneessa kan Gorsitoota

Maqaa gorsaa jalqabaa:_____ Guyyaa:_____

Mallattoo_____

Maqaa gorsaa lammaffaa:_____

Mallattoo _____Guyyaa_____

Declaration of Investigator

I, the undersigned student of the Master of Public Health program, declare that this thesis is my original work, submitted in partial fulfillment of the requirements for the degree of Master of Public Health in General Public Health, to the best of my knowledge.

Name of investigator: Tina Solomon

Signature: [Signature]

Date: _____

Declaration of Advisors

We, the undersigned, hereby declare that we have carefully reviewed this thesis and provided guidance for its preparation. We confirm that this thesis paper is ready for defense with our approval as the university advisor(s), and to the best of our knowledge, the work presented meets the academic standards and is in partial fulfillment of the requirements for the degree of Master of Public Health in General Public Health.

1. Name of Principal Advisor: Gesi Abero

Signature: [Signature]

Date: 18/11/2025

2. Name of Co-Advisor: Dr. Solomon Tej'inen

Signature: [Signature]

Date: 19/11/2025