

Maternal Mental Health and Birth Outcomes in the Southwest Region of Cameroon

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Abstract

Background

Maternal mental health is a critical yet often overlooked component of maternal and child health, particularly in low-resource and conflict-affected settings. Perinatal depression and anxiety have been linked to adverse birth outcomes, impaired infant development, and disruptions in mother-infant bonding. This study assessed the prevalence of depressive and anxiety symptoms among pregnant and postpartum women in the Southwest Region of Cameroon. It examined their associations with birth outcomes, infant well-being, coping strategies, and experiences with the healthcare system.

Methods

A community-based cross-sectional study was conducted with 201 pregnant and postpartum women recruited from April 2025 to September 2025 from antenatal clinics, community outreach programs, and household visits. Data were collected using administered questionnaires assessing sociodemographic characteristics, mental health symptoms, birth outcomes, infant well-being, coping strategies, and perceptions of healthcare support. Probable depression and anxiety were identified using a custom scoring approach conceptually based on the PHQ-2 and GAD-2, with scores ≥ 2 indicating frequent symptoms. Chi-square analyses examined associations between mental health symptoms and maternal, infant, and psychosocial outcomes.

Results

The most represented age group was 25–34 years (39.8%). Probable depression and anxiety were identified in 26.9% and 28.9% of participants, respectively. Anxiety symptoms were significantly associated with birth weight ($p = 0.015$) and the quality of mother-infant bonding ($p = 0.004$), while depression showed no statistically significant associations with measured birth or infant outcomes. Women relied heavily on social and spiritual coping mechanisms, particularly talking to someone, prayer, and physical or relaxation activities. Key barriers to mental health support included stigma, limited access to counseling, and negative or unsupportive provider attitudes.

Conclusion

Perinatal mental health concerns are common and consequential among women in the Southwest Region of Cameroon. Strengthening maternal health services through routine mental health screening, culturally responsive psychosocial support, and respectful maternity care is essential for improving outcomes for mothers and infants in this setting. Findings underscore the need for integrated,

community-based mental health interventions in regions affected by sociopolitical and health system constraints.

Introduction

There is growing recognition of the importance of maternal mental health in determining the well-being of both mothers and their children.¹ Perinatal mental disorders, primarily depression and anxiety, are now understood to be among the most common complications of pregnancy and the postpartum period.^{2,3} These conditions not only compromise women's psychological health but are also associated with adverse birth outcomes and impaired infant development. Global estimates indicate that perinatal mental health problems affect approximately one in five women, with substantially higher rates observed in low- and middle-income countries (LMICs) due to poverty, limited healthcare infrastructure, and cultural stigma surrounding mental illness.⁴

More recent analyses underscore the magnitude of this burden. Previous studies conducted across LMICs found that 24.7% of women experience perinatal depression, highlighting its significant contribution to maternal morbidity worldwide.⁵ Complementing these findings, a WHO-supported systematic review reported weighted mean prevalence rates of 15.6% during pregnancy and 19.8% postpartum for non-psychotic perinatal mental disorders, reflecting a disproportionately elevated burden in settings where socioeconomic vulnerabilities are widespread and access to care is limited.⁴

The consequences of untreated maternal mental health problems extend beyond the mother herself. Evidence consistently links antenatal depression and anxiety with preterm birth, low birth weight, and obstetric complications.^{3,6} Postpartum, these conditions can negatively affect mother–infant bonding, breastfeeding practices, and early infant development, with potential long-term implications for child health and socioemotional trajectories.^{2,7} Despite these well-documented risks, perinatal mental health remains a low priority in many LMIC health systems, including Cameroon, where service availability is limited, and stigma continues to discourage care-seeking.

Across sub-Saharan Africa, social and structural determinants further compound vulnerability to perinatal mental disorders. Economic hardship, ongoing insecurity, gender-based violence, and weak health system capacity all contribute to heightened psychosocial stress during pregnancy and postpartum. A continent-wide review highlights how poverty-related stress and limited availability of mental health services substantially increase risk among African women.⁸ In Cameroon, hospital-based studies have documented high levels of depression, anxiety, and suicidality among perinatal women, underscoring persistent gaps in screening, limited provider capacity, and pervasive stigma within maternity services.⁹

Research Objectives

1. To determine the prevalence of self-reported maternal depressive and anxiety symptoms during the perinatal period.
2. To evaluate the associations between maternal mental health symptoms and key birth outcomes and infant well-being indicators.
3. To identify the coping strategies women use to manage psychological distress during pregnancy and postpartum.
4. To assess how maternal mental health challenges shape healthcare needs, barriers to care, and implications for policy and service delivery in the Southwest Region of Cameroon.

Rationale and significance of the study

Perinatal mental health disorders, particularly depression and anxiety, are major contributors to maternal and newborn morbidity in LMICs. Women in the Southwest Region of Cameroon may be especially vulnerable due to the combined effects of sociopolitical instability, economic hardship, displacement, and fragmented healthcare services. Despite this heightened risk environment, there is limited empirical evidence from this region examining the prevalence, determinants, consequences, and coping mechanisms associated with perinatal mental health challenges.

This study addresses these gaps by generating community-based evidence on maternal mental health during pregnancy and the postpartum period. By documenting women's self-reported depressive and anxiety symptoms, alongside birth outcomes, infant well-being, coping behaviors, and perceptions of health system support, the study provides a multidimensional understanding of how perinatal mental health concerns manifest within everyday life. It also illuminates how cultural and informal support systems, such as family, community networks, and spiritual practices, often complement or substitute for formal mental health services in this context.

The findings have significant implications for health system strengthening. By identifying modifiable barriers to care, unmet needs, and culturally grounded coping patterns, the study offers evidence to inform the integration of mental health into routine antenatal and postnatal care, the expansion of psychosocial support and counseling services, and the development of community-based intervention models that reflect local realities. These insights are essential for improving early detection, referral, and supportive care and align with WHO priorities for respectful, person-centered maternal and newborn healthcare.

Materials and Methods

Study Design and Setting

This study employed a cross-sectional, community-based design conducted across the Southwest Region of Cameroon. Data collection occurred across multiple settings to ensure representation of women who used and did not use formal healthcare services, including antenatal clinics, community

outreach programs, and household-based recruitment. This mixed-location approach broadened access to pregnant and postpartum women from diverse socioeconomic and geographic backgrounds.

Participants

The study included pregnant women at any gestational stage and postpartum women within 12 months of delivery. Eligible participants were aged 18 years or older, residing in the study area, and able to provide informed consent. Women with severe pre-existing psychiatric conditions unrelated to the current pregnancy were excluded.

Sample Size Determination

Sample size was calculated using Cochran's formula for prevalence studies, based on an estimated 20% prevalence of perinatal depression and anxiety in low- and middle-income settings, a 95% confidence level, and a 5% margin of error. The minimum required sample was 246 women. Due to logistical limitations, including regional instability, a total of 201 women were successfully recruited and included in the final analysis.

Data Collection Procedures

Data were collected from April 2025 to September 2025 by trained research assistants. Surveys were administered verbally in English or French, depending on participant preference, to reduce literacy-related barriers. All interviewers received training on ethical data collection, mental health sensitivity, and accurate recording of participant responses.

The survey was administered in private settings within health facilities or in community spaces to ensure confidentiality. Participants were informed about study objectives, assured that participation was voluntary and anonymous, and provided written or verbal consent.

Instrument and Study Variables

The questionnaire contained several domains, each designed to assess a specific dimension of perinatal mental health and related contextual factors:

1. Sociodemographic Characteristics: Age, marital status, education, employment, household income level, number of children, and urban/rural location.

2. Perinatal Stage: Current stage of pregnancy (first, second, or third trimester) or postpartum status up to 12 months after birth.

3. Mental Health Symptoms

Mental health was assessed using two single-item frequency questions conceptually aligned with the PHQ-2 and GAD-2. These items were tailored for simplicity in a community-based, resource-limited

context rather than as a validated diagnostic tool. Participants were asked:

- Depression: “How often have you felt sad, down, or depressed in the past two weeks?”
- Anxiety: “How often have you felt anxious or worried in the past two weeks?”

Scoring and Classification

Responses were captured on a four-point scale (0 = *Not at all*; 1 = *Several days*; 2 = *More than half the days*; 3 = *Nearly every day*).

Participants were classified as having significant symptoms if they scored ≥ 2 on either item. This threshold identifies symptoms occurring at least “more than half the days,” ensuring consistency with standard screening frequency criteria.

To provide a broader clinical context, a multi-select checklist allowed participants to report additional symptoms, such as sleep disturbances, appetite loss, guilt, and thoughts of self-harm. While these provided qualitative depth, they were not included in the formal scoring system.

4. Birth Outcomes: Items included pregnancy or birth complications, type of complication, birth weight category, infant health at six months, and infant health issues.

5. Mother–Infant Relationship: A single item assessed bonding with the infant using five response levels (Very strong to Very weak).

6. Coping Mechanisms: Participants selected stress-management strategies, including talking to someone, praying or spiritual practices, physical activity, relaxation techniques, medication, and traditional remedies.

7. Healthcare Provider Support and Barriers: Items addressed prior diagnoses, care-seeking behavior, access challenges, and recommendations for improving perinatal mental health services, including provider attitudes, need for education, and community engagement.

Data Management and Statistical Analysis

All data were entered, cleaned, and analyzed using R version 4.3.2. Descriptive statistics were used to summarize participant characteristics, mental health indicators, coping strategies, and birth outcomes. Bivariate analyses were conducted using Chi-square tests to examine associations between depressive and anxiety symptoms and a range of independent variables, including sociodemographic characteristics, perinatal stage, social support and stigma, healthcare access, birth outcomes, infant well-being, mother–infant bonding, and coping behaviors. Statistical significance was set at $p < 0.05$, and results were presented using frequency tables and chi-square comparison tables for clarity.

Ethics approval and consent to participate

Ethical approval for this study was obtained from the Institutional Review Board (IRB) of the Faculty of Health Sciences, University of Buea, Cameroon (approval ID 2026/2060-10/UB/SG/IRB/FHS). Due to administrative and logistical delays in the review process, data collection commenced while the ethics application was under review. However, all procedures involving human participants were conducted in accordance with the ethical standards of the Faculty of Health Sciences IRB, national guidelines for research involving human participants in Cameroon, and the principles of the Declaration of Helsinki.

All participants provided freely given, informed consent after receiving information on the study’s purpose, procedures, potential risks, benefits, and confidentiality protections, and were informed of their right to withdraw at any time without consequences.

Results

Participant Characteristics

Among the 201 women surveyed, most were aged 25–34 years (39.8%), single (49.8%), and rural residents (55.7%). Nearly 57.2% had at least secondary education, and 90.5% reported medium or low household income. About one in five were in their first pregnancy, while the rest had one or more children. In addition, participants were distributed across pregnancy stages, with 30.3% already postpartum [Table 1].

Table 1. Participant characteristics (N = 201)

Variable	Category	n (%)
Age group	Under 18	13 (6.5%)
	18–24	63 (31.3%)
	25–34	80 (39.8%)
	35–44	37 (18.4%)
	45 and above	8 (4.0%)
Marital status	Divorced	9 (4.5%)
	Married	80 (39.8%)
	Single	100 (49.8%)
	Widowed	12 (6.0%)
Education	Higher education	77 (38.3%)
	No formal education	9 (4.5%)
	Primary education	22 (10.9%)
	Secondary education	93 (46.3%)
Employment	Employed (part-/full-time)	50 (24.9%)
	Self-employed	81 (40.3%)
	Student	31 (15.4%)
	Unemployed	39 (19.4%)
Household income	High	19 (9.5%)
	Low	75 (37.3%)
	Medium	107 (53.2%)
Number of children	1	62 (30.8%)
	2	42 (20.9%)
	3	35 (17.4%)
	4 or more	16 (8.0%)
	First pregnancy	46 (22.9%)
Location	Rural	112 (55.7%)
	Urban	89 (44.3%)
Pregnancy stage	First trimester	26 (12.9%)

Variable	Category	n (%)
	Second trimester	62 (30.8%)
	Third trimester	52 (25.9%)
	Postpartum	61 (30.3%)

Prevalence of Perinatal Mental Health Symptoms

Nearly half of participants reported experiencing depressive (46.8%) or anxious (48.3%) symptoms on several days in the past two weeks, while around 13–14% experienced such symptoms nearly every day. Based on symptom scoring, 26.9% met criteria for probable depression and 28.9% for probable anxiety. A prior mental health diagnosis was reported by 11.4%, and one in five participants (19.9%) had sought mental health care, though 11.4% indicated they were unable to access needed services.

The most commonly reported symptoms were loss of appetite and difficulty sleeping, followed by physical symptoms without medical explanation and lack of interest in activities. Feelings of guilt or worthlessness were less common, while a smaller proportion of participants reported thoughts of self-harm or suicide.

Table 2. Maternal mental health symptoms and care-seeking (N = 201)

Measure	Category	n (%)
Felt depressed (past 2 weeks)	Not at all	53 (26.4)
	Several days	94 (46.8)
	More than half the days	27 (13.4)
	Nearly every day	27 (13.4)
Felt anxious (past 2 weeks)	Not at all	46 (22.9)
	Several days	97 (48.3)
	More than half the days	30 (14.9)
	Nearly every day	28 (13.9)
Previous mental health diagnosis	Yes	23 (11.4)
	No	178 (88.6)
Sought mental health care	Yes	40 (19.9)
	No	138 (68.7)
	Could not access care	23 (11.4)
Prevalence (score ≥ 2)*	Depression case	54 (26.9%)
	Anxiety case	58 (28.9%)

*Case definition: “score ≥ 2 ” corresponds to symptoms reported as “*More than half the days*” or “*Nearly every day*”.

Variation in Depression and Anxiety by Pregnancy Stage

Across pregnancy and postpartum, symptoms of depression and anxiety were reported at varying levels. Probable depression was most frequent in the second trimester and postpartum period, with lower proportions observed in the third trimester. Anxiety symptoms followed a similar pattern, with higher prevalence during the second trimester and postpartum compared to the first and third trimesters [Figures 2 & 3]

Birth Outcomes and Infant Well-being

About one in five participants (21.4%) reported experiencing a birth complication. Among these, the most frequently mentioned was caesarean delivery (11.6% of those with complications), followed by ectopic pregnancy, excessive bleeding, and anaemia (each 4.7%). Less common complications included diabetes, fistula, and malaria infection.

In terms of infant outcomes, just over half of babies (51.2%) had a birth weight between 2.5–3.5 kg, while 16.9% were over 3.5 kg, and 2.5% were classified as low birth weight (<2.5 kg). Nearly one-third of mothers (29.4%) reported not knowing their baby’s birth weight.

At six months, more than half of infants (53.2%) were described as being in good health and one-third (33.8%) as excellent. Smaller proportions were reported as fair (9.5%) or poor (3.5%). The majority of mothers reported a strong (32.8%) or very strong (54.2%) bond with their infants, while neutral (12.4%) or very weak (0.5%) bonds were less common.

Table 3. Birth outcomes, infant well-being, and mother–infant bond (N = 201)

Measure	Category	n	% of total (N=201)	% among subgroup
Birth complications	No	158	78.6%	–
	Yes	43	21.4%	100%
Types of complications¹	C-section	5	2.5%	11.6%
	Ectopic pregnancy	2	1.0%	4.7%
	Excessive bleeding	2	1.0%	4.7%
	Anaemia	2	1.0%	4.7%
	Diabetes	1	0.5%	2.3%
	Fistula	1	0.5%	2.3%
	Malaria infection	1	0.5%	2.3%
	Others*	4	2.0%	9.3%
Birth weight	2.5–3.5 kg	103	51.2%	–
	More than 3.5 kg	34	16.9%	–
	Less than 2.5 kg (Low birth weight)	5	2.5%	–
	Don't know	59	29.4%	–
Infant health at 6 months	Excellent	68	33.8%	–
	Good	107	53.2%	–
	Fair	19	9.5%	–
	Poor	7	3.5%	–
Mother–infant bond	Very strong	109	54.2%	–
	Strong	66	32.8%	–
	Neutral	25	12.4%	–
	Very weak	1	0.5%	–

¹ Multiple responses possible. Percentages in the “subgroup” column are calculated among mothers who reported any complication (n = 43).

* Multiple responses possible; categories <5% grouped for readability.

Associations Between Maternal Mental Health and Birth Outcomes

Bivariate analysis showed no significant associations between depressive symptoms and birth outcomes or infant well-being indicators. In contrast, anxiety symptoms were significantly associated with birth weight ($\chi^2 = 10.49, p = 0.015$) and the quality of the mother–infant bond ($\chi^2 = 13.41, p = 0.004$). No significant associations were observed between anxiety and complications, infant health at six months, or reported infant health issues.

Table 4. Bivariate associations between maternal mental health symptoms and birth outcomes / infant well-being (N = 201)

Outcome	χ^2 (Chi-square)	p-value
Depression vs Birth Outcomes		
Birth complications	$\chi^2 = 0.0004$	0.984
Birth weight	$\chi^2 = 3.15$	0.369
Infant health at 6 months	$\chi^2 = 0.93$	0.819
Infant health issues	$\chi^2 = 0.60$	0.439
Mother–infant bond	$\chi^2 = 2.38$	0.497
Anxiety vs Birth Outcomes		
Birth complications	$\chi^2 = 0.17$	0.679
Birth weight	$\chi^2 = 10.49$	0.015
Infant health at 6 months	$\chi^2 = 4.08$	0.253
Infant health issues	$\chi^2 = 0.003$	0.953
Mother–infant bond	$\chi^2 = 13.41$	0.004

Coping Mechanisms and Support Systems

The most common coping strategy reported was talking to someone, followed by praying or engaging in spiritual practices. Physical activity and relaxation techniques were also frequently mentioned. Fewer participants reported using prescribed medication, traditional remedies, or relying on care from a spouse as coping mechanisms.

Perceptions of How Healthcare Providers Can Better Support Perinatal Mental Health

1. Education and Awareness

Many participants emphasized the need for health education, especially during antenatal care, to increase understanding of perinatal mental health. Women highlighted the value of regular talks,

sensitization campaigns, and integration of mental health into antenatal care.

- *“Education on mental health during visits to the hospital and inclusion of counseling services.”*
- *“Always organise mental health sensitisation campaigns.”*
- *“By incorporating mental health discussions during pregnancy checks.”*

2. Counseling and Psychological Support

Counseling was consistently mentioned as an important need. Women requested access to counseling sessions, therapy, and ongoing psychosocial support throughout pregnancy and postpartum.

- *“Counseling services during and after pregnancy, seminars and conferences on mental health and women’s pregnancy.”*
- *“Regular therapy sessions during checkups and support groups.”*
- *“Access to counseling services.”*

3. Financial and Material Support

Several respondents noted that poverty and lack of resources exacerbate stress and poor mental health. They called for financial assistance and the provision of baby items, food, and clothing.

- *“Healthcare providers need to provide baby things and help mothers by buying food and clothes.”*
- *“They can support us financially.”*
- *“Provide free ANC.”*

4. Compassionate and Respectful Care

A recurring concern was healthcare providers' attitude. Women asked to be treated with kindness, patience, and empathy, and for providers to listen without judgment.

- *“Healthcare providers should treat women with more care and talk gently.”*
- *“Being more kind to pregnant women and patient when asked questions.”*
- *“Give pregnant women a chance to express themselves.”*

5. Community Engagement and Follow-up

Respondents suggested that support should extend beyond hospital walls, including community-level awareness, follow-up visits, and advocacy to address stigma.

- *“Let them call us to see if the mothers are well.”*
- *“Education and awareness programs for the community.”*
- *“Community advocacy and engagement.”*

6. Spiritual and Cultural Dimensions

Some participants identified prayers, spiritual support, and traditional practices (such as dance) as coping strategies or ways healthcare could engage more effectively with local beliefs.

- *“Prayers and preaching.”*
- *“Spiritual support and traditional dance.”*

7. Barriers and Cultural Beliefs

Women also reported barriers such as stigma, misconceptions, and restrictive cultural practices. Mental health was sometimes perceived as madness, witchcraft, or taboo, and restrictive norms around pregnancy and breastfeeding were noted.

- *“Some people see mental health as madness, sensitization should be done before setting up mental health facilities.”*
- *“Many believe mental health is a taboo and linked to witchcraft.”*
- *“Belief that breastfeeding mothers should not have sex, otherwise the baby will be sick.”*

Discussion

In this community-based survey of women in the Southwest Region of Cameroon, more than one-quarter of participants screened positive for probable perinatal depression (26.9%) and anxiety (28.9%). These estimates fall within the upper range of findings reported in low- and middle-income countries, where prevalence rates commonly range from the high-teens to low-thirties.^{5,9} This elevated symptom burden likely reflects the unique combination of stressors experienced by women in this setting, including economic hardship, sociopolitical instability, and limited access to psychosocial support, factors repeatedly identified as major determinants of perinatal mental health across LMICs and sub-Saharan Africa.

The finding that anxiety, but not depression, was significantly associated with birth weight and mother-infant bonding warrants particular attention. Prior evidence suggests that antenatal psychological distress can impair intrauterine growth, increase the risk of low birth weight, and shape early infant behavioral development.⁶ However, the effect sizes of these associations vary and are influenced by timing, measurement technique, and confounding control.¹⁰ Anxiety and depression in mothers can lower their responsiveness and raise their risk of early bonding issues, which can impact the developmental paths of their infants.^{2,11} The greater number of significant associations observed for anxiety in our data may reflect the acute and reactive nature of anxiety symptoms, which tend to be more sensitive to environmental instability, particularly within conflict-affected settings. Depression, on the other hand, may be more normalized or less readily disclosed due to sociocultural expectations, potentially contributing to fewer observed associations.

Participants' coping strategies underscore the centrality of social and spiritual support systems in this context. Talking to someone, prayer, spiritual practices, and relaxation activities emerged as primary approaches for managing psychological distress. These findings are consistent with evidence from multiple African settings showing that informal networks, religious engagement, and community-based relationships serve as core resilience mechanisms for pregnant and postpartum women.^{12,13} This reliance on culturally grounded coping strategies reflects both the adaptability of women navigating chronic stress and the limited availability of professional mental health services in the region.

Despite these strengths, participants identified substantial cultural and structural barriers to care, including stigma, misconceptions about mental illness, gender norms that constrain emotional expression, and logistical challenges such as cost and access to trained personnel. These barriers mirror well-documented challenges faced throughout sub-Saharan Africa, where stigma, limited mental health literacy, and weak health system capacity contribute to delayed help-seeking and exacerbation of symptoms.^{14–16}

Although sociodemographic characteristics such as age, marital status, and employment were recorded in this study, examining their detailed associations with depressive and anxiety symptoms was not within the analytical scope of the current investigation. As a result, the study did not assess how specific subgroups contributed to mental-health patterns. Future research with larger samples and dedicated analytical frameworks is needed to explore how different sociodemographic groups may differentially experience perinatal mental-health challenges in this setting.

Taken together, these findings highlight how emotional, social, cultural, and structural factors intersect to shape maternal mental health and, in turn, influence key birth-related outcomes in this setting. The significant associations observed between anxiety symptoms and both birth weight and mother-infant bonding emphasize the importance of early identification of maternal psychological distress as part of routine maternal and newborn care. Strengthening antenatal and postnatal services with routine mental health screening, improving supportive interactions with healthcare providers, and expanding access to culturally grounded psychosocial support can help mitigate the negative effects of maternal distress on birth and infant wellbeing. Interventions that reduce stigma, enhance family and community support, and integrate mental health into existing maternal health platforms are essential steps toward improving both maternal mental health and birth outcomes in resource-constrained, crisis-affected environments.

Policy Implications

Our findings have important implications for maternal health policy and programming in Cameroon. First, the need for integrated perinatal mental health services aligns closely with World Health Organization (WHO) recommendations, which call for embedding routine screening, psychosocial interventions, and clear referral pathways within antenatal and postnatal care services. WHO's Guide for the Integration of Perinatal Mental Health in Maternal and Child Health Services provides a structured framework

emphasizing task-sharing, stepped-care models, and culturally contextualized psychosocial support strategies well-suited to resource-limited settings like Southwest Cameroon.^{1,17}

Second, given the importance of social and spiritual coping, therapies must to be culturally appropriate and rooted in the community. Programs that combine psychosocial education with material or financial assistance and engage reliable community actors (such as church leaders, peer counselors, and community health professionals) may be more successful and more widely adopted than clinic-only approaches. Strengthening social networks (support groups, partner participation, and community sensitization) might be a crucial aspect of preventative measures, according to evidence showing social support acts as a buffer against perinatal distress.^{9,12,18}

Third, maternity care ought to be person-centered and respectful. Addressing disrespect, discrimination, and unfavorable provider attitudes is likely to improve maternal mental health indirectly by boosting trust, disclosure, and continuity of care. These calls for compassionate, nonjudgmental attention and improved communication align with international guidelines supporting respectful maternity care. Therefore, it is important to prioritize interventions that teach physicians to communicate respectfully and to institutionalize follow-up and psychosocial support during regular ANC visits.^{19,20}

Strengths and Limitations

Strengths of this study include its community-based design, which enabled recruitment of women from both health facilities and hard-to-reach community settings, thereby capturing the experiences of groups often excluded from facility-based research. The use of interviewer-administered questionnaires enhanced the inclusion of participants with limited literacy skills, a critical consideration in resource-constrained environments. By combining quantitative prevalence estimates with rich qualitative insights on coping strategies, perceived barriers, and women's expectations of the health system, the study offers a multidimensional understanding of perinatal mental health that is closely grounded in the lived realities of women in a conflict-affected region. This mixed-approach strengthens the ecological validity of the findings and enables the development of context-specific, culturally relevant recommendations for maternal health policy and practice. Moreover, the study contributes rare empirical data from the Southwest Region of Cameroon, a setting where ongoing sociopolitical instability has limited research activity despite clear implications for maternal and infant well-being. As one of the few studies to simultaneously examine mental health symptoms, birth outcomes, and health-system perceptions within this fragile context, it provides an important evidence base for informing integrated maternal mental health interventions.

Limitations include its cross-sectional design, which limits causal inference, and the use of brief symptom-based screeners rather than diagnostic tools, which may under- or overestimate true prevalence. Reliance on self-report measures introduces potential recall and social desirability bias. The moderate sample size, which fell below the originally calculated target, limited the ability to perform subgroup or multivariable analyses. Additionally, missing birth weight data, due to women's limited

access to written health records, reduced statistical power for analyses of infant outcomes, underscoring the need for strengthened perinatal record keeping in future research.

Conclusion

This study demonstrates a substantial burden of perinatal depressive and anxiety symptoms among women in the Southwest Region of Cameroon. Anxiety symptoms, in particular, showed notable associations with birth-related indicators and the quality of mother-infant bonding, underscoring the importance of identifying and addressing psychological distress during routine maternal care. These findings highlight the need for a more integrated approach to maternal health, one that embeds mental-health screening within antenatal and postnatal services, strengthens community-based psychosocial support, leverages existing social and spiritual networks, and actively works to reduce stigma surrounding mental illness. Implementing culturally adapted, WHO-aligned, task-shared care models offers a feasible and sustainable pathway for improving maternal mental health and enhancing infant outcomes in resource-constrained and crisis-affected settings, such as the Southwest Region of Cameroon.

Declarations

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Authors' Contribution

JTZ, AMA, MLA, and ODK conceptualized and supervised the study. JTZ, FA, and SFN developed the methodology. JTZ, AMA, and MLA carried out the investigation. JTZ, CEANN, and EAF curated the data. JTZ conducted the formal analysis. AMA, MLA, ODK, FA, and SFN validated the findings. JTZ, AMA, MLA, and ODK drafted the original manuscript. SJB, BF, JCSA, and AEA reviewed and edited the manuscript.

Competing Interests

The authors declare that they have no competing interests.

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Clinical trial number

Not applicable.

Ethical approval

Approved by the Institutional Review Board of the Faculty of Health Sciences, University of Buea (ID:2026/2060-10/UB/SG/IRB/FHS), with all procedures conducted in accordance with institutional guidelines, national research regulations, and the Declaration of Helsinki.

Consent to participate

All participants provided freely given, informed consent prior to participation.

Consent to publish

Not applicable; no identifiable personal data were collected.

Data availability

The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

References

1. WHO WHO. WHO guide for integration of perinatal mental health in maternal and child health services [Internet]. 2022 [cited 2025 Sep 13]. Available from: <https://www.who.int/publications/i/item/9789240057142>
2. Stein A, Pearson RM, Goodman SH, Rapa E, Rahman A, McCallum M, et al. Effects of perinatal mental disorders on the fetus and child. *Lancet*. 2014;384(9956):1800–19. 10.1016/S0140-6736(14)61277-0 PubMed PMID: 25455250.
3. Gelaye B, Rondon MB, Araya R, Williams MA. Epidemiology of maternal depression, risk factors, and child outcomes in low-income and middle-income countries. *Lancet Psychiatry*. 2016;3(10):973–82. 10.1016/S2215-0366. (16)30284-X PubMed PMID: 27650773.
4. Fisher J, Cabral de Mello M, Patel V, Rahman A, Tran T, Holton S, et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. *Bull World Health Organ*. 2012;90(2):139–H149. 10.2471/BLT.11.091850 . PubMed PMID: 22423165; PubMed Central PMCID: PMC3302553.
5. Roddy Mitchell A, Gordon H, Lindquist A, Walker SP, Homer CSE, Middleton A, et al. Prevalence of Perinatal Depression in Low- and Middle-Income Countries. *JAMA Psychiatry*. 2023;80(5):425–31. 10.1001/jamapsychiatry.2023.0069 . PubMed PMID: 36884232; PubMed Central PMCID: PMC9996459.
6. Voit FAC, Kajantie E, Lemola S, Räikkönen K, Wolke D, Schnitzlein DD. Maternal mental health and adverse birth outcomes. *PLoS ONE*. 2022;17(8):e0272210. 10.1371/journal.pone.0272210 . PubMed PMID: 36044423; PubMed Central PMCID: PMC9432739.
7. Bennett HA, Einarson A, Taddio A, Koren G, Einarson TR. Prevalence of depression during pregnancy: systematic review. *Obstet Gynecol*. 2004;103(4):698–709. 10.1097/01.AOG.0000116689.75396. .5f

PubMed PMID: 15051562.

8. Abajobir A, Sidze EM, Wainaina C, Gerbaba MJ, Wekesah FM. The epidemiology of maternal mental health in Africa: a systematic review. *Arch Womens Ment Health*. 2025;28(5):997–1089. 10.1007/s00737-025-01563-4 . PubMed PMID: 40220206; PubMed Central PMCID: PMC12436556.
9. Nicolet L, Moayedoddin A, Miafo JD, Nzebou D, Stoll B, Jeannot E. Teenage Mothers in Yaoundé, Cameroon-Risk Factors and Prevalence of Perinatal Depression Symptoms. *J Clin Med*. 2021;10(18):4164. 10.3390/jcm10184164 . PubMed PMID: 34575274; PubMed Central PMCID: PMC8470336.
10. Aldinger JK, Abele H, Kranz A. Prenatal Maternal Psychological Stress (PMPS) and Its Effect on the Maternal and Neonatal Outcome: A Retrospective Cohort Study. *Healthc (Basel)*. 2024;12(23):2431. 10.3390/healthcare12232431 . PubMed PMID: 39685053; PubMed Central PMCID: PMC11641749.
11. O'Donnell KJ, Glover V, Barker ED, O'Connor TG. The persisting effect of maternal mood in pregnancy on childhood psychopathology. *Dev Psychopathol*. 2014;26(2):393–403. doi:10.1017/S0954579414000029 PubMed PMID: 24621564.
12. Khademi K, Kaveh MH. Social support as a coping resource for psychosocial conditions in postpartum period: a systematic review and logic framework. *BMC Psychol*. 2024;12(1):301. 10.1186/s40359-024-01814-6.
13. Tembo CP, Portsmouth L, Burns SK. Mapping the contextual mental health interventions for perinatal adolescent mothers with self-reported common mental symptoms (anxiety and depression) in sub-Saharan African countries: a scoping review. *J Child Adolesc Ment Health*. 2023;35(1–3):147–64. 10.2989/17280583.2024.2323922 . PubMed PMID: 38828874.
14. Verma S, Pandey B. Mental Health Literacy and Barriers to Care among Rural Women: A Systematic Review. *J Behav Sci*. 2025;20:120–30. 10.69523/tjbs.2025.287148.
15. Yihune Teshale M, Bante A, Gedefaw Belete A, Crutzen R, Spigt M, Stutterheim SE. Barriers and facilitators to maternal healthcare in East Africa: a systematic review and qualitative synthesis of perspectives from women, their families, healthcare providers, and key stakeholders. *BMC Pregnancy Childbirth*. 2025;25:111. 10.1186/s12884-025-07225-8 . PubMed PMID: 39901111; PubMed Central PMCID: PMC11792318.
16. Aguwa C, Carrasco T, Odongo N, Riblet N. Barriers to Treatment as a Hindrance to Health and Wellbeing of Individuals with Mental Illnesses in Africa: a Systematic Review. *Int J Ment Health Addict*. 2022;1–17. 10.1007/s11469-021-00726-5 . PubMed PMID: 35035316; PubMed Central PMCID: PMC8744581.
17. Dennis CL, Falah-Hassani K, Shiri R. Prevalence of antenatal and postnatal anxiety: Systematic review and meta-analysis. *Br J Psychiatry*. 2017;210(5):315–23. 10.1192/bjp.bp.116.187179.
18. Jiménez-Barragan M, Falguera-Puig G, Curto-Garcia JJ, Monistrol O, Coll-Navarro E, Tarragó-Grima M, et al. Prevalence of anxiety and depression and their associated risk factors throughout pregnancy and postpartum: a prospective cross-sectional descriptive multicentred study. *BMC Pregnancy Childbirth*. 2024;24(1):500. 10.1186/s12884-024-06695-6.

19. Basile-Ibrahim B, Combellick J, Mead TL, Sorensen A, Batten J, Schafer R. The Social Context of Pregnancy, Respectful Maternity Care, Biomarkers of Weathering, and Postpartum Mental Health Inequities: A Scoping Review. *Int J Environ Res Public Health*. 2024;21(4):480. 10.3390/ijerph21040480 . PubMed PMID: 38673391; PubMed Central PMCID: PMC11049830.

20. Solomonov N, Kerchner D, Dai Y, Kwon M, Callaghan DG, Schier MM, et al. Prevalence and Trajectories of Perinatal Anxiety and Depression in a Large Urban Medical Center. *JAMA Netw Open*. 2025;8(9):e2533111. 10.1001/jamanetworkopen.2025.33111.

Figures

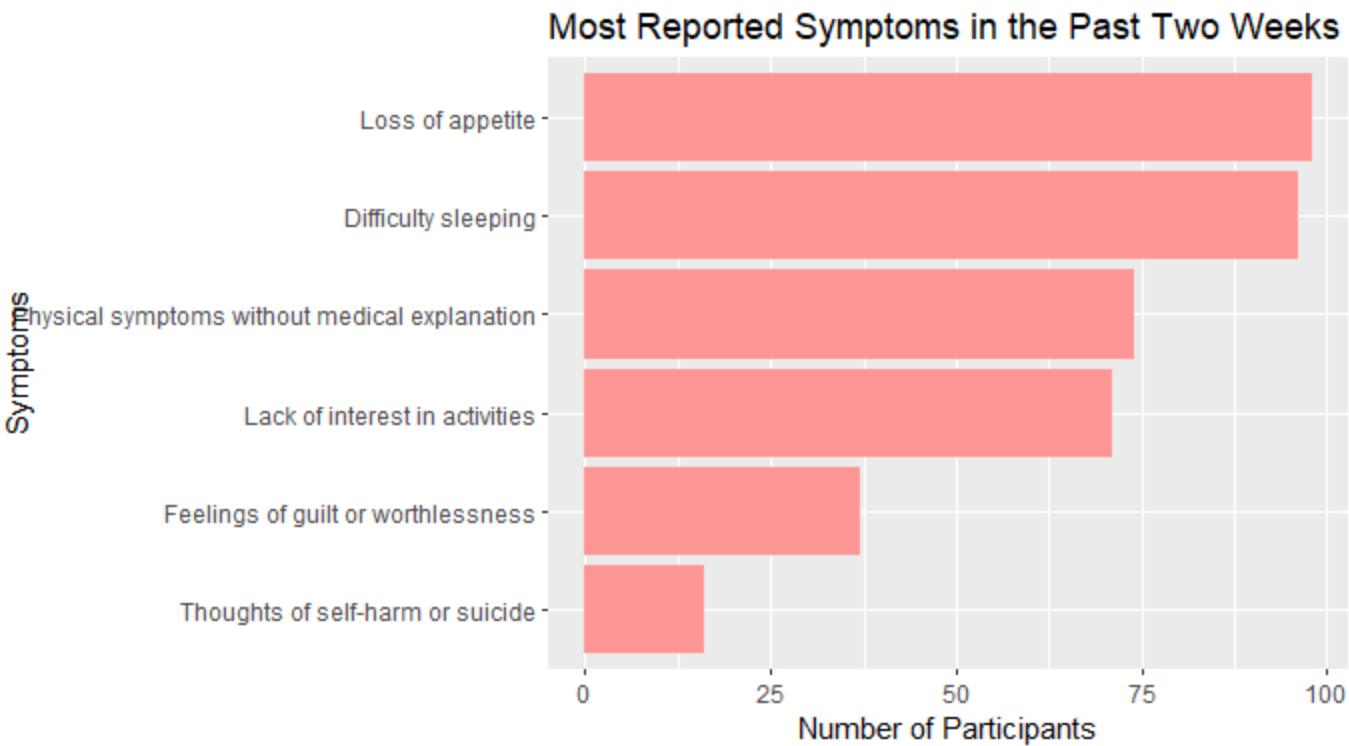


Figure 1

Most Reported Symptoms in the Past Two Weeks

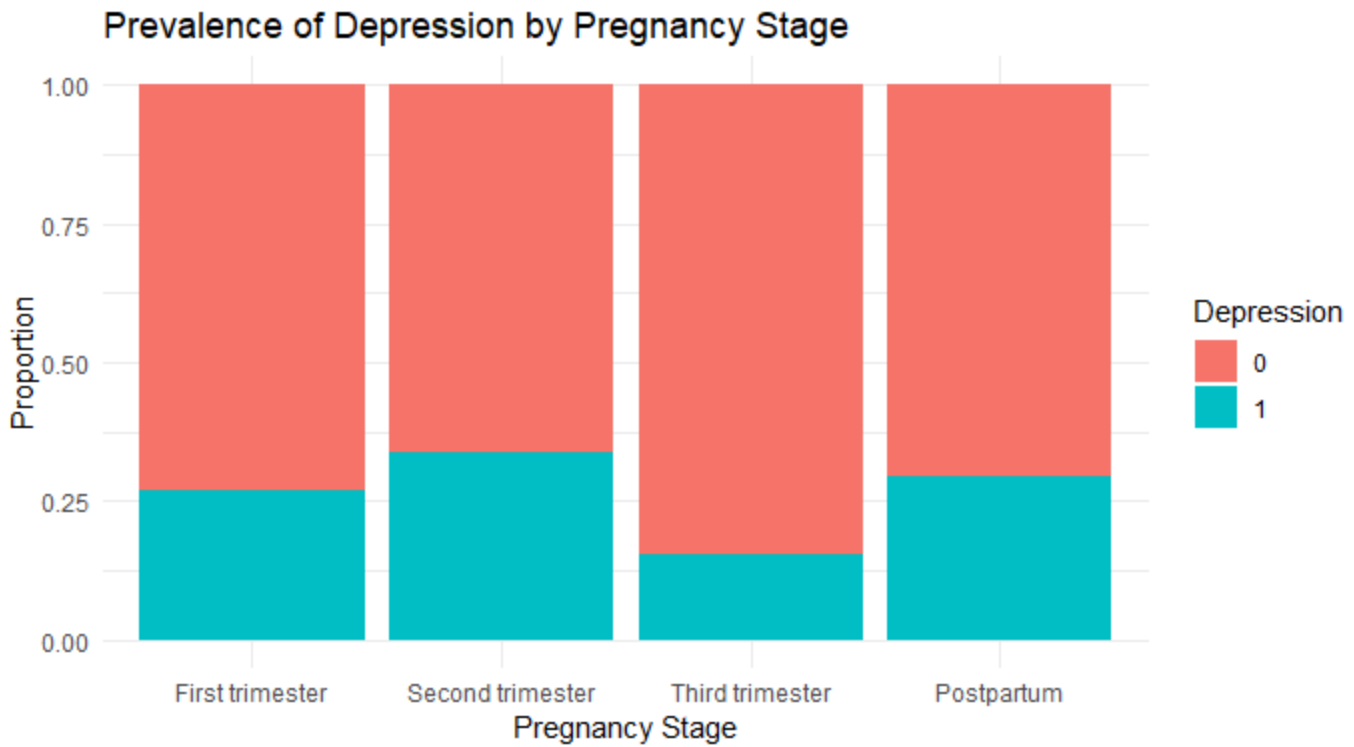


Figure 2

Prevalence of Depression by Pregnancy Stage

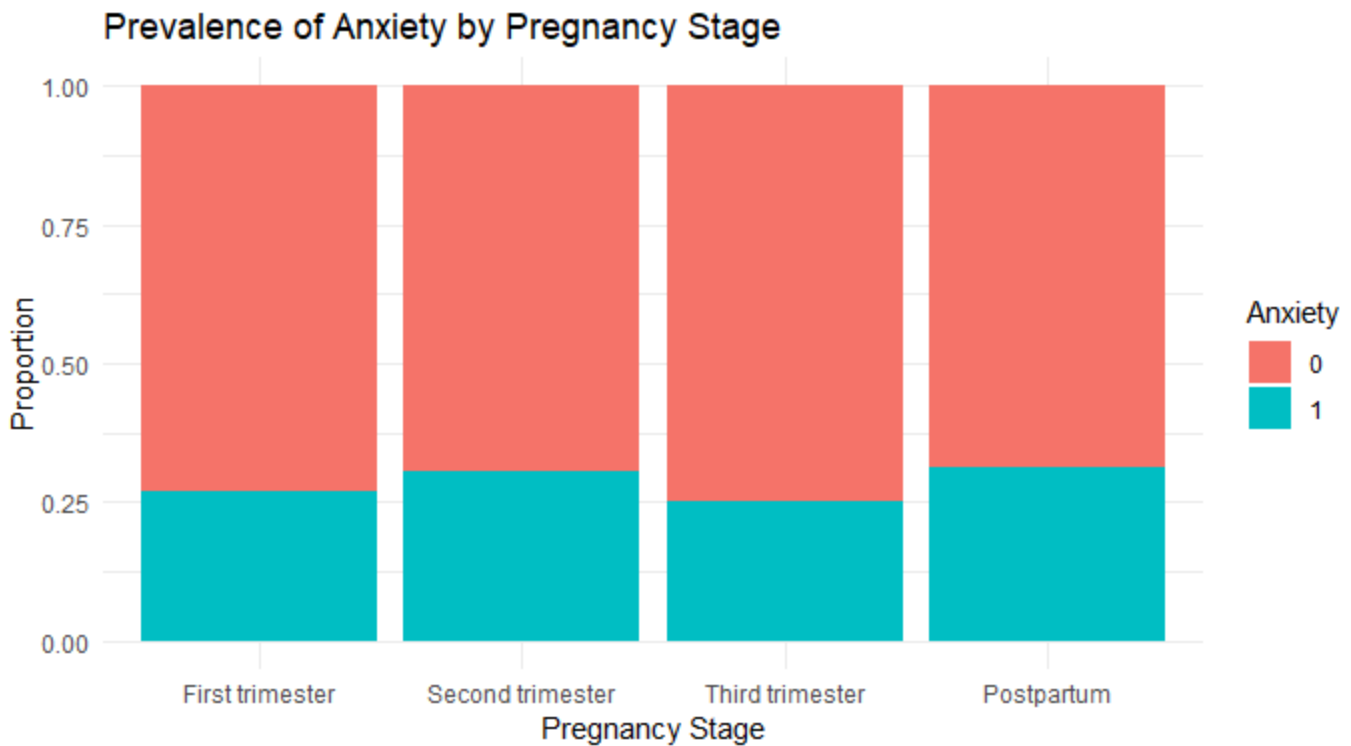


Figure 3

Prevalence of Anxiety by Pregnancy Stage

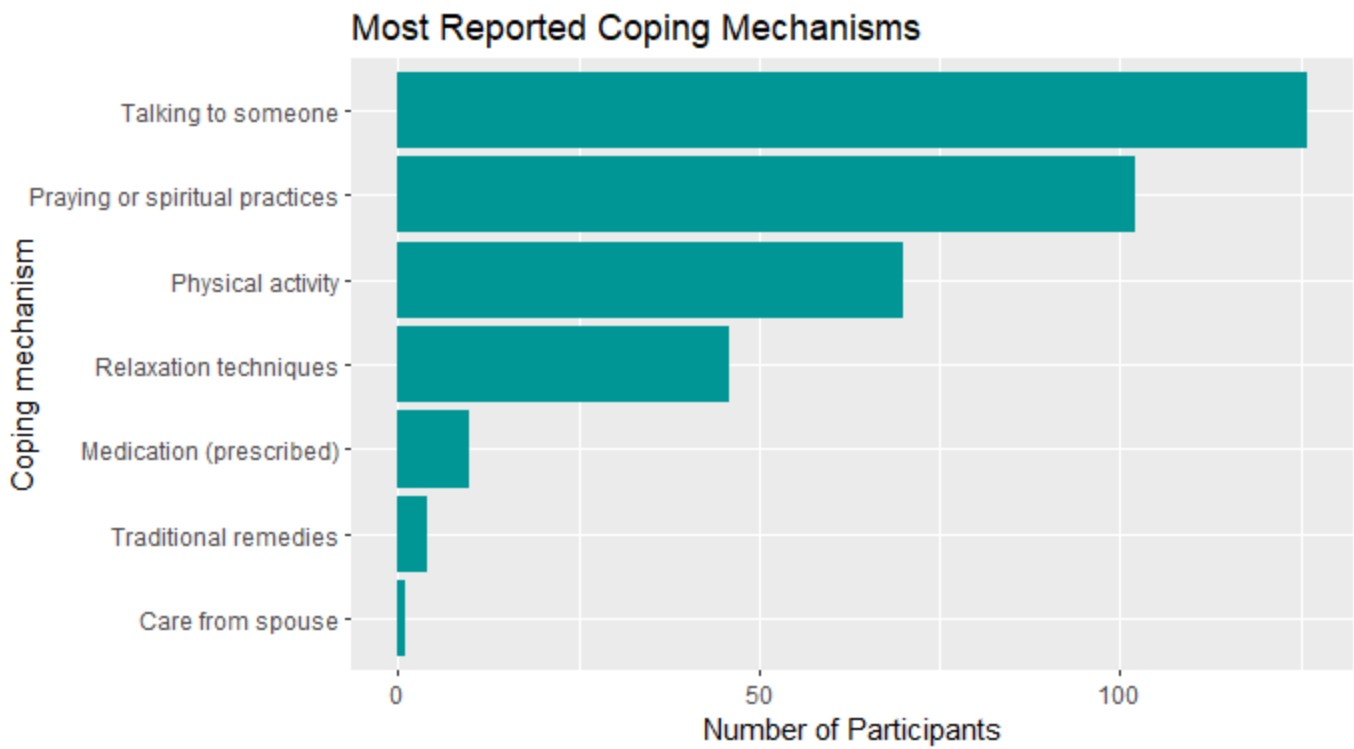


Figure 4

Most reported coping mechanisms among participants