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Prevalence of postpartum depression in Ghana: a systematic review study

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Abstract. Postpartum depression affects many women and remains the fourth-leading cause of disability and premature death. This study systematically reviewed postpartum depression studies among Ghanaian mothers. The research encompassed a comprehensive examination of PubMed, Scopus, Up-to-date, Science Direct, Google Scholar, and Proquest to estimate the prevalence of postpartum depression. The analysis focused on English-language papers published between 2013 and 2021, considering postpartum depression, risk variables, and prevalence in the search approach. The study revealed that the mean prevalence of PPD across these studies was approximately 20.25%, with a range from 7% to 44.4%. Accounting for varying sample sizes, the weighted average was 9.52%. Facility-based studies in urban areas, such as the Greater Accra Region, tended to report slightly lower prevalence rates compared to community-based studies. Furthermore, an inverse relationship was observed between sample sizes and reported prevalence rates, with larger studies consistently reporting lower rates. In summary, PPD remains a significant concern for Ghanaian mothers, with substantial variations in prevalence rates across different regions and study types. The findings from this study offer valuable insights that can guide future research and the development of preventive measures to address the complex landscape of PPD among Ghanaian mothers.
Keywords: *Prevalence, Postpartum, Depression, Systematic review, Ghana.*

Introduction

Depression is a common affliction in women of reproductive age globally (Weissman & Olfson, 1995) and Anxiety is defined by the existence of unreasonable fear that is both severe and persistent (Lima et al., 2015). Typically, most women experience emotional symptoms known as "baby blues" within two to three days post-delivery. These symptoms peak on the fifth day and usually alleviate within two weeks (Robertson et al., 2003).

Postpartum depression (PPD), often diagnosed within six weeks of delivery, is more severe and affects about one in seven women (Mughal et al., 2022). It has a greater impact on female adolescents, mothers with preterm children, and metropolitan women. PPD's effects extend beyond the mother to the child, influencing maternal behavior and brain responsiveness. However, there are insufficient discoveries for new treatments (Lima *et al.,* 2015).

Sadly, nearly half of new mothers suffering from PPD remain untreated due to privacy concerns and fear of stigmatization (Beck, 2006; Zauderer, 2009).

The World Health Organization (WHO, 2017) estimates that depression, including PPD, accounts for a significant share of the global burden of neurological and mental diseases, ranking as the fourth-leading cause of disability and premature death.

Despite PPD being a well-recognized issue, progress in its identification and treatment has been slow (Anokye et al., 2018). PPD rates vary widely, with estimates between 10% to 16% in the developed world (Gotlib et al., 1989), 70% as per the American Psychological Association, and 19.8% in low-and-middle-income countries (Slomian et al.,

2019). In Africa, one in ten women is affected by PPD (Fantahun et al., 2018).

In Ghana, Anokye et al. (2018) found 7% of surveyed women exhibiting PPD symptoms. However, most studies have focused more on postpartum clinics or family planning services than on the prevalence and causes of PPD (Amankwaa, 2017). This study aims to document the prevalence of PPD in Ghana using a systematic review.

Contextualization and Analysis

We used a three-step search approach, starting with a restricted search of MEDLINE/PubMed and analysis of keywords in titles, abstracts, and index keywords. Subsequent searches involved various databases, including PubMed, Scopus, and Google Scholar, followed by analysis of reference lists for further studies.

The inclusion criteria encompassed English-language and gray-literature studies focusing on the prevalence of postpartum depression (PPD) among Ghanaian mothers, with publication dates falling between January 2013 and December 2021. Specifically, for studies employing the PHQ-9 score to assess PPD, only scores exceeding 9 were considered for inclusion. Conversely, studies were excluded if they lacked full-text accessibility or failed to quantify the prevalence of PPD. Additionally, when a study presented PPD prevalence at multiple postpartum timepoints (e.g., 3 and 12 months) or within a range, the average prevalence was reported. Furthermore, in instances where studies adopted a multi-case approach and reported PPD prevalence for each case, these estimates were individually reported.

The review focused on studies assessing the prevalence of PPD, defined as depression beginning within one month post-delivery and lasting beyond two weeks. Measurements could be via the Diagnostic and Statistical Manual of Mental Disorders or the Edinburgh Postnatal Depression Scale, among others.

The interest of this study was the prevalence of PPD in Ghana from 2013 to 2021. The study included observational designs such as cross-sectional, prospective, and retrospective follow-up studies reporting PPD prevalence. The data were synthesized using a theme content analysis and systematic review approach.

The literature search yielded a total of 24 articles, of which 3 were duplicates and 3 were excluded due to publication before January 2013. Additionally, 5 articles were excluded as they did not report the prevalence of PPD in their entirety. Furthermore, 3 articles did not focus on the adult population (ages 18-49). Consequently, the study proceeded with an in-depth analysis of ten (10) individual research papers, which were selected and comprehensively reviewed. From these papers, a total of 13 distinct prevalence estimates for postpartum depression (PPD) were extracted and subsequently compared. Notably, 9 of these estimates originated from facility-based assessments, while the remaining 4 were derived from community-based evaluations. It was observed that the majority of the studies employed a cross-sectional design and utilized assessment tools such as the Edinburgh Postnatal Depression Scale (EPDS) and/or the Patient Health Questionnaire (PHQ), as outlined in Table 1.

Table 1: *Characteristics of Studies Included in the Systematic review on the Prevalence of Postpartum Depression in Ghana, 2013-2021.*

Authors (Year)	Sub regions (Study sitting)	Study type	Study design	Tool used
Gold *et al.* (2013)	Ashanti (Kumasi)	Facility Based	Cross-sectional study	phq9
Ehrhardt *et al.,* 2013	Ghana	Community Based	Prospective study	phq-9
Anokye *et al.* (2018)	Ashanti (Kumasi)	Facility Based	cross-sectional study	phq-9
Ogoe (2018)	Greater Accra *(Regional Hospital)*	Facility Based	Cross-sectional study	epds
Abdullai (2019)	Greater Accra *(Regional and Police hospitals)*	Facility Based	cross sectional study	phq-9
Saeed *et al.* (2019)	Northern *(Bole District)*	Community based	Cross-sectional study	epds
Cadri *et al.* (2020)	Volta (Hohoe Municipality)	Community Based	Cross-sectional study	epds & bcs-28
Lillie *et al.,* 2020	Northern *(West Mamprusi & Nabdam District)*	Community Based	Cross-sectional study	phq-9
Sefogah *et al.* (2020)	Greater Accra *(Lekma, Ridge, Korle Bu Hospital)*	Facility Based	Cross-sectional study	phq9 & epds
Paddy *et al.* (2021)	Greater Accra *(37 Military Hospital)*	Facility Based	Cross-sectional study	dass-21, mspss, mat, epds

[1] ***Footers:*** epds- edinburgh postnatal depression scale, phq- patient health questionnaire, srq- self-reporting questionnaire, ssq-shona symptom questionnaire.
Source: *Author's Construct, 2022.*

Results and discussion

The study presents a comprehensive overview of Postpartum Depression (PPD) prevalence among Ghanaian mothers, drawing from a diverse set of studies conducted across different regions and study types. These investigations shed light on the varying prevalence rates of PPD and highlight the influence of study settings.

Gold et al. (2013) conducted a facility-based study in the Ashanti region with 153 participants, reporting a relatively high PPD prevalence of 37.25%. In contrast, Sefogah et al. (2020) conducted a facility-based study in the Greater Accra Region involving a substantial sample of 1456 participants, revealing a lower prevalence rate of 27.5% (figure 1).

Of particular interest, Sefogah et al. (2020) conducted multiple facility-based studies in the Greater Accra Region, each with a sample size of 350 participants. These studies reported varying prevalence rates of 8.6%, 31.6%, and 41.1%, illustrating significant variability even within the same region (figure 1&2).

Anokye et al. (2018) conducted a facility-based study in the Ashanti region with 257 participants, reporting a relatively lower PPD prevalence of 7%. Abdullai (2019) conducted a facility-based study in the Greater Accra Region, involving 300 participants, and reported a prevalence of 27% (figure 1).

In contrast to the facility-based studies, Ehrhardt et al. (2013) conducted a community-based study in Ghana with a larger sample size of 654 participants and reported a prevalence of 8.05% for PPD. Cadri et al. (2020) conducted a community-based study in the Volta Region with 172 participants and found a higher prevalence of 32.6% (figure 1&2).

Ogoe (2018) conducted a facility-based study in the Greater Accra Region with 124 participants and reported the highest prevalence among these studies, at 44.4%. This finding signals a potentially critical concern regarding postpartum depression in that specific facility-based environment. Saeed et al. (2019) conducted a community-based study in the Northern Region with 244 participants and reported a prevalence of 16.8%. Paddy et al. (2021) conducted a facility-based study in the Greater Accra Region with 205 participants and reported a prevalence of 14.1%. Lillie et al. (2020) conducted a community-based study in the Northern Region with 374 participants and reported a prevalence of 19.7% (figure 1&2).

The mean prevalence of PPD across all these studies is approximately 20.25%, considering both facility-based and community-based studies, with a range from 7% to 44.4%. The weighted average of 9.52% (figure 4) provides an overall prevalence estimate, accounting for varying sample sizes across studies, offering a more balanced view of PPD prevalence.

Facility-based studies exhibit a significant variation in reported prevalence percentages, with figures ranging from as low as 7% (Anokye et al., 2018) to strikingly high rates, such as 44.4% in the study conducted by Ogoe (2018). This broad range underscores the considerable diversity in postpartum depression (PPD) prevalence within facility-based settings (figure 3).

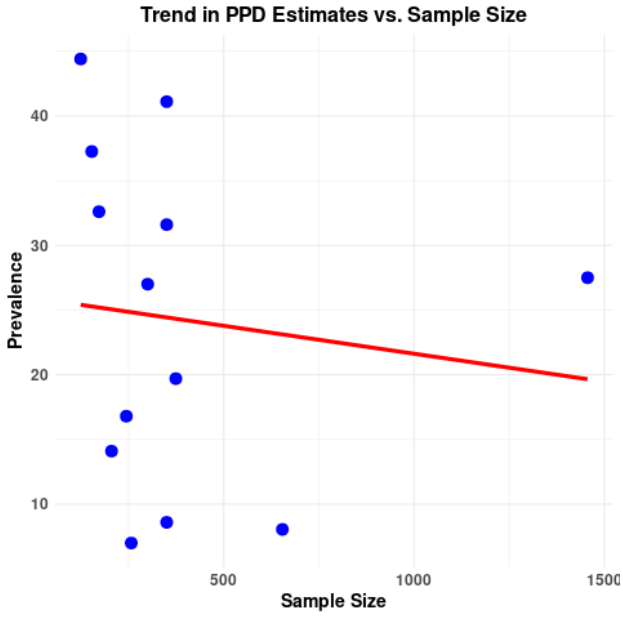

Figure 1 - schematic depiction of Pattern of Prevalence of PPD Estimates against Sample Sizes of the Studies sampled

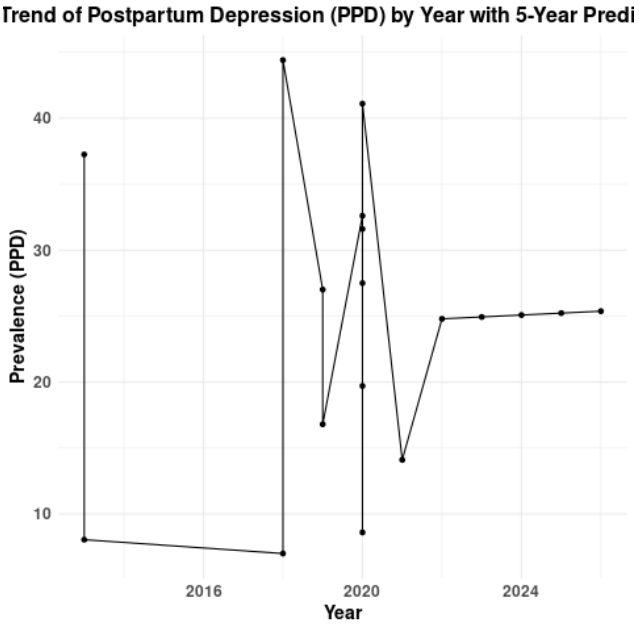

Figure 2 - schematic depiction of Trend of Prevalence of PPD Estimates against the published year of the Studies sampled with 5-year prediction.

In contrast, community-based studies generally portray lower prevalence percentages when compared to their facility-based counterparts. The highest prevalence observed among community-based studies stands at 32.6%, as reported by Cadri et al. (2020). Despite this being the highest figure in the community-based category, it still remains below the peak prevalence recorded in facility-based studies (figure 3).

Further emphasizing the diversity in PPD estimates, facility-based studies range from relatively lower prevalence rates, such as 7% in Anokye et al. (2018), to considerably higher rates, such as 41.1% in one of the studies by Sefogah et al. (2020).

Additionally, there appears to be an inverse relationship between sample sizes and reported prevalence rates, with larger studies reporting lower rates, likely reflecting a more comprehensive representation of the population. Conversely, smaller facility-based studies may yield higher rates due to factors like the inclusion of high-risk populations or localized influences (figure 1&2).

Despite these variations, the collective findings underscore PPD as a significant concern among Ghanaian mothers during the postpartum period, emphasizing the need for targeted interventions and support. These trends highlight the intricate interplay of study settings, sample sizes, and PPD prevalence, emphasizing the importance of addressing PPD as a public health priority in Ghana, while recognizing the need for tailored approaches to understanding and addressing this condition.

From figure 2, the 5-year prediction in the context of the trend plot for postpartum depression (PPD) prevalence indicates that if the current trend in PPD prevalence continues, we can anticipate a gradual increase in PPD prevalence over the next five years. This projection is based on the linear regression model fitted to the existing data, which suggests that there is a statistically significant upward trend in PPD prevalence over time.

This review's findings, taken as a whole, indicate that PPD prevalence in Ghana varies considerably among geographic regions and study type. However, this study fails to include risk variables in the current investigation unlike (Oliveira & Cavalcanti, 2018) which could have shed light on the causes of PPD in Ghana .

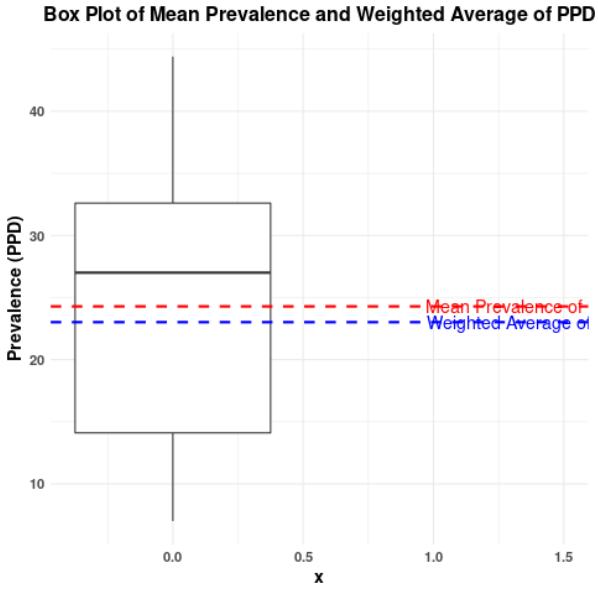

Figure 3 – Box plot depiction of Trend of Prevalence of PPD Estimates among facility-based and community-based Studies sampled by this study.

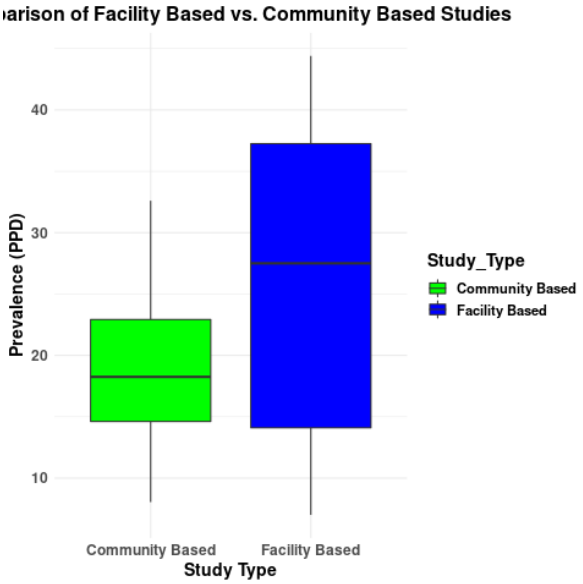

Figure 4 – Box plot depiction of Trend of Prevalence of PPD Estimates between Mean Prevalence of PPD and weighted average of the Prevalence of PPD

Conclusion

Finally, the results of this systematic review research on the prevalence of Postpartum Depression (PPD) among Ghanaian women highlight the complicated and diverse character of this mental health condition. The study relies on a wide range of studies from different regions and study types, offering insight on the wide range of claimed prevalence rates. Facility-based studies demonstrate a broad prevalence range, ranging from remarkably low rates to disturbingly high numbers, underscoring the need of a comprehensive knowledge of PPD inside healthcare institutions.

In general, community-based research reveal lower prevalence percentages, indicating a more favorable situation than facility-based settings. However, many facility-based studies in the Greater Accra Region have shown that even within the same region, there may be large differences in PPD incidence. These differences emphasize the complex interaction of variables determining PPD prevalence,

such as research sites, sample sizes, and localized impacts.

Furthermore, the majority of the included studies had a cross-sectional design and measured outcomes using the Edinburgh Postnatal Depression Scale (EPDS) and/or the Patient Health Questionnaire (PHQ). This points to the need of doing further research with longitudinal designs and in community settings to learn more about the causes and effects of postpartum depression.

In order to identify high-risk populations and design focused treatments, the evaluation emphasizes the need for more thorough analyses of risk variables, including systemic and lifestyle factors.

More research is required to better understand the prevalence, risk factors, and effective therapies for postpartum depression, but the results of this study reveal that it is a serious public health problem in Ghana, especially in low resources areas in Ghana.

The results highlight the need for preventative and treatment programmes for postpartum depression, especially among high-risk populations, to improve mother and infant health.

The findings of this study highlight several crucial recommendations for addressing and reducing the prevalence of postpartum depression in Ghana:

Tailored Interventions in rural areas in Ghana: Given the higher frequency of postpartum depression in low resourced regions in Ghana, it is imperative to develop and implement region-specific interventions. These programs should be community-based and adapted to the local context, ensuring they effectively meet the unique needs of women in the region.

Longitudinal Research: The majority of studies in this review utilized cross-sectional approaches. To gain a deeper understanding of postpartum depression, its incidence, etiology, and the influence of systemic and lifestyle factors, there is a pressing need for additional longitudinal investigations. Long-term studies can provide valuable insights into the trajectory of postpartum depression and its potential risk factors.

Accessible Screening Tools: Screening tools for identifying postpartum depression should be readily accessible to mothers in Northern Ghana. To facilitate early detection and intervention, all women should have access to validated screening instruments, such as the Edinburgh Postnatal Depression Scale (EPDS) and/or the Patient Health Questionnaire (PHQ). This accessibility can empower women to seek help when needed.

High-Risk Assessment: Healthcare professionals should prioritize the assessment of women who are at high risk of developing postpartum depression. This includes women with a history of depression before or during pregnancy, a family history of mental illness, or recent major life disruptions like divorce or job loss. Tailored interventions and support should be provided to these individuals.

Awareness and Education: Symptoms and causes of postpartum depression are not widely known, emphasizing the need for awareness and education initiatives. Public awareness campaigns, community engagement programs, and training for healthcare practitioners can contribute to increased understanding and de-stigmatization of postpartum depression.

By implementing these recommendations, there is a substantial potential to enhance the overall health and well-being of women and newborns in Northern Ghana. These measures aim to not only lower the prevalence of postpartum depression but also ensure that affected individuals receive the support and care they need during this critical period.

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Conflicts of interest
There are no conflicts of interest.

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