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PREVALENCE AND CORRELATES OF POSTPARTUM DEPRESSION AMONG NURSING MOTHERS WITHIN THE KUMASI METROPOLIS

Favour Peters, Hasehni Vampere*, Amponsah Peprah , Elias Hormeku and Emmanuel Appiah-Brempong

Department of Health Promotion and Disability Studies School of Public Health, College of Health Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
[2]

Corresponding author: vamperehassan@gmail.com

ABSTRACT

Background: *Postpartum depression is a mood disorder produced by changes in brain chemistry among women beginning 4-6 weeks postpartum and lasting up to a year. This maternal mental health problem affects 11-42% of postpartum women globally with a reported prevalence of 60.8%, causing severe health implications to both the mother and the baby. In Ghana, maternal mental health during the postpartum period receives little attention. This study estimated the prevalence of postpartum depression and the associated socio-demographic and social support variables.*

Methods: *A cross-sectional design and a quantitative approach was used in this study. A purposive sampling technique was used in recruiting the respondents involved in the study through the help of the management of the health facilities. Data collection tools were the Edinburgh Postnatal Depression Scale (EPDS) and a structured questionnaire. The data were analysed using Binary Logistic Regression tests in STATA (Version 17.0).*

Results: *A total of 274 mothers participated in the study. Prevalence of Postpartum Depression was estimated at 31.39%, the circumstance surrounding pregnancy (wanted/unwanted, planned/unplanned, denied by father/abandonment) was the only socio-demographic correlate to Postpartum Depression [p=0.015, OR=0.805, 95% CI 0.675 – 0.959]. Social support variables showing significant association with Postpartum Depression were partner support [p=0.005, OR=1.357 95% CI 1.096 – 1.682], experience of a larger support (from friends and community) [P=0.002, OR=0.713 95% CI 0.575 – 0.884], and ability to maintain a fair life balance in the postpartum period [P=0.011, OR=0.752 95% CI 0.603 – 0.936].*

Conclusions: *Postpartum depression remains high in prevalence. In-service training of primary health care workers is required to screen and detect early symptoms of PPD. Psychosocial support and education on addressing maternal psychological and emotional needs should be provided to nursing mothers and their partners during the antenatal period. Public health interventions*

should focus on educating community members on maternal mental health to provide a larger quality social support to mothers during postpartum period towards reducing PPD prevalence and its attended consequences.

Keywords: Postpartum Depression, Nursing Mothers, Prevalence, Social Support

INTRODUCTION

In contemporary society, motherhood is often a major change in career and lifestyle for many women. The birth of a new born is usually regarded as a happy occasion and it is expected that the new mother will welcome it with delight. However, this is not always the case for some women. After the birth of their child, they experience a downward trajectory, feeling gloomy and sombre while their family and friends celebrate [1]. Postpartum Depression (PPD) is a form of mood disorder produced by changes in brain chemistry, and a medical condition requiring professional treatment [2]. It is highly prevalent within the first few months up to a year after birth. However, studies have proven that postpartum depression can continue up to four years following birth [2]. PPD is characterized by extreme sadness, loss of interest and pleasure in previously enjoyed activities, fatigue, restlessness, a sense of guilt or worthlessness, and repeated thoughts of death or suicide. In some cases, the mother may be overly concerned about the health of her child while other mothers with severe PPD experience psychotic symptoms such as hallucinations, delusions or a modest but genuine risk of harming their children [3].

Although the exact aetiology of PPD is unknown, biological, psychological, and social precursors have been reported as risk factors for all women in developing the condition [4]. PPD can be caused by physiological, situational, or multifactorial factors as well. Few studies have reported a range of socio-demographic factors to predict PPD including low-income levels, employment status, level of education, and mother's age [5], although some research findings disagree with these outcomes [6]. Other studies have revealed that parity, the circumstance surrounding pregnancy, and the type of birth/delivery were associated with PPD [7,8,9].

Similarly, low socioeconomic status and lack of education were also found as factors linked to PPD with the lack of social support being a stronger psychological predictor [10]. Other factors such as low self-esteem, stressful life events, unplanned pregnancy or failed efforts to terminate the pregnancy and unfavourable feelings about the new born were also reported [10].

Depression is common among women of childbearing age. In developed countries, about 10 to 16% of adult mothers experience depression and 25–50% of affected women have prolonged symptoms lasting longer than 6 months [11, 12]. Two studies conducted in Brazil revealed a prevalence of 12% (n=33) and 13.3% (n=120) of depression in the third month postpartum [10]. A recent Australian study found that 16.1% of women reported depressive symptoms during the first 12 months postpartum [13]. In the United States, PPD prevalence is between 10% and 20% [14] and 7% to 16% in Germany [15]. A meta-analysis found the prevalence of PPD in Asia to be 1 in 20 women [16].

It was believed for a long time that only women from western societies suffered from PPD and that postnatal mood disorders were defined by culture [17,18]. However, maternal mental conditions have also been identified in other settings. In Africa, 18.3% of mothers have been estimated to have depression according to a systematic review of 35 studies

[19]. A study conducted in a tertiary hospital in Nigeria indicated that the incidence of PPD was 27.2% [20]. In Uganda, a prevalence of 6.1% was reported in peri-urban communities using the Self Reporting Questionnaire (SRQ-20) tool whiles the Edinburgh Postnatal Depression Scale (EPDS) reported a prevalence of 43% in rural Uganda [21,22]. Two community-based research in the Northern parts of Ghana estimated the prevalence of PPD to be 27.8% in 2016 [23] and 33.5% in 2018, [24] while other studies on women in the remaining parts of Ghana found lower rates of 3.8% to 11.3% [25,26].

PPD is a serious public health problem in all parts of the world, affecting both the mother's health and the development of the infant [10]. It has the significant ability to negatively affect the mothering role and function of a woman [27]. In children and adolescents, untreated depression can have adverse long-term effects such as the development of maladjustment and poor general physical wellness [12]. For the mother, the episode can be the precursor of chronic recurrent depression and may carry life-long consequences for her and her family [28].

Pandemics such as the recent COVID-19 was remarkably characterised by increased prevalence of anxiety, stress, and depression [29]. Women, especially pregnant women and those in the postpartum are susceptible to mental health problems in such events [30]. For instance, the challenging times that came as a result of the COVID-19 pandemic such as social distancing, government-enforced lockdowns, and the use of personal protective equipment (PPEs) during labour led to high levels of anxiety, limited social support and access to healthcare which adversely affected the childbirth experience and mental wellbeing of postpartum women [31]. As a result, most studies demonstrated an increase in the rates of PPD and other birth-related psychopathologies worldwide such as postpartum anxiety and psychosis [32,33].

A recent meta-analysis of COVID-19's effects on maternal health discovered an increased prevalence of PPD throughout the pandemic [34]. These findings prove the vulnerability of postpartum mothers in developing psychological and emotional disorders during stressful life events. A cross-sectional study of mothers six weeks postpartum in Germany reported the prevalence of depressive symptoms to be 26% post-COVID-19 which is significantly higher than 12%, the previous year [35] and in turkey, PPD prevalence was estimated to be 34% [36].

In developing countries, where mental health is generally ignored and perceived with a negative attitude, PPD is often overlooked and misdiagnosed [37]. Most vulnerable women are rarely recognized during pregnancy or after delivery since most attention is on the infant's health, thus they do not always receive the necessary care [37]. Hence, this study examined the prevalence of PPD and its associated predictors in the Kumasi metropolis of Ghana.

MATERIALS AND METHODS

Study Design and Approach

This study adopted an analytical cross-sectional design which is suitable for prevalence study or retrospective experiences. The design allowed for both analytical and descriptive analysis of the data. A quantitative approach was adopted for the data collection and analysis. This approach is efficient in collecting data systematically to arrive at generalizable results.

Study Area

The study was conducted in the Kumasi Metropolitan Area, in the Ashanti Region of Ghana. Three public sub-metropolitan

Hospitals (Kumasi South, Suntreso and Manhyia Government Hospitals) were purposively selected for the study. These hospitals are the major health facilities in the Kumasi metropolis, serving as referral centers for the health facilities within the metropolitan area of Kumasi. These hospitals also run postnatal and child welfare clinics, as well as psychiatric clinics throughout the weekdays.

Study Population and Sampling

The study population were Nursing Mothers seeking postnatal care in the selected hospitals. The sample size for this study was determined using Cochran's formula;

for when population size is unknown [38].

Where; $n = Z^2 \frac{p(1-p)}{d^2}$

• n is the estimated sample size;

• Z is the z-score at a confidence level of 95% = 1.96;

• p is the estimated prevalence;

• d is the level of precision corresponding to a confidence level of 95%= 0.05

The estimated prevalence in calculating the sample size was determined from a systematic review conducted in sub-Saharan Africa which investigated the effect of postpartum depression on exclusive breastfeeding. The estimated prevalence of postpartum depression was 18.6% [39]. Given these values, the sample size was calculated as;

$$n = 1.96^2 \times \frac{0.186(1-0.186)}{0.05^2},$$

$$n = 3.8416 \times \frac{0.151404}{0.0025},$$

$$n = 233.$$

Hence, the minimum sample size for the study was 233. However, a total number of 274 consenting nursing mothers were recruited.

Inclusion Criteria for Women

Women were eligible to participate in this study if they were nursing mothers with children less than one-year-old at the time of the study. Women who were not biological mothers of the infant or were pregnant at the time the study was conducted were excluded from the study. Women who lived within the Kumasi Metropolis and were attending postnatal care (PNC) at the selected hospitals were included in the study. Those who experienced stillbirth or had infants under neonatal intensive care were excluded while women who brought the children for Child Welfare Clinics (CWC) visits were included in the study.

The number of respondents recruited from each selected health facility was determined using the probability proportional to size technique. The number of respondents from each hospital is illustrated in table 1.

Table 1. Sample Composition of Selected Health Facilities

Name of Hospital	Frequency (n=274)	Percentage (%)
Kumasi South Government Hospital	117	42.70
Suntreso Government Hospital	63	22.99
Manhyia Government Hospital	94	34.31

Data Collection Methods/Procedure

The data were collected using the Edinburgh Postnatal Depression Scale (EPDS) and a self-designed structured questionnaire. Participants in this study with no formal education or had difficulty understanding and speaking English Language were assisted to complete the questionnaire by translating the questions into the local language (Akan) which is understood and spoken by all the participants. All the researchers who collected the data are proficient in both the Akan language and English language. The structured questionnaire was used to collect socio-demographic and social support data from respondents. The EPDS was used to screen for depression among postpartum women at the selected hospitals. The EPDS is a 10-item self-report scale that has been validated and widely used internationally by child and family nurses and other healthcare professionals in primary care settings to screen for the presence of depression.

Validation studies have demonstrated 68 – 86% sensitivity and 78 – 96% specificity while positive predictive value has been reported between 70 – 90% [26]. Both data collection tools; a structured questionnaire and EPDS used for this study were administered by only the researchers to ensure accuracy and completeness of the data.

Data Management and Analysis

The data gathered were screened and examined to check for accuracy and completeness. The data were then entered into an Excel Spreadsheet, crosschecked by the research team and exported to STATA Software Version 17.0 for analysis. Basic descriptive analysis was performed on the demographic characteristics of the respondents while linear and logistic regression tests (at a CI of 95%) were conducted to determine the demographic and social variables that predict the postpartum depression among the study respondents.

RESULTS

Test for Normality of Data

A Quantile-Quantile (Q-Q) Plot was used to determine whether the dependent variable (i.e., post-partum depression) was normally distributed such that parametric tests could be used for the analysis of data. The results shown in Figure 1 indicate that the data was normally distributed.

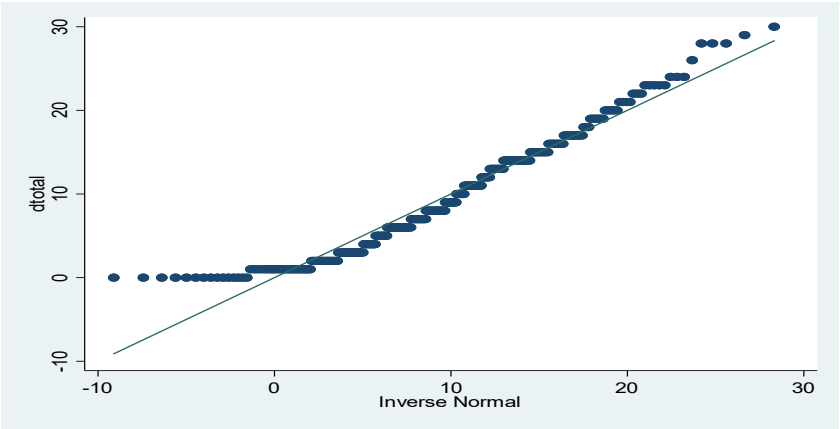

Figure 1 Showing the normal distribution of data on the dependent variable.

Socio-demographic Characteristics of Respondents

The mean (SD) age of the mothers was 29 (6.11) years whiles the mean (SD) of the respondents' parity and number of children were 2 (1.47) and 2 (1.45) respectively. The average monthly income of the respondents was GHC 762.00 (Ghanaian cedi) with more than half (58.03%) being self-employed. The majority of mothers had attained secondary education (38.32%) and more than half of the respondents were married (66.79%). Majority of mothers reported to have had a normal vaginal delivery (74.82%) and had never had a spontaneous abortion during any prior pregnancies (79.20%) as shown in Table 2.

Table 2. Demographic Characteristics of Respondents

Variable	Mean (SD)	Minimum Value - Maximum Value
Age	29 (6.11)	16 – 45
Monthly Income(GHS)	762 (856.31)	100 – 7000
Parity	2 (1.47)	1 – 9
No. of Children	2 (1.45)	1 – 8
	Frequency (n=274)	**Percentage (%)**
Marital Status		
•Single/Cohabiting	51	18.61
•Single	35	12.77
•Married	183	66.79
•Married but not Cohabiting	3	1.09
•Divorced	1	0.36
•Widowed	1	0.36

Highest Level of Education		
•Basic	92	33.58
•Secondary	105	38.32
•Tertiary	54	19.71
•None	23	8.39
Occupation		
•Self-employed	159	58.03
•Apprenticeship	21	7.66
•Student	12	4.38
•Unemployed	36	13.14
•Government Sector Employee	32	11.68
•Private Sector Employee	14	5.11
Circumstance Surrounding Pregnancy		
•Unplanned	117	42.70
•Unwanted	6	2.19
•Denied by Father/Abandonment	5	1.82
•Planned	146	53.28
Nature of Birth		
•Vaginal Delivery	205	74.82
•Emergency Caesarean	54	19.71
•Planned Caesarean	15	5.47
Spontaneous Abortion		
•Yes	57	20.80
•No	217	79.20

Prevalence of Postpartum Depression among Nursing Mothers

The Edinburg Postnatal Depression Scale (EPDS) was administered to respondents and was used to determine the prevalence of postpartum depression. For this research, all scores of responses provided on the scale which totaled less than 10 (less or equal to 9), were categorized as 'Normal', all scores which totaled between 10 and 13, were categorized as 'Possible Depression', and scores totaling greater than 13 were categorized as 'Depressive Illness'. These categories were further sorted into 'Depressive illness' and 'Normal' to aid in binary logistic regression tests as shown in Table 3.

Table 3. Prevalence of Postpartum Depression Using Edinburgh Postnatal Depression Scale

Classification of Depression	Frequency (n=274)	Percentage (%)
Depressive Illness	86	**31.39***
Possible Depression	40	14.60
Normal	148	54.01

****Percentage of Depressive Illness indicates the Prevalence rate for Postpartum Depression*

Thus, the point prevalence of postpartum depression among nursing mothers within the Kumasi Metropolis was estimated to be 31.39%.

Socio-Demographic Variables and Postpartum Depression

In a bivariate logistic regression analysis, two socio-demographic variables showed a negative significant association with postpartum depression at the crude level; marital status [p=0.038, OR=0.728 95% CI 0.539 – 0.983] and circumstance surrounding pregnancy [p=0.015, OR=0.805, 95% CI 0.675 – 0.959] as shown in Table 4. These variables were further examined in a multivariate logistic regression model, and after adjusting for other independent variables, only circumstance surrounding pregnancy, particularly in "Unplanned" category [p=0.046; AOR=0.832; 95% CI 0.0694– 0.997], retained the strongest significant association with postpartum depression as illustrated in Table 5.

Table 4. Binary Logistic Regression Analysis Results of Socio-Demographic Variables

Variables	Postpartum Depression (PPD)		
	Crude *p*-value	**Standard Error**	**Odds Ratio [95% CI]**
Age	0.564	0.021	0.988 [0.947 – 1.030]
Education	0.835	0.143	1.029 [0.783 – 1.353]
Occupation	0.072	0.083	1.143 [0.988 – 1.322]
Marital Status	**0.038***	0.112	**0.728 [0.539 – 0.983]**
Circumstance of Pregnancy	**0.015***	0.072	**0.805 [0.675 – 0.959]**
Nature of Birth	0.441	0.198	0.832 [0.521 – 1.328]
Parity	0.967	0.089	1.003 [0.843 – 1.195]
Spontaneous Abortion	0.722	0.283	0.893 [0.480 – 1.663]
No. of Children	0.536	0.087	0.945 [0.789 – 1.131]
Monthly Income	0.712	0.000	0.999 [0.999 – 1.000]

Table 5. Showing Multivariate Logistic Regression Analysis Results of socio-demographic variables

Variables	Postpartum Depression (PPD)		
	Adjusted p-value	**Standard Error**	**Adjusted Odds Ratio [95% CI]**
Marital Status	0.127	0.124	0.786 [0.577 – 1.071]
Circumstance of Pregnancy	**0.046***	0.076	**0.832 [0.694 – 0.997]**

Social Support Variables and Postpartum Depression

In a bivariate logistic regression analysis as shown in Table 6, the social support variables showing significant association with postpartum depression at the crude level were family support of motherhood journey [p=0.001, OR=1.348 95% CI 1.123 – 1.619], support with household chores [p=0.016, OR=1.248, 95% CI 1.042 – 1.495], partner support [p ≤ 0.001, 0R=1.430, 95% CI 1.192 – 1.716], financial support [p ≤ 0.001, OR=1.494, 95% CI 1.209 – 1.847], experience of a larger support (from friends and community) [p ≤ 0.001, OR=0.612, 95% CI 0.519 – 0.735], Inability to complain, [P≤ 0.001, OR=0.713 95% CI 0.595 – 0.853], Constantly feeling drained/exhausted [p=0.002, OR=0.747 95% CI 0.621 – 0.899], Ability to maintain a fair balance in life [P ≤ 0.001, OR=0.656 95% CI 0.541 – 0.796], Occurrence of a drastic life event [p ≤ 0.001, OR=0.705 95% CI 0.569 – 0.872].

Of these variables, family support in the motherhood journey, support in household chores, partner's support, and financial support showed a positive crude association with postpartum depression while the experience of a larger support (from friends and community), inability to complain, constantly feeling drained, ability to maintain a fair life balance, and occurrence of a drastic life event showed a negative crude association with postpartum depression.

Table 6. Binary Logistic Regression Test Results of Social Support Variables

Variables	Postpartum Depression (PPD)		
	Crude *p*-value	**Standard Error**	**Odds Ratio [95% CI]**
Family Support of Motherhood Journey	**0.001***	0.126	1.348 [1.123– 1.619]
Support with house chores	**0.016***	0.115	1.248 [1.042– 1.495]
Performing chores alone	0.067	0.073	0.855 [0.724 – 1.011]
Partner Support	**0.000***	0.133	1.430 [1.192 – 1.716]
Financial Support	**0.000***	0.162	1.494 [1.209 – 1.847]
Presence of a house help	0.937	0.118	1.009 [0.802 – 1.270]
Larger Support Experience	**0.000***	0.055	0.612 [0.519 – 0.735]
Inability to complain	**0.000***	0.065	0.713 [0.595 – 0.853]
Constantly feeling drained/exhausted	**0.002***	0.070	0.747 [0.621 – 0.899]
A fair balance in life	**0.000***	0.065	0.656 [0.541 – 0.796]

Occurrence of drastic event	**0.001***	0.077	0.705 [0.569 – 0.872]
Main support	0.151	0.153	0.744 [0.496 – 1.114]

Following a further multivariate logistic regression analysis, while adjusting for other independent variables, Partner Support [p=0.005, OR=1.357 95% CI 1.096 – 1.682], experience of a larger support from friends and community [P=0.002, OR=0.713 95% CI 0.575 – 0.884], and the ability to maintain a fair balance in life [P=0.011, OR=0.752 95% CI 0.603 – 0.936] retained the strongest significant association with postpartum depression. Whereas the experience of a larger support (from friends and community) and the ability to maintain a fair life balance showed a negative association, partner support showed a positive association, indicating a high-risk factor to developing PPD when mothers experience low partner support as shown in Table 7.

Table 7. Showing Multivariate Logistic Regression Analysis Results of social support variables

Variables	Postpartum Depression (PPD)		
	Adjusted p-value	Standard Error	Adjusted Odds Ratio [95% CI]
Family Support of Motherhood Journey	0.258	0.226	1.231 [0.859– 1.763]
Support with house chores	0.475	0.162	0.877 [0.611– 1.258]
Partner Support	**0.005***	0.148	**1.357 [1.096 – 1.682]**
Financial Support	0.539	0.149	1.088 [0.831– 1.424]
Larger Support Experience	**0.002***	0.078	**0.713 [0.575 – 0.884]**
Inability to complain	0.244	0.096	0.881 [0.712 – 1.089]
Constantly feeling drained/exhausted	0.827	0.122	1.026 [0.813 – 1.295]
A fair balance in life	**0.011***	0.084	**0.752 [0.603 – 0.936]**
Occurrence of drastic event	0.079	0.099	0.804 [0.629 – 1.025]

Tables 8 and 9 show the categorisation of items enlisted under the variables *Occurrence of Drastic Event* and *Main source of social support in the postpartum* asincluded in the questionnaire.

Table 8. Types of Drastic Life Event Encountered Postpartum

Type of drastic event	Frequency (n=274)	Percentage (%)
Loss of a loved one	42	15.33
Loss of job	29	10.58
Loss of property	10	3.65
None	193	70.44

Table 9. Main Source of Social Support Postpartum

Source of Main Support	Frequency (n=274)	Percentage (%)
Friends	10	3.66
Parents	59	21.61
Partner	183	67.03
Siblings	21	7.69

DISCUSSION

This study has investigated the prevalence and correlates of postpartum depression among nursing mothers. Through an analysis of socio-demographic and social support variables, this paper revealed insights into the multifaceted nature of postpartum depression, providing information for targeted interventions that improve maternal mental health and support strategies within this vulnerable population.

Prevalence of Postpartum Depression

This study recorded a 31.39% prevalence of Postpartum Depression (PPD) among nursing mothers within the Kumasi Metropolis using the Edinburgh Postnatal Depression Scale. This prevalence rate appears lower than was reported in Uganda (6.1%) using the Self Reporting Questionnaire (SRQ-20) tool [21] and in northern Ghana (3.8%) using a Patient Health Questionnaire [25]. A close prevalence of 33.5%, similar to this study was earlier reported in northern Ghana using the Centre for Epidemiologic Studies (CES-D) scale [24]. A cross-sectional study reported an even greater prevalence rate of 44.39% of PPD in Jos, Nigeria using the Edinburgh Postnatal Depression Scale (EPDS) and a 23% prevalence rate in Lagos [28]. A meta-analysis of 35 studies revealed that at least, 18.3% of mothers have been estimated to experience depression in Africa following the birth of a child [19].

The variations in the prevalence of PPD may be attributed to the different tools used in the various studies, and/or the modification and interpretation of items listed in the screening tools. The different experiences of the mothers, their social class and status, cultural and economic differences, the sample sizes, prior history of depression in the perinatal period and the study setting are other possible causes for the varied prevalence of PPD reported in various studies.

Socio-demographic and Social Support Correlates of PPD

This study found that the circumstance surrounding pregnancy, partner support, the ability to maintain a fair life balance, and the experience of a larger support (from friends and community) were independently associated with postpartum depression. Some studies have found a relationship between increased risk of depression and unplanned or unwanted pregnancy being one of the significant factors that increases the EPDS scores [4]. Others reported that respondents who had unplanned pregnancies were two times more likely at risk to develop postpartum depression than those women who had planned pregnancies [40]. Women whose pregnancy was denied by their partners were 3.39 times more likely to have PPD [10].

Concerning Partner Support, mothers constantly need their partners to share chores, largely because any additional task to infant care can overwhelm them [4]. Other forms of the support could be economic, such as contributing or covering expenses towards child upbringing, it could be related to the father's acceptance of the baby as his child, and also help with household chores and child care. These supports contribute to a good state of mental health, less stress and limited

possibility for the occurrence of postpartum depression.

However, in the present study partner support was associated with a 36% higher odds of postpartum depression. Even though this observation is paradoxical, this finding could be understood in light of the quality and quantity of the 'partner support' participants received in terms of inadequate and less favourable support from their partners, thereby perceiving it as not a positive support. This has the potential of increasing their stress levels which may also influence their experience of postpartum depression. Previous studies have revealed that the inability to confide in a partner or spouse was associated with the risk of developing depression in the postpartum period [41]. Furthermore, conflict and poor relationship with partner was found to be correlates of PPD [41].

The lack of the father's support was the basis of many correlates identified by several studies and in any case, the role of the partner's support in preventing and alleviating postpartum depression is extremely crucial, especially in the African context [40]. Women who had essential support from the father of the baby, especially after delivery were 5.8 times less likely to develop postpartum depression than those who had no partner support as they had higher odds of experiencing PPD [41]. This current study found that the experience of a larger social support (from friends and community) and the ability of the mother to maintain a fair life balance in the middle of society's expectations showed significant associations with developing PPD. In Asia, the intense involvement of parents-in-law and the expectation to meet traditional obligations and perform gender roles adequately are also correlates to postpartum depression [42].

In most Ghanaian settings, certain birth and postpartum activities are imposed on the new mother. This is characterised by compulsory and strict dietary plans, uncomfortable stomach bonding, frequent sitting on hot water and other restrictions. This usually continues for up to six months postpartum or longer. In the course of these months, conflicts with parents or other family members may arise largely because nursing mothers have a different lifestyle and will want to raise their children differently leading to disagreements with traditional expectations of the mother, which put them at a higher risk of developing PPD [12, 25].

LIMITATIONS

A large population of nursing mothers had no formal basic education and thus, could not read and write in English. The interpretation of the items in the EPDS and questionnaire into local languages were paraphrased and might not be exact during data collection. Underlying health conditions and factors such as existence of psychiatric conditions before pregnancy and the experience of depressive symptoms during the antenatal period were not assessed.

CONCLUSION AND RECOMMENDATION

The prevalence of postpartum depression is high among the participants and needs urgent public health intervention to address this problem. This study has identified the sociodemographic and social factors to developing PPD that should be pointers to medical professionals when evaluating postpartum women for depression. To improve overall maternal mental health and reduce the prevalence of postpartum depression, appropriate social or psychological support should therefore be provided. These include in-service training of primary health care workers on PPD screening, education on maternal psychological and emotional needs and public maternal mental health campaigns.

ABBREVIATION

ANC – Antenatal Care

CWC – Child Welfare Clinic

DSM-IV – Diagnostic and Statistical Manual

EPDS – Edinburgh Postnatal Depression Scale

GHS – Ghana Health Service

GSS – Ghana Statistical Service

MDE – Major Depressive Episode

MHA – Mental Health Authority

MHA – Mental Health America

MMH – Maternal Mental Health

PDSS – Postnatal Depression Screening Scale

PNC – Postnatal Care

PND – Postnatal Depression

PPD – Postpartum Depression

WHO – World Health Organisation

DECLARATION

Ethics Approval and Consent to Participate: Letter of Approval to conduct study was obtained from the management of the selected health facilities. Ethical Approval was granted by the Committee on Human Research Publication and Ethics (CHRPE) at the Kwame Nkrumah University of Science and Technology, Kumasi-Ghana with reference number CHRPE/AP/440/22 and ethical principles such as anonymity, informed consent and confidentiality were employed throughout the study. An informed consent and participants' information leaflet was signed by respondents before the administration of any questionnaire.

Consent for Publication: Not Applicable.

Availability of Data and Materials: The datasets supporting the conclusions of this article will be made available upon request.

Competing Interests: The authors declare that they have no competing interest.

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Authors' Contributions: FP, EAB and EH conceptualized and designed the study. EH and FP collected the data and analysed by HV and AP. HV and FP drafted the manuscript and revised by EAB and AP. EAB and AP reviewed the final manuscript. All authors approved the final manuscript.

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