SOCIORA
THE JOURNAL OF SOCIAL SCIENCES AND HUMANITIES

Vol. 2, **No.** 1, **Januari** 2025, **Hal.** 56 - 64
DOI: https://doi.org/10.33753/sociora.v2i1.46

Maternal Stress and Anxiety as Predictors of Mental Health among Pregnant Women in Port Harcourt Metropolis, Nigeria

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Keywords:
maternal stress;
anxiety;
mental health;
pregnant women

Abstract *Mental health among pregnant women continues to be issues of concern to reproductive health professionals. Studies examining mental health among women produced varying results. Therefore, the purpose of this study was to examine the predictive ability of maternal stress and anxiety on mental health among pregnant women Cross-sectional survey design was adopted while purposive sampling technique was used to select the study population. Data were collected from 250 pregnant women using a validated scale and analyzed using multiple regression analysis to test an hypothesis which was accepted at p =.001 level of significance. The result showed that maternal stress and anxiety jointly predicted mental health among study participants (R^2 = .049, F(2 , 247) = 6.313 , p < .01). Moreover, maternal stress independently predicted mental health among study participants (β = .209, t = 3.37, p <.01). However, anxiety did not independently predict mental health among study participants (β = .18, t = 1.31, p >.05). The study concludes that the interaction of maternal stress and anxiety are strong predictors of mental health among pregnant women in the study samples. It is recommended that mental health professionals should organize cognitive behavioral counselling to help women during pregnancy.*

Kata Kunci:
stres ibu;
kecemasan;
kesehatan mental;
wanita hamil

Abstrak Kesehatan mental di antara wanita hamil terus menjadi masalah yang menjadi perhatian bagi para profesional kesehatan reproduksi. Studi yang meneliti kesehatan mental di antara wanita menghasilkan hasil yang bervariasi. Oleh karena itu, tujuan dari penelitian ini adalah untuk meneliti kemampuan prediktif stres dan kecemasan ibu terhadap kesehatan mental di antara wanita hamil. Desain survei cross-sectional diadopsi sementara teknik purposive sampling digunakan untuk memilih populasi penelitian. Data dikumpulkan dari 250 wanita hamil menggunakan skala yang divalidasi dan dianalisis menggunakan analisis regresi berganda untuk menguji hipotesis yang diterima pada tingkat signifikansi p = 0,001. Hasil penelitian menunjukkan bahwa stres dan kecemasan ibu secara bersama-sama memprediksi kesehatan mental di antara peserta penelitian (R2 = 0,049, F (2, 247) = 6,313, p <0,01). Selain itu, stres ibu secara independen memprediksi kesehatan mental di antara peserta penelitian (β = 0,209, t = 3,37, p <0,01). Namun, kecemasan tidak secara independen memprediksi kesehatan mental di antara peserta penelitian (β = 0,18, t = 1,31, p > 0,05). Studi ini menyimpulkan bahwa interaksi antara stres dan kecemasan ibu merupakan prediktor kuat kesehatan mental di kalangan ibu hamil dalam sampel studi. Disarankan agar profesional kesehatan mental menyelenggarakan konseling perilaku kognitif untuk membantu ibu selama kehamilan.

INTRODUCTION

Mental health is defined as an individual's emotional, psychological and social well-being which is affected by stress, genetics, lifestyle, and environment (Cullen et al., 2020) Mental health is an important part of overall well-being which is essential to an individual's ability to function in everyday life.

One group of individuals whose mental health needs to be monitored is the pregnant women who are affected by psychological and material resources before, during and after giving birth. The (WHO, 2020) found that about 10% of pregnant women and 13% of postpartum mothers experience mental health challenges.

One common cause of mental health among pregnant women is maternal stress which is a reaction to any interference or stimulus that upsets a woman's mental health. Mental health is an important component of reproductive health which is often neglected. Maternal stress was reported among 34% women during pregnancy(Hasriantirisna et al., 2024; Li et al., 2020).

Some of the causes of maternal stress among pregnant women are low material resources, unfavorable working conditions, heavy family and household responsibilities, tension in intimate relationships, and pregnancy complications (Li et al., 2020). Individuals high in mental stress were found to be associated with poor mental health (Biresaw et al., 2022) Another study indicated a positive correlation between maternal stress and mental health among pregnant women (Kiyak, 2024).

Moreover, anxiety which is an unpleasant sensation of fear and worry (Jalal et al., 2024) is considered to affect mental health. Anxiety is a feeling of fear or worry about things that might happen .(Nuryati & Amir, 2022) found 43.2% of pregnant women in Bekasi City, West Java to have anxiety as a symptom of mental health. Moreover, (Izuka et al., 2023) found the prevalence of pregnant women with anxiety symptoms at 10.1% and those with borderline anxiety symptoms at 15.7% among Nigerian samples. Other studies have found anxiety and stress exposures to pregnant women to affect their mental health and that of their unborn babies (Akinsulore et al., 2021).

Although pregnancy is one of the most important events in women's lives, it is often associated with stress and anxiety. Studies have examined different predictors of mental health among pregnant women with varying results. Besides, studies linking maternal stress and anxiety to mental health among pregnant women are scarce especially in Nigeria.

Therefore, the purpose of this study was to examine the predictability of maternal stress and anxiety on mental health among pregnant women in Port Harcourt, Rivers State, Nigeria. The study sought to provide an answer to the question: Would maternal stress and anxiety jointly and independently predict mental health among pregnant women in the study population?

The novelty of this study is that, it the first time maternal stress and anxiety is empirically studied among these groups of samples in the study area. The study would bring fresh insight to how maternal stress and anxiety affect mental health among pregnant women. In addition, mental health professionals and other stakeholders in reproductive health would be guided on policy and programs to assist pregnant women develop positive mental health.

The study tested the hypothesis: Maternal stress and anxiety would jointly and independently predict mental health among pregnant women in Rivers State.

LITERATURE REVIEW

The theoretical construct that explains perceived maternal stress is the (Lazarus, 1993) psychological stress theory which examines the process by which emotions are elicited because of individuals' subjective interpretation or evaluation of important events or situations in their lives (Lazarus, 1993).

The theory identified two sources of stressors: The primary and secondary stressors. Primary stressors are events or situations that act as potential hazards to individuals. Secondary stress is when individuals evaluate their ability to handle (i.e., cope) situation that has a potential hazard to them. When applied to this study, it means that pregnant women who are passing through physiological and psychological changes would be unhappy and unable to relate well with others which tend to affect their mental health during pregnancy.

In addition, Kiyak (2024) used the Lazarus (1993) theoretical model to investigate maternal stress, etc, among pregnant women and found stress to be associated with pregnancy symptoms and coping styles. Furthermore, studies have confirmed that maternal stress as a robust causes of mental health issues among pregnant women across different populations and samples (Ezenwora , 2022; Sun et al., 2024). Finally, Biresaw et al., (2022) found prevalence of stress among pregnant women to be high (13.7%).

METHOD

The study was a cross-sectional survey design where data were in Port Harcourt metropolis, Rivers State. Purposive sampling technique was adopted to select the two hospitals while convenience collected from participants using validated questionnaires. Two independent variables of maternal stress and anxiety were tested on one dependent variable of mental health. The study was conducted using two hospitals: The New Mile One Hospital and the University of Port Harcourt Teaching Hospital, all sampling method was used for the administration of the study questionnaires to the potential participants.

Three instruments were used for data collection. These are Maternal Stress Scale (Razurel et al., 2014) which was used to assess maternal stress among study participants. The scale

consisted of 27 items presented in a 5-point Likert's format ranging from 1 = strongly disagree, 2= disagree 3= somewhat agree 4= agree 5= strongly agree. Sample items include: "I am stressed about preparing for giving birth" and "I am stressed about the obstetric or medical problems I might encounter during pregnancy". Authors reported Cronbach's alpha of 0.751 and in this study, Cronbach's alpha of 0.732 was obtained.

Anxiety Scale (Weeks et al., 2020) was used to evaluate participants' level of anxiety. The scale consisted of 10-item presented on a 5-point Likert's format ranging from 1 = strongly disagree, 2= disagree 3= somewhat agree 4= agree 5= strongly agree. Sample items include: "Birth is unpredictable and risky" and "I fear complications during labour and birth". Authors obtained Cronbach's alpha of 0.83 and in the current study, Cronbach's alpha of 0.78 was obtained.

Positive Mental Health Scale (Lukat et al., 2016) was used to measure participants' mental health. It is a 9-item scale presented on a 5-point Likert's format ranges from 1 = strongly disagree, 2= disagree 3= somewhat agree 4= agree 5= strongly agree. Sample items include: "I am often carefree and in good spirits" and "All in all, I am satisfied with my life". Authors obtained Cronbach's alpha of 0.93 and in this study Cronbach's alpha of 0.88 was obtained.

A letter of introduction was obtained from the Department of Psychology, Rivers State University, Nkpolu-Oroworukwo, Port Harcourt which was presented to the Hospital authority on the purpose of the study. Based on the initial approval given to the researchers, they were permitted to visit the clinic . Nurses on duty were assigned to the researchers where the consent of the potential participants was sought. The nurses explained the purpose of the study to the potential participants.

They were informed that participation was voluntary and that they could stop filling the questionnaires whenever they felt uncomfortable. Finally, they were assured of the confidentiality of their responses and were only those who agreed to participate that were given the questionnaires to fill which were collected on the spot. A total of 257 questionnaires were completed, however, during screening and coding, seven questionnaires had missing data and were removed, leaving 250 used for the analysis.

IBM^{R} SPSS was used to analyze collected data. Descriptive and inferential statistics were computed. Hypothesis 1 was tested with multiple regressions while hypothesis 2 was tested with independent sample t-test. All hypotheses were accepted at $p < .05$ level of significance.

RESULTS and DISCUSSION

Results

Participants

All participants were pregnant women. The ages of the participants showed that 101(40%) were between 20 and 30 age bracket , 132 (53%) were between 31 and 40 age bracket while 13 (5%) were 40 years old and above. In terms of their marital status, 25 (10%) were unmarried while 225(90%) were married. Finally, in terms of the duration of their pregnancy, 56(22%) were between 2 and 5 months of pregnancy, 168(67%) were between 6 and 9 months pregnant while 26 (10%) did not state their months in pregnancy.

Table 1. Zero-order correlation of study variables

S/N	Variable	M	SD	1	2	3
1	Maternal stress	63.43	14.85	-		
2	Anxiety	41.29	6.12	.164*	-	
3	Mental health	33.12	5.57	.026	.205*	-

Source: Authors' Field Study (2023), Significant at p <.01

Table 1 presents zero-order correlation statistics of the study variables. The result demonstrated that maternal stress significantly correlates with mental health (r= .205, p <..01). However, anxiety did not correlate with mental health among study participants (r = .026, p > .05).

H1: Maternal stress and anxiety would jointly and independently predict mental health among pregnant women in Port Harcourt, Rivers State. The hypothesis was tested using multiple regression and the results are presented in Table 2.

Table 2. Multiple regressions analysis showing joint and independent predictors of mental health among pregnant women in Port Harcourt, Rivers State

Model Summary

				Change Statistics				
				R Square Change	F Change	df 1	df2	Sig. F Change
.221[a]	.049	.041	5.45807	.049	6.313	2	247	.002

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	376.153	2	188.076	6.313	.002[b]
Residual	7358.247	247	29.790		
Total	7734.400	249			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	β		
(Constant)	25.084	2.848		8.809	.000
Mental Stress	.078	.023	.209	3.365	.001
Anxiety	.074	.057	.181	1.309	.192

a. Dependent Variable: Mental Health

Source: Authors' Field Study (2023), Note. N = 250 , * = p< .01.

Table 2 presents joint and independent predictors of mental health among pregnant women in Port Harcourt, Rivers State. The result revealed that maternal stress and anxiety jointly predicted mental health among study participants (R^2 = .049, F (2, 247) = 6.313, p < .01). This means that the independent variable accounted for 4.9 % of variance in mental health among study participants. In addition, the result demonstrated that maternal stress independently predicts mental health among pregnant women (β = .209, t = 3.37, p <. 01). However, anxiety did not independently predict mental health among study participants (β = .181, t = 1.31, p >.05).

Discussion

The hypothesis that maternal stress and anxiety would jointly and independently predict mental health among pregnant women was supported. This shows that a pregnant woman who has elevated levels of stress and is prone to certain levels of anxiety would have a high chance of mental health challenge. This finding implies that a pregnant woman who is exposed to elevated levels of stress during pregnancy and birth of a child and has increased levels of anxiety would be mentally stressed. Maternal stress causes them mental health.

This finding lent credence to that of (Ezenwora , 2022) and (Biresaw et al., 2022) who found maternal stress as a robust predictor of mental health. In addition, the result of this study corroborated (Kiyak, 2024) who found a significant positive relationship between maternal stress and mental health among their study participants. Theoretically, the finding of this study supported the (Lazarus, 1993) stress theory which defines stress in terms of relationship (transaction) between individual and the environment. Therefore, raising children while pregnant can be challenging which affects mental health (Hasriantirisna et al., 2024; Li et al., 2020).

However, anxiety did not independently predict mental health among pregnant women in this study. This contradicted previous findings where anxiety was found to be a significant predictor of mental health among pregnant women (Akinsulore et al., 2021; Izuka et al., 2023; Jalal et al., 2024; Nuryati & Amir, 2022) possible explanation for this contrasting result is that in terms of the age group of the participants in this study, they were in their 30 years and above while a high proportion of them have given birth to two or more children. Furthermore, the cultural beliefs confirmed that women were more rugged when it comes to child bearing (Ezenwora , 2022) . Therefore, anxiety was a natural instinct well-managed.

Since pregnant women are affected by maternal stress, adequate social support should be provided for them by their spouses, friends and family to reduce negative mental health. In addition, some forms of counselling programmes and participation in cognitive behavioural therapy would help to foster positive mental health for them during their period of pregnancy.

CONCLUSION

The study examines maternal stress and anxiety as predictors of mental health among pregnant women. The study has empirically confirmed that the interaction of maternal stress and anxiety are strong predictors of mental health among pregnant women in the study samples (R^2 = .049, F (2, 247) = 6.313, $p < .01$). Some limitations of this study need to be mentioned. To begin with, data collected using self-reported questionnaires was not free of response bias.

Further study would benefit from key informant interview and small group interview to generate further data that would triangulate data from self-reported questionnaires. In addition, only two hospitals in a LGA were selected with a sample size of 350 which hindered the generalization of the study findings. Further study should include more LGAs and sample size to allow for the generalization of the study finding. Finally, the independent variables investigated were not exhaustive; therefore, further study should include social support, learned helplessness and financial well-being.

ACKNOWLEDGMENT

The researchers sincerely thank the pregnant women in the two hospitals: The New Mile One Hospital and the University of Port Harcourt Teaching Hospital, who responded to the questionnaires used in this study. Also, the nurses in these two hospitals who assisted in the administration of the questionnaires, we are grateful to them. The study was self-sponsored by the authors. The writing of this paper was done by the three authors.

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