

SUPPLEMENTARY MATERIAL

A systematic review of the influence of hypertensive disorders of pregnancy on the mental health of expectant mothers in Nigeria

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Key words: hypertensive disorders of pregnancy, maternal mental health, HiP, mental health in pregnancy, hypertension in pregnancy, expectant mothers, Nigeria.

Supplementary Table 1. Risk of bias/quality assessment of the included studies.

Authors (Year)	Risk of Bias	Quality Assessment
Wegbom <i>et al.</i> (2023) ¹³	Low	High
Izuka <i>et al.</i> (2023) ¹⁴	Low	High
Bello <i>et al.</i> (2023) ¹⁵	Low	High
Oboro <i>et al.</i> (2022) ¹⁶	Low	High
Akinsulore <i>et al.</i> (2023) ¹⁷	Low	High
Oladeji <i>et al.</i> (2024) ¹⁸	Low	High
Sripad <i>et al.</i> (2019) ²⁷	Low	High
Fadipe <i>et al.</i> (2024) ³³	Moderate	Moderate
Adekanle <i>et al.</i> (2015) ³⁴	Moderate	Moderate
Bello <i>et al.</i> (2024) ³⁵	Moderate	Moderate
Eleje <i>et al.</i> (2024) ³⁶	Low	High
Olaluwoye <i>et al.</i> (2023) ³⁷	Low	High
Mahmoud <i>et al.</i> (2023) ³⁸	Low	High
Afolabi-Obe <i>et al.</i> (2023) ³⁹	Moderate	Moderate
Olabisi <i>et al.</i> (2024) ⁴⁰	Moderate	Moderate
Anyebe <i>et al.</i> (2023) ⁴¹	High	Moderate
Soyemi <i>et al.</i> (2022) ⁴²	Moderate	Moderate
Sunday <i>et al.</i> (2018) ⁴³	Moderate	Moderate

Risk of bias: Low – no major concerns; Moderate – some concerns in sampling or confounders; High – serious limitations; Quality assessment: High – robust methods, validated tools; Moderate – minor limitations but findings relevant; Poor – substantial weaknesses.

Supplementary Table 2. Summary of the included studies.

Authors	Objectives	Study design, setting and sample	Key instruments	Key findings	Conclusion
Wegbom <i>et al.</i> (2023) ¹³	Estimate severity and factors associated with depression, anxiety, stress in pregnancy	Cross-sectional Two tertiary hospitals, Port Harcourt; n=413	DASS-21	Moderate depression: 9.5%, moderate anxiety: 26.6%, moderate stress: 17.3% Predictors: marital status, education, income, religion, trimester, age, previous abortions/miscarriages.	Strengthen mental health policies in ANC.
Izuka <i>et al.</i> (2023) ¹⁴	Evaluate depression and anxiety among pregnant women	Cross-sectional Four hospitals, Enugu; n=434	HADS	Depressive symptoms: 9.7%, anxiety: 10.1% Predictors: husband's employment, education, gestational age.	Need for integrated mental health screening.
Bello <i>et al.</i> (2023) ¹⁵	Compare psychiatric morbidity between pregnant and non-pregnant women	Cross-sectional Ibadan, Oyo State; n=1,665 (991 pregnant)	GHQ-12, SRQ-20	Psychological distress: 51.8% in pregnant women; and psychiatric morbidity: 33.3% Predictors: dissatisfaction, type of facility, poor sanitation and communication with partners, violence at home, previous depression, previous abortions .	Early identification and intervention imperative
Oboro <i>et al.</i> (2022) ¹⁶	Determine prevalence and factors of antenatal depressive symptoms in early pregnancy	Cross-sectional Multi-centre Southern Nigeria; n=511	EPDS	Depressive symptoms 29.4% Predictors: Intimate partner violence, marital dissatisfaction, poor social support, past history of depression, previous pregnancy complication, low socioeconomic status, unplanned pregnancy.	Context-specific early support policies needed.
Akinsulore <i>et al.</i> (2023) ¹⁷	Investigate pregnancy-related anxiety symptoms (PRAS) and associated factors	Cross-sectional OAUTHC, Ile-Ife; n=230	PASS, CWS, BFI-10, MSSS	PRAS prevalence and major maternal worries: 43.5%, and 55.7% Predictors: age, ethnicity, educational level, living arrangement, trimester, past miscarriage and pregnancy complications, partner social support, maternal worries, extraversion.	Screening for PRAS should be part of routine ANC
Oladeji <i>et al.</i> (2024) ¹⁸	Evaluate a task-shared approach for integrating perinatal depression care in primary care	Mixed-methods 27 PMCH in Ibadan, cohorts	PHQ-9; qualitative process evaluation	Detection of perinatal depression improved from 1.4% before training to 17.4% post-training. At 6months postpartum, cohort 1experience remission of 60% depression, compared to 56% remission in cohort 2. Barriers: Language, cultural attitudes, human resources.	Task-sharing feasible, and scale-up with resources recommended.
Sripad <i>et al.</i> (2019) ²⁷	Explore care-seeking and perceptions of women with pre-eclampsia/eclampsia	Qualitative 7 Nigerian states (Cross River, Ebonyi, Katsina, Kogi, Ondo, and Sokoto) ; n=42 women	Health Belief Model; in-depth interviews	Barriers: mobility, financial constraints, mistrust, cultural beliefs; pre-eclampsia perceived as stress-related	Context-adapted community awareness and support essential.
Fadipe <i>et al.</i> (2024) ³³	Investigate pregnancy outcomes among HDP women with/without mental	Longitudinal Lagos State; 6 MCH centres; n=300	Validated mental health questionnaire	Significant association between mental status and birth weight. Predictors: Estimated blood loss, postpartum	Birth weight linked to maternal mental health; routine assessment

	health disorders			PCV, blood transfusion, hospital admission	recommended.
Adekanle <i>et al.</i> (2015) ³⁴	Compare psychiatry morbidity among normotensive and hypertensive pregnant women and their socio-demographic correlates	Cross-sectional Ladoke Akintola University Teaching Hospital; n=240 (118 hypertensive (cases, 122 normotensive (control) pregnant women)	GHQ, HADS	The prevalence of depressive illness is higher among hypertensive pregnant women compared to the normotensive pregnant women	Needs to screen pregnant women for psychiatry morbidity.
Bello <i>et al.</i> (2024) ³⁵	Determine QoL of pregnant women with medical disorders including HTN	Cross-sectional UCH, Ibadan; n=337	WHOQOL-BREF	Hypertensive disorders most prevalent (23.0%); psychological domain most affected Predictors: Educational status, occupation, gestational age	Psychological support and girl-child education needed.
Eleje <i>et al.</i> (2024) ³⁶	Examine depression, anxiety, stress, and pregnancy outcomes in women with recurrent pregnancy loss	Prospective case-control NAUTH, Nnewi; n=141 (47 RPL, 94 controls)	DASS-21	Significantly higher moderate-to-severe depression, anxiety, stress in RPL group; high stress predicted repeat miscarriage, and preterm labor	Routine mental health screening in high-risk pregnancies.
Olaluwoye <i>et al.</i> (2023) ³⁷	Validate GAD-7 among Nigerian pregnant women	Cross-sectional psychometric Four PHCs, South-West Nigeria; n=203	GAD-7	MINI Cronbach's α =0.709, sensitivity 14.1%, specificity 97.3%	GAD-7 reliable and moderately valid for screening anxiety in pregnancy.
Mahmoud <i>et al.</i> (2023) ³⁸	Cross sectional analysis of pregnant women enrolled in the Hypertension Treatment in Nigeria Program which is aimed at integrating and strengthening hypertension care in primary health care centers	Descriptive cross-sectional analysis 60 primary healthcare centers; n=5972	Baseline results from the Hypertension Treatment in Nigeria	2% were pregnant; pregnant women had a higher rate of newly diagnosed hypertension (65.2% vs 54.4%), and lower baseline walk-in treatment (32.1% vs 42.1%)	Significant gaps in care and important areas for future studies to improve the quality of care and outcomes for pregnant women with hypertension.
Afolabi-Obe <i>et al.</i> (2023) ³⁹	Determine HRQOL and its determinants among hypertensive patients including pregnant women	Cross-sectional Rural South-West Nigeria; n=390	SF-12	Mean mental component score 40.6; overall QoL below normal. Predictors: Female gender, tertiary education, controlled BP	BP control and socioeconomic support needed.
Olabisi <i>et al.</i> (2024) ⁴⁰	Examine body image perception and social support as predictors of psychological distress among pregnant women	Cross-sectional Tertiary hospital, Ogbomosho, Oyo State, Nigeria; n=246	Body Image Perception, Social, and Psychological Distress Scale	Psychological distress variation in women: 44%. Predictors: marital status, body image perception, appraisal, tangible, belonging support.	Attention to body image and support can reduce distress.
Anyebe <i>et al.</i> (2023) ⁴¹	Assess levels of anxiety and psychological distress among pregnant women	Cross-sectional descriptive General Hospital, Oyo State; n=102	K-10, BAI	Moderate disorder: 21.6%; Severe disorder: 20.6%, Mild disorder: 36.3% Low anxiety: 87.3%; Moderate anxiety: 12.7%	Routine mental health screening needed.
Soyemi <i>et al.</i> (2022) ⁴²	Compare depression and quality of life between first-	Cross-sectional comparative PHCs, Abeokuta; n=285	WHOQOL-BREF	Prevalence of depression: 7.2%; First trimester depression 10.5%, third trimester 3.9%	Attention to psychological well-being in all trimesters.

	and third-trimester pregnant women				
Sunday <i>et al.</i> (2018) ⁴³	Determine awareness and treatment of anxiety/depression during pregnancy	Cross-sectional descriptive ESUTH, Enugu; n=200	HADS	23.5% had anxiety and/or depression; only 7.5% aware; 0.5% received treatment	Awareness and treatment gap is critical; screening and psycho-education urgently needed.

ANC, antenatal clinic; BAI, Beck Anxiety Inventory Scale; BFI-10, Big Five Inventory; BP, blood pressure; CWS, Cambridge Worry Scale; DASS-21, Depression, Anxiety and Stress Scale-21; EPDS, Edinburgh Postnatal Depression Scale; ESUTH, Enugu State Teaching Hospital; GAD-7, Generalised Anxiety Disorder-7; HADS, Hospital Anxiety and Depression Scale; HTN, Hypertension; HRQOL, Health-Related Quality of Life; GHQ-12 General Health Questionnaire-12; K-10, Kessler Psychological Distress Scale-10; MCH, Maternal and Child Health; MSSS, Maternal Social Support Scale; MINI, Mini International Neuropsychiatric Interview; Perinatal Anxiety Screening Scale; PHCs, Primary Health Centres; PCV, Packed Cell Volume; PHQ-9, Patient Health Questionnaire-9; PASS, Perinatal Anxiety Screening Scale; PMCH, Primary Maternal and Child Healthcare; PRAS Pregnancy-Related Anxiety Symptoms; QoL, Quality of Life; SF-12, Short Form Survey-12; SRQ-20, Self-Reporting Questionnaire-20; UCH, University College Hospital; WHOQOL-BREF, World Health Organization Quality of Life-Brief Version.