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SUPPLEMENTARY MATERIAL

A systematic review of the impact of post-COVID-19 on mental health among populations in Nigeria

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Supplementary Table 1. Quality appraisal and risk of bias assessment of the included studies.

Authors (year)	Risk of bias score	Quality assessment score
Folayan *et al*. (2022a)[26]	Low	High
Folayan *et al.* (2022b)[27]	Low	High
Okogbenin *et al*. (2022)[28]	Moderate	Moderate
Tungchama *et al*. (2023)[29]	Moderate	Moderate
Oginni *et al.* (2021)[30]	Low	High
Bella-Awusah *et al*. (2023)[31]	Low	High
Asemota *et al*. (2022)[32]	Moderate	Moderate
James *et al.* (2023)[33]	Moderate	Moderate
Aliyu *et al*. (2024)[34]	Moderate	Moderate
Aliyu *et al.* (2025)[35]	Moderate	Moderate
Opakunle *et al*. (2022)[36]	Low	High
Ogolodom *et al*. (2025)[37]	Moderate	Moderate
Akingbade *et al.* (2023)[38]	Low	High
Lawal *et al.* (2023)[39]	Moderate	Moderate
Uneke *et al.* (2023)[40]	Moderate	Moderate
Chinedu *et al.* (2024)[41]	Moderate	Moderate
Ogunbajo *et al*. (2020)[42]	High	Low
Nwakozo *et al*. (2026)[43]	High	Low
Rahman *et al.* (2025)[44]	Low	High
Olowogbon *et al*. (2025)[45]	Moderate	Moderate
Nwafor *et al*. (2021)[46]	Moderate	Moderate
Ango *et al.* (2024)[47]	Moderate	Moderate

Supplementary Table 2. Summary of the included studies.

Authors (year)	Objectives of the study	Study design and population	Study settings and sample size; mental health outcomes	Key findings	Conclusion
Folayan *et al*. (2022)[26]	To identify health profiles and COVID-19-related factors associated with fear, depression, anxiety, and sleep changes.	Cross-sectional Nigerian adults	Nationwide online survey; n=4,439 Fear, anxiety, depression, sleep disturbance	Health risk profiles, HIV status, COVID-19 symptoms, and knowing someone who died from COVID-19 were associated with higher odds of fear, anxiety, depression, and sleep disturbances.	COVID-19 differentially affected mental health according to health status, HIV status, and COVID-19 exposure.
Folayan *et al.* (2022)[27]	To examine PTSS and associated factors among adults living with and without HIV.	Cross-sectional Adults living with and without HIV	Nationwide online survey; n=3,761 Post-traumatic stress symptoms (PTSS)	Nearly half of respondents reported PTSS. Anger, loneliness, social isolation, and limited emotional support were independently associated with increased odds of PTSS, whereas mask use and living with HIV were associated with lower odds.	PTSS was influenced by multiple psychosocial factors, highlighting the need for targeted public mental health interventions.
Okogbenin *et al*. (2022)[28]	To estimate the prevalence of depression and anxiety and identify associated factors.	Cross-sectional Hospitalized COVID-19 patients	Three isolation centers, Edo State; n=489 Depression, anxiety	Depression (49.1%) and anxiety (38.0%) were common. Moderate-to-severe illness, prolonged isolation, COVID-19-related worry, and perceived stigma were associated with poorer mental health outcomes.	Hospitalized patients experienced a substantial psychological burden, supporting routine mental health assessment during admission.
Tungchama *et al.* (2023)[29]	To determine the prevalence of anxiety and depressive symptoms after hospital discharge.	Cross-sectional Discharged COVID-19 patients	Jos, North-Central Nigeria; n=116 Anxiety, depression	Anxiety (17.2%) and depressive symptoms (9.5%) persisted following recovery. Female sex was associated with depressive symptoms.	Mental health screening should form part of post-COVID follow-up care.
Oginni *et al*. (2021)[30]	To investigate associations between COVID-19 stressors and anxiety/depressive symptoms, including sex differences.	Cross-sectional Nigerian adults	Nationwide online survey; n=966 Anxiety, depression	COVID-19-related stressors were associated with anxiety and depressive symptoms, with stronger associations observed among women.	Social support and gender-responsive interventions may reduce adverse psychological outcomes.
Bella-Awusah *et al*. (2023)[31]	31 To explore experiences during the COVID-19 pandemic.	Qualitative Youths living with psychosis	Ibadan; n=20 Psychological wellbeing, resilience	Participants described worsening mental health, disrupted routines, strengthened family relationships, and personal growth.	Young people living with psychosis demonstrated resilience despite significant psychosocial challenges.
Asemota *et al.* (2022)[32]	To assess children's knowledge of COVID-19 and associated mental health responses.	Mixed-methods Children	Calabar, Cross River State; n=265 Stress, psychological wellbeing	Children demonstrated good knowledge of COVID-19 but reported considerable stress. Strong parental support appeared protective.	Family support plays an important role in promoting children's psychological wellbeing during pandemics.
James *et al.* (2023)[33]	To assess knowledge, attitudes, and anxiety during	Cross-sectional	Southeastern Nigeria; n=397	Participants demonstrated high COVID-19 knowledge, positive	Health education may contribute to improved psychological

	the pandemic.	Young adults	Anxiety	attitudes, and relatively low anxiety. Higher educational attainment was associated with lower anxiety.	resilience among young adults.
Aliyu *et al.* (2024)[34]	To assess psychosocial impact among healthcare workers.	Cross-sectional Frontline healthcare workers	Tertiary hospital, Northwest Nigeria; n=97 Psychological impact	Overall psychological impact was generally low but varied significantly according to age, gender, work experience, and working hours.	Sociodemographic characteristics influence healthcare workers' psychological wellbeing.
Aliyu *et al.* (2025)[35]	To evaluate coping strategies among healthcare workers.	Cross-sectional Frontline healthcare workers	Tertiary hospital; n=87 Coping, psychosocial wellbeing	Healthcare workers demonstrated moderate coping. Social support from spouses and parents was an important protective factor.	Strengthening social support may enhance resilience among frontline healthcare workers.
Opakunle *et al.* (2022)[36]	To examine the psychological effects associated with self-isolation among COVID-19 patients.	Cross-sectional Self-isolating COVID-19 patients	Osogbo, Osun State; n=509 Anxiety, depression, insomnia, suicidal ideation	Anxiety (40.0%), depression (35.6%), insomnia (23.0%), and suicidal ideation (7.3%) were reported among participants during self-isolation.	Routine psychological assessment and psychosocial support should accompany home-based isolation programs.
Ogolodom *et al.* (2025)[37]	To assess psychological stress and coping strategies among radiography students during the COVID-19 pandemic.	Cross-sectional Radiography students	Nnamdi Azikiwe University, Awka; n=186 Depression, anxiety, somatic stress, coping	High levels of depression, anxiety, and somatic stress were reported. Social media was the most frequently used coping strategy.	Radiography students experienced considerable psychological distress, highlighting the need for institutional mental health support.
Akingbade *et al.* (2023)[38]	To examine the relationship between eHealth literacy and psychological outcomes during the COVID-19 pandemic.	Cross-sectional Nigerian adults	Nationwide online survey; n=590 Anxiety, depression	Higher eHealth literacy was independently associated with significantly lower odds of anxiety and depression.	Improving eHealth literacy may strengthen mental health promotion and facilitate access to reliable mental health information.
Lawal *et al.* (2023)[39]	To examine the influence of socio-demographic characteristics and adjustment on students' mental health following COVID-19 lockdown.	Cross-sectional University students	Federal University Oye-Ekiti; n=603 Anxiety, depression, psychosocial adjustment	Students from separated homes reported higher anxiety and depression, while poorer academic, emotional, and social adjustment was associated with poorer mental health.	Student support services should prioritize interventions that strengthen psychosocial adjustment during and after public health emergencies.
Uneke *et al.* (2023)[40]	To explore experiences and perceptions of COVID-19 lockdown measures.	Cross-sectional General adult population	Southeast Nigeria; n=120 Loneliness, anxiety, depression, psychosocial wellbeing	Participants reported loneliness, anxiety, depression, and financial hardship, although some also experienced improved family relationships during lockdown.	Lockdown measures had mixed but predominantly adverse psychosocial effects, highlighting the need for supportive public health policies.
Chinedu *et al.* (2024)[41]	To assess the impact of COVID-19 lockdown on	Cross-sectional	University of Uyo Teaching Hospital; n=172	Socioeconomic status significantly influenced access to mental healthcare,	Expanding accessible, affordable, and resilient mental

	access to mental health services.	Patients receiving mental healthcare	Access to mental health services	with many participants seeking care through traditional and religious settings during lockdown.	health services is essential during future public health emergencies.
Ogunbajo *et al.* (2020)[42]	To examine mental and social health complaints among children and adolescents during COVID-19 lockdown.	Cross-sectional Children and adolescents (reported by parents/caregivers)	Online survey; n=260 parents/caregivers Mental health complaints, social wellbeing	Parents and caregivers reported increased emotional and social health complaints among children, although many also observed the acquisition of new skills during lockdown.	Pandemic restrictions had measurable effects on children's mental and social wellbeing.
Nwakozo *et al.* (2026)[43]	To identify factors associated with suicidal behaviour during the post-COVID-19 period.	Mixed-methods Adults	Anambra state; n=625 Suicidal ideation	Poverty, loneliness, job or business loss, and increased food prices were identified as major factors associated with suicidal ideation, with males appearing more vulnerable than females.	Multisectoral interventions addressing socioeconomic hardship are needed to reduce suicide risk following public health emergencies.
Rahman *et al.* (2025)[44]	To explore perceived COVID-19 risks, psychosocial wellbeing, and the role of social workers.	Qualitative Older adults	Onitsha, Anambra State; n=20 Psychosocial wellbeing	Participants described social isolation, emotional distress, and reduced wellbeing during the pandemic, while also highlighting limited involvement of social workers.	Strengthening social work services may improve psychosocial resilience among older adults during future emergencies.
Olowogbon *et al.* (2025)[45]	To investigate the mental health consequences of COVID-19 lockdown among farming households.	Cross-sectional Rural farming households	Four states; n=585 Mental health stress, anxiety, depression	More than half (54%) of respondents reported COVID-19-related mental health stress, with anxiety, depression, excessive worry, and headaches commonly reported.	Targeted psychosocial interventions are needed to support the mental wellbeing of rural farming communities.
Nwafor *et al.* (2021)[46]	To assess symptoms of depression, anxiety, and stress during COVID-19 lockdown.	Cross-sectional Pregnant women	Abakaliki, Ebonyi State; n=456 Depression, anxiety, stress	Severe and extremely severe symptoms of depression, anxiety, and stress were relatively common among pregnant women during lockdown.	Routine mental health screening should be integrated into antenatal care services.
Ango *et al.* (2024)[47]	To assess sources of anxiety, stress, and depression during COVID-19-related school closure.	Cross-sectional Medical students	Usmanu Danfodiyo University, Sokoto; n=178 Anxiety, stress, depression	School closures were associated with increased anxiety, stress, and depressive symptoms among medical students.	Educational institutions should strengthen student mental health support during prolonged disruptions to academic activities.

HCW, healthcare worker; HIV, human immunodeficiency virus; PTSS, post-traumatic stress symptoms.

Supplementary Table 3. Summary of the mental health assessment instruments used in the included studies.

Mental health instrument	Mental health domain assessed	Typical cut-off score(s)	Psychometric characteristics
Patient Health Questionnaire-9	Depression	≥5 (mild), ≥10 (moderate), ≥15 (moderately severe), ≥20 (severe)	Widely validated screening instrument with good internal consistency and sensitivity for depressive symptoms
Generalized Anxiety Disorder-7	Anxiety	≥5 (mild), ≥10 (moderate), ≥15 (severe)	Validated instrument with high sensitivity and specificity for generalized anxiety symptoms
Depression Anxiety Stress Scale-21	Depression, anxiety and stress	Standard severity classifications according to DASS-21 scoring guidelines	Reliable multidimensional screening tool with excellent internal consistency
Impact of Event Scale-Revised/PTSD screening instrument	Post-traumatic stress symptoms	Study-specific validated thresholds	Widely used measure of trauma-related psychological distress following major events
Insomnia Severity Index	Sleep disturbance/insomnia	≥8 indicating clinically significant insomnia symptoms	Validated instrument for assessing insomnia severity
Kessler Psychological Distress Scale (K10/K6)	General psychological distress	Study-specific validated cut-offs	Validated screening instrument for non-specific psychological distress

Cut-off scores shown represent the commonly accepted thresholds for each instrument. Individual studies occasionally adopted alternative validated scoring criteria depending on study objectives and population characteristics.