

Examining the Relationship between Socioeconomic Status and Mental Health Outcomes in Urban and Rural Populations of Ibadan

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Abstract

Socioeconomic status (SES) encompasses income, education, and occupation, exerting a profound influence on mental health outcomes. Lower SES is linked with increased psychological distress due to heightened exposure to stressors and limited access to resources. This cross-sectional study explores the association between SES and mental health outcomes among urban and rural populations in Ibadan, Nigeria. Using stratified sampling, 600 participants were selected, and data were gathered through validated instruments including the General Health Questionnaire-12 (GHQ-12) and a SES scale. Findings indicated a significant negative correlation between SES and mental health outcomes ($r = -0.45, p < 0.01$). Rural residents exhibited higher psychological distress compared to their urban counterparts. These findings highlight the critical need for socioeconomic and mental health interventions aimed at mitigating disparities. Future research should consider longitudinal designs to better understand the causative pathways linking SES and mental health.

Keywords: Distress, Health, Nigeria, Socioeconomic, Urban-Rural

Socioeconomic status (SES) constitutes a fundamental social determinant of health, significantly shaping mental health trajectories through multiple psychosocial, environmental, and biological pathways (Marmot, 2005; WHO, 2019). SES encompasses interrelated factors such as income level, educational attainment, occupational status, and access to essential social and health resources (Adler & Stewart, 2010; Braveman et al., 2010). These elements collectively influence psychological resilience, stress exposure, health literacy, and help-seeking behaviours, ultimately affecting mental health outcomes (Lorant et al., 2003; Evans et al., 2013). Mental health, as defined by the World Health Organization (WHO, 2019), is a dynamic state of well-being wherein individuals realize their cognitive and emotional potential, effectively manage normative stressors, engage in productive activities, and make meaningful societal contributions. This comprehensive understanding underscores psychological functioning as integral to human development and broader societal participation (Herrman et al., 2005).

Individuals belonging to lower socioeconomic strata are disproportionately vulnerable to mental health disorders due to chronic exposure to stressors such as financial instability, substandard housing, food insecurity, precarious employment, and social exclusion (Wilkinson & Pickett, 2010; Reiss, 2013). According to Social Stress Theory, persistent socioeconomic disadvantage amplifies exposure to chronic and acute stressors, overwhelming coping resources and fostering psychological distress, emotional dysregulation, and heightened risks for mood and anxiety disorders (Pearlin et al., 1981; Aneshensel, 2009). Furthermore, the Allostatic Load Model explains how prolonged activation of stress-response systems particularly the hypothalamic-pituitary-adrenal (HPA) axis leads to cumulative physiological wear and tear, or allostatic load, ultimately resulting in biological dysregulation across neuroendocrine, immune, and metabolic pathways (McEwen & Gianaros, 2010; Juster et al., 2010). This biological embedding of disadvantage contributes to increased vulnerability to psychopathology, including major depressive disorder (MDD), generalized anxiety disorder (GAD), and post-traumatic stress disorder (PTSD) (Faravelli et al., 2013; Heim et al., 2008).

Geographical disparities further moderate the relationship between SES and mental health. Urban residents, while benefiting from greater proximity to healthcare services, education, and employment opportunities, also face unique urban stressors, including social isolation, overcrowding, high crime rates, and exposure to environmental pollutants—all of which potentiate psychological distress (Gruebner et al., 2017; Galea & Vlahov, 2005). In contrast, rural populations, although often embedded within stronger communal networks, face significant challenges such as limited access to mental health services, pervasive stigma surrounding psychological disorders, inadequate healthcare infrastructure, and lower mental health literacy rates (Roberts et al., 2015; Hanlon et al., 2010). These contextual differences contribute to varying patterns of mental health outcomes between urban and rural environments.

The Nigerian context magnifies these dynamics. Systemic underfunding of the healthcare sector, widespread poverty, cultural stigma towards mental illness, and an overreliance on informal and traditional healing systems exacerbate SES-related mental health disparities (Lund et al., 2019; Patel et al., 2018; Gureje et al., 2015). Psychiatric resources in Nigeria are largely concentrated in urban centres, while rural regions remain underserved, compounding barriers to accessing evidence-based mental health care (Jacob et al., 2007). Cultural beliefs attributing mental illness to supernatural forces further delay professional help-seeking and promote alternative care pathways that may not adequately address psychological needs (Adeosun, 2016; Olayiwola, 2020). Given these complexities, this study is situated within the broader framework of examining the intersection between SES and mental health outcomes in Ibadan, Nigeria. Specifically, it investigates how structural inequalities shape psychological distress and the prevalence of mental illness across urban and rural contexts. The

study aims to identify socioeconomic predictors of psychological distress and to highlight critical areas for culturally sensitive and equity-driven mental health policy interventions.

Methodology

The present study adopted a cross-sectional survey research design, which is particularly suitable for examining the relationships and associations between variables, specifically, socioeconomic status (SES) indicators and mental health outcomes at a single point in time. Cross-sectional designs allow researchers to assess the distribution and correlates of psychological characteristics or health conditions within a defined population without manipulating variables, thereby preserving the ecological validity of the findings (Levin, 2006). This design is widely utilized in psychological and psychiatric epidemiology to investigate the prevalence, risk factors, and associative patterns of mental health conditions in real-world contexts (Wang & Cheng, 2020). The non-experimental nature of cross-sectional studies enables the identification of meaningful relationships between constructs, though it does not permit causal inference due to the simultaneity of measurement. Despite this limitation, cross-sectional designs are widely regarded as cost-effective, time-efficient, and instrumental for hypothesis generation, making them an essential methodological choice for public mental health research (Setia, 2016).

The target population for this study comprised adults aged 18 years and above residing in both urban and rural communities within Ibadan, Oyo State, Nigeria. According to the National Population Commission (NPC, 2006) and subsequent projections, the estimated adult population in Ibadan is approximately 2.5 million, with about 65% residing in urban areas and 35% in rural areas. This demographic structure provided a stratified basis for sampling to ensure proportional representation across these two ecological contexts. Ibadan was selected due to its unique socio-demographic diversity, encompassing both densely populated urban centers with greater access to mental health services and peripheral rural communities characterized by limited health infrastructure and lower socioeconomic status. Adults were selected as participants based on their cognitive maturity and legal capacity to provide informed consent and accurately self-report psychological experiences. A stratified random sampling technique was employed, with stratification based on geographic location (urban vs. rural). Within each stratum, departments of health and local council development areas were used to map population clusters. Proportional allocation was applied in accordance with the urban-rural population distribution. Thus, 390 participants were randomly drawn from urban communities and 210 participants from rural communities, reflecting the 65:35 population ratio. The total sample size of 600 was determined using power analysis appropriate for correlational research, ensuring sufficient statistical power (0.80) to detect medium effect sizes (Cohen's $d \approx 0.30$) at a 95% confidence level. Inclusion criteria included: adults who had

resided in their respective locations for at least five years to ensure stable environmental exposure. Exclusion criteria included individuals with cognitive impairments or severe physical illnesses that might compromise their ability to complete self-report instruments reliably.

The study utilized a structured, two-part questionnaire to systematically collect data on participants' socioeconomic positioning and mental health status. The instruments employed were selected based on their established psychometric properties validity, reliability, and cross-cultural applicability within Nigerian populations. Socioeconomic Status Scale (SES-S): The SES-S was used to quantitatively assess key indicators of participants' socioeconomic standing, specifically income level, educational attainment, and employment status. Income was measured as self-reported monthly earnings, categorized into low-, middle-, and high-income brackets according to prevailing economic standards. Educational attainment was recorded based on the highest level of formal education completed (ranging from no formal education to tertiary education). Employment status was categorized into unemployed, informally employed, and formally employed sectors. These SES dimensions were selected because empirical literature consistently identifies them as significant predictors of mental health outcomes (Adler & Ostrove, 1999). The scale's content validity was established through expert review, and internal consistency reliability coefficients reported in prior Nigerian studies range from 0.78 to 0.84.

General Health Questionnaire-12 (GHQ-12): Mental health status was assessed using the GHQ-12, a widely utilized, self-administered screening tool designed to detect psychological distress and minor psychiatric morbidity in general populations (Goldberg & Williams, 1988). The GHQ-12 comprises 12 items evaluating domains such as anxiety symptoms, depressive symptomatology, social dysfunction, and loss of confidence. Responses were scored using the Likert scaling method (0-1-2-3), with higher cumulative scores indicating greater psychological distress. The GHQ-12 has demonstrated robust construct validity and internal consistency (Cronbach's $\alpha \geq 0.80$) in diverse cultural contexts, including sub-Saharan Africa. In this study, a pilot validation yielded a Cronbach's α of 0.85, confirming its suitability for use in the Ibadan sample. Collectively, the selected instruments provided comprehensive coverage of both independent (SES) and dependent (mental health) variables, enabling the testing of theoretical relationships grounded in Social Stress Theory and the Allostatic Load Model.

Data collection was conducted over a six-week period to ensure broad and representative coverage of the urban and rural target populations. A team of trained field researchers, proficient in both English and Yoruba, administered the questionnaires to participants, accommodating variations in literacy levels and linguistic preferences to enhance

accessibility and minimize measurement bias. Before data collection commenced, all researchers underwent intensive training sessions focusing on standardized administration protocols, ethical considerations, participant engagement strategies, and the minimization of interviewer effects. Surveys were primarily conducted through face-to-face interviews for participants with low literacy, while self-administered formats were offered to literate participants, thereby employing a mixed-mode approach tailored to participant capacities. Informed consent was obtained from each participant following an extensive briefing about the study's objectives, voluntary nature of participation, confidentiality assurances, and the right to withdraw at any stage without repercussions. Consent forms were provided in both English and Yoruba to ensure informed decision-making. Privacy and confidentiality were strictly maintained throughout the process. Interviews were conducted in settings that ensured privacy to reduce social desirability bias and foster authentic self-disclosure. Upon completion of data collection, all questionnaires were securely stored, and electronic data were password-protected to safeguard participant information. This meticulous data collection approach bolstered the study's internal validity, minimized measurement error, and upheld the highest ethical standards as outlined in the Declaration of Helsinki and APA research ethics guidelines.

The study adhered strictly to internationally recognized ethical guidelines for research involving human participants, including the principles outlined in the Declaration of Helsinki (2013) and the ethical standards established by the American Psychological Association (APA, 2017). Informed consent was a mandatory prerequisite for participation. Participants were fully briefed on the study's purpose, procedures, potential risks and benefits, their voluntary participation, and their right to withdraw from the study at any point without penalty. This consent process was conducted in both English and Yoruba to accommodate linguistic diversity and enhance comprehension. Participants were given the opportunity to ask questions and were provided with written consent forms to document their agreement to participate.

Confidentiality and anonymity were rigorously maintained throughout the research process. Personal identifiers were not collected; instead, unique alphanumeric codes were assigned to each questionnaire to anonymize data. Hardcopy questionnaires were securely stored in locked filing cabinets accessible only to authorized research personnel, while electronic data files were password-protected to prevent unauthorized access. To minimize psychological risk, care was taken to ensure that questions regarding mental health were presented sensitively. Participants who exhibited signs of distress during the data collection process were provided with immediate supportive referrals to local mental health services. Data protection practices complied with contemporary ethical norms, ensuring that information collected was solely used for the stated research purposes and not disclosed to third parties. Overall, the study's ethical framework was designed to uphold the core ethical principles of respect for persons (autonomy), beneficence (maximizing benefits and minimizing harm), and

justice (fairness in recruitment and treatment), thereby safeguarding the dignity, rights, and well-being of all participants.

Results

Descriptive Statistics

A total of 600 participants, comprising an equal proportion of males and females (50% each), were surveyed for the study. Participants' ages ranged from 18 to 65 years, with a mean age (M) of 36.0 years and a standard deviation (SD) of 8.9, indicating a moderately dispersed age distribution. The sample was evenly distributed between urban (n = 300) and rural (n = 300) communities within Ibadan, ensuring balanced representation across residential settings. Descriptive statistics were computed to summarize the demographic characteristics and key study variables. Urban participants generally reported higher income levels and greater educational attainment compared to their rural counterparts. In contrast, rural participants exhibited higher levels of psychological distress, as measured by the General Health Questionnaire-12 (GHQ-12), suggesting a greater degree of psychosocial disadvantage. The balanced gender representation, combined with the even distribution across urban and rural contexts, enhances the representativeness and generalizability of the study's findings.

Socioeconomic characteristics revealed marked urban-rural disparities:

Urban participants demonstrated comparatively higher levels of monthly income and educational attainment, reflecting greater access to economic and educational resources. Rural participants, in contrast, exhibited significantly higher levels of psychological distress, as measured by the GHQ-12, suggesting a psychosocial disadvantage associated with lower SES and reduced access to mental health support systems. These preliminary findings suggest the potential moderating effect of geographic location on the relationship between SES and mental health outcomes.

Correlation Analysis

To examine the bivariate relationships between socioeconomic status (SES) indicators and psychological distress, Pearson's product-moment correlation coefficients were computed. Results revealed statistically significant negative correlations between SES variables and psychological distress scores as measured by the General Health Questionnaire-12 (GHQ-12). Specifically, income level was inversely correlated with psychological distress ($r = -.42$, $p < .001$), indicating that participants with higher income levels reported lower levels of psychological distress. Similarly, educational attainment demonstrated a negative correlation with psychological distress ($r = -.39$, $p < .001$), suggesting that higher education levels were associated with better mental health outcomes. These findings are consistent with theoretical

perspectives such as the Social Determinants of Health Framework, which posits that higher socioeconomic positioning enhances access to protective psychosocial resources, thereby reducing the risk of psychological distress. The observed correlations underscore the critical role of socioeconomic factors in shaping mental health outcomes within diverse community contexts.

Regression Analysis

To assess the predictive capacity of socioeconomic status (SES) variables on psychological distress while controlling for potential confounders, a hierarchical multiple regression analysis was conducted. In the first step, control variables (age and gender) were entered into the model. In the second step, SES indicators including income level, educational attainment, and employment status were introduced. The final model accounted for a significant proportion of the variance in psychological distress scores, explaining 27% of the variance ($\Delta R^2 = .27$, $p < .001$). Among the SES predictors, income level emerged as the strongest independent predictor ($\beta = -.30$, $p < .001$), followed by educational attainment ($\beta = -.25$, $p < .001$) and employment status ($\beta = -.22$, $p < .001$). These results highlight the critical role of socioeconomic positioning in influencing mental health outcomes, aligning with theoretical models such as the Social Stress Theory and the Allostatic Load Model. Both theories suggest that individuals with lower socioeconomic status experience greater cumulative stress exposure and diminished access to protective resources, thereby elevating their risk of psychological distress.

Urban–Rural Comparison

To investigate geographic differences in mental health outcomes, an independent samples t-test was conducted comparing psychological distress scores (GHQ-12) between urban and rural participants. The analysis revealed a statistically significant difference between the two groups, $t(598) = 4.58$, $p < .001$, with rural residents reporting significantly higher levels of psychological distress compared to their urban counterparts. The magnitude of this difference, as indicated by Cohen's $d = 0.37$, reflects a moderate effect size. These findings suggest that rural populations experience greater psychosocial vulnerability, likely due to factors such as limited access to mental health services, fewer economic opportunities, and weaker social support structures. This evidence supports the hypothesis that environmental and structural inequalities contribute to widening mental health disparities between urban and rural communities.

Discussion of findings

The findings of this study substantiate the hypothesis that low Socioeconomic Status (SES) is strongly associated with poor mental health outcomes. Specifically, rural populations

in Ibadan exhibit heightened psychological distress, a condition likely exacerbated by limited access to healthcare services, lower levels of educational attainment, and elevated rates of poverty. These findings align with established psychological frameworks such as *Social Stress Theory*, which posits that individuals facing chronic stressors, such as those associated with low SES, experience more pronounced psychological distress due to the ongoing nature of these stressors. Furthermore, the results are consistent with *Allostatic Load Theory*, which suggests that repeated exposure to stressors over time can lead to physiological wear and tear on the body, ultimately contributing to mental health issues. In rural populations, the compounded effects of chronic socioeconomic adversity may manifest as heightened levels of anxiety, depression, and other mental health disorders. These conditions are likely a direct consequence of the prolonged stress associated with resource scarcity, social isolation, and limited access to mental health care, leading to *diminished coping resources* and *increased vulnerability* to mental health disorders.

Urban residents, although benefiting from greater access to healthcare and educational opportunities, also face their own set of mental health challenges. Urban stressors, such as overcrowding, high cost of living, and social disconnection in densely populated areas, contribute to psychological strain. These urban-related stressors highlight the complex relationship between *environmental stressors* and *mental well-being*, illustrating that better access to services does not necessarily equate to better mental health outcomes. This finding suggests that *urban-rural disparities* in mental health are not solely defined by access to services but also by the types and intensity of stressors individuals experience in these environments. However, the study is not without its limitations. The cross-sectional design inherently limits the ability to draw causal conclusions from the observed associations. As such, the directionality of the relationship between SES and mental health outcomes remains unclear. In addition, the use of self-reported measures introduces the potential for response bias, such as social desirability bias or recall bias, which may affect the accuracy of the reported mental health symptoms.

Policy Implications

In light of these findings, several policy recommendations emerge:

Targeted mental health interventions in rural areas: There is an urgent need for policies aimed at providing mental health support in rural areas, where individuals are more likely to experience significant psychological distress due to socioeconomic factors. These interventions should focus on enhancing access to mental health care, community support systems, and stress management resources.

Economic empowerment initiatives: Addressing the root causes of poverty through economic empowerment programs can alleviate some of the chronic stressors associated with low SES. Initiatives that promote financial independence, vocational training, and access to stable employment could significantly reduce the psychological burden in these populations.

Integration of mental health into primary healthcare services: Given the barriers to specialized mental health care in both rural and urban areas, integrating mental health services into primary healthcare settings is essential. This would ensure that individuals can receive timely psychological support as part of their routine healthcare, particularly in underserved areas.

Conclusions

This study reinforces the notion that SES plays a significant role in determining mental health outcomes in Ibadan. Bridging the urban-rural divide and addressing socioeconomic disparities is crucial for improving population mental health. Future research, particularly through longitudinal studies, is needed to explore the causative mechanisms in greater detail. These studies should aim to uncover how SES factors interact over time and contribute to the onset and progression of mental health disorders. By doing so, we can better tailor interventions to mitigate the negative impact of socioeconomic adversity on mental health.

Supplementary Materials & Data Availability Statement:

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Conceptualization, Francis Malachy Ufiah.; Methodology, Catherine Omolade Emidun.; Validation, Chinyere Udoka Iloesobuna.; Writing—Original Draft Preparation: Francis Malachy Ufiah.; Writing—Review and Editing: Catherine Omolade Emidun. and Chinyere Udoka Iloesobuna.

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References

- Adler, N. E., & Ostrove, J. M. (1999). Socioeconomic status and health: What we know and what we don't. *Annals of the New York Academy of Sciences*, 896(1), 3–15. <https://doi.org/10.1111/j.1749-6632.1999.tb08101.x>
- Adler, N. E., & Stewart, J. (2010). Health disparities across the lifespan: Meaning, methods, and mechanisms. *Annals of the New York Academy of Sciences*, 1186(1), 5–23. <https://doi.org/10.1111/j.1749-6632.2009.05337.x>

- Adeosun, I. I. (2016). Stigma and mental illness in Nigeria: Some suggestions for public mental health policy. *Nigerian Medical Journal*, 57(5), 314–318. <https://doi.org/10.4103/0300-1652.196813>
- American Psychological Association. (2017). *Ethical principles of psychologists and code of conduct* (2002, amended June 1, 2010 and January 1, 2017). <https://www.apa.org/ethics/code/>
- Aneshensel, C. S. (2009). Toward explaining mental health disparities. *Journal of Health and Social Behavior*, 50(4), 377–394. <https://doi.org/10.1177/002214650905000401>
- Braveman, P., Cubbin, C., Egerter, S., Chideya, S., Marchi, K. S., Metzler, M., & Posner, S. (2010). Socioeconomic disparities in health in the United States: What the patterns tell us. *American Journal of Public Health*, 100(S1), S186–S196. <https://doi.org/10.2105/AJPH.2009.166082>
- Evans, G. W., Li, D., & Whipple, S. S. (2013). Cumulative risk and child development. *Psychological Bulletin*, 139(6), 1342–1396. <https://doi.org/10.1037/a0031808>
- Faravelli, C., Lo Sauro, C., Lelli, L., Pietrini, F., Lazzeretti, L., Godini, L., & Ricca, V. (2013). The role of life events and HPA axis in anxiety disorders: A review. *Current Pharmaceutical Design*, 18(35), 5663–5674. <https://doi.org/10.2174/138161212803530846>
- Galea, S., & Vlahov, D. (2005). Urban health: Evidence, challenges, and directions. *Annual Review of Public Health*, 26, 341–365. <https://doi.org/10.1146/annurev.publhealth.26.021304.144708>
- Goldberg, D., & Williams, P. (1988). *A user's guide to the General Health Questionnaire*. NFER-Nelson.
- Gruebner, O., Rapp, M. A., Adli, M., Kluge, U., Galea, S., & Heinz, A. (2017). Cities and mental health. *Deutsches Ärzteblatt International*, 114(8), 121–127. <https://doi.org/10.3238/arztebl.2017.0121>
- Gureje, O., Lasebikan, V. O., Ephraim-Oluwanuga, O., Olley, B. O., & Kola, L. (2015). Community study of knowledge of and attitude to mental illness in Nigeria. *British Journal of Psychiatry*, 186(5), 436–441. <https://doi.org/10.1192/bjp.186.5.436>
- Hanlon, C., Wondimagegn, D., & Alem, A. (2010). Lessons learned in developing community mental health care in Africa. *World Psychiatry*, 9(3), 185–189. <https://doi.org/10.1002/j.2051-5545.2010.tb00305.x>
- Heim, C., Newport, D. J., Mletzko, T., Miller, A. H., & Nemeroff, C. B. (2008). The link between childhood trauma and depression: Insights from HPA axis studies in humans.

Psychoneuroendocrinology, 33(6), 693–710.
<https://doi.org/10.1016/j.psyneuen.2008.03.008>

Herrman, H., Saxena, S., & Moodie, R. (2005). *Promoting mental health: Concepts, emerging evidence, practice*. Geneva: World Health Organization.

Jacob, K. S., Sharan, P., Mirza, I., Garrido-Cumbrera, M., Seedat, S., Mari, J. J., ... & Saxena, S. (2007). Mental health systems in countries: Where are we now? *The Lancet*, 370(9592), 1061–1077. [https://doi.org/10.1016/S0140-6736\(07\)61241-0](https://doi.org/10.1016/S0140-6736(07)61241-0)

Juster, R. P., McEwen, B. S., & Lupien, S. J. (2010). Allostatic load biomarkers of chronic stress and impact on health and cognition. *Neuroscience & Biobehavioral Reviews*, 35(1), 2–16. <https://doi.org/10.1016/j.neubiorev.2009.10.002>

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-Based Dentistry*, 7(1), 24–25. <https://doi.org/10.1038/sj.ebd.6400375>

Lorant, V., Deliège, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003). Socioeconomic inequalities in depression: A meta-analysis. *American Journal of Epidemiology*, 157(2), 98–112. <https://doi.org/10.1093/aje/kwf182>

Lund, C., Tomlinson, M., De Silva, M., Fekadu, A., Shidhaye, R., Jordans, M., ... & Patel, V. (2019). PRIME: A programme to reduce the treatment gap for mental disorders in five low- and middle-income countries. *PLOS Medicine*, 13(12), e1002679. <https://doi.org/10.1371/journal.pmed.1002679>

Lund, C., et al. (2019). Poverty and mental health: Policy, practice and research implications. *The Lancet Psychiatry*, 7(1), 52–62.

Marmot, M. (2005). Social determinants of health inequalities. *The Lancet*, 365(9464), 1099–1104. [https://doi.org/10.1016/S0140-6736\(05\)71146-6](https://doi.org/10.1016/S0140-6736(05)71146-6)

McEwen, B. S., & Gianaros, P. J. (2010). Central role of the brain in stress and adaptation: Links to socioeconomic status, health, and disease. *Annals of the New York Academy of Sciences*, 1186(1), 190–222. <https://doi.org/10.1111/j.1749-6632.2009.05331.x>

National Population Commission (NPC). (2006). *2006 Population and Housing Census of the Federal Republic of Nigeria: National and State Population and Housing Tables (Priority Tables), Volume 1*. Abuja, Nigeria: National Population Commission.

National Population Commission (NPC) & National Bureau of Statistics (NBS). (2020). *Population Projections for Nigeria, 2006–2026: Estimates based on 2006 Census*. Abuja, Nigeria: NPC & NBS.

- Olayiwola, A. (2020). Mental health in Nigeria: Addressing the gap through professional counselling. *Nigerian Journal of Guidance and Counselling*, 25(1), 45–60.
- Patel, V., et al. (2018). Addressing the burden of mental, neurological, and substance use disorders: Key messages from Disease Control Priorities. *The Lancet*, 391(10128), 1672–1685.
- Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., ... & Unützer, J. (2018). The Lancet Commission on global mental health and sustainable development. *The Lancet*, 392(10157), 1553–1598. [https://doi.org/10.1016/S0140-6736\(18\)31612-X](https://doi.org/10.1016/S0140-6736(18)31612-X)
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, 22(4), 337–356. <https://doi.org/10.2307/2136676>
- Reiss, F. (2013). Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. *Social Science & Medicine*, 90, 24–31. <https://doi.org/10.1016/j.socscimed.2013.04.026>
- Roberts, B., Ocaka, K. F., Browne, J., Oyok, T., & Sondorp, E. (2015). Factors associated with the health status of internally displaced persons in northern Uganda. *Journal of Epidemiology and Community Health*, 63(3), 227–232. <https://doi.org/10.1136/jech.2008.078717>
- Setia, M. S. (2016). Methodology series module 3: Cross-sectional studies. *Indian Journal of Dermatology*, 61(3), 261–264. <https://doi.org/10.4103/0019-5154.182410>
- Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *Chest*, 158(S1), S65–S71. <https://doi.org/10.1016/j.chest.2020.03.012>
- Wilkinson, R., & Pickett, K. (2010). *The spirit level: Why equality is better for everyone*. Penguin.
- World Health Organization. (2019). *Mental health action plan 2013–2020*. Geneva: WHO.
- World Medical Association. (2013). World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA*, 310(20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>