

SUPPLEMENTARY MATERIAL

A systematic review of the impact of flooding on mental health outcomes among diverse populations in Nigeria

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

Authors (year)	Risk of bias score	Quality assessment score
Dagona and Alkali (2024) ¹⁰	Low	High
Haruna <i>et al.</i> (2025) ¹¹	Low	High
Timothy <i>et al.</i> (2026) ¹²	Low	High
Ugwuoke <i>et al.</i> (2023) ¹³	Low	High
Aluh <i>et al.</i> (2020) ¹⁸	Low	High
Eze <i>et al.</i> (2025) ²⁸	Moderate	Moderate
Ajibade <i>et al.</i> (2015) ³¹	Moderate	Moderate
Agbibo (2024) ³²	Moderate	Moderate
Abubakar and Shafii (2025) ³³	Low	High
Nwankwo <i>et al.</i> (2024) ³⁴	Moderate	Moderate
Seer-Uke and Samuel (2023) ³⁵	Moderate	Moderate
Omotelola (2023) ³⁶	Moderate	Moderate

Supplementary Table 2. Summary of the included studies.

Authors (year)	Objectives	Study design	Study setting and sample size	Key findings	Conclusion
Dagona and Alkali (2024) ¹⁰	To examine psychological impacts of climate-induced displacement among IDPs in Yobe State	Mixed-methods	Bade, Nguru, and Jakusko LGAs, Yobe State; 150 IDPs (quantitative) and 20 in-depth interviews	Elevated prevalence of moderate to severe depression, anxiety, and probable PTSD among IDPs. Displacement duration, property loss, female gender, low education, and weak social support predicted poor mental health.	Qualitative findings revealed trauma of sudden displacement, grief, and reliance on spiritual coping Climate-induced displacement has profound multidimensional mental health impacts in under-resourced flood-prone communities
Haruna <i>et al.</i> (2025) ¹¹	To assess psychological distress and coping mechanisms among flood-affected children in Maiduguri	Cross-sectional	Maiduguri, Borno State; 374 children aged 7–17 years	Abnormal psychological distress is prevalent. Maladaptive coping significantly associated with greater distress. Adaptive coping showed complex relationship with distress	Targeted psychosocial interventions needed to improve adaptive coping skills in flood-affected children
Timothy <i>et al.</i> (2026) ¹²	To explore lived experiences of humanitarian crisis victims within IDP camps	Qualitative phenomenological	Cross River state, Bakassi Local Government Area; 40 IDPs (32 focus group discussion, 8 in-depth interviews)	Four themes emerged: harsh physical living conditions, inadequate WASH facilities, limited autonomy, and isolation fostering hopelessness and anxiety	Establishing liveable conditions and fostering social connections in camps is essential for mental well-being
Ugwuoke <i>et al.</i> (2023) ¹³	To investigate effect of rational emotive family health therapy on flood-induced anxiety among farmers	Randomised controlled trial	Anambra State; 120 registered cassava farmers affected by flooding	REFHT intervention significantly reduced anxiety disorders among flood-affected farmers compared to control. Gender did not moderate treatment effect	Culturally adapted rational emotive therapy is effective for reducing flood-related anxiety in farming populations
Aluh <i>et al.</i> (2020) ¹⁸	To assess prevalence of depression and PTSD among IDPs in Maiduguri	Cross-sectional	Maiduguri, Borno State; 1,200 IDPs in camp settings	High prevalence of depression, and PTSD documented among IDPs. Significant associations identified between mental health conditions and displacement-related factors	IDPs in camp settings experience substantial mental health burden requiring integrated psychosocial interventions
Eze <i>et al.</i> (2025) ²⁸	To examine psychological challenges faced by elderly flood victims	Qualitative	Cross River State; elderly flood victims (30 elderly individuals, and 10 social workers)	Elderly individuals experienced disproportionate psychological burden, including anxiety, depression, and feelings of abandonment. Physical limitations compounded psychological vulnerability	Age-sensitive psychosocial support services are essential for elderly flood victims
Ajibade <i>et al.</i> (2015) ³¹	To assess bio-psychosocial correlates of flood impacts in	Cross-sectional	Three coastal neighbourhoods, Lagos State; 1,003 residents	Flood impacts associated with socioeconomic, demographic, and behavioural factors. Mental health	Bio-psychosocial framework is essential for comprehensive assessment of flood impacts

	coastal Lagos			dimensions identified as significant component of overall flood burden	
Agbiboa (2024) ³²	To explore everyday emotions of populations impacted by the 2022 floods	Qualitative	Multiple flood-affected communities across Nigeria; community-based qualitative inquiry	Flooding generated complex emotional responses including fear, anxiety, grief, and political emotions. Affected populations demonstrated improvised affective coping strategies	Emotional dimensions of flooding require integration into disaster response frameworks
Abubakar and Shafii (2025) ³³	To examine age-based differences in traumatic experiences of long-term flood victims	Cross-sectional	Maiduguri, Borno State; 369 flood survivors across six age groups	Statistically significant age-based differences in trauma severity. Younger adults (20–40 years) exhibited greatest vulnerability	Age-targeted mental health interventions are necessary for post-flood recovery programmes
Nwankwo <i>et al.</i> (2024) ³⁴	To examine effect of rational emotive behaviour therapy on post-traumatic stress in farmers with experiences of natural disaster	Randomised controlled trial	Abia State; 118 farmers	REBT intervention produced significant reduction in PTSD caused by flooding among farmers	REBT represents an effective evidence-based intervention for post-flood depression in Nigerian contexts
Seer-Uke and Samuel (2023) ³⁵	To compare PTSD levels between IDPs of herdsmen attacks and flood victims	Cross-sectional comparative	Benue State; 600 IDPs (360 herdsmen attack victims, 240 flood victims)	Significant PTSD identified among flood victims, though lower than among herdsmen attack victims. Female gender associated with higher PTSD	Flood victims experience clinically significant PTSD requiring targeted intervention, particularly among women
Omotelola (2023) ³⁶	To investigate post-traumatic stress and depression among IDPs in Adamawa State	Cross-sectional	Adamawa State; 396 IDPs	IDPs affected by insurgency and flooding High levels of PTSD and depression documented. Significant positive correlations between all PTSD dimensions and depression	Integrated mental health services are essential for IDP populations exposed to multiple traumas including flooding

IDP, internally displaced person; PTSD, post-traumatic stress disorder; REBT, rational emotive behavior therapy; REFHT, rational emotive family health therapy; WASH, water sanitation and hygiene.