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Psychological Distress and Architectural Studio Performance among Architecture Students in Conflict Affected Northeast Nigeria

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Abstract

Architectural design studio education requires sustained concentration, iterative creative thinking, engagement with design critique, and collaborative learning. These demands may be particularly challenging in conflict affected settings where students experience psychological distress alongside the pressures of studio education. This study examined the relationship between psychological distress and architectural studio performance among architecture students in three federal universities in Northeast Nigeria. A cross-sectional correlational design was employed among 290 undergraduate architecture students at Abubakar Tafawa Balewa University, Bauchi; Modibbo Adama University, Yola; and the University of Maiduguri. Psychological distress was assessed using an adapted 28 item General Health Questionnaire covering somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression, while studio performance was assessed using portfolio and jury evaluation records. Descriptive statistics, Pearson correlation, and simple linear regression were employed. Anxiety and insomnia recorded the highest composite mean (M = 2.77), followed by social dysfunction (M = 2.66) and somatic symptoms (M = 2.46). Severe depression showed the strongest negative association with studio performance (r = -.808, p = .008), whereas somatic symptoms (r = -.112, p = .774), anxiety and insomnia (r = -.319, p = .403), social dysfunction (r = -.456, p = .217), and the Overall General Health Index (r = -.500, p = .170) were not statistically significant. The regression model produced R^2 = .250, although the General Health coefficient was not significant (β = -.501, p = .169). The findings highlight the relevance of psychological wellbeing to architectural studio education in conflict affected contexts and support consideration of psychologically supportive and trauma informed learning environments alongside physical studio rehabilitation.

Keywords: architectural studio; architecture students; conflict affected education; Northeast Nigeria; psychological distress; studio performance; trauma informed design

Introduction

Architectural design studio education requires sustained concentration, iterative creative thinking, engagement with design critique, and collaborative interaction with peers and tutors (Salama, 2015). These demands make students' psychological wellbeing relevant to their capacity to sustain engagement with prolonged and demanding design activities. This concern is particularly important in conflict affected settings, where students may encounter the pressures of studio education alongside insecurity, educational disruption, and broader psychosocial stressors. Northeast Nigeria has experienced prolonged insurgency related disruption, with consequences for communities and educational institutions across the region. While research has increasingly examined the physical, environmental, pedagogical, and psychological dimensions of architectural studio education, limited attention has been given to the relationship between psychological distress and measurable studio design performance in conflict affected higher education settings.

Psychological distress associated with insecurity and traumatic experiences has been linked to difficulties in educational adjustment and functioning among conflict affected learners (Muhammad & Abdullahi, 2025; Olorunlambe & Jud, 2026). Within architecture education, students are also exposed to substantial psychological pressures associated with workload, prolonged studio hours, perfectionist expectations, and studio culture (Kamel & Khalil, 2025). These conditions suggest that conflict related psychosocial stressors may compound existing pressures within architectural education. However, existing research has predominantly examined general academic achievement, psychological wellbeing, burnout, or studio environmental conditions, with comparatively limited evidence connecting specific psychological distress dimensions with architectural studio performance.

This study addresses this gap by examining the relationship between psychological distress and studio design performance among architecture students in three federal universities in Northeast Nigeria. Psychological distress was examined across somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression, while studio performance was assessed using students' portfolio and jury evaluation records. The study was guided by the following null hypothesis:

H_0: There is no significant relationship between psychological distress and architecture students' studio design performance in Northeast Nigeria.

The study contributes to architectural education research by bringing together psychological wellbeing, studio performance, and the conflict affected learning context, thereby providing an empirical basis for considering psychologically supportive and trauma informed approaches to architectural studio environments.

Psychological Distress, Conflict and Educational Performance

Psychological distress associated with traumatic experiences and violent conflict has been linked to adverse educational and psychosocial outcomes. Pereira et al. (2018) reported poorer academic performance among university students who had experienced traumatic events, while Salah and Saxena (2025) identified persistent reductions in educational achievement associated with exposure to violent conflict across sub-Saharan Africa. Within Northeast Nigeria, Olorunlambe and Jud (2026) reported substantial exposure to Boko Haram related traumatic

experiences alongside depression, anxiety, post-traumatic stress symptoms, and poor psychosocial adjustment among adolescents and young adults. Similarly, Muhammad and Abdullahi (2025) identified post-traumatic stress and associated cognitive, emotional, and behavioural difficulties among children affected by insecurity in Northern Nigeria. Together, these studies establish the relevance of psychological wellbeing to educational functioning, although their outcomes have largely concerned general academic achievement, educational adjustment, or psychosocial wellbeing rather than the specialised requirements of architectural design education.

This distinction is important because architectural studio learning requires prolonged concentration, iterative problem solving, creative production, response to critique, and sustained interaction with peers and tutors. Psychological difficulties affecting motivation, concentration, sleep, emotional regulation, or social participation may therefore have implications for how students engage with studio-based learning. However, the extent to which psychological distress is associated specifically with architectural studio performance remains insufficiently examined, particularly in conflict affected educational settings.

Psychological Wellbeing and Architectural Studio Education

Architecture students experience distinctive psychological pressures associated with studio culture. Kamel and Khalil (2025), in a systematic review, identified excessive workload, prolonged working hours, perfectionist expectations, blurred boundaries between academic and personal life, and prevailing studio norms as important contributors to burnout among architecture students. Their findings highlight the need to consider wellbeing not only as an individual responsibility but also as an outcome influenced by studio culture, workload, pedagogy, and institutional practices.

Research has also demonstrated relationships between studio environments and student wellbeing. Hussein and Mustafa (2023) found a significant positive relationship between the quality of the design-studio learning environment and architecture students' wellbeing, indicating that the studio environment is relevant to students' psychological experience rather than functioning solely as a physical setting. These findings are important to the present study because they establish that architecture students' wellbeing is influenced by both the demands of studio education and the environment in which those demands are experienced. Nevertheless, existing research has not sufficiently addressed how psychological distress in a conflict affected context relates to measurable studio design performance.

Studio Environment, Wellbeing and Performance

The physical conditions of architectural studios have also been associated with student comfort and academic outcomes. Al-Jokhadar et al. (2023) examined indoor environmental quality in design studios and found that environmental conditions including noise, thermal conditions, lighting, humidity, and air quality were relevant to students' comfort and reported health symptoms. The study also identified a significant relationship between concentration and academic achievement, demonstrating the potential relevance of studio environmental quality to performance.

Evidence from Nigeria similarly demonstrates that studio characteristics warrant consideration in relation to architecture students' academic experience. Omale et al. (2024), examining studio spaces at the Federal University of Technology Akure, found that the relationship between studio space and academic performance was not simply linear, suggesting that factors beyond spatial size may contribute to students' design performance. More recent Nigerian research has extended this concern to wellbeing and burnout, including studies examining indoor environmental quality and academic performance

among architecture students and the relationship between studio design, indoor environmental quality, and burnout.

The literature therefore establishes that studio culture, environmental quality, spatial conditions, and student wellbeing are already recognised areas of architectural education research. The contribution of the present study lies elsewhere: it examines whether psychological distress itself is associated with studio performance within a conflict affected context, rather than assuming that physical studio conditions alone explain differences in performance.

Theoretical Perspective and Research Gap

Trauma informed design provides a conceptual basis for considering how environments can support individuals experiencing psychological distress through principles such as psychological safety, predictability, emotional regulation, choice, and opportunities for recovery (Bollo & Donofrio, 2021; Van der Kolk, 2014). Environmental Psychology complements this perspective by explaining the reciprocal relationship between individuals and their physical surroundings, including the effects of spatial organisation, privacy, territoriality, environmental comfort, social interaction, and perceived control (De Gregorio et al., 2023; Proshansky et al., 1970). Together, these perspectives suggest that students' psychological states and their experience of the studio environment should be considered in understanding studio engagement and performance.

Three gaps emerge from the literature. First, conflict related research has primarily examined psychological distress, educational adjustment, or general academic outcomes. Second, architecture studio research has increasingly examined burnout, wellbeing, studio culture, environmental quality, and academic performance. Third, these bodies of research have rarely been brought together to examine specific dimensions of psychological distress in relation to measurable architectural studio performance among students in conflict affected higher education environments.

The present study addresses this intersection by examining somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression in relation to architectural studio performance among students in three federal universities in Northeast Nigeria. It therefore extends existing research from the general question of whether architecture students experience psychological strain to the more specific question of whether and how psychological distress is associated with the performance demands of architectural studio education in a conflict affected context.

Research Design and Study Context

This study adopted a cross-sectional correlational design to examine the relationship between psychological distress and architectural studio performance among undergraduate architecture students in conflict affected Northeast Nigeria. The design was appropriate because the study sought to determine the direction and strength of associations between psychological distress indicators and studio performance without manipulating either variable.

The study was conducted in three federal universities offering accredited architecture programmes in Northeast Nigeria: Abubakar Tafawa Balewa University (ATBU), Bauchi; Modibbo Adama University (MAU), Yola; and the University of Maiduguri (UNIMAID), Maiduguri. The institutions were selected because they represented federal architecture programmes operating within a region affected by prolonged insecurity and varying degrees of conflict related educational disruption and recovery. The study focused on students in the 200, 300, and 400 levels. These levels were selected because students at these stages had sufficient exposure to architectural studio education to permit assessment of studio

design performance while retaining representation across different stages of undergraduate design development.

Population, Sample and Sampling

The accessible population comprised 1,054 undergraduate architecture students across the three participating universities and the three selected academic levels (200, 300, and 400). The minimum sample size was determined using the Krejcie and Morgan (1970) procedure for finite populations, which indicated a minimum requirement of approximately 282 respondents for a population of this size. A proportionate stratified sampling technique was employed, with institution and academic level jointly serving as the stratification variables. To guard against attrition from non-response and incomplete returns, 310 questionnaires were administered, approximately 10% above the calculated minimum of 282. Of these, 290 were returned complete and usable, yielding a response rate of 93.5% (290/310); the shortfall of 20 questionnaires was attributable to non-return rather than disqualification, as no returned questionnaire was excluded for incompleteness. This realised valid sample of 290 exceeded the Krejcie and Morgan (1970) minimum of 282, satisfying the representativeness threshold established for the study population.

Table 1 presents the achieved sample distribution by institution and academic level. The proportion of the achieved sample drawn from each institution closely tracks that institution's share of the accessible population (ATBU: 45.5% of the population, 45.5% of the sample; MAU: 35.2% of both; UNIMAID: 19.3% of both), confirming that the stratification was genuinely proportionate rather than nominal.

Table 1: Achieved Quantitative Sample Distribution by Institution and Academic Level

Institution	Sample Frame	Sample Size	200 Level	300 Level	400 Level
ATBU	480	132	48	51	33
MAU, Yola	371	102	54	32	16
UNIMAID	203	56	20	17	19
Total	1,054	290	122	100	68

Source: Departmental Records (2025) and Field Survey (2025).

Measurement of Psychological Distress

Psychological distress was assessed using an adapted version of the 28-item General Health Questionnaire (GHQ-28) developed by Goldberg and Hillier (1979). The GHQ-28 was originally developed as a 28-item instrument comprising four subscales: somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. For the present study, the response format was adapted to a five-point frequency scale ranging from Never (1) to Always (5) to capture the reported frequency of psychological symptoms within the study context. The four original domains were retained in the analysis.

The adaptation requires an important conceptual qualification. The GHQ-28 is a measure of psychological symptoms and general psychological wellbeing; it does not directly establish exposure to a traumatic event or diagnose post-traumatic stress disorder. Accordingly, the present study uses the term psychological distress for the quantitative construct measured by the instrument. The conflict affected context provides the setting within which this distress was investigated, while the GHQ-28 scores themselves were not treated as a direct measure of trauma exposure. The four domain scores were aggregated to obtain composite indicators of psychological distress, and an Overall General Health Index was derived as the mean of the four domain composite scores. Consistent with the analytical

procedure adopted throughout the study, composite mean scores for each psychological distress domain and the Overall General Health Index were interpreted using the adapted Equal-Interval Decision Rule presented in Table 2, whereby mean scores of 1.00 - 2.33 were classified as Low, 2.34 - 3.67 as Moderate, and 3.68 - 5.00 as High.

Table 2: Decision Rule for Interpreting Composite Mean Scores

Mean Interval	Classification	Interpretation
1.00 – 2.33	Low	Low level of psychological distress
2.34 – 3.67	Moderate	Moderate level of psychological distress
3.68 – 5.00	High	High level of psychological distress

Source: Adapted from Alkharusi (2022).

Measurement of Architectural Studio Performance

Architectural studio performance was assessed using students' studio design assessment records obtained from the participating departments. The records comprised students' portfolio assessment and jury evaluation scores for the relevant academic session. The use of academic assessment records provided a performance measure based on actual studio evaluation rather than relying exclusively on students' perceptions of their own performance. The measure therefore reflected the formal assessment processes through which architectural design work was evaluated within the participating programmes.

Data Analysis

Data were analysed using descriptive statistics, Pearson product-moment correlation, and simple linear regression. Descriptive statistics were used to summarise the psychological distress domains and identify the relative prevalence of somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression across the participating institutions and academic levels.

Pearson product moment correlation was used to examine the direction and strength of the relationships between the psychological distress dimensions and studio performance. Simple linear regression was subsequently used to examine the relationship between the Overall General Health Index and studio performance. Statistical significance was assessed at $\alpha = .05$, with two-tailed tests used for the correlation and regression analyses.

Analytical unit clarification

Although the study collected data from 290 individual students, the correlation and regression output available for this article was calculated using nine composite institution by academic level observations, representing the three participating universities across the 200, 300, and 400 level groups. Thus, the inferential statistics reported in this article describe relationships among the nine aggregated groups, rather than relationships among 290 independent individual observations. This distinction is important for interpreting the magnitude and statistical significance of the reported associations.

Psychological Distress among Architecture Students

Psychological distress was reported across all four assessed GHQ-28 domains. Somatic symptoms included recurrent headaches and fatigue, with 46.9% of respondents reporting headaches "sometimes" and 30.0% reporting fatigue "often". Anxiety and sleep-related symptoms were also reported, including anxiety "sometimes" (33.8%), panic symptoms "sometimes" (27.6%), difficulty falling asleep "sometimes" (30.7%), and waking during the night "always" (21.4%). Social dysfunction was reflected

in avoidance of social situations "often" (22.8%) and feelings of loneliness "sometimes" (27.2%). Severe depressive indicators were reported by a smaller proportion of respondents, including suicidal thoughts (8.3%) and feelings that life was not worth living (9.0%).

Table 3: Selected Indicators of Psychological Distress among Architecture Students

Psychological distress domain	Selected symptom indicator	Response category	Percentage (%)
Somatic symptoms	Headaches	Sometimes	46.9
	Fatigue	Often	30.0
Anxiety and insomnia	Anxiety	Sometimes	33.8
	Panic symptoms	Sometimes	27.6
	Difficulty falling asleep	Sometimes	30.7
	Waking during the night	Always	21.4
Social dysfunction	Avoiding social situations	Often	22.8
	Feelings of loneliness	Sometimes	27.2
Severe depression	Suicidal thoughts	Severe	8.3
	Life not worth living	Severe	9.0

Institutional Differences in Psychological Distress

The composite psychological distress indices varied across the three participating institutions. Modibbo Adama University (MAU), Yola recorded the highest mean scores across all four psychological distress domains, while Abubakar Tafawa Balewa University (ATBU), Bauchi recorded the lowest scores. The University of Maiduguri (UNIMAID) occupied an intermediate position. The Overall General Health Index was highest for MAU (M = 2.78), followed by UNIMAID (M = 2.44) and ATBU (M = 2.29).

Table 4: Institutional Comparison of Psychological Distress Indices

Institution	Somatic symptoms	Anxiety and insomnia	Social dysfunction	Severe depression	Overall General Health Index
ATBU, Bauchi	2.24	2.58	2.47	1.88	2.29
MAU, Yola	2.79	3.06	2.91	2.34	2.78
UNIMAID	2.36	2.68	2.59	2.13	2.44

Composite Psychological Distress Indices

Across the four psychological distress domains, anxiety and insomnia recorded the highest composite mean score (M = 2.77), followed by social dysfunction (M = 2.66) and somatic symptoms (M = 2.46). Severe depression recorded the lowest composite mean (M = 2.12), while the Overall General Health Index was 2.50.

Table 5: Composite Psychological Distress Indices

Psychological distress domain	Mean	Rank
Anxiety and insomnia	2.77	1
Social dysfunction	2.66	2
Somatic symptoms	2.46	3
Severe depression	2.12	4
Overall General Health Index	2.50	-

Relationship between Psychological Distress and Architectural Studio Performance

Pearson product moment correlation analysis was conducted to examine the relationships between the psychological distress dimensions and architectural studio performance. All four psychological distress domains showed negative associations with studio performance, although the strength and statistical significance of the relationships varied. Severe depression demonstrated the strongest negative association with studio performance ($r = -.808$, $p = .008$). Somatic symptoms ($r = -.112$, $p = .774$), anxiety and insomnia ($r = -.319$, $p = .403$), and social dysfunction ($r = -.456$, $p = .217$) showed negative but non-significant associations. The Overall General Health Index also demonstrated a negative association with studio performance ($r = -.500$, $p = .170$), but this relationship was not statistically significant.

Table 6: Correlation between Psychological Distress and Architectural Studio Performance

Psychological distress dimension	r	p	Interpretation
Somatic symptoms	-.112	.774	Weak negative association
Anxiety and insomnia	-.319	.403	Moderate negative association, not significant
Social dysfunction	-.456	.217	Moderate negative association, not significant
Severe depression	-.808	.008	Strong negative association, significant
Overall General Health Index	-.500	.170	Moderate negative association, not significant

Note. Inferential analysis was based on nine aggregated institution-by-academic-level observations. Two-tailed significance is reported.

Regression Analysis of Psychological Distress and Architectural Studio Performance

A simple linear regression analysis was conducted using the Overall General Health Index as the predictor variable and architectural studio performance as the dependent variable.

Table 7: Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of Estimate
1	.500	.250	.143	6.142

Note. Predictor: Overall General Health Index. Dependent variable: Studio Performance. Analysis based on nine aggregated institutions by academic level observations.

The regression model produced $R = .500$ and $R^2 = .250$. Thus, the model describes 25.0% of the variation in the aggregated studio performance scores. However, the regression coefficient for the Overall General Health Index was not statistically significant.

Table 8: Regression Coefficients for Overall General Health Index and Studio Performance

Predictor	B	SE	β	t	p
Constant	90.721	21.724	-	4.176	.004
Overall General Health Index	-13.248	8.645	-.501	-1.532	.169

Note. Dependent variable: Studio Performance. Analysis based on nine aggregated institution-by-academic level observations.

The Overall General Health coefficient was negative ($B = -13.248$; $\beta = -.501$), indicating an inverse association between the Overall General Health Index and aggregated studio-performance scores. However, the coefficient was not statistically significant ($p = .169$).

DISCUSSION

The findings indicate that psychological distress is relevant to architectural studio performance among students in the participating universities, although the strength and statistical significance of the observed relationships varied across psychological distress dimensions. Anxiety and insomnia recorded the highest composite mean, followed by social dysfunction and somatic symptoms, indicating that these were the most prominent manifestations of psychological distress within the study population. However, severe depression, despite recording the lowest composite mean, demonstrated the strongest negative association with studio performance ($r = -.808$, $p = .008$). In contrast, the associations involving somatic symptoms, anxiety and insomnia, social dysfunction, and the Overall General Health Index were negative but not statistically significant. The findings therefore suggest that psychological distress should not be treated as a single uniform predictor of studio performance; rather, particular dimensions of distress may have stronger relationships with the demands of architectural studio learning.

The prominence of anxiety and insomnia is consistent with research identifying substantial psychological pressures within architectural education. Kamel and Khalil (2025) found that architecture students experience psychological strain associated with workload, prolonged working hours, perfectionist expectations, and prevailing studio culture. Such conditions are relevant to the present findings because architectural studio education requires sustained concentration, prolonged engagement with design tasks, repeated revision, and participation in critique. Sleep disturbance and anxiety may consequently create conditions that make sustained engagement with these activities more difficult. However, the present study did not establish a statistically significant relationship between anxiety and insomnia and studio performance, and therefore these mechanisms should be regarded as plausible interpretations rather than demonstrated causal pathways.

The strongest empirical finding was the negative association between severe depression and studio performance. The magnitude of this relationship suggests that institution-by-academic-level groups reporting higher severe depression scores tended to have lower aggregated studio performance scores. This finding is consistent with evidence that psychological distress and traumatic experiences can be associated with difficulties in educational adjustment and functioning. Muhammad and Abdullahi (2025) reported associations between post-traumatic stress and educational adjustment among children affected by insecurity in Northern Nigeria, while Olorunlambe and Jud (2026) documented depression, anxiety, post-traumatic stress symptoms, and psychosocial difficulties among young people affected by Boko Haram related experiences in Northeast Nigeria. Pereira et al. (2018) similarly reported poorer academic performance among university students with traumatic experiences. The present study extends this body of evidence by considering a more specialised educational outcome: architectural studio performance rather than general academic achievement.

The relationship between severe depression and studio performance is particularly relevant to the nature of architectural design learning. Studio performance requires students to initiate and sustain design activity, tolerate uncertainty, respond to criticism, revise unsuccessful ideas, communicate design decisions, and remain engaged across extended periods of work. Depressive symptoms may plausibly interfere with some of these processes through reduced motivation, withdrawal, difficulty sustaining engagement, or diminished confidence. Nevertheless, because the present study is cross-sectional and the correlation was based on aggregated observations, these mechanisms cannot be established as causal explanations. The finding is better interpreted as evidence of a strong observed association that warrants further individual-level and longitudinal investigation.

The non-significant findings are equally important. Although anxiety and insomnia ($r = -.319$), social dysfunction ($r = -.456$), and the Overall General Health Index ($r = -.500$) were negatively associated

with studio performance, none reached statistical significance in the available analysis. This indicates that a broad measure of psychological distress did not independently explain studio performance within the fitted regression model. The regression model produced $R^2 = .250$, but the Overall General Health coefficient was not statistically significant ($\beta = -.501$, $p = .169$). The result therefore does not support the interpretation that overall psychological distress independently predicts studio performance. Instead, it suggests that studio performance is likely to reflect the combined influence of psychological, environmental, pedagogical, institutional, and individual factors.

This multidimensional interpretation is consistent with research on architectural studio environments. Existing studies have demonstrated relationships between studio conditions, student wellbeing, environmental quality, burnout, and academic experience (Al-Jokhadar et al., 2023; Hussein & Mustafa, 2023; Kamel & Khalil, 2025). These studies indicate that psychological wellbeing cannot be considered independently from the conditions in which architectural education takes place. The present study adds a different dimension by examining psychological distress in a conflict affected educational context and relating it to studio performance. The findings therefore complement, rather than replace, existing research on the physical and pedagogical characteristics of architectural studios.

The findings can also be interpreted through Trauma Informed Design and Environmental Psychology. Trauma informed approaches emphasise psychological safety, predictability, emotional regulation, choice, and opportunities for recovery (Bollo & Donofrio, 2021; Van der Kolk, 2014). Environmental Psychology, in turn, emphasises the reciprocal relationship between people and their physical and social environments (De Gregorio et al., 2023; Proshansky et al., 1970). Within architectural studios, these perspectives draw attention to the ways spatial organisation, privacy, social interaction, environmental comfort, perceived control, and opportunities for restoration may influence students' experience of the learning environment. The present findings do not establish that these environmental characteristics caused psychological distress or performance differences; rather, they indicate why psychological wellbeing should be considered alongside environmental and pedagogical conditions when planning studios in conflict affected contexts.

The architectural significance of these findings becomes particularly important when considering post conflict educational recovery. Physical rehabilitation is essential following disruption and damage to educational infrastructure, but reconstruction of the physical environment does not necessarily address all of the conditions affecting students' educational engagement. The present findings do not demonstrate that physical rehabilitation is insufficient in itself, nor do they establish that persistent psychological distress caused differences in studio performance. They nevertheless support a broader conception of educational recovery in which physical infrastructure is complemented by attention to students' psychological wellbeing, social interaction, and capacity to engage with demanding learning activities.

For architectural studio planning, this implies that functional requirements should be complemented by opportunities for different modes of engagement. Studios in conflict affected settings may benefit from spatial arrangements that provide a balance between collaborative activity and individual concentration, opportunities for temporary retreat or reflection, predictable circulation and workspace organisation, and environmental conditions that minimise unnecessary sensory stress. Such strategies are consistent with trauma informed principles while remaining compatible with the collaborative and critique-based nature of architectural studio education.

The findings also have implications for studio pedagogy and institutional practice. Psychological wellbeing should not be treated solely as an individual student responsibility when the educational environment itself involves prolonged workload, public critique, competition, and continuous

performance expectations. Universities may therefore consider integrating psychosocial support with studio teaching, providing appropriate referral pathways for students experiencing significant distress, and promoting studio cultures that support constructive critique and sustained engagement. These measures should complement rather than replace improvements in physical studio conditions.

At the architectural policy level, the findings suggest an opportunity to broaden the way studio adequacy is conceptualised. Conventional studio planning tends to emphasise space standards, capacity, furniture, environmental services, and operational requirements. While these remain fundamental, conflict affected educational environments may also benefit from consideration of psychological safety, restorative opportunities, student agency, and appropriate balances between social interaction and individual concentration. Such considerations could inform future development of wellbeing-oriented criteria for architectural learning environments.

Therefore, the study demonstrates that psychological distress is a relevant dimension of architectural studio performance in conflict affected higher education, with severe depressive symptoms showing the strongest observed negative association with performance in the available analysis. At the same time, the non-significant relationship between the Overall General Health Index and studio performance indicates that performance cannot be explained by psychological distress alone. The findings therefore support an integrated understanding of architectural studio education in which psychological wellbeing, environmental conditions, pedagogical practices, and institutional context are considered together. This provides an empirical basis for further development and testing of trauma informed approaches to architectural studio design in conflict affected settings.

CONCLUSION

This study investigated the relationship between trauma related psychological distress and architectural studio performance among architecture students in conflict affected Northeast Nigeria. The findings revealed moderate levels of trauma related psychological distress among respondents, with anxiety and insomnia emerging as the most prevalent manifestations, while severe depression demonstrated the strongest negative relationship with studio performance. Taken together, the findings indicate that psychological wellbeing constitutes an important factor influencing architecture students' engagement and performance within studio-based learning environments.

Although trauma related psychological distress was significantly associated with declining studio performance, the regression findings suggest that psychological wellbeing alone does not fully explain variations in students' studio outcomes. Rather, architectural studio performance appears to be shaped by the interaction of psychological, environmental, pedagogical, and demographic factors. This finding reinforces the multidimensional nature of studio learning and highlights the need to understand architectural education within conflict-affected settings as both an educational and environmental phenomenon.

The study contributes to knowledge by establishing an explicit relationship between trauma related psychological distress and architectural studio performance within conflict affected higher education environments. The findings further suggest that psychological wellbeing should be regarded as an important component of educational infrastructure rather than as an issue external to architectural pedagogy. Accordingly, architecture schools operating within conflict prone regions should complement investments in physical studio facilities with psychosocial support initiatives and trauma informed design strategies that promote psychological safety, predictability, and restorative opportunities for students.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed:

a) Architecture schools operating within conflict affected regions should incorporate trauma informed principles into studio planning and management in order to promote psychological safety and reduce environmental stressors.

b) Universities should complement investments in physical infrastructure with student wellbeing programmes and psychosocial support services aimed at improving academic engagement and resilience.

c) Architectural studio environments should incorporate restorative spaces, opportunities for individual reflection, and adaptable collaborative settings capable of supporting diverse psychological and learning needs.

d) Regulatory and accreditation bodies responsible for architectural education should consider integrating wellbeing-oriented criteria into studio planning standards and educational quality assessment frameworks.

e) Future research should investigate the moderating role of specific architectural design attributes in the relationship between psychological wellbeing and studio performance in conflict affected educational environments.

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