The Psychosocial Triad: Assessing the Impact of Depression, Sleep Quality, and Self-Esteem on the Academic Achievement of Teacher-Trainees in Northern Nigeria

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ABSTRACT

This study assessed the joint and independent influence of depression, sleep quality, and self-esteem on the academic achievement of Colleges of Education students in Bauchi State, Nigeria, while also examining gender differences across these variables. A descriptive survey design was adopted. A sample of 302 NCE III students was selected from two state-owned Colleges of Education using a multi-stage sampling technique. Data were collected using the Rosenberg Self-Esteem Scale, Beck Depression Inventory-II, Pittsburgh Sleep Quality Index, and academic records (CGPA). Data were analysed using descriptive statistics, multiple regression, and independent samples t-tests. The regression model was significant (F(3, 298) = 85.47, p < .001), explaining 43.7% of the variance in academic achievement. Depression (β = -.304, p < .001) and poor sleep quality (β = -.150, p < .001) were significant negative predictors, while self-esteem (β = .186, p < .001) was a positive predictor. No significant gender difference was found in academic achievement (p = .192). However, female students reported significantly higher depression, poorer sleep quality, and lower self-esteem than male students (all p < .001). The academic achievement of teacher-trainees is significantly influenced by an interconnected triad of depression, poor sleep, and low self-esteem. A critical gender paradox exists where equitable academic output coexists with significant disparities in psychological well-being, necessitating integrated, gender-sensitive support interventions.

INTRODUCTION

Academic achievement in teacher training institutions is crucial, as it directly impacts the quality of the future educational workforce. Beyond cognitive and instructional factors, psychosocial and physiological variables such as depression, sleep quality, and self-esteem have emerged as significant determinants of student performance (Walberg, 1981; Eisenberg et al., 2014). Depression impairs cognitive functioning and academic engagement (Lewinsohn, 1974), poor sleep quality disrupts memory consolidation and attention (Oswald, 1980), and low self-esteem undermines motivation and resilience (Adler, 1927). In Nigeria, students in Colleges of Education face unique stressors, including economic hardship and security challenges, which may exacerbate these issues. However, limited research has examined the combined effect of these three factors on academic achievement within this population, particularly in Northern Nigeria. This study addresses this gap by investigating their joint and independent influences and exploring gender differences.

STATEMENT OF THE PROBLEM

Academic achievement among Colleges of Education students in Bauchi State

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remains a concern, with many students experiencing difficulties unexplained by intellect or teaching quality. Rising levels of psychological distress, sleep disturbances, and low self-worth appear to be contributing factors. Despite evidence linking depression, poor sleep, and low self-esteem to academic struggles in university settings, little empirical attention has been paid to Colleges of Education students, especially in Bauchi State. Furthermore, there is insufficient research on the joint influence of these variables or on gender differences within this cohort. This gap hinders the development of targeted support programs, necessitating a systematic investigation into how depression, sleep quality, and self-esteem collectively and independently affect academic achievement.

Purpose of the Study

The main aim of this study is to assess the impact of depression, sleep quality, and self-esteem on the academic achievement of Colleges of Education students in Bauchi State, Nigeria. Specific objectives include examining their joint and independent influences and analyzing gender differences across all variables.

METHODOLOGY

A quantitative, cross-sectional survey design was employed. The target population comprised all NCE III students in two state-owned Colleges of Education in Bauchi State. A multi-stage sampling technique (purposive, stratified, and simple random) yielded a final sample of 302 students (Male=156, Female=146), with a mean age of 21-23 years. Data were collected using:
1. Rosenberg Self-Esteem Scale (RSES; α = .87).
2. Beck Depression Inventory-II (BDI-II; α = .90).
3. Pittsburgh Sleep Quality Index (PSQI; α = .81).
4. Academic Achievement Proforma (CGPA).

Data were analyzed using SPSS Version 25. Descriptive statistics summarized demographics and key variables. Multiple linear regression assessed joint and independent influences. Independent samples t-tests examined gender differences.

RESULTS

Descriptive Statistics

Participants reported moderate self-esteem (M=18.15, SD=4.21), mild depression (M=17.44, SD=8.07), poor sleep quality (PSQI M=7.62, SD=".15), and a mean CGPA of 2.84 (SD=0.61). Over one-third (35.1%) reported moderate-to-severe depression, and 67.2% were poor sleepers.

Inferential Statistics

1. **Joint Influence:** A multiple regression model was significant, $F_{(3, 298)} = 85.47$, $p < .001$, accounting for 43.7% of the variance in CGPA ($R^2 = .437$).
2. **Independent Influence:** Depression (β = -.304, $p < .001$) and poor sleep quality (β = -.150, $p < .001$) were negative predictors; self-esteem (β = .186, $p < .001$) was a positive predictor.
3. **Gender Differences:** No significant difference in CGPA ($p = .192$). Females reported significantly higher depression ($p < .001$, d=0.44), poorer sleep quality ($p < .001$, d=0.48), and lower self-esteem ($p < .001$, d=0.44) than males.

Table 1: Descriptive Statistics for Main Study Variables (N = 302)

Variable	*M*	*SD*	Possible Range	Actual Range
Self-Esteem (RSES)	18.15	4.21	0-30	9-27
Depression (BDI-II)	17.44	8.07	0-63	3-45
Sleep Quality (PSQI)	7.62	3.15	0-21	2-17
Academic Achievement	2.84	0.61	0.0-4.0	1.8-3.8

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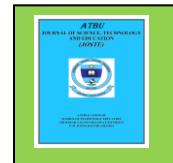
Table 2: Multiple Regression Analysis Predicting Academic Achievement

Predictor	B	SE B	B	t	p
(Constant)	3.512	0.172		20.42	<.001
Depression	-0.023	0.004	-.304	-5.75	<.001
Sleep Quality	-0.029	0.008	-.150	-3.63	<.001
Self-Esteem	0.027	0.005	.186	5.40	<.001

Note. R^2 = .437, $F(3, 298)$ = 85.47, $p < .001$.

Table 3: Gender Differences on Study Variables (Independent Samples t-Tests)

Variable	Gender	M	SD	t(300)	p	Cohen's d
Academic Achievement	Male	2.88	0.64	1.31	.192	0.15
	Female	2.80	0.57			
Depression	Male	15.87	7.45	-3.84	<.001	0.44
	Female	19.10	8.40			
Sleep Quality	Male	6.98	2.89	-4.19	<.001	0.48
	Female	8.30	3.22			
Self-esteem	Male	18.98	3.98	3.83	<.001	0.44
	Female	17.28	4.25			

DISCUSSION OF FINDINGS

The study confirms that depression, poor sleep quality, and low self-esteem collectively and independently significantly impact academic achievement among teacher-trainees, supporting Walberg's (1981) educational productivity model. Depression's negative effect aligns with Lewinsohn's (1974) behavioral theory, while poor sleep's impact corroborates Oswald's (1980) restoration theory. Self-esteem's positive role is consistent with Adler's (1927) individual psychology and the Reciprocal Effects Model (Marsh et al., 2017). The gender paradox—equal achievement despite higher female psychological distress—highlights the need for gender-sensitive support systems. Strong intercorrelations among variables suggest interdependent mechanisms, advocating for integrated interventions.

CONCLUSION

Academic achievement in teacher education is significantly influenced by a psychosocial triad of depression, poor sleep quality, and low self-esteem. These factors collectively explain a substantial portion of academic variance, with each contributing uniquely. While academic outcomes are similar across genders, female students experience disproportionately higher psychological and sleep-related burdens. Addressing these interconnected factors through holistic, gender-responsive support is essential for promoting both academic success and student well-being.

RECOMMENDATIONS

1. College administrators should establish integrated Counselling and Wellness Centres offering mental health screening, sleep hygiene workshops, and self-esteem programs.
2. Lecturers should incorporate wellness education into curricula and adopt encouraging, trauma-informed pedagogies.
3. Policymakers should mandate student mental health policies and fund intervention programs.
4. Future research should employ longitudinal and mixed-methods designs to explore causal pathways and intervention efficacy.

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