

Psychopathology and Academic Performance among Nigerian High School Adolescents: The Moderator Effects of Study Behaviour, Self-Efficacy and Motivation

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ABSTRACT This study investigated the relationship between psychopathology and students' academic performance and the moderator effects of study behaviour, self-efficacy and motivation. Participants were 476 SS2 students (228 males, 248 females) randomly selected from ten coeducational secondary schools in Ibadan. Measures of psychopathology, study behaviour, self-efficacy and motivation were administered on the sample. Data collected were analysed using hierarchical multiple regression. Results showed that psychopathology correlated negatively but non-significantly with academic performance. Study behaviour, self-efficacy and motivation correlated significantly with academic performance and moderated the psychopathology – academic performance nexus. The results suggest the need for counsellors to design therapeutic interventions for alleviating the students' psychopathology, increasing their study skills, self-efficacy and motivation for improved academic performance.

INTRODUCTION

There are evidences that secondary school or college students experiencing high levels of psychopathology (psychological distress) are less able to complete complex academic tasks (Barclay, 1994). In the last two decades, there is accumulation of empirical evidence suggesting links between symptoms of psychopathology such as depression and anxiety and academic performance (Brackney and Karabenick, 1995; Dobson and Kendall, 1993; Kendall et al., 1990).

Specifically, depression has been associated with deficits in short-term memory functioning in tasks requiring information processing (Brackney and Karabenick, 1995; Dearden, Finger, 2006; Hartas, 2000). Consistent with the above findings, psychopathology has been found to slow down academic performance (Meilman et al., 1992; Svanum and Zody, 2001). However, other researchers such as Brackney and Karabenick (1995) and Bodas (2003) found that there was no direct correlation between depression or anxiety and academic performance.

In Nigeria, the poor academic performance of secondary school students with its negative consequences have been of concern to many parents, teachers, counsellors and educational administrators. The poor academic performance has been attributed to lack of adequate teaching facilities, unqualified teachers, students' poor

study habits, psychological adjustment problems such as anxiety, stress, and depression (Akinboye, 1985) and students' lack of financial support such as scholarships, bursary awards and loans (Salami, 2004b). High incidence of psychopathology has been found among high school students in Nigeria by previous researchers (Salami, 2004a; Sotonade, 1997). Several efforts had been made to solve this enigma (Asonibare and Olayonu, 1997; Okwilagwe, 2001). Despite the efforts of persons concerned with education, the problems still persist. Of much concern in this study is the relationship between psychopathology and poor academic performance among secondary school students which had not been established nor systematically investigated in Nigeria.

Understanding the relationship between psychopathology and academic performance is not only of theoretical importance but may also have implications for devising counselling interventions directed at the negative effects of psychological distress on students' learning outcomes. Although clear links between psychopathology and academic performance are yet to be established, much is now known about the psychological determinants of academic performance (Brackney and Karabenick, 1995; Hartas, 2000; Pintrich and Schrauben, 1994; Salami, 2004) and how psychopathology disrupts cognitive functioning of students (Dobson and

Kendall, 1993; Kendall et al., 1990). Given these facts, it may be possible to place the relationship between psychopathology and academic performance in a conceptual framework. For instance, the influence of psychopathology on students' academic performance may vary across some intervening variables e.g. students' motivation, self-efficacy and study behaviour. This study investigated the relationship between psychopathology and academic performance. It also investigated whether motivation, self-efficacy and study behaviour moderated the relationship between psychopathology and academic performance.

Review of Related Literature

Although, most previous researchers found non significant relationship between psychopathology and academic performance, psychopathology could affect academic performance in many ways.

There are evidences to suggest that students with high psychopathology such as depression, anxiety, sadness and mood disturbance have impaired information processing skills (Kendall and Dobson, 1993). Such impairments affect the study methods adopted by the students thus making it impossible for them to accomplish the academic tasks. Students having impaired information processing skills may likely have problems in the acquisition, storing and recall of academic materials to be learned. Such students may not be able to manage their time (making and adhering to schedules), study environment, work with others and seek help from other learners who are more knowledgeable.

Students with high psychopathology may have lower levels of academic self-efficacy, believe that they have less control over academic outcomes and have higher test anxiety (Brackney and Karabenick, 1995). Such students may not be motivated to perform the tasks needed for academic success including use of efficient study methods.

Psychopathology can also reduce the motivation of students to learn. Research findings suggest that children with psychological distress report low self-esteem, make negative self-statements and experience hopelessness and helplessness (Beck, 1991), resulting in poor academic performance (Kendall et al., 1990).

Recent theory and research on student

learning had adopted a process – oriented approach that used cognitive and information – processing models which assumed that learning depends on students' effective use of learning strategies (Brackney and Karabenick, 1995). These strategies involve ways that the learners manipulate information, plan, monitor or regulate the use of information, appropriate study methods, time and study environment.

Study behaviour has been shown to be a good predictor of academic performance (Owolabi, 1996; Salami, 2004, Wilhite, 1990). When students are proficient in how to study effectively, how to take notes at lectures, how to prepare for and take examinations, it is very likely that they will perform well in their academic work. It is expected that distressed students who have good study methods will perform well in their academic work. Thus study methods might be a moderator of psychopathology – academic performance nexus.

Self-efficacy has been linked to academic performance (Bandura, 1997; Lent et al., 1994; Salami, 2004). Bandura (1997) defined self-efficacy as an individual's confidence in their ability to organize and execute an action to solve a problem or accomplish a task.

A strong sense of self-efficacy enhances human accomplishment and personal well being. Students with high self-efficacy are likely to have higher academic achievement compared with those with low self-efficacy who might doubt their capabilities and withdraw from difficult tasks (Multon et al., 1991). High psychopathology students who have high self-efficacy are likely to perform well in their academic work. Hence it is expected that self-efficacy will moderate the relationship between psychopathology and academic performance.

Motivation is the force that gives impetus to behaviour by arousing, sustaining and directing behaviour towards the successful attainment of goals. There are two forms of motivation. Intrinsic motivation is the pleasure or satisfaction derived from performing a viz: intrinsic and extrinsic motivation task well. The nature of the subject matter may be of interest to students. Extrinsic motivation is the satisfaction derived from engaging in a task merely to obtain rewards or avoid punishments from sources other than oneself. Students may engage in studies in order to receive approval from their parents or to fulfill graduation requirements.

Recent work on learning have shown that motivation is a function of students' expectations of obtaining valued outcomes (Pintrich and Schrauben, 1994). More motivated students are those who believe that they are capable of performing well on tasks they consider valuable and are also likely to use appropriate learning strategies and efficient study methods (Pintrich and Garcia, 1991). Students may possess adequate study habits and high self-efficacy, but may not use these skills if they have little motivation to master the learning materials. It is expected that distressed students who are highly motivated will likely have high academic performance. Thus, motivation will likely be a good moderator of the psychopathology – academic performance nexus.

From the foregoing, one can surmise that psychopathology can negatively affect academic performance by interfering with the effective use of study methods, and by reducing the students' motivation to succeed through lowering of their self-efficacy and expectations of academic success. Perhaps, a reasonable way of getting over the poor academic performance of distressed students is to increase their study skills, self-efficacy, and motivation in addition to alleviating their underlying psychopathology.

The purposes of this study are: (1) to investigate the relationship between psychopathology and academic performance of secondary school adolescents. (2) to examine the moderating roles of study methods, self-efficacy and motivation in the relationship between psychopathology and academic performance.

Hypotheses

The following hypotheses were tested at the .05 level of significance in this study:

1. Students who report higher psychopathology levels will exhibit lower academic performance.
2. Students who have better study behaviour will exhibit higher academic performance.
3. Students who have high self-efficacy will exhibit higher academic performance.
4. Students who are high motivation will exhibit higher academic performance.
5. Study behaviour will moderate psychopathology – academic performance relationship in a positive direction.
6. Self-efficacy will moderate psychopathology

– academic performance relationship in a positive direction.

7. Motivation will moderate psychopathology – academic performance relationship in a positive direction.

METHOD

Participants

Participants for the study were 476 senior secondary two (SS2) students randomly selected from ten randomly selected co-educational public secondary schools in the five local government areas in Ibadan metropolis. They were made up of 228 males (47.89%) and 248 females (52.10%). The age range of the students at the time of data collection was 11 to 21 years with a mean age of 16.40 years and standard deviation of 2.85. Of the 500 questionnaires distributed 476 were completely filled while 24 were incomplete. This gave a return rate of 95.2%.

Measures

1. Study Behaviour: The students' study behaviour were measured by section B of Akinboye's (1985) Adolescent Personal Data Inventory (APDI). There are 25 items in this subscale. The subscale was constructed on a 5-point scale 1-5 such that students were to rate themselves on the extent to which the statements are descriptive of their study behaviour. The instrument has internal consistency reliability of 0.87, using Cronbach's coefficient alpha. The construct validity of the instrument was 0.75 when correlated with scores from Bakare's Study Habit Inventory.

2. Self-Efficacy: The Self-efficacy of the students were measured by the use of Self-Efficacy Scale by Salami (1999). It consists of 10 items. The respondents were requested to tick Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1) to indicate their level of agreement with each statement as regards their self-efficacy. The internal consistency measured by Cronbach's coefficient alpha, of the scale was 0.83. The validity of the scale was established by correlating scores of students on it with scores from another self-efficacy scale by Parker (1998) and it was 0.72.

3. Motivation: Motivation was measured by means of the adapted version of Intrinsic and

Extrinsic Motivation Scale (IEMS) by Lepper, Corpus and Iyengar (1997). It consists of two sections viz: the intrinsic motivation scale with 17 items and the extrinsic motivation scale with 14 items. The IEMS was constructed on a five-point likert scale of Strongly Disagree (1); Disagree (2); Not Sure (3); Agree (4) and Strongly Agree (5). The Internal consistency reliability by Cronbach's alpha for the intrinsic motivation scale was 0.90 while that for extrinsic motivation was 0.77. Motivation score was obtained for each respondent by summing their intrinsic and extrinsic motivation scores.

4. Psychopathology: Two measures were used to assess psychopathology: (a) a measure of psychopathology sub-scale of Akinboye's (1985) Adolescents Personal Data Inventory (APDI), Section D and (b) the Beck Depression Inventory (BDI; Beck and Steer, 1987).

The psychopathology subscale of APDI (Akinboye, 1985) consist of a total of 30 items that describe the abnormal behaviours in adolescents. The test has a five point likert scale that ranged from 1 to 5 such that the students were to rate themselves on the extent to which the statements are descriptive of their psychopathological behaviour. The higher the students' scores on this sub-scale, the higher their psychopathology. The internal consistency of the scale was found to be 0.87 by computing the Cronbach's alpha coefficient.

Beck's Depression Inventory is a 21-item self-report inventory which has a total score at the end. It has item anchors such as "I don't get tired more than usual" (0) and "I am too tired to do anything" (3). The students' scores can range from 0 (normal depression to 63 (extreme depression). The internal consistency estimate of reliability Cronbach's alpha based on the present study was $\alpha = .84$.

High BDI scores are associated with a general sense of helplessness and self-devaluation.

The high correlation between the psychopathology subscale (APDI section D) and BDI in this study ($r = .50$, $N = 240$) informed the decision to regard the two scales as measuring general psychopathology, thus a single index of psychopathology was created. To do this, scores from the two scales were converted to standard scores thus giving the two scales equal weight and adding the APDI section D to DBI to obtain a single index of psychopathology.

5. Academic Performance: Academic

performance of the students was measured by the use of students mean scores in English language and Mathematics Examinations in the second term examinations for the 2001/2002 academic session. The students' scores in English and Mathematics in the second term examinations were converted to Z-scores before they were used for computation to ensure their reliability and validity since they were obtained from different secondary schools.

Procedure

After obtaining the permission and cooperation of the school counsellors, teachers and principals of the schools involved in the study and the informed consents of students, the investigator and five undergraduates with the cooperation of the mentioned school personnel participated in the distribution and collection of the questionnaires from the respondents. The second term examination scores of the students in English and Mathematics were obtained with the assistance of the school counsellors, teachers and the school principals.

Data Analysis

The data collected were analysed using hierarchical multiple regression analysis in order to establish the relationship between the dependent variable – academic performance and the independent variables (self-efficacy, study behaviour, motivation and psychopathology).

RESULTS

Relationships of Psychopathology, Study Behaviour, Self-Efficacy and Motivation to Academic Performance: Table 1 depicts the correlation between the combined psychopathology index and the academic performance which was negative but not significant ($r = -.15$, $P > .05$). This shows that there is no support for a direct relationship between psychopathology and academic performance. The first hypothesis was not supported even though students who had higher psychopathology had lower academic performance.

From the results on Table 1, academic performance was found to be positively related to study behaviour ($r = .40$, $P < .05$), self-efficacy

($r = .32, P < .05$) and motivation ($r = .26, P < .05$).

Therefore hypotheses 2, 3 and 4 are supported indicating that students who had better study behaviour, higher self-efficacy and higher motivation had higher academic performance.

Moderator Effects of Study Behaviour, Self-Efficacy, and Motivation in the Psychopathology - Academic Performance Relationship: To examine the moderator effects of study behaviour, self-efficacy and motivation in the psychopathology – academic performance relationship, the hierarchical regression procedure suggested by Cohen and Cohen (1983) was used to test the significance and form of the main and interaction terms as indicated in Hypotheses 5, 6 and 7. To determine the joint contributions of the psychopathology and the moderator variables to academic performance, psychopathology was entered first into the regression equation, followed by study behaviour, self-efficacy and motivation in steps 2, 3 and 4 respectively. In step 5, the interaction terms were entered.

The results on Table 2 shows that psychopathology was not a significant predictor of academic performance ($R^2 = .028, \beta = .17, F(1,474) = 1.5$ N.S.). However, the results indicate that study behaviour ($R^2 = .148, \beta = .17, F(2,473)$

$= 8.24, P < .05$), self-efficacy ($R^2 = .054, \beta = .12, F(3,472) = 4.42, P < .05$) and motivation ($R^2 = .05, \beta = .14, F(4,471) = 4.7, P < .05$) separately contributed significantly to the prediction of academic performance. Furthermore, it was found that study behaviour interacted significantly with psychopathology to predict academic performance. This means that the relationship between psychopathology and academic performance is affected by the level of study behaviour ($\beta = .17, t = 3.0, P < .05$) of the students. Students with low study skills and high psychopathology had lower academic performance while those with high study skills and low or high psychopathology had higher academic performance. Also self-efficacy ($\beta = .15, t = 2.90, P < .05$) and motivation ($\beta = .16, t = 2.40, P < .05$) were found to interact separately and significantly with psychopathology to predict academic performance of the students. This is an indication that the relationship between academic performance and psychopathology is significantly influenced by the levels of self-efficacy and motivation of the students. Students with low self-efficacy and motivation and high psychopathology, had lower academic performance while those with high self-efficacy and high motivation and low or high psychopathology had higher academic performance.

Table 1: Means, standard deviation and correlations for all variables in the study

S. No.	Variables	1	2	3	4	5
1	Academic performance	1.00				
2	Study Behaviour	.40*	1.00			
3	Self-Efficacy	.32*	.22*	1.00		
4	Motivation	.26*	.30*	.28*	1.00	
5	Psychopathology	-.15	-.21*	-.24*	-.197*	1.00
	Mean	46.56	36.76	35.46	112.50	28.52
	S.D.	6.50	8.40	4.30	5.40	4.80

Note: N = 476; S.D. = Standard Deviation

* P < .05. All tests are 2-tailed.

Table 2: Hierarchical multiple regression analysis of study behaviour, self-efficacy, motivation and psychopathology on academic performance

Variables	R	R ²	R ²	F	df	β	t
Step 1 Psychopathology	.17	.028	.028	1.50	1,474	.04	0.75
Step 2 Study Behaviour	.42	.176	.148	8.24	2,473	.17	3.00*
Step 3 Self-Efficacy	.48	.230	.054	4.42	3,472	.12	1.98*
Step 4 Motivation	.53	.280	.050	4.70	4,471	.14	2.10*
Step 5 Interaction terms	.60	.360	.080	5.64	7,468		
Psychopath. X Stud. Beh						.17	3.00*
Psychopath. X Self. Eff.						.15	2.90*
Psychopath. X Motiv.						.16	2.40*

Note: N = 476, Psychopath = Psychopathology; Stud. Beh. = Study Behaviour; Self-Eff = Self-Efficacy; Motiv = Motivation. * P < .05 (2-tailed test).

These results show that Hypotheses 5, 6 and 7 were supported. This is an evidence that study behaviour, self-efficacy and motivation moderate the relationship between psychopathology and academic performance.

DISCUSSION

This study examined the relationship between psychopathology and academic performance of secondary school students and the moderating roles played by study behaviour, self-efficacy and motivation in that relationship. That psychopathology was negatively but non-significantly related to academic performance of the students did not support Hypothesis 1. The non-significant relationship notwithstanding, high psychopathology students had poor academic performance. The result corroborated previous studies in western societies (Brackney and Karabenick, 1995; Bodas, 2003) that found no direct significant correlation between psychopathology such as depression or anxiety and academic performance. Similarly, findings from this study support the work of other previous researchers who found that psychopathology disrupts students' cognitive functioning and slows down their academic performance (Dobson and Kendall, 1993; Kendall et al., 1990; Meilman et al., 1992; Svanum and Zody, 2001).

This result can be attributed to the fact that psychopathology affects negatively students' motivation to learn, use of good study methods, and self-efficacy which invariably leads to decrements in academic performance.

The second hypothesis that students who have better study behaviour will exhibit higher academic performance received strong support. This result corroborated previous studies that found that study method was a good predictor of academic performance (Owolabi, 1996; Salami, 2004; Wilhite, 1990). This can be attributed to the fact that students with efficient study methods, who can manage their time and study environment adequately, establish a schedule for studying and create efficient and distraction-free setting, were in a position to adequately prepare for and take examination and perform well in their academic tasks.

That study behaviour was a moderator of the relationship between psychopathology and academic performance of the students confirmed Hypothesis 5. The finding also supports the work

of previous researchers who found that the use of course-specific study skills training and learning strategies (Backney and Karabenick, 1995; Karabenick and Sharma, 1994) enhanced distressed students' ability to autonomously structure their academic efforts.

The finding that self-efficacy was positively related to academic performance of the students strongly supported hypothesis 3. These results agree with previous studies which found that self-efficacy was significant related to academic performance (Bandura, 1997; Lent et al., 1994; Salami, 2004; Wilhite, 1990). This finding can be explained on the ground that students with high self-efficacy have confidence in their abilities to organize and execute actions to solve their academic problems which impacted positively on their academic performance.

That self-efficacy moderated the psychopathology – academic performance relationship confirms Hypothesis 6 and supports the work of previous researchers who found that students' self-efficacy significantly influenced the relationship between their psychopathology and academic performance (Pintrich and Schrauben, 1994).

This finding may be due to the fact that psychopathology is more of depression, negative thoughts and mood disturbance and so functional self-efficacy beliefs about competence may be helpful in academic endeavours. Distressed students with greater self-efficacy and self-confidence will likely want to continue to face their academic tasks and be successful despite their psychopathology and difficulties on their way.

That motivation was positively related to academic performance supports Hypothesis 4. Students who have high motivation also have high academic performance. This result confirms the work of previous researchers who found that motivation was strongly related to academic performance of students (Pintrich and De Groot, 1990; Pintrich et al., 1993; Salami, 2004). The reason for this is that more motivated students believe themselves to be capable of performing well on tasks they consider valuable. They might have used appropriate learning strategies and managed time and study environment effectively with resultant higher academic performance to meet graduation requirements.

That motivation is a moderator of the psychopathology – academic performance relationship supports Hypothesis 7. This result is consistent

with the work of previous researchers who found that motivational dimensions moderated the relationship between psychopathology and academic performance (Brackney and Karabenick, 1995; Pintrich and De Groot, 1990; Pintrich et al, 1993). This result can be explained on the basis that although students with high psychopathology may have lower level of academic self-efficacy, negative, pessimistic view of themselves, others and the world, high motivation to perform well for future employment may help them to attain higher academic performance.

Implications of the Findings

The findings from this study have important implications for counseling the students having psychopathology and academic problems. Counseling psychologists and other health education personnels working with students should be aware that students' academic problems may arise from psychopathology especially psychological distress and anxiety and as such therapeutic interventions should be offered to alleviate the students' underlying psychopathology. In the same vein, the counsellors and these personnels should be aware that they should not only focus attention on the presenting psychological problems but also try to examine the way in which the psychological problems disrupt academic efforts and performance of students. As a corollary from above and based on the results of this study, it is suggested that emphasis should be placed on increasing the study skills, academic self-efficacy and motivation of the students.

LIMITATION AND CONCLUSIONS

A limitation of this study is worth noting. The data used in this study came from a cross-sectional self-report design. Therefore, one cannot draw causal conclusions. Future researchers could undertake causal study involving this topic.

In conclusion, the major finding of this study is that psychopathology was negatively but not significantly related to academic performance of the students. Also study behaviour, self-efficacy and motivation were found to moderate the psychopathology-academic performance relationship. These findings help to clarify the conditions under which psychopathology

construct is likely to be related to academic performance of secondary school students.

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