



## Factors affecting academic performance of Pharmacy students in the University of Jos, Nigeria

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### Abstract

The objective of the study was to determine the factors affecting the academic performance of undergraduate Pharmacy students of the University of Jos, Nigeria and to see if an association exists between the factors and their academic performance. A cross-sectional survey was conducted using self-completed questionnaires among Pharmacy students of the University of Jos, Nigeria, from the second professional year (300 level) to the fourth professional year (500 level). A percentage response of 79.6% (N=199) was obtained from the questionnaires administered. A three-sectioned 37-item questionnaire was designed using previously validated constructs. Student's t-test and ANOVA was carried out to evaluate the effect of the factors on academic performance. Results showed that students who were less anxious had significantly higher cumulative grade point average  $M \pm SD$  (CGPA =  $3.26 \pm 0.72$ ) than to who were anxious (CGPA =  $2.97 \pm 0.72$ ,  $p < 0.01$ ) on a 5-point scale. Study strategy had the highest mean score of CGPA ( $3.73 \pm 0.71$ ), followed by academic competency ( $3.67 \pm 0.67$ ), test anxiety ( $3.17 \pm 0.68$ ), Test competence ( $3.14 \pm 0.68$ ). Time management ( $3.00 \pm 0.71$ ) had the least score. Academic performance was also significantly ( $p < 0.05$ ) associated with student's mode of entry into the University. Test anxiety distinguished students with high and low academic performance and was identified as a major factor determining academic success among students of the Faculty.

**Keywords:** Academic Performance; Pharmacy students; Test Competence, Time Management; Test Anxiety

### INTRODUCTION

Academic performance refers to how students deal with their studies and how they cope with or accomplish different tasks given to them by teachers or lecturers. It is frequently defined in terms of examination performance (Cambridge University Reporter, 2003). In this study, academic performance was characterized by performance in tests, in course work and performance in examinations of undergraduate students. Grade point average (GPA) is a commonly used indicator of academic performance. Many colleges of

pharmacy set a minimum GPA that should be maintained in order to continue in the Bachelor of pharmacy (B.Pharm.) degree program. In the University of Jos, Nigeria the minimum GPA requirement for B.Pharm Students is 2.0 (Faculty Handbook 2011). Nonetheless, for any graduate program, a GPA of 3.0 or higher is considered an indicator of good academic performance (Sujit *et al.*, 2006).

A high GPA while in Pharmacy school may not be the only factor associated with subsequent career success. Qualities

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such as empathy and social skills, namely communication skills, conflict management, leadership, collaboration, cooperation, and team capabilities are also important in the Pharmacy practice environment. Students who possess these skills are able to work effectively with other health care providers and manage patient care efficiently. Although, survey instruments exist to measure such variables, they are not used consistently across all colleges of Pharmacy. The GPA still remains the most common factor used by administrators to evaluate progression in all academic environments, (Sujit *et al.*, 2006).

A number of studies have been carried out to identify the numerous factors that affect academic performance in various centres of learning. These include students' effort, previous schooling (Siegfried and Fels, 1979; Anderson and Benjamin, 1994); parents' education and family income (Devadoss and Foltz, 1996); self-motivation, age of student and learning preferences (Aripin, *et al.*, 2008); class attendance (Schmidt, 1983; Park and Kerr, 1990; Romer, 1993; Durden and Ellis, 1995; Devadoss and Foltz, 1996); gender (Borde, 1998; Haist *et al.*, 2000; Woodfield and Earl-Novell, 2006). The inability of these cross-sectional studies to isolate attendance from a myriad of confounding student characteristics (e.g. levels of motivation, intelligence, prior learning, and time-management skills) is a major limiting factor to the utility of these findings (Rodgers and Rodgers, 2003). Durden and Ellis, (1995) controlled for student differences in background, ability and motivation, and reported a nonlinear effect of attendance on learning, that is, a few absences do not lead to poor grades but excessive absenteeism does. Educators, trainers, and researchers have long been interested in exploring variables contributing effectively for quality of performance of learners. These factors may be summarized as student factors,

family factors, school factors and peer factors (Crosnoe *et al.*, 2004). Test anxiety, time management, test competence, academic competence, and study techniques are other factors that affect an individual's academic performance (Sujit *et al.*, 2006).

Test anxiety is a set of responses like worry, depression, nervousness, and task irrelevant cognitions to a class of stimuli arising from an individual's experience of assessment or testing (Talib and Sansgiry, 2012). Academic competence is associated with students' ability to manage their study load and is used to assess if students are able to manage the study material in the curriculum. In this study, academic competence is defined as the proficiency of students with respect to the content taught during courses over the past academic year and their ability to understand the course material (Kleijn *et al.*, 1994). Test competency is operationally defined as student's ability to manage and cope with the amount of study material for examinations and/or tests (Topman *et al.*, 1992 and Kleijn *et al.*, 1994). Strategic studying is defined as the knowledge and application of effective study skills or techniques by students (Kleijn *et al.*, 1994). Extensive course loads and the comprehensive information covered in today's pharmacy curricula necessitate the use of effective study strategies for academic success (Lay and Schouwenburg, 1993). Time management has been defined as clusters of behavioral skill sets that are important in the organization of study/course load. Time management skills include activities performed by students such as planning in advance, prioritizing work, test preparation, and following schedules (Talib and Sansgiry, 2012). In this study time management was operationalized as the ability of students to juggle leisure and study time to prepare for their examinations (Kleijn *et al.*, 1994).

The objective of this study was to identify factors that affect academic

performance among pharmacy students and to find out if an association exists between the factors and the students' academic performance.

## METHODS

**Study setting and design.** The cross-sectional prospective survey was done in the Faculty of Pharmaceutical Sciences University of Jos, Nigeria. The Faculty was established in October 1983. It started in the defunct Federal University of Technology Makurdi, Nigeria as 'Faculty of Pharmacy and Health Technology'. In 1984, the Federal University of Technology, Makurdi was merged with University of Jos, Nigeria and the Faculty remained at the Makurdi campus of the University. The Faculty was transferred to Jos in December 1988 and was renamed 'Faculty of Pharmaceutical Sciences' in May 1990 (Faculty Handbook, 2011). Presently, the Faculty has five departments namely: Clinical Pharmacy and Pharmacy Practice, Pharmacology, Pharmaceutics and Pharmaceutical Technology, Pharmaceutical Chemistry and Pharmacognosy.

**Population and sample.** The Faculty had a total of about five hundred (500) students from the first year to the fifth year at the time of the study. The study population was made of about 300 students from the second professional year (300 level) to the fourth professional year (500 level) of the Bachelor in Pharmacy programme at the University of Jos. The students were administered the questionnaires by convenience sampling.

**Data collection.** The questionnaire for the survey was designed from previous studies (Sujit *et al*, 2006). The study was conducted

by administering the questionnaire to 250 students, out of which 199 were correctly filled and returned, giving a response rate of 79.6%. A 37 item questionnaire with three sections to obtain information about demography, academic performance and the factors that affect academic performance, which was measured using a 5-point Likert scale where 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Neutral (N) 4 = Disagree (D), 5 = Strongly Disagree (SD) was utilized. Approval to conduct the study was granted by the Dean of the Faculty of Pharmaceutical Sciences, University of Jos, Nigeria. Participation in the study was voluntary. To ensure confidentiality, names of respondents were not required in completing the questionnaire.

**Data analysis.** Data analysis was done using descriptive statistics, Student's t-test and ANOVA to determine the relationship between the variables with the aid of the Statistical Package for the Social Sciences (SPSS) version, 20, Chicago Illinois.

## RESULTS

**Demographic characteristics of respondents.** Data from table 1 showed about 74.9% of the respondents were within age 26-30 years. Only about 2.5% of the respondents were married. About 63% of the respondents were male and 36.2% were female. Most of the respondents (57.8%) gained entry through the unified tertiary matriculation examination (UTME), while 11.1% were admitted through direct entry (DE). Most of the respondents were from the minority tribes (62.8%), followed by the Igbo's having 18.6% of the respondents.

**Table1:** Demographic characteristics of the respondents (N=199)

Variable	Category	Frequency	Percentage
Age (in years)	21-25	4	2
	26-30	149	74.9
	30 and above	46	23.1
Marital status	Single	193	97
	Married	5	2.5
Sex	Male	126	63.3
	Female	72	36.2
Entry level	DE	22	11.1
	UME	115	57.8
	Remedial	62	31.1
Ethnicity	Igbo	37	18.6
	Yoruba	26	13.1
	Hausa	11	5.5
	Minority tribes	125	62.8
Level of Study	300	90	45.2
	400	46	23.1
	500	63	31.7

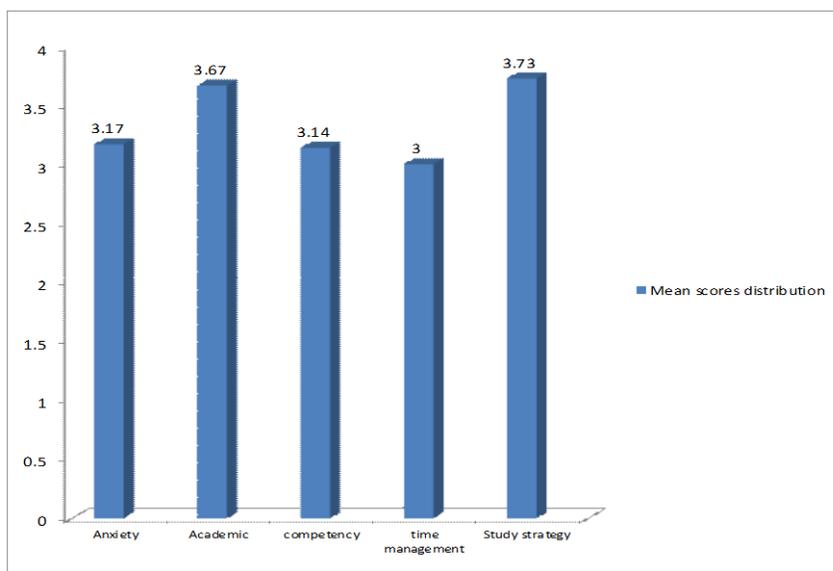
**Table2:** Association between CGPA and demographic data

Variable	Category	CGPA (M±SD)	p value
Age (in years)	21-25	3.39±0.51	0.346
	26-30	3.28±0.59	
	30 and above	3.15±0.48	
Marital status	Single	3.25±0.57	0.579
	Married	3.35±0.33	
Sex	Male	3.27±0.56	0.812
	Female	3.25±0.58	
Entry level	DE	3.62±0.58	0.002*
	UME	3.24±0.56	
	Remedial	3.15±0.53	
Ethnicity	Igbo	3.51±0.62	0.010*
	Yoruba	3.33±0.56	
	Hausa	3.05±0.51	
	Minority tribes	3.18±0.57	
Level of Study	300	3.24±0.55	0.403
	400	3.22±0.66	
	500	3.25±0.56	

\* $p < 0.05$  Student *t*-test was used to compare mean CGPA in marital status and sex subgroups while ANOVA was used for the comparison of mean CGPA in other subgroups. Both tests were set at 95% Confidence Interval.

**Table 3:** Relationship between academic performance and factors affecting academic performance

Variable	Category	CGPA (M±SD)	p value (* $P < 0.05$ )
Test anxiety	Good	3.26±0.72	0.008*
	Poor	2.97±0.72	
Academic competency	Good	3.69±0.68	0.478
	Poor	3.62±0.66	
Test competency	Good	3.10±0.72	0.233
	Poor	3.21±0.60	
Time management	Good	3.04±0.71	0.224
	Poor	2.91±0.71	
Study strategy	Good	3.73±0.71	0.831
	Poor	3.71±0.71	



**Fig1:** Scores for factors affecting academic performance  
 NB: CGPA was obtained from a 5-point scale.

### Factors affecting academic performance.

The respondents' mean scores for the factors affecting academic performance were shown in Fig1. In all the domains, the respondents had scores above average from a 5-point scale (possible range for each mean score = 1-5). They had the highest mean score for study strategy ( $3.73 \pm 0.71$ ) followed by academic competency ( $3.67 \pm 0.67$ ) and Test anxiety ( $3.17 \pm 0.68$ ). Test competency ( $3.14 \pm 0.68$ ) and Time management ( $3.00 \pm 0.71$ ) had the least scores.

**Association between CGPA and demographic data.** From table 2, respondents that gained entry through Direct Entry (DE) had a significantly higher cumulative grade point average ( $3.62 \pm 0.58$ ,  $p=0.002$ ) than to those through Unified Tertiary Matriculation Examination (UTME) and through remedial studies. Ethnicity also had a significant effect on the cumulative grade point of the respondents with the Igbo's having the highest cumulative grade point average ( $3.51 \pm 0.62$ ,  $p=0.010$ ).

**Relationship between academic performance and factors affecting academic performance.** Students who were

less anxious had significantly higher CGPA ( $3.26 \pm 0.72$ ) than to those who were anxious (CGPA =  $2.97 \pm 0.72$ ,  $p=0.008$ ). Respondents who managed their time well performed better (mean CGPA =  $3.04 \pm 0.71$ ) than those who could not (mean CGPA =  $2.91 \pm 0.71$ ). Respondents with good study strategy had higher mean CGPA ( $3.73 \pm 0.71$ ) than those with poor study strategy ( $3.73 \pm 0.71$ ).

### DISCUSSION

Test anxiety though a negative factor, distinguished students with high and low academic performance. This implied that the lower the anxiety, the better the academic performance. Chapell, *et al*, in 2005 observed similarly that low-test anxious students had significantly higher GPAs than high-test anxious students. Students who had thought of doing poorly in examination, who got nervous to the extent of forgetting facts they knew, and felt very panicky when taking examinations performed poorly compared to students who were optimistic and relaxed when taking examination. Other studies that related high test anxiety with low academic performance include (Hill and Wigfield, 1984; Zeidner, 1990; Seipp, 1991; Hembree,

1998; Chapell *et al.*, 2005; Khalid and Hasan, 2009; Talib and Sansgiry, 2012).

One of the ways of minimizing test anxiety in the Faculty of Pharmaceutical Sciences, University of Jos Nigeria, is that students are usually assigned in their first year of study to academic advisers, who are academic staff of the Faculty. Academic advisers counsel the students to help them adjust to the academic environment, encourage them to have good grades and in general help them make informed choices (Sariem *et al.*, 2012). The study done by Sariem *et al.* in 2012 also showed a highly significant association ( $p < 0.001$ ) between student/academic adviser relationship and student's academic performance.

Strategic studying techniques though not significantly related to academic performance from this study helped students achieve a high GPA as seen from the mean CGPA of  $3.73 \pm 0.71$ . This was similarly observed by Sujit (2006). West and Sadoski (2011) however had contrary findings where strategic studying was significantly related to academic performance. There are many efficient study techniques that could be used by students based on the learning environment. These study strategies include Know-Want-Learn (K-W-L), Survey-Question-Read-Recite-Review (SQ3R), summarizing and note-taking, using graphics, and self-questioning. Students usually develop their own study habits and practice them as they progress through the Pharmacy curriculum. Extensive course loads and the comprehensive information covered in today's pharmacy curricula necessitate the use of effective study strategies for academic success (Sujit, 2006).

Time management distinguished students with high and low academic performance though this was not statistically significant. However, a study by Mercanlioglu in 2010 showed that those who could not perform the necessities of time

management effectively in their private and business lives and were not able to keep themselves updated, resulted in failure and unhappiness. Time consumed can never be taken back. Therefore, it should be considered consciously, with good planning, and should be used wisely in order for success to be obtained and productivity to be increased. Paradoxically, the amount of time spent studying or at work had no direct influence on academic performance (Nonis and Hudson, 2006). In another study, it was recorded that many students found it hard to combine and organize their study and leisure time, which could be attributed to their perceived course load and stress associated with examinations. Studying continuously for an average of 8-9 hours per day may create fatigue and overall exertion among students, which may lead to lower performance on examinations. A break time while studying is necessary for refreshing individual's mind and help them enhance their overall performance. The current pharmacy curriculum that impedes student's time management skills emphasizes the importance of reassessing the amount of study material assigned for examinations (Sujit *et al.*, 2006).

Students who could manage their academic course load in the Pharmacy curriculum and could easily understand the assigned study material, including those who enjoyed their lectures in Pharmacy school generally had better grades than those who were less competent. These results pointed out that student's perception of pharmacy course material and examinations were important in improving academic performance. Mode of entry of entry was a determinant of improved academic performance, as students who gained admission into Pharmacy faculty through the direct entry had higher cumulative grade point average than those who came in through the unified tertiary matriculation examination and the remedial. This could be as a result of the

basic foundation and experience obtained by the former, which enabled them to be better equipped and prepared for the rigorous Pharmacy training.

Data collection or recovery of questionnaire took some time due to accessibility, as students in the third professional year (400 level) were on industrial training. Generalizability of the results was also a limitation of this study since the study was carried out at one University, Differences in demographic variables, location, and student characteristics may affect results when applied to another university.

**Conclusion.** On the basis of this finding, test anxiety distinguished students with low and high academic performance. It was suggested that faculty members should assess course load they assign to their students for the particular test as well as hold review/discussion sessions before a test or an examination. Academic Adviser/Student relationship should be strengthened to help ease the anxiety some students go through as this may be a negative perception by the student that may be dealt with through effective counseling. The quality of students' performance remains at top priority for educators. It is meant for making a difference locally, regionally, nationally and globally.

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