

DETERMINANTS OF SUCCESS IN PROFESSIONAL EXAMINATIONS AMONG MEDICAL STUDENTS IN UNIVERSITY OF NIGERIA, ENUGU, NIGERIA

NWADINIGWE J. UZODIMMA^a, NWAGBATA E. ADAOLISA^b, NWAIGWE A. CYNTHIA^c, NWAGWU E. CHIBUZOR^d

^a jnwadinigwe@gmail.com, ^b adaolisanwagbata94@gmail.com, ^c cynthianwaigwe@gmail.com, ^d grunt.slyness_0c@icloud.com

^{a,b,c,d} Department of Community Medicine, Faculty of Medical Sciences, College of Medicine University of Nigeria, Enugu Campus, 400102 Enugu State, Nigeria.

Abstract

The medical profession plays a chief role in the health of a nation, thus the standard of training of its medical student is raised to reflect excellence. Determining factors that affect success in medical exams is essential in preventing academic failure, boosting the self-esteem of medical students; and at a community level, it assures the production of better doctors and improvement of patients satisfaction. This study looked at the various socio-demographic factors, personal factors, familial factors and education factors and how they determine outcome of on success in professional exams in medicals students of the University of Nigeria. It was a descriptive cross-sectional study and the study population was selected using multistage sampling method. A total of 280 students participated in the study. The result was analyzed using the statistical package for social science version 23.3. The study found a statistical significant relationship between academic performance and gender ($p = 0.015$). Females (68.8%) passed more than males (54.4%). There was a gradual decrease in success rate as the students progressed in class (success rates of 400,500 and 600 level students were 76.1%, 57.3% and 49.5% respectively) with $p = 0.001$. A statistical significant relationship ($p = 0.013$) between academic performance and the number of hours participants spent on movies, series and music per day was noted. Not combining school and work was associated with a high success rate (63.4%) with p -value significant at 0.015. There is also a statistical significant relationship (p value = 0.001) between academic performance and having financial dependents. Parent's low level of education, lack of parent-child relationship, low family income and conflict with family members are familial factors that affect success. Educational determinants include hectic class and posting schedule, unfriendly classroom environment, inappropriate teaching methods by lecturers, inadequate facilities and poor student-lecturer relationship. It was noted that students, families and stakeholders in education should all play a role in improving medical student's success. There is a need to orient students on study styles and habit. Families should provide emotional support. Programs to aid indigent students should be initiated and stakeholders should provide education friendly environment for learning.

Keywords: Success, medical students, examination.

1. Introduction

1.1. Background of the Study

Education is the process of enabling learning. Learning involves the acquisition of new knowledge; skills, values, methods and mindset. Modes of education include teaching, training, storytelling, discussion, hands-on, observership and directed research.

Medical education is acquired in a medical school. Wikipedia defines medical school as a “tertiary educational institution, or part of such an institution, that teaches medicine, and awards a professional degree for physicians and surgeons.” The professional degrees awarded include Doctor of Medicine (MD), Doctor of Osteopathic Medicine (DO), the Bachelor of Medicine, Bachelor of Surgery (MBBS), or its Latin equivalent: *Medicinae Baccalaureus Baccalaureus Chirurgiae (MBChB)*.

The length of time required to obtain a medical degree varies from four to six years in different countries. In the University of Nigeria, Enugu, Nigeria, the training lasts for six years and the curriculum is divided into the basic, the preclinical and clinical courses. The basic courses: biology, chemistry, genetics, physics, use of English language, and other general courses are taken in the first year. The preclinical courses: gross anatomy, embryology, histology, biochemistry, and physiology are taught within an 18-month period and it ends with writing the first professional examination known as the first MB (Bachelor of Medicine). The clinical periods span for the remaining three and half years. The clinical courses taught are pathology, pharmacology, paediatrics, obstetrics and gynaecology, community medicine, medicine, and surgery. The second, third and fourth professional examinations are written during the clinical period. The examinations serve as an assessment for the knowledge obtained by a medical student during the training.

“The education of medical students is held in high esteem in any nation due to the greater responsibility the profession is saddled with.” The medical profession plays a chief role in the health of a nation, thus the standard of training its medical students is raised to reflect excellence.

Determinants of success in medical school professional examinations are factors which decisively affect a medical student’s outcome in a professional exam. Different factors have been implicated to affect success in professional exams; examples include gender, marital status, age, living in a school dormitory, fending for oneself, the time interval between secondary school and university, learning style, psychological problems, parents’ income, self-esteem, exam anxiety and interest in the field of study *e.t.c*.

A 2018 study among 500 level medical students in Enugu State University Teaching Hospital (ESUTH), Enugu State, Nigeria identified factors such as medical students’ membership in campus groups, upkeep allowance, mode of admission, and student regular visit to their families to influence academic performance.⁴ Another study associated hours spent on social networks (less than two hours per day) and preference to study alone with passing medical exams.

Determining factors that affect success in medical exams is essential in preventing academic failure, boosting the self-esteem of medical students; and at the community level, it assures the production of better doctors and improvement of patients’ satisfaction. At a national level, there is a better health care system, increased country's life expectancy, a decrease in morbidity from medical errors and reduced mortality rate from treatable health diseases.

1.2. Problem Statement

Why do medical students fail exams? This question has been on the minds of the researchers. The fear and anxiety associated with writing exams in medical school have made many students dread the professional exams (popularly known as MB). Most of these students suffer from depression during an MB (a prevalence of 23.3% has been recorded among medical students in University of Nigeria Enugu Campus). A case was reported in

2019 by a local Nigerian newspaper of a medical student in the south-western region of Nigeria who committed suicide hours after he was informed he may likely be withdrawn from medical school because he failed a professional exam.

A medical student is seen as always wanting to study but not having enough time; if not properly guided is at risk of experiencing academic failure. Guidance involves determining factors that affect success or failure in medical school exams and making the students aware of them.

Research works have been carried out to determine factors that influence success in medical school exams, most of these researches were conducted among medical students in medical schools in developed countries. Disparities therefore exist in results obtained, because most of these schools have better learning environment and good infrastructure. Results obtained from these studies cannot be applied on students in underdeveloped countries such as ours, hence the need for this study at the moment.

1.3. Justification / Rational / Relevance to Public Health

The purpose of this study is to ascertain determinants of success in medical school exams among University of Nigeria medical students. This research will aid in educating the upcoming students on the determinants to success and help them come up with personal strategies to succeed in the medical exams. It will also aid the medical school in accurate planning and implementation of methodologies aimed to tackle the high failure rate in medical exams.

1.4. Research Questions

The purpose of this research is to answer the following questions:

1. What are the socio-demographic determinants of success in professional exams among medical students in the University of Nigeria, Enugu, Nigeria?
2. What are the personal determinants of success in professional exams among medical students in the University of Nigeria, Enugu, Nigeria?
3. What are the familial factors that determine success in professional exams among medical students in the University of Nigeria, Enugu, Nigeria?
4. What are the educational factors that determine success in professional exams among medical students in the University of Nigeria, Enugu, Nigeria?

1.5. General Objective

This study aims to determine the factors that influence success in professional exams among medical students in University of Nigeria, Enugu, Nigeria.

1.6. Specific Objectives

The Specific objectives of this study are:

1. To determine the socio-demographic determinants of success in professional exams among medical students in the University of Nigeria, Enugu, Nigeria.
2. To determine the personal determinants of success in professional exams among medical students in the University of Nigeria, Enugu, Nigeria.
3. To determine the familial factors that influence success in professional exams among medical students in the University of Nigeria, Enugu, Nigeria.
4. To determine the educational factors that influence success in medical exams among medical students in the University of Nigeria, Enugu, Nigeria.

2. Literature Review

2.1. Introduction

The aim of medical education is to train competent and proficient physicians that will promote the public health of the nation and advance the course of medicine. Medical education is one of the challenging university degrees to acquire due to the vast knowledge one is expected to obtain. To attain a medical degree, students are expected to show a level of mastery for each courses; the level of mastery is accessed from post-course tests, the professional examinations and hands-on clinical assessments, objective structured clinical examination (OSCE), and clinical viva voce.

Studies have shown that various factors such as socio-demographic factors, personal factors, familial factors and educational factors determine success in medical exams. However, there are variations in these factors amongst different medical students. These variations can be due to geographical differences, cultural practices or even university related. A lot of these researches have been done abroad, but few can be said to have been done in Nigeria.

2.2. Socio-demographic Determinants of Success in Professional Examinations

2.2.1. Gender and Marital Status

Gender has been revealed by various studies to greatly influence outcomes of medical exam. Solyman et al., in a study on medical students in Zahedan Medical University across 399 participants revealed that gender had an effect on the success of the students; females were noted to have higher success rates than males. Also in a study on factors affecting academic failure in Region II Medical Universities students Iran, it was found that the prevalence of academic failure in men was higher than women (there was a correlation between academic failure and gender $p=0.002$).

In a study on academic and socio-demographic factors influencing students' performance in a new Saudi medical school by Raneem et al. identified female gender and being married to be associated with high CGPA. The reason for the disparity from the previous study could be because of the study design used (cohort), the study population (preclinical students) and the younger age of the female medical students compared to the males.

However in another study on academic performance in Iranian medical students during the pre-clinical stage by Farnoush et al., found that females performed better than their male counterparts with $p = 0.008$; this agrees with most of the study reviewed.

However, another study on academic performance of preclinical and clinical medical students of east coast Malaysian peninsula by Musa et al. found that gender and marital status had no significant impact in the GPA (grade point average) scores across all the students $P>0.05$. This could be because the population of studied encompassed both clinical and preclinical students; and also the geographical location of the study area may have had an influence on the study.

A study on factors potentially influencing academic performance among medical students in Faculty of Medicine King Abdulaziz University, Jeddah Saudi Arabia by Shawwa et al., found no significant difference between the academic performance of males and females. Again the study population was both preclinical and clinical medical students; and the method of questionnaire distribution was both by electronic mail (which was set to accept only completely filled questionnaires) and paper questionnaire (students who had filled the e-questionnaire were not required to fill the paper questionnaire).

Findings from a study by Onwuasoigwe et al. revealed that in a five years (2013-2017) retrospective review of final examination records of undergraduate medical students in surgery in UNEC; the success rate was higher in females with 73.9% compared to their male colleagues (58.9%). This study also observed that females were more successful in all sections of the surgery exam despite the gap in the male to female ratio 3:1.

A study conducted among preclinical students in a Nigerian university had a different observation with males performing better than their female counterparts in a biochemistry examination.

2.2.2. Age

Many studies have noted that the age of a student influences their success in medical school exam. In a systematic review of factors related to academic failure in preclinical medical education by Ahmady et al., one of the studies reviewed found that a high risk of dropping out was associated with being over 21 years of age while in preclinical class.

A Study on the effect of age, premedical academic performance and entry bias on students' performance in final preclinical examination at the University of Nigeria Medical School, showed that "the younger students performed significantly better than their older counterparts in the final preclinical examination" probably because younger students are more motivated and may have less responsibilities than the older students who might be saddled with responsibilities to fend for themselves or their family.

Another study on predictors of students' performance in the pre-clinical MBBS programme in a Nigerian university by Egbewale et al., also noted that younger students performed better in the pre-clinical MBBS 1 exam. These studies were conducted among preclinical students who mostly likely will be strongly enthusiastic to explore and experience the field of medicine.

2.3. Familial Determinants of Success in Medical Examinations

In a study conducted by Somayeh et al. on frequency of academic failure and its associated factors from the perspectives of students of Zabol University of Medical Sciences in 2016. The study listed familial factors such as "lack of parent-child relationships, low socioeconomic levels, and conflicts with parents" as most significant factors. "Death of one parent or living a single-parent family, improper expectations by families, imposed thinking, and insufficient experiences by parents or their inattention to their children's education" were considered the least influencing factors.

In a systematic review by Azari et al. on causes of academic failure of medical and medical sciences students in Iran; the occupation of the mother and salary level were the familial factors related to academic failure. Mothers are very potent mentors for their children hence the saying, If you educate a woman, you educate a nation.

A different result was obtained in a research by Shawwa et al., the research noted no significant contribution of family related factors such as family size and issues to academic success of medical students; this can be explained by the fact that these factors do not directly affects student's motivation. Also financial factors such as income of the student and/ or family were noted not to influence success, chiefly because students received monthly allowance from the university.-

In a research by Ekwochi et al. on determinants of academic performance in medical students among 500 level medical students in Enugu State University of Science and Technology, Enugu, Nigeria; medical students that received less than ten thousand naira every month as upkeep allowance and students who visit their families on a weekly basis were more likely to have better academic performance than those in corresponding categories. The researchers "speculate that the less financial capability a medical student has, the less probable s/he would be engaged in extracurricular activities, hence the more likely s/he would focus on academic-related activities." Visiting their families serve as a form of social support.

2.4. Personal Determinants of Success in Medical Examinations

According to a research conducted by Somayeh et al. in Zabol University of Medical Sciences, major personal factors that determined academic failure include: “lack of planning, inadequate study skills and emotional-psychological problems” were strongly associated with academic failure. Studies reviewed by Somayeh in his research also noted lack of self-confidence, no interest in the field of study, non-educational based activities, inability in general and special learning, slow progress, high dependency on family, perfectionism and inattention to existing realities, relationship with opposite sex, employment and its associated problems, marriage and educational fatigue.

In a Cross sectional and descriptive study on academic performance of pre-clinical and clinical medical students of east coast Malaysian Peninsula; favouring a particular place while reading ($P < 0.05$) was discovered to have significant effects on student performance while reading style, hours spent on television and music, were found to have no substantial significance.

Some of the personal influential causes of academic failure of medical students as highlighted by the study carried out by Azari et al. in Iran are listed as: gender, living in a dorm, employment, special rights in the entrance exam, the time lag between obtaining a diploma and entering a university, motivation, not attending classes, learning style, being a non-native student, being a transfer student, psychological problems, self-esteem, exam anxiety, interest in the field of study.

In an analytical and descriptive study by Solymian et al. on Zahedan medical students in Iran, the students were divided into two groups (successful and unsuccessful) based on the class average and terms of failing. The result showed that the most important effective factors on academic achievements were study method, study time, interest in the course and attention and concentration when studying. They further suggested that holding educational workshops for curriculum, study and learning methods can be suitable for the educational success of the students.

According to a study on the assessment of academic/non-academic factors and extracurricular activities influencing performance of medical students of Faculty of Medicine, Universiti Sultan Zainal Abidin, Malaysia; majority of the students who enjoy medical education are self-motivated, have a good command of the English language, are non-smokers and have sufficient sleep.

A study in the Kingdom of Saudi Arabia by Shawwa et al. showed no statistically significant difference regarding the time spent on outings and social events, however 60.7% of high GPA students spent less than 2 hours on social networking per day as compared to 42.6% of the lower GPA students ($P < 0.01$). In addition, 79% of high GPA students prefer to study alone ($P = 0.02$). A high percentage 68.0% required silence and no interruption during studying time ($P = 0.013$) and 47% revise their materials at least once before an exam ($P = 0.02$). This finding is in disparity with the finding of Ekwochi et al., which stated that time spent on social media have no influence on academic performance but this can be explained by the difference in the population setting.

It was noted that a student's mode of admission into the Nigerian medical school played a role in future success at medical exams. Nwobodo et al. in a 2019 study noted that the rate of success in 1 MBBS examinations was greater in the DE (Direct Entry) students (74%) as compared with the UME (Unified Matriculation Examinations) students (44%).

2.5. Educational Factors That Determine Success in Medical Examinations

A study by Soyameh et al. noted the most influential factors in the domain of educational factors to be poor quality in education, inadequate educational program, and inappropriate teaching methods adopted by lecturers.

Other factors as unfriendly classroom environment, students' regional language and culture, and poor relationships with classmates had little influence in academic success.

Others include lack of motivation among talented university students, inadequate support and provision of educational, research and welfare facilities, no accommodation of educational needs, poor student -lecturer relationships, poor relationships with classmates, no healthy and competitive environment, unfriendly classroom environment, wrong assessment of student performance, inappropriate physical environment of university, no relationship between study subjects units and student's values and abilities, no relationship between study subject units in the field of study and future employment, unattractive educational contents, issue of regional language and culture among students, poor concentration in the classroom, poor general attitude towards course lectures and no development of standard questions by lecturers.

In a systematic review on factors related to academic failure in preclinical medical education, Iran by Ahmady et al., formative evaluation in the form of daily quizzes was associated with better academic success.

In a study by Rhaman et al. on perceptions of students in different phases of medical education of the educational environment of Universiti Sultan, Zainal Abidin in the year 2015, they found out that curriculum was the most important determinant of the learning environment, and it controls the behaviour of all stakeholders.

3. Methodology

3.1. Study Area

Enugu state is one of the 36 states of Nigeria located in the south east geo-political zone in Nigeria, West Africa. It is located at the foot of the Udi plateau.²² The state shares boundaries with Kogi state at its northwest, Benue state at its northeast, with Anambra state westward, Ebonyi state at its east, Abia state and Imo state to its south. "Enugu, the capital city of Enugu State, is on the railroad from Port Harcourt, 150 miles (240 km) south-southwest, and at the intersection of roads from Aba, Onitsha, and Abakaliki. It is approximately 4 driving hours away from Port Harcourt, where coal shipments exited Nigeria. Enugu is also located within two hours drive from Onitsha, one of the biggest commercial cities in Africa and two hours' drive from Aba, another very large commercial city, both of which are trading centres in Nigeria."

Enugu city is known to be a student town with six universities approved of by the National Universities Commission (NUC),²⁵ one of which is managed by the Federal government of Nigeria - the University of Nigeria; another by the Enugu state government - Enugu State University of Science and Technology (ESUT) and four other privately-owned universities. The state also hosts about ten other polytechnics and Colleges of Education.²⁶

The study was conducted in University of Nigeria, Enugu, Nigeria. The University of Nigeria, Enugu, Nigeria has three campuses, University of Nigeria Nsukka Campus, University of Nigeria Enugu Campus (UNEC) and the University of Nigeria Teaching Hospital, (UNTH) Ituku-Ozalla Campus. The medical students live in University of Nigeria Enugu Campus (UNEC) and the University of Nigeria Teaching Hospital, (UNTH) Ituku-Ozalla Campus.

The clinical students in fourth and fifth year stay in Nnamdi Azikiwe and Imoke Hostels respectively in the old site extension of the University of Nigeria Teaching Hospital located within Enugu city. They receive their lectures there and travel about 28km between the old site extension of UNTH and the UNTH Ituku-Ozalla Campus, the permanent site of the hospital for their clinical rotations. The final year students reside in Nuga Hostel, UNTH Ituku-Ozalla Campus; they receive their lectures in the department lecture hall (less than ten minutes' walk from their hostel) and attend their clinical rotation in the hospital within the campus.

3.2. Study Design

The research design for this study is a cross-sectional descriptive survey method conducted in the Faculty of Medical Sciences of the University of Nigeria, Enugu, Nigeria.

3.3. Study Population

The study population consists of medical students of the University of Nigeria, Enugu, Nigeria.

3.3.1. Inclusion Criteria

Medical students of the University of Nigeria who have participated in the professional exam at least once were eligible to be included.

Medical students in their fourth, fifth or final year in the University of Nigeria were eligible to be included. They were also required to be willing to participate.

3.3.2. Exclusion Criteria

Medical students in their fourth, fifth or final year in the University of Nigeria who were unwilling to participate were excluded from the study.

Medical students in fourth, fifth or final year in the University of Nigeria with mental illness were excluded.

3.4. Sample Size Determination

Using the single population proportion formula:

$$n = \frac{Z^2 p(1 - p)}{d^2}$$

Where;

n = Minimum sample size required.

Z= The reliability coefficient usually set at 1.96, which corresponds to the 95% confidence level.

p = Prevalence from a 5 year retrospective study carried out amongst final year medical students in University of Nigeria Enugu in 2017 reported a success rate of 62.6% in a surgery exam therefore,

P = 0.626 expressed as a fraction.

d = The degree of accuracy desired, herein set at 0.05.

Therefore,

$$n = \frac{(1.96)^2 * 0.626(1 - 0.626)}{(0.05)^2}$$

$$n = 359.76$$

For our population which is less than 10 000, the formula below²⁸ was used to reduce the sample size.

$$\text{Adjusted sample size} = \frac{n}{\left[1 + \left(\frac{n}{N}\right)\right]}$$

Where,

n = Calculated sample size

N = Population size

The total number of students in each class of our sample population was obtained from the class representatives;

Fourth year class = 260 students.

Fifth year class = 199 students.

Sixth year class = 154 students

Therefore N = 613 students.

$$\text{Adjusted sample size} = \frac{359.76}{\left[1 + \left(\frac{359.76}{613}\right)\right]}$$

$$\text{Adjusted sample size} = 226.71$$

Using the 10% attrition rate:

$$\text{Attrition rate} = \frac{10}{100} * 226.71$$

$$\text{Attrition rate} = 22.67$$

$$\text{Estimated sample size} = 226.71 + 22.67$$

$$\text{Estimated sample size} = 249.38$$

$$\text{Estimated sample size} = \text{approximately } 250.$$

3.5. Sampling Technique

The sampling method used for selecting participants in this study was multistage sampling method.

Stage 1: University of Nigeria was chosen by simple random sampling of the two tertiary institutions that award Bachelor of Medicine, Bachelor of Surgery (MBBS) in Enugu State, the other institution being the Enugu State University of Science and Technology.

Stage 2: Four classes were picked out of the 6 classes in the College of Medicine UNEC by purposive sampling. The four classes picked were the fourth year class, the fifth year class and the sixth year class.

The total number of students in each class of our sample population was gotten from the class representatives:

Fourth year class = 260 students.

Fifth year class = 199 students.

Sixth year class = 154 students.

Total = 1063 students.

Stage 3: The study sample size of 250 was divided by 3 to get 83 students who were selected by convenience from each of the three classes.

3.6. Study Instruments

The tool for data collection was a structured questionnaire. The questionnaire included the demographic characteristics of each participant such as age, gender, residential address, social status, year of study, mode of entry into the University; personal factors that affect academic performance like preferences while studying, amount of hours spent on reading, watching movies, social media or on hobbies. Familial factors that affect academic performance like parent-child relationship, parents' level of education, and parents' monthly income e.t.c. was explored. Educational factors like lecturer-student relationship were also included.

3.6.1. Validation and Reliability of the Study Instrument

In order to ensure accuracy of the study instrument in measuring the defined variables, a validation process was carried out to ensure both face and content validity and reliability of the questionnaire. A copy of the questionnaire was submitted to our research supervisor who is a public health physician. She carefully went through the questionnaire and made several suggestions which were immediately effected.

3.7. Data Management

3.7.1. Data Collection Method

Research data was sought primarily by an observational cross-sectional survey. A direct administration and retrieval of questionnaires was carried out by the researchers.

3.7.2. Data Analysis

After collection, data was analyzed using the IBM SPSS (Statistical Package for Social Science) version 23. Both quantitative and qualitative data was generated. Univariate analysis was used to access for the socio-demographic factors and data was described using statistical measures of central tendency and dispersions such as the mean, mode and percentiles. Bar charts and distribution tables was also used to describe data. Bivariate analysis was performed using the chi-square statistical test to explore the relationship between socio-demographic factors, personal factors, familial factors, education factors and success in medical school professional examinations.

The level of statistical significance was set at $p < 0.05$.

3.8. Ethical Consideration

Ethical clearance was obtained from the Health Research Ethics Committee of University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu before the study.

Informed consent was obtained from respondents after explaining to them the risks and benefits of the study and assuring them of confidentiality. It was made clear to respondents that their participation in the study was completely voluntary. They were also made to know that they could withdraw from the study at any time without attracting a punishment or fine.

3.9. Limitations

Due to the limited research works done on this topic in Nigeria, it was difficult getting a prevalence rate obtained from previous studies within the country.

This study was also limited by our criteria for assessing academic performance in surveyed students which was based on the feedback from the medical students which was not verified by viewing official results. This may have been a potential source of bias due to the possible unwillingness of some respondents to admit they failed and repeated examinations. Thus, there may have been some misclassification of students based on their academic performance.

4. Results

This chapter presents results from the study of determinants of success in professional examination among medical students of University of Nigeria. 300 questionnaires were administered to the selected participants in their fourth, fifth and final year. 280 participants responded.

Table 4.1. The Socio-demographic Characteristics of Participants I

Variable		Frequency (n = 280)	Percent
Sex	Male	153	54.6
	Female	127	45.4
Age	≤ 20	19	6.8
	21 – 25	221	78.9
	26 – 30	38	13.5
	31 – 35	1	0.4
	> 35	1	0.4
	Mean Age = 23.42 ± 2.42SD		
Year of study	400	95	33.9
	500	91	32.5
	600	94	33.6

The number (n) of participants that responded to this section of the questionnaire was 280 and comprised of 54.6% males and 45.4% females. The mean age is 23.42 ± 2.42SD (standard deviation). Students in the 400 level constituted 33.9% of the study while 500 level and 600 level students were 32.5% and 33.6% respectively.

Table 4.2. The Socio-Demographic Characteristics of Participants II

Variable		Frequency	Percent
Social status	Single	272	97.1
	Married	7	2.5
	Divorced	1	0.4
		(n = 280)	
Monthly upkeep allowance in naira	< 10 000	12	5.1
	10 000 – 20 950	78	33.3
	21 000 – 30 950	60	25.6
	31 000 – 40 950	32	13.7
	41 000 – 50 000	26	11.1
	50 000 – 60 000	13	5.6
	> 60 000	13	5.6
		(n = 234)	
Place of residence	School hostel	274	97.8
	Off campus lodge	3	1.1
	Any other place	2	0.7
	With family	1	0.4
		(n = 280)	

The number of participants that responded to each question is denoted as n. Of 280 participants, 97.8% are single, 2.5% are married and 0.4% are divorced.

The monthly upkeep allowance of the participants was mostly within the range of N10 000 – N50 000. More than 50% of the respondents received between N10 000 – N30 000 with 33.3% receiving between N10 000 – N20 950 and 25.6% receiving between N21 000 – N30 950. About 5.1% of the participants received less than N10 000 in upkeep allowance monthly and 5.6% received greater than N60 000.

Of the 280 respondents, 97.8% of the participants reside in the school hostel while 0.4% stay with family.

Table 4.3. The Past Academic Performance of Participants

Variable		Frequency	Percent
Mode of Entry	UTME	245	87.5
	Direct Entry	32	11.4
	A Level	3	1.1
		(n=280)	
Entry Score	200 – 250	36	17.1
	251 – 300	124	58.8
	300 – 350	50	23.7
	> 350	1	0.5
		(n=211)	
Interval in years between secondary school education and university admission	None	117	41.8
	1 year	78	27.9
	2 years	44	15.7
	3 years	19	6.8
	4 years	5	1.8
	5 years	6	2.1
	> 5 years	11	3.9
		(n=280)	
Failure in a professional exam (an MB exam)	Yes	107	39.1
	No	167	60.9
		(n=274)	
Which MB:			
1st MB		73	68.2
2nd MB		48	44.9
3rd MB		24	22.4
4th MB		4	3.7
		(n = 107)	

Most of the participants (87.5%) were admitted by the UTME (Unified Tertiary Matriculation Examinations) mode and more than half of the respondents (n=211) had entry score within the range 251- 300. About 41.8% gained admission immediately after secondary school, 27.9% waited for one year to be admitted and 3.9% had an interval of greater than five years between secondary school and university admission.

39.1% of the participants had previously failed a professional examination (MB).

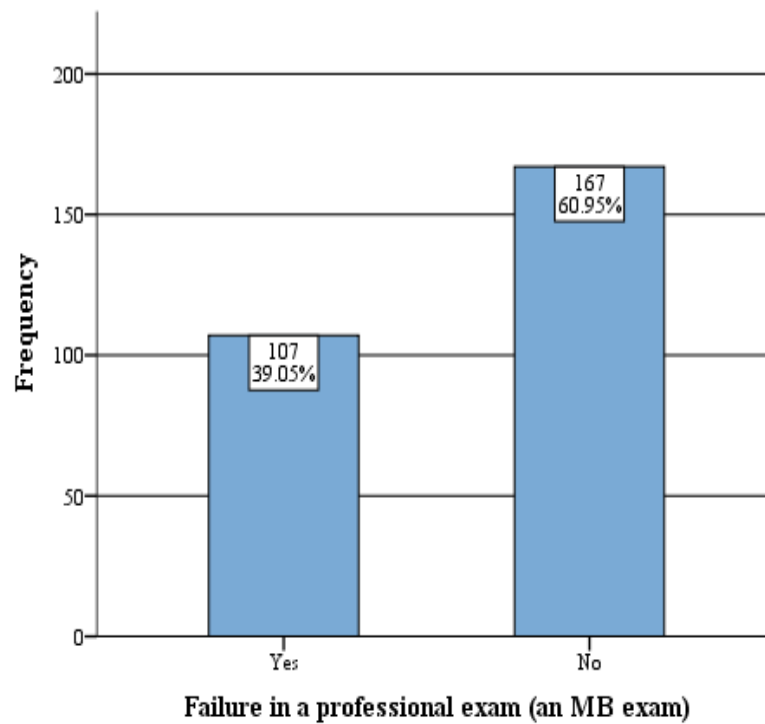


Figure 4.1. Professional Examination Outcome among Participants

39.05% of participants have ever failed a professional examination while 60.95% of participants have never failed a professional examination in medical school.

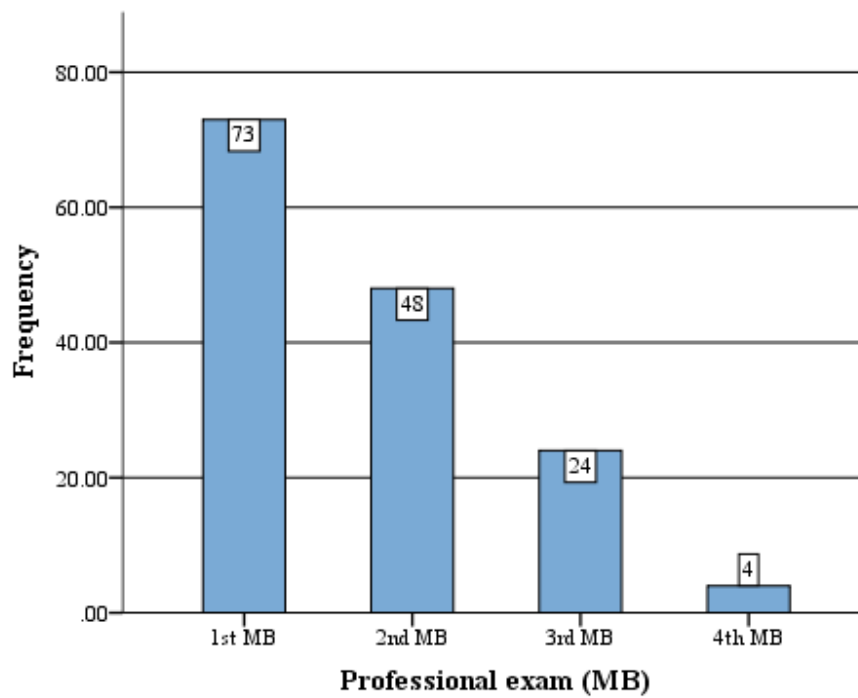


Figure 4.2. Failure Rates in Specific Professional Examinations

Of the 107 participants that have ever failed a professional examination: 73 (68.2%) failed the 1st MB (Anatomy, Biochemistry, Physiology), 48 (44.9%) failed 2nd MB (Pathology, Pharmacology), 24 (22.4%) failed the 3rd MB (Paediatrics, Obstetrics and Gynaecology) and 4(3.7%) failed the 4th MB (Medicine, Surgery, Community Medicine).

Table 4.4a. The Socio-Demographic Determinants of Success amongst Participants

Variable		Failure in a professional exam		X ²	df	p-value
		Yes (%)	No (%)			
Sex	Male	68 (45.6)	81 (54.4)	0.595	1	0.015*
	Female	39 (31.2)	86 (68.8)			
		(n=107)	(n=167)			
Age	≤ 20	3 (16.7)	15 (83.3)	60	8.8 4	0.065
	21 - 25	83 (38.4)	133 (61.6)			
	26 - 30	19 (50.0)	19 (50.0)			
	31 - 35	1 (100.0)	0 (0.00)			
	> 35	1 (100.0)	0 (0.0)			
		(n=107)	(n=167)			
Year of study	400	22 (23.9)	70 (76.1)	14.510	2	0.001*
	500	38 (42.7)	51 (57.30)			
	600	47 (50.5)	46 (49.5)			
		(n=107)	(n=167)			
Social status	Single	103 (38.7)	163 (61.3)	1.615	2	0.446
	Married	4 (57.1)	3 (42.9)			
	Divorced	0 (0.0)	1 (100.0)			
		(n=107)	(n=167)			

*The p-value is statistically significant.; *df* = degree of freedom.

The females had a higher success rate than the males and there is a statistical significant relationship between academic performance and the sex ($X = 0.595$, $df = 1$ p-value = 0.015).

Students less than 25 years had higher success rates among the age groups.

There is a statistical significant relationship between academic performance and the year of study of participants ($X = 14.510$, $df = 2$, p-value = 0.001).

Table 4.4b. The Socio-Demographic Determinants of Success amongst Participants II

Variable		Failure in a professional exam		X ²	df	p-value
		Yes (%)	No (%)			
What's your monthly upkeep allowance in naira	< 10 000	3 (25.0)	9 (75.0)	10.718	6	0.098
	10 000 – 20 950	30 (39.5)	46 (60.5)			
	21 000 – 30 950	20 (33.3)	40 (66.7)			
	31 000 – 40 950	12 (38.7)	19 (61.3)			
	41 000 – 50 000	11 (42.3)	15 (57.7)			
	50 000 – 60 000	7 (53.8)	6 (46.2)			
	>60 000	10 (76.9)	3 (23.1)			
		(n=93)	(n=138)			
Place of residence	School hostel	105 (39.2)	163 (60.8)	0.785	3	0.853
	Off campus lodge	1 (33.3)	2 (66.7)			
	Any other place	1 (50.0)	1 (50.0)			
	With family	0 (0.0)	1 (100.0)			
		(n=107)	(n=167)			

Students who received less than N50 000 in monthly upkeep allowance had higher success rates than those who received more N50000 but there is no statistically significant relationship upkeep allowance and academic performance.

Table4.5.Relationship between Time Spent on Media and Academic Performance

	Failure in a professional exam		X ²	df	p-value
Variable	Yes (%)	No (%)			
How many hours participants spend on movies, series, and music per day:					
< 2 hrs.	40 (39.2)	62 (60.8)	16.125	6	0.013*
2 hrs.	11 (23.4)	36 (76.6)			
3 hrs.	20 (44.4)	25 (55.6)			
4 hrs.	17 (50.0)	17 (50.0)			
5 hrs.	5 (26.3)	14 (73.7)			
>5 hours	2 (25.0)	6 (75.0)			
I don't engage in these activities	8 (80.0)	2 (20.0)			
	(n=103)	(n=162)			
How many hours per day participants spend on social networking/chatting on stuffs not related to academics:					
< 2	40 (42.6)	54 (57.4)	5.235	4	0.264
2 - 4hrs	40 (39.6)	61 (60.4)			
4 hrs	15 (46.9)	17 (53.1)			
> 4hrs	11 (25.6)	32 (74.4)			
I don't engage in these activities	0 (0.0)	1 (100.0)			
	(n=106)	(n=165)			

*The p-value is statistically significant.

Most of the participants spent at least 2 hours per day on the media and there is a statistical significant relationship ($X^2 = 16.125$, $df = 6$, $p\text{-value} = 0.013$) between academic performance and the number of hours participants spend on movies, series, and music per day.

Table 4.6. Relationship between Extracurricular Activities and Academic Performance

	Failure in a professional exam		X ²	df	p-value
Variable	Yes (%) (n= 107)	No (%) (n=167)			
Extracurricular activities participants engage in (multiple response):					
Volunteer and charity work	28 (31.5)	61 (68.5)			
Organizing committees	18 (36.0)	32 (64.0)			
Medical conferences and seminars	32 (39.0)	50 (61.0)			
Religious gatherings	65 (37.6)	108 (62.4)			
Family gatherings	23 (38.3)	37 (61.7)			
Party and clubs	22 (43.1)	29 (56.9)			
Sports	43 (46.7)	49 (53.3)			
Politics	28 (45.2)	34 (54.8)			
Hobbies	58 (34.3)	111 (65.7)			
Number of hours participants spend doing their extracurricular activities:					
<2hours a day	25 (54.3)	21 (45.7)	8.723	7	0.273
2-4hours a day	27 (36.0)	48 (64.0)			
>4 hours a day	16 (41.0)	23 (59.0)			
Once a week	6 (24.0)	19 (76.0)			
Twice a week	10 (40.0)	15 (60.0)			
Three times a week	10 (41.7)	14 (58.3)			
>3 times a week	7 (41.2)	10 (58.8)			
Once a month	3 (23.1)	10 (76.9)			

The extracurricular activities most participants engaged in was attending religious gatherings and doing their different hobbies with a frequency of 108 and 111 respectively. Most participants spent between two hours and four hours engaging in extracurricular activities. There is no significant relationship between academic performance and extracurricular activities.

Table 4.7a. Some Personal Characteristics of Participants

	Failure in a professional exam		X ²	df	p-value
Variable	Yes (%) (n=107)	No (%) (n=167)			
Substances participants need to help them study better (multiple response):					
Cigarette	1 (50.0)	1 (50.0)			
Smoking	4 (66.7)	2 (33.3)			
Alcohol	7 (53.8)	6 (46.2)			
Music	45 (38.5)	72 (61.5)			
Caffeine	23 (62.2)	14 (37.8)			
Snacks	42 (35.9)	75 (64.1)			
None	34 (38.2)	55 (61.8)			
Number of hours of sleep participants get per day:					
<6hours	33 (38.4)	53 (61.6)	0.95	2	0.954
6-8 hours	66 (39.1)	103 (60.9)			
>8 hours	6 (35.3)	11 (64.7)			
During vacations, I prefer to (multiple response):					
Start reading for the next year subjects	25 (34.7)	47 (65.3)			
Have clinical training	17 (51.5)	16 (48.5)			
Conduct research	7 (21.9)	25 (78.1)			
Enjoy my vacation	85 (39.5)	130 (60.5)			
Others	3 (33.3)	6 (66.7)			

Most of the participants prefer to study with music and some need snacks to study better. Most participants sleep for 6-8 hours per day and many prefer to enjoy their vacation than study during school breaks.

Table 4.7b. Some Personal Characteristics of Participants II

Variable	Failure in a professional exam		X ²	df	p-value
	Yes (%) (n=107)	No (%) (n=167)			
Whether participants work:					
Yes					
No	19 (59.4)	13 (40.6)	5.947	1	0.015*
	71 (36.6)	123 (63.4)			
Mode of transportation to school:					
Public transport	90 (37.8)	148 (62.2)	1.917	3	0.590
Private car	8 (44.4)	10 (55.6)			
I drive my own car	3 (60.0)	2 (40.0)			
Personal driver	0 (0.0)	1 (100)			

*The p-value is statistically significant.

There is a statistically significant relationship $p= 0.015$ between working and academic performance. Students who do not work have higher success rates than their counterparts who combine work with school.

Most students use the public transport mode to school. There is no statistically significant relationship between mode of transportation to school and academic performance.

Table 4.8. Relationship between Study Behaviour and Academic Performance

Variable	Failure in a professional exam		X ²	df	p-value
	Yes (%)	No (%)			
	(n=107)	(n=167)			
I am motivated to study harder because (multiple response):					
I enjoy studying	26 (28.3)	66 (71.7)			
I desire high scores	61 (35.7)	110 (64.3)			
I feel pressured by my family	12 (37.5)	20 (62.5)			
I want to get a scholarship/get hired by the institution	10 (31.3)	22 (68.8)			
I do not feel motivated	19 (54.3)	16 (45.7)			
How participants like studying:					
Alone	68 (34.9)	127 (65.1)	2.482	2	0.289
With friends	13 (50.0)	13 (50.0)			
With colleagues	10 (41.7)	14 (58.3)			
How many hours participants spend studying per day:					
< 2	4 (50.0)	4 (50.0)	1.613	4	0.806
2 – 4	47 (42.0)	65 (58.0)			
4 - 6	26 (34.7)	49 (65.3)			
6 – 8	14 (35.9)	25 (64.1)			
>8	13 (37.1)	22 (62.9)			
When participants study, they (multiple response):					
Drink coffee	16 (57.1)	12 (42.9)			
Eat snacks	39 (34.8)	73 (65.2)			
Ensure silence and no interruptions	50 (36.0)	89 (64.0)			
Favour a certain place e.g., I only like to study in my living room	36 (36.6)	53 (59.6)			
Favour a certain body position (lying on the floor, sitting on a desk	34 (40.0)	51 (60.0)			
Listening to music and/or television	30 (31.3)	66 (68.8)			
Prefer a neat environment	50 (36.8)	86 (63.2)			
Others	3 (27.3)	8 (72.7)			

Most students (n=171) are motivated to study because they desire high scores. Many students (n=195) prefer to study alone. Most students study for 2-6 hours, there is no significant relationship between study hours academic performance. Many students preferred a neat environment and ensured silence while studying.

Table 4.9. Other Factors that Influence Academic Performance

Variable	Failure in a professional exam		X ²	df	p-value
	Yes (%) (n=107)	No (%) (n=167)			
Factors that affect(s) participants study or academic performance					
(multiple response):					
Lack of planning	71 (41.3)	101 (58.7)			
Inadequate study skills	39 (46.4)	45 (53.6)			
Emotional/ psychological problems	35 (36.5)	61 (63.5)			
Lack of self confidence	21 (42.0)	29 (58.0)			
No interest in the field of study	17 (54.8)	14 (45.2)			
Low attention span	36 (35.3)	66 (64.7)			
Dissatisfaction with course	10 (34.5)	19 (65.5)			
Slow progress	33 (48.5)	35 (51.5)			
Relationship with opposite sex	6 (30.0)	14 (70.0)			
Peer pressure	9 (45.0)	11 (55.0)			
Others	5 (29.4)	12 (70.6)			

Most students rated lack of planning, inadequate study skills, low attention span, emotional problems and slow progress as the fore factors that influence their academic performance.

Table 4.10. Participants Rating of their Attendance to Learning Opportunities

	75.1% - 100%	50.1% - 75%	25.1% - 50%	0% - 25%	Total
Lectures	208 (77.0)	52 (19.3)	4 (1.5)	6 (2.2)	270 (100.0)
Tutorials	90 (33.3)	73 (27.0)	45 (16.7)	62 (23.0)	270 (100.0)
Practical sessions	222 (82.5)	32 (11.90)	13 (4.8)	2 (0.7)	269 (100.0)
Clinical teaching	222 (82.2)	34 (12.6)	9 (3.3)	5 (1.9)	270 (100.0)

Most participants rated their attendance to clinical sections, practical sessions, and lectures to be higher than their attendance to tutorials.

Table 4.11. Academic Resources of Importance to Participants

	6.00	5.00	4.00	3.00	2.00	1.00	Total
Internet	23 9 (8.6)	41 (15.4)	60 9 (22.5)	92 (34.5)	43 (16.1)	8 (3.0)	267 (100.0)
Text Books	64 (23.8)	66 (24.5)	79 (29.4)	34 (12.6)	26 (9.7)	0 (0.0)	269 (100.0)
Handouts	105 (39.2)	84 (31.3)	39 (14.6)	28 (10.4)	12 (4.5)	0 (0.0)	268 (100.0)
My own notes	57 (21.3)	58 (21.7)	58 (21.7)	48 (18.0)	42 (15.7)	4 (1.5)	267 (100.0)
Videos	25 (9.3)	22 (8.2)	35 (13.1)	57 (21.3)	127 (47.4)	2 (0.7)	268 (100.0)

Most students rated the handouts, the textbooks and their notes as their preferred academic resource.

Table 4.12. Relationship between Academic Performance and Use of Academic and Learning Resource

Variable		Failed in a professional exam			X ²	df	p-value
		Yes (%)	No (%)	Total			
		(n=107)	(n=167)				
LEARNING OPPORTUNITY	Good users	103 (39.3)	159 (60.7)	262 (100.0)	3.052	1	0.081
	Poor users	2 (100.0)	0 (0.0)	2 (100.0)			

A total score was also obtained for use of a various learning opportunities. Those who rated their use as 75 – 100% where assigned a score of 4, and those who rated their use as 0 – 25% where assigned a score of 1 (and the scores in between respectively). A total score of 16 was obtained for the 4 variable assessed; those with scores from 1 – 8, where assigned poor users, while those with scores 7 – 16, were assigned good users.

There is no statistical relationship between success in professional exam and participant's engagement in learning opportunities.

Table 4.13a. Familial Determinants of Success amongst Participants I

	Failure in a professional exam		X ²	df	p-value
Variable	yes	no			
Whether any member of participants family is a healthcare physician					
Yes	39 (40.2)	58 (59.8)	0.076	1	0.783
No	67 (38.5)	107 (61.5)			
Total	106 (39.1)	165 (60.9)			
How often participants visit their family					
Weekly	11 (37.9)	18 (62.1)	5.845	5	0.322
Monthly	23 (46.0)	27 (54.0)			
Bimonthly	12 (57.1)	9 (42.9)			
Quarterly	21 (35.0)	39 (65.0)			
Yearly	28 (32.9)	57 (67.1)			
> One Year	10 (43.5)	13 (56.5)			
Total	105 (39.2)	163 (60.8)			
Whether participants stay with their family during a school session					
Yes	7 (53.8)	6 (46.2)	1.204	1	0.272
No	100 (38.6)	159 (61.4)			
Total	107 (39.3)	165 (60.7)			
The monthly income of participants family in naira					
< 50 000	9 (42.9)	12 (57.1)	6.456	5	0.264
51000 - 100000	10 (38.5)	16 (61.5)			
101000 - 200000	12 (37.5)	20 (62.5)			
201000 - 500000	7 (23.3)	23 (76.7)			
>500000	22 (52.4)	20 (47.6)			
Total	105 (39.0)	164 (61.0)			
Whether participants are financially responsible for anyone in their family other than themselves					
Yes	13(76.5)	4 (23.5)	10.782	1	0.001*
No	92(36.4)	161 (63.6)			
Total	105(38.9)	165 (61.1)			

*The p-value is statistically significant.

There is a statistically significant relationship between academic performance and whether participants have dependents.

Table 4.13b. Familial Determinants of Success amongst Participants II

	Failure in a professional exam		X ²	df	p-value
Variable	Yes (%) (n=107)	No (%) (n=167)			
Familial factors participants think affect(s) their academics (multiple response):					
Lack of parent-child relationship	6 (40.0)	9 (60.0)			
Low parents income	24 (42.1)	33 (57.9)			
Conflicts with parents or other family members	6 (23.1)	20 (76.9)			
The death of one parent or having a single parent family	11 (50.0)	11 (50.0)			
Parents' low level of education	7 (29.2)	17 (70.8)			
Parents inadequate experiences or their inattention to their children's education	5 (35.7)	9 (64.3)			
Inadequate family university relationships	12 (42.9)	16 (57.1)			
Divorced parents	0 (0.0)	5 (100.0)			
Improper expectations from family	11 (44.0)	14 (56.0)			
Pressure from family to succeed	13 (35.1)	24 (64.9)			
Direct family member with a chronic illness you take care of	4 (36.4)	7 (63.6)			

Participants rated pressure from family to succeed, parent's low level of education, lack of parent- child relationship, low family income and conflict with family members as the fore factors that influenced their success.

Table 4.14. Educational Determinants of Success amongst Participants

		Failure in a professional exam		Total
Variable		yes	No	
Educational factors participants think affect(s) their academic performance (multiple response):				
Lack of motivation among university students	talented	20 (40.8)	29 (59.2)	49 (100)
Low quality of Education		30 (35.7)	54 (64.3)	84 (100)
Inadequate support and provision of research and welfare facilities	educational,	51 (37.8)	84 (62.2)	135 (100)
Poor student-lecturer relationship		54 (43.5)	70 (56.5)	124 (100)
Poor relationships with classmates		13 (41.9)	18 (58.1)	31 (100)
Unavailable healthy and competitive environment	environment	28 (47.5)	31 (52.5)	59 (100)
Unfriendly classroom environment		41 (41.0)	59 (59.0)	100 (100)
Wrong assessment of students performance		34 (47.9)	37 (52.1)	71 (100)
Inappropriate teaching methods by lecturers	lecturers	39 (33.3)	78 (66.7)	117 (100)
Hectic class and posting schedule		69 (38.8)	109 (61.2)	178 (100)

Participants rated hectic class and posting schedule, unfriendly classroom environment, inappropriate teaching methods by lecturers, inadequate facilities and poor student- lecturer relationship among the fore factors that influenced their performance.

5. Discussion

Findings from our study indicated that there is a statistical significant relationship between academic performance and gender ($p=0.015$). Females had a 68.8% success rate while the males had a success rate of 54.4%. This is similar to a study by Onwuasoigwe et al. among final year medical students of University of Nigeria Enugu Campus (UNEC), females had 73.9% success rate compared to their male counterparts (58.9%).¹⁴ In a similar study in Zaheden Medical University by Solyman et al., females were noted to have a higher success rate than males.¹⁰ This finding was also in concordance with the finding of Farnoush et. al. in a study conducted on preclinical Iranian medical students, where they found out that females performed better than their male counterparts with $p=0.008$.¹³

Students less than 20 years had the highest success rate (83.3%) in their professional MB exams. This is in agreement with a similar study on preclinical students of the University of Nigeria Medical School by Nto et al.¹⁷ and another study by Egbewale et al.¹⁵ on pre-clinical MBBS students in a Nigerian university. This observation can be explained by the fact that younger students are more motivated and may have fewer responsibilities. The older students might be saddled with responsibilities to fend for themselves and their families and are likely to take up jobs to solve these responsibilities.

We also discovered that there was a significant relationship between year of study ($p=0.001$) and success rate. There was a gradual decrease in success rate and an increase in failure rate as the students progressed in class (success rates of 400, 500 and 600 level students were 76.1%, 57.3% and 49.5% respectively). This can be related to the age of the students (older students are found in older classes and they have more responsibilities compared to their younger counterparts).

Students with their monthly upkeep allowance less than fifty thousand naira (<50,000) performed better than those who received greater than N50 000. Those who received less than N10 000 had the highest pass rate of 75.0%, while students that earned more than N 60 000 had the highest failure rate of 76.6%. This is in keeping with the finding of Ekwochi et al. among 500 level medical students of Enugu State University of Science and Technology.⁴ The researchers were of the opinion that students with lower monthly upkeep allowance are less likely to engage in extracurricular activities hence more likely to focus on academic related activities.

Most students entered through UTME (87.5%), majority of the students entered with a very high score of 251-300 (58.8%). Majority had an interval of 1 year post-secondary school before acquiring the admission to study medicine.

There is a statistical significant relationship ($p=0.013$) between academic performance and the number of hours participants spent on movies, series and music per day as students who engaged in these activities for at least 2 hours per day had higher success rates than their counterparts. This is in contrast to a study done in east coast Malaysia Peninsula on clinical and pre-clinical students where hours spent on music and television had no substantial effect.³ Most students spent up to 4 hours on social media but this had no significant influence on academic performance.

Music was the major substance needed to help them study better; it was associated with (61.5%) success rate. Majority of the students engaged in their hobbies as an extracurricular activity and this seems to influence success rate (65.7%). Most students (60.9%) that passed their professional exams slept for 6-8 hours a day in the night.

Not having a job was associated with a high success rate (63.4%) with p-value significant at 0.015. Students that used public transportation to school passed their exams more than students that owned a private car. This can be explained by the fact that people that own a private car might be more distracted by errands for the family with the car or social activities liking driving their friends to a party or a mall or a bar e.t.c.

Most students that passed their professional exams are motivated to study harder because they desire high scores (110), majority of these students preferred studying alone (65.1%). Most of the students that passed studied for 2-6 hours every day.

Most of our participants choose to enjoy their vacations during breaks and this is associated with a high success rate. Most of the participants attributed their high failure rate to lack of planning for an exam.

Most students prefer reading their handouts (39.2%), textbooks (23.8%) and notes (21.3%) to the use of internet (8.6%) or video (9.3%).

Majority of the students attended their practical sessions (82.5%), clinical teaching (82.2%) and lectures (77%) than the tutorials (33.3%). Overall there was no statistical significant relationship between failure in a professional exam and the use of academic resource and engaging in learning opportunities.

Having a physician family member showed no relationship to success. Participants with the highest success rate were those that visited their families yearly, this is in contrast with the study done by Ekwochi et al. among 500 level medical student of Enugu State University of Science and Technology,⁴ where they found out that students who visited their families on a weekly basis had a better academic performance than others. They inferred that visiting home serves as a form of emotional family support. While we agree that family provides emotional support, we also infer that regular visit to family can also be a source of distraction to the student who is away from a reading environment.

Most of our participants were not staying with their families during a school session and this was associated with a high success rate (61.4%), and this supports the earlier stated point that the family can serve as a form of distraction.

Most of the participants were not financially responsible for anyone in their families other than themselves and this was associated with a high success rate (36.6%) and concurs with earlier findings that p was significant at 0.015 for not working. There is also a statistical significant relationship (p value = 0.001) between academic performance and whether participants are financially responsible for anyone in their family other than themselves.

Participants rated pressure from family to succeed, parent's low level of education, lack of parent-child relationship, low family income and conflict with family members as the fore factors that influenced their success. This is in keeping with findings from a research by Somayeh's et al. on frequency of academic failure and its associated factors from the perspectives of students of Zabol University of Medical Sciences in 2016 where lack of parent-child relationships, low socioeconomic levels, and conflicts with parents were named as most significant familial factors of success. Educational factors that affected the academic performance of participants include hectic class and posting schedule, unfriendly classroom environment, inappropriate teaching methods by lecturers, inadequate facilities and poor student-lecturer relationship among the fore factors that influenced their performance and is similar to findings by Soyameh et al. which noted the most influential factors in the domain of educational factors to be poor quality in education, inadequate educational program, and inappropriate teaching methods adopted by lecturers.

6. Conclusions and Recommendation

6.1. Conclusions

The following conclusions can be drawn from the results of the study:

There is a statistical significant relationship between academic performance and gender ($p=0.015$). Females (68.8%) passed more than males (54.4%). Students less than 20 years had the highest success rate (83.3%) in their professional MB exams.

There was a significant relationship between year of study ($p=0.001$) and success rate. There was a gradual decrease in success rate as the students progressed in class (success rates of 400, 500 and 600 level students were 76.1%, 57.3% and 49.5% respectively).

Students with their monthly upkeep allowance less than fifty thousand naira performed better than their counterparts who received more than N50,000 had the highest failure rate.

There is a statistical significant relationship ($p=0.013$) between academic performance and the number of hours participants spent on movies, series and music per day.

Not having a job was associated with a high success rate (63.4%) with p -value significant at 0.015.

There is also a statistical significant relationship (p value = 0.001) between academic performance and whether participants are financially responsible for anyone in their family other than themselves.

Familial factors that affected the participants' performance include pressure from family to succeed, parent's low level of education, lack of parent-child relationship, low family income and conflict with family members.

Educational factors that affected the academic performance of participants include hectic class and posting schedule, unfriendly classroom environment, inappropriate teaching methods by lecturers, inadequate facilities and poor student-lecturer relationship.

6.2. Recommendation

This study identified factors that have direct or indirect impact on academic performance among undergraduate medical students. To improve medical students' success in professional examinations; students, family and stakeholders in education sector have roles to play.

Our recommendations are as follows:

1. Students should plan ahead before the beginning of any academic session, to ensure proper utilization of their time in school and prevent failure.
2. Students should maintain study hours of 4-8 hours per day in a suitable environment and take study breaks every 45mins at least.
3. Students are encouraged to develop a study style that is peculiar to them. Students are also encouraged to study alone as this reduces the chance of getting sidetracked which is common when reading with friends. Study group sessions should be different for personal study sessions.
4. Student should maintain a sleep pattern, a good 7 hours of sleep every night is recommended.
5. Families should support students emotionally and deter from placing undue pressure on them.
6. The institution should provide classrooms that have the capacity to contain her students comfortably; the students should have individual seats, desks, good audio system, proper ventilation, a good view of the board and the lecturer.
7. The institution should provide suitable means of transportation for her students.
8. Lecturer-student relationship has to be improved for the better performance of all of the class. Students should be allowed to anonymously rate the performance of their lecturers at the end of each lecture and the feedback worked upon by the lecturer to improve the performance of the class.
9. Hectic class and postings schedule should be re-evaluated.

References

- Education [Internet]. [Last modified 2020 Dec 27]. Available from: <https://en.m.wikipedia.org/wiki/Education> [Accessed 2020 Dec. 29].
- Medical school [Internet]. [Last modified 2020 Dec 26] Available from: https://en.m.wikipedia.org/wiki/Medical_school [Accessed 2020 Dec. 29].
- Musa RM, Haque M. Academic Performance of Pre-Clinical and Clinical Medical Students' of East Coast Malaysian Peninsula: A Cross-Sectional and Descriptive Study That Stimulates Their Life. *J App Pharma Sci.* 2017 Jul; 7(6):169-175. Available from: <https://doi.org/10.7324/JAPS.2017.70624> [Accessed 2020 Mar. 21].
- Ekwochi U, Osuorah DIC, Ohayi SA, Nevo AC, Ndu IK, Onah SK. Determinants of Academic Performance in Medical Students: Evidence from a Medical School in South-East Nigeria. *Adv in Med Edu and Pract.* 2019 Aug; 2019(10):737-747. Available from: <https://doi.org/10.2147/AMEP.S210557> [Accessed 2020 Mar. 22].
- Al Shawwa L, Abulaban A, Abulaban A, Merdad A, Baghlaf S, Algethami A et al. Factors Potentially Influencing Academic Performance among Medical Students. *Adv Med Edu and Pract.* 2015 Jan; 2015(6):65-75. Available from: <https://doi.org/10.2147/AMEP.S69304> [Accessed 2020 Mar. 21].
- Aniebue PN, Onyema GO. Prevalence of Depressive Symptoms among Nigerian Medical Undergraduates. *Trop Doct.* 2008 Jul; 38(3): 157-158. Available from: <https://doi.org/10.1258/td.2007.070202> [Accessed 2020 Mar. 20].
- Samuel N. 300 level NDU Medical Student Commits Suicide for Failing Exam. *Punch* [newspaper from the internet]. 2019 May 22. Available from: <https://punchng.com/300-level-ndu-medical-student-commits-suicide-for-failing-exam/> [Accessed 2020 Dec. 22].
- 8.Egwu OA, Dimkpa U, Orji OJ, Njoku OC, Egwu OE, Besong E. Medical Students- Self Assessed Confidence Levels Before a Major Physiology Examination: Affective Factors in a Nigerian Medical School. *Acta Inform Med* 2011 Sep; 19(3):153-157. Available from: <https://doi.org/10.5455/aim.2011.19.153-157> [Accessed 2020 Mar. 21].
- Somayeh B, Fahimeh N, Medhi H. Frequency of Academic Failure and its Associated Factors From the perspectives of Students of Zabol University of Medical Sciences in 2016. *Int J Inn Sci, Eng Tech.* 2017 May; 4(5):197-202. Available from: https://www.researchgate.net/publication/327883231_Frequency_of_Academic_Failure_and_its_Associated_factors_From_the_perspectives_of_Students_of_Zabol_University_of_Medical_Sciences_in_2016 [Accessed 2020 Mar. 23].
10. Solyman S, Javid DH, Zhila A, Ramin HZ. An Examination of Effective Factors on Academic of Students of Zahedan Medical University. *FMEJ* 2013 Sep; 3(3): 35- 40. Available from https://www.researchgate.net/publication/260799354_Factors_affecting_success_of_medical_students [Accessed 2020 Mar. 23].
- Farideh IS, Hasan G, Moslem H, Abbasian M, Goghataei MJ, Abbasnejad AA et al: Factors affecting academic failure in region II medical universities student. *Arc Adv in Biosci.* 2015 Apr; 6(2):53-58. Available from: <https://doi.org/10.22037/JPS.V6I2.8909> [Accessed 2020 Mar. 23].
- Raneem OS, Najwa AM, Nihal MN, Abdulmohsen HA, Abeer FD, Nasser AH. Academic and Socio-demographic Factors Influencing Students' Performance in a New Saudi Medical School. *Med Teach.* 2013; 35 (Suppl 1): S83-S89. Available from: <https://doi.org/10.3109/0142159X.2013.765551> [Accessed 2020 Mar. 23].
- Farnoush D, Shooka E, Masoud A, Marzieh N. Academic Performance in Iranian Medical Students during the Pre-clinical Stage. *Med J Islam Repub Iran.* 2017 Feb; 31(14). Available from <https://doi.org/10.18869/mjiri.31.14> [Accessed 2020 Mar. 23].
- Onwuasoigwe O, Onyia EE, Mesi M. Determinants of Outcome of Final Undergraduate Surgery Examinations in a Nigerian University. *Niger J Clin Pract.* 2018 Jun; 21(6): 783-787. Available from https://doi.org/10.4103/njcp.njcp_12_18 [Accessed 2020 Mar. 23].
- Egbewale BE, Adeeyo OA, Ogunro SP, Olowu AO, Adeoti ML, Adewole T. Predictors of Students' Performance in the Pre-clinical MBBS Programme in a Nigerian University. *Nig PG Med J.* 2009 Dec; 16(4):245-250. Available from: https://www.researchgate.net/publication/44653234_Predictors_of_Students'_Performance_in_the_pre-clinical_MBBS_Programme_in_a_Nigerian_University [Accessed 2020 Mar. 20].
- Ahmady S, Khajeali N, Sharifi F, Mirmoghtadaei ZS. Factors Related to Academic Failure in Preclinical Medical Education: A Systematic Review. *J Adv Med Educ Prof.* 2019 Apr; 7(2):74-85. Available from <https://doi.org/10.30476/JAMP.2019.44711> [Accessed 2020 Mar. 20].
17. Nto JN, Obikili EN, Anyanwu GE, Agu AU, Esom EA, Ezugworie JO. Effect of Age, Premedical Academic Performance and Entry Bias on Students' Performance in Final Preclinical Examination at the University of Nigeria Medical School. *J Exp Clin Anat.* 2019 Jun; 18(1):6-11. Available from https://doi.org/10.4103/jeca.jeca_2_19 [Accessed 2020 Mar. 20].
- Azari S, Baradaran HR, Fata L. Causes of Academic Failure of Medical and Medical Sciences Students in Iran: A Systematic Review. *Med J Islam Repub Iran.* 2015 Nov; 29:302. Available from: https://www.researchgate.net/publication/295910587_Causes_of_academic_failure_of_medical_and_medical_sciences_students_in_Iran_A_systematic_review [Accessed 2020 Mar. 20].
- Mainul H, Nor Iza AR, Anwarul AM, Seraj ZH, Zainal BZ, Halyna L et al. Assessment of Academic/Non-Academic Factors and Extracurricular Activities Influencing Performance of Medical Students of Faculty of Medicine, Universiti Sultan Zainal Abidin, Malaysia. *Adv Hum Biol.* 2018 Jan; 8(1):3-18. Available from https://doi.org/10.4103/AIHB.AIHB_28_17 [Accessed 2020 Mar. 22].
- Nwobodo E, Dimkpa U, Ugwu C, Anyaehie UB. Entry Points into a Nigerian Medical School at the Graduate and Undergraduate

- Levels: A Three Year Prospective and Retrospective Comparison of Performance at the First MBBS Professional Examinations. *Int J Med Health Dev.* 2019; 24(2):95-99. Available from: https://doi.org/10.4103/ijmh.IJMH_21_19 [Accessed 2020 Mar. 20].
- Rahman NA, Aniza AZ, Zainal BZ, Muhammad AH, Farah HB Sharvina P et al. Perceptions of Students in Different Phases of Medical Education of the Educational Environment: Universiti Sultan ZainalAbidin. *Adv in Med Edu Pract.* 2015 Mar; 6(default): 211–222. Available from: <https://doi.org/10.2147/AMEPS.S78838> [Accessed 2020 Mar. 21].
- Enugu (Internet). En.wikipedia.org. 2020. Available from: <https://en.wikipedia.org/wiki/Enugu#Climate> [Accessed 27 Sep. 2020].
- Enugu State (Internet). En.wikipedia.org. 2020. Available from: https://en.m.wikipedia.org/wiki/Enugu_State [Accessed 28 Dec. 2020].
- About Enugu State. State, E., 2020. Enugustate.gov.ng. Available at: <https://www.enugustate.gov.ng/index.php/elements-devices/> [Accessed 27 Sep. 2020].
- Nuc.edu.ng. 2020 Available from: <https://www.nuc.edu.ng/> [Accessed, 27 Sep. 2020].
26. List of Polytechnics and Colleges of Education in Enugu State - Ou Travel and Tour [Internet]. Ou Travel and Tour. 2020 Available from: may 26 2019 <http://outravelandtour.com/list-of-polytechnics-and-colleges-of-education-in-enugu-state/> [Accessed, 27 Sep. 2020].
- University of Nigeria (Internet). En.wikipedia.org. 2020 Available from: https://en.wikipedia.org/wiki/University_of_Nigeria [Accessed, 27 Sep. 2020].
- Onwasigwe C. N. Principles and methods of epidemiology. 2nd edition. Enugu (Nigeria): EI Denmark Limited Publishers; 2010, p11.