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Original Article

Medical Students' Perspective on the Structure and Standard of Clinical Medical Training in Nigeria: A Survey Across Three Medical Schools in Rivers State, Nigeria

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Abstract

Background: Clinical training is a critical stage of medical education in which medical students gradually acquire skills by interaction with the instructor at the patient's bedside and apply previously learned concepts in practice. This study aimed to evaluate undergraduate clinical medical students' perspective on medical education at the Rivers State University (RSU), University of Port Harcourt (UPH) and PAMO University of Medical Sciences (PUMS) in Port Harcourt, Nigeria. ***Methodology:*** This was descriptive cross-sectional study, and the study population consisted of medical students in the clinical classes - years 4, 5 and 6. Data was collected using a self-administered semi-structured questionnaire distributed via google forms shared on the WhatsApp groups of the classes. Data was exported to and analysed using SPSS version 25. ***Results:*** A total of 326 students with a mean age of 22.4±2.4years were recruited and 200(61.3%) were women. While 262 (80.4%) students feel their curriculum is adequate, 66 (20.2%) expressed dissatisfaction with classroom teaching because of poor teaching/communication skills by the lecturers. Feedback with constructive criticism was reported by 298 (91.4%) students, however, 183 (56.1%) reported frequent destructive criticism generally involving hurtful words, insults, and degrading statements. Although 214 (65.6%) students were satisfied with the clinical training, the training was perceived as stressful by 268 (82.2%) students. ***Conclusion:*** Clinical training in medical school is stressful, thus identifying and managing the factors that cause this stress is essential as making necessary adjustments in the curriculum will improve the quality of clinical education.

Keywords: ***Medical students, Education, Clinical training, Satisfaction, Nigeria.***

Introduction

Undergraduate medical training is reputed to be the most important stage in medical education [1]. In Nigeria, undergraduate medical training spans through a period of six years. The first year of study is regarded as a preliminary year and lectures are received at the Faculty of Science. The second and third academic years are referred to as the pre-clinical study years while the fourth to the final year belong to the clinical period of training. Clinical education is one of the critical stages of medical education in which medical students gradually acquire skills by attending the patient's bedside. In this type of education, the student interacts with the instructor and the environment to apply the learned concepts in practice [2,3]. Medical science needs practice to acquire skills [2]. If this training does not provide the learning conditions properly, it is not possible to develop clinical skills [4,5]. Clinical training in the internship provides the student with the opportunity to translate theoretical knowledge into the various psychomotor skills needed to care for the patient [5,6]. In fact, clinical education can be considered as a learning facilitation activity in a clinical environment in which the clinical instructor and the student are equally involved [7].

Various studies have shown that several problems have prevented this goal from being achieved [8]. These problems include the lack of specific job descriptions for students and educators, the inadequacy of the number of clinical trainers in the wards, the inadequate communication of physicians, students and nurses with the patient, and the inadequacy of clinical conditions for standard procedures [7,9]. Research shows that medical students who enter the internship phase with more scientific and practical preparation will be able to better perform their assigned tasks in diagnosing and treating patients [10,11]. Obviously, the compatibility of theoretical courses with practical skills in the clinical training and also the employment of professors interested in clinical education are among the factors affecting the effectiveness of the training program.

In university education, the satisfaction of students is an important indicator of the quality of education programs in any university. Thus, the opinion and satisfaction of students are very important in the assessment of teaching and may be of relevance in identifying positive and deficient areas in the educational program that may require revisions [7]. For example, in the United States, the Graduate Exit Questionnaire is a part of the routine educational process during which the medical graduates in that country evaluate the educational program and this is utilized for quality assurance and curriculum revision [12]. There is evidence that medical students who are satisfied with their clinical training have better academic performances hence higher grade point averages than those who were not satisfied [13]. Also, the medical students of today form the physician workforce of tomorrow and the satisfaction of physicians have been found to be associated with the satisfaction of their patients, and this has been linked to good patient outcomes [14]. This brings to the fore the relevance of satisfaction with medical training among medical students. Furthermore, medical students who are satisfied with medical training have been found to be twice less likely to be stressed during the period of training when compared with those who were not satisfied [12]. Undoubtedly, stress has been found to be associated with the training of health professionals including medical students, and high academic stress among the medical students leads to poor academic performance [15].

Although job satisfaction has been amply studied, literature on satisfaction with clinical education is quite limited. Some theories such as career theory have been used to explain how occupational and psychological variables can influence attitudes toward careers. Since the students' satisfaction has been associated with their later professional attitudes, career commitment and retention, professional education faculties should be concerned with students' satisfaction as an outcome of the educational process. Elements of job satisfaction can be categorized into three domains: i.e. personal, interpersonal, and organizational. Personal domain is considered as an individual's character and it is defined as specific characteristics that are related to the students (e.g. life satisfaction, self-esteem). Relationship between the student and the clinical instructor is categorized into interpersonal domain. The characteristics of clinical education that might influence satisfaction are categorized as an organizational domain, which are included number of teachers, patients, educational methods, and the practical skills that the students learn [16].

Clinical experiences for medical students are not the same as jobs, and the role of a student in clinic is not the same as that of an employee. Unlike typical employees, students are located at facilities temporarily. Students typically are not paid and, therefore, do not have the same rights and privileges, or work expectations as employees. Medical students often complete their experiences at clinical sites, which are not the places they usually choose for regular employment [17,18]. Although the above mentioned are between student's experiences and employment, we can extrapolate that factors predicting satisfaction with clinical experiences are the same variables that predict job or career satisfaction. This study aimed to evaluate undergraduate clinical medical students' perspective on medical education during their clinical training at the Rivers State University (RSU), University of Port Harcourt (UPH) and PAMO University of Medical Sciences (PUMS) in Port Harcourt, Nigeria.

Materials and Methods

Research Design: A cross-sectional analytical observational study was carried out.

Study Area: This study was done in Port Harcourt the capital of Rivers State, in the Niger Delta region of Nigeria. Rivers State is one of the thirty-six states of Nigeria, located in the southernmost part of the country. There are four (4) medical schools in Rivers State that are accredited by the Nigerian University Commission and the Medical and Dental Council of Nigeria for the education and training of medical students. This study will be conducted in the medical schools of three universities, namely the Rivers State University, RSU (owned by the Rivers State government), the University of Port Harcourt, UPH (owned by the federal government of Nigeria) and the PAMO University of Medical Sciences, PUMS (a privately owned and managed university).

Study Population/Participants: All the medical students in the clinical classes (years 4, 5 and 6) of the medical schools of the three universities in Port Harcourt, (RSU, UPH and PUMS) who gave documented informed consent for inclusion, formed the study population. Medical students who refused to give consent to participate in the study and those not available during the period of data collection were excluded from the study.

Study Instrument: A self-administered semi-structured questionnaire was distributed on the WhatsApp groups of the classes, in google forms format. This was done after explanation of the reason of research and necessary instructions given on how to fill the questionnaire.

Study Variables: The variables of interest were demographic characteristics, curriculum structure and adequacy, research and global health experiences, grading of methods of assessments during their exams, students' degree of satisfaction with medical training, psychological factors of medical training (stress and reasons for dissatisfaction), and stress management.

Data Analysis: The obtained data was analysed using SPSS version 25 and formed into tables and charts. Mean and standard deviation were used for continuous variables and proportions for categorical variables.

Reliability of Instrument: The study instrument was scrutinized by the authors for correctness and pretested among similar group of clinical medical students in another university setting in Rivers State before use.

Ethics Statement: The approval of the Research and Ethics Committee of the Rivers State University Teaching Hospital was obtained (RSUTH/REC/2023379). The consent of the students was obtained, and personal information of the respondents were omitted.

Results

Three hundred and twenty-six medical students in the clinical classes were recruited from the Rivers State University (RSU), the University of Port Harcourt (UPH) and the PAMO University of Medical Sciences (PUMS) and this distribution is shown in Figure 1.

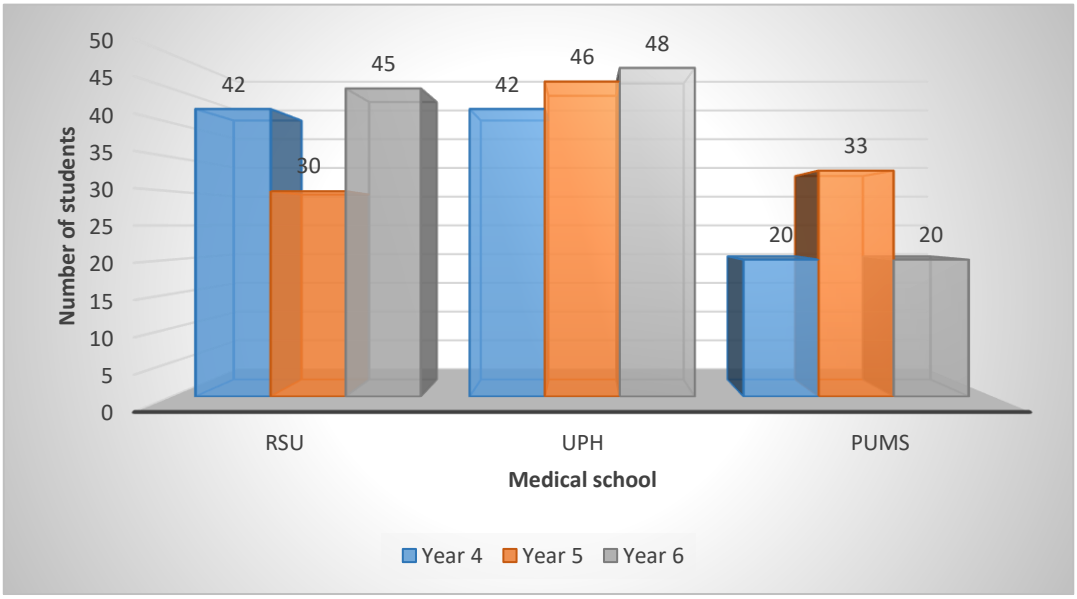

Figure 1: Distribution of medical students from the clinical classes of the Universities.

Key: RSU= Rivers State University, UPH=University of Port Harcourt, PUMS=PAMO University of Medical Sciences

There were 200 (61.3%) females and 126 (38.7%) males giving a male to female ratio of 0.6:1. The mean age of the students was 22.4±2.4years and the age range was 18-30years. Students who were within the age range 21-25 years constituted two thirds of the study population. Table 1 shows the age group and sex distribution of clinical students.

Table 1: Age group and sex distribution of clinical students (total = 326)

Variable	Frequency	Percentage
Age group		
≤20 years	68	20.9
21-25 years	219	67.2
26-30 years	39	12.0
Sex		
Male	126	38.7
Female	200	61.3

Curriculum structure

While 296(90.8%) students report having access to their curriculum, 262(80.4%) feel their curriculum is adequate. Reasons given for inadequacy of the curriculum include an exhaustive academic workload within a short period of time which make the lectures feel rushed, giving little room for understanding the concepts and instead, encourages cramming and forgetting, with no provision for rest or relaxation. Some students feel that the contents of individual lectures are too complex for their comprehension, there were a few complaints about insufficient practical or clinical sessions. One student reported that the curriculum was old fashioned and needed to be updated as recent research, technologies and trends in the medical fields are not included in the curriculum. However, there was positive feedback among most of the students where the lectures were described as diverse, well structured, organized and delivered appropriately with good clinical student to teachers' engagement and adequate student to patients contact. The curriculum was stated to be well established by teachers who understand how the topics should be ordered and were adequate for our geographical location with management modalities encompassing international best practices and standards.

Assessment of the methods of medical training

The students graded the adequacy, relevance, and appropriateness of methods of assessment for clinical education and the majority of the students preferred written exams and objectively structured clinical examinations (OSCEs) to the traditional long cases/clerkship examination.

Table 2. Students' grading of methods of assessments during their exams

Assessment method	Grading				
	Excellent f (%)	Good f (%)	Average f (%)	Fair f (%)	Poor f (%)
Oral exams	71(21.8)	151(46.3)	93(28.5)	7(2.1)	4(1.2)
Written exams: Essay	71(21.8)	165(50.6)	80(24.5)	7(2.1)	3(0.9)
Written exams: MCQs	79(24.2)	141(43.3)	85(26.1)	14(4.3)	7(2.1)
OSCE	72(22.1)	146(44.8)	97(29.8)	9(2.8)	2(0.6)
Clerkship exams/long cases	47(14.4)	96(29.4)	164(50.3)	14(4.3)	5(1.5)
Logbooks	73(22.4)	122(37.4)	111(34.0)	14(4.3)	6(1.8)

Key: MCQ= multiple choice questions, OSCE= objectively structured clinical examination

Feedback is an important part of medical training and development, and 298(79.1%) students admit that they frequently receive constructive criticism from their trainers, giving them clear and practical specific recommendations on how to make positive improvements. This encourages them to work harder and motivates them to do better next time.

Conversely, more than half of the students (56.1%) also report frequent destructive criticism however, 143(43.9%) have not experienced any destructive criticism which generally involve hurtful words, insulting and degrading statements typically during clinics and ward rounds. Various sequalae of destructive criticism consequently reported by the students include fear, poor self-esteem, impaired clinical judgement, depression, suicidal ideation and avoidance of such lecturers which may have an impact on their clinical training with even thoughts of quitting medical school.

While all the medical students are expected to attend Consultant clinics as part of their clinical training, 12(3.7%) students admitted that they do not regularly attend these clinics and 8(2.5%) had never clerked any patient in the various outpatient clinics, however, 221(67.8%) students are satisfied with the level of teaching in the clinics.

The attendance at ward rounds was similar to the clinic attendance as 17(5.2%) persons do not regularly attend Consultant ward rounds and 46(14.1%) had never clerked a patient on admission in the wards while 237(72.7%) express satisfaction with the level of teaching during ward rounds.

Theatre sessions are compulsory for the departments of Surgery and Obstetrics & Gynaecology but 27(8.3%) do not attend these sessions and only 175(53.7%) expressed satisfaction with the level of teaching during surgical procedures in the theatre.

Psychological factors of medical training

Two hundred and fourteen (65.6%) medical students expressed satisfaction at the training they had received thus far in their clinical classes with 16(4.9%) persons dissatisfied with their training, mostly due to the enormous workload, however, other reasons cited included lack of empathy by the lecturers, insufficient practical and clinical sessions, poor physical infrastructure and one student complained of the huge financial burden of medical school.

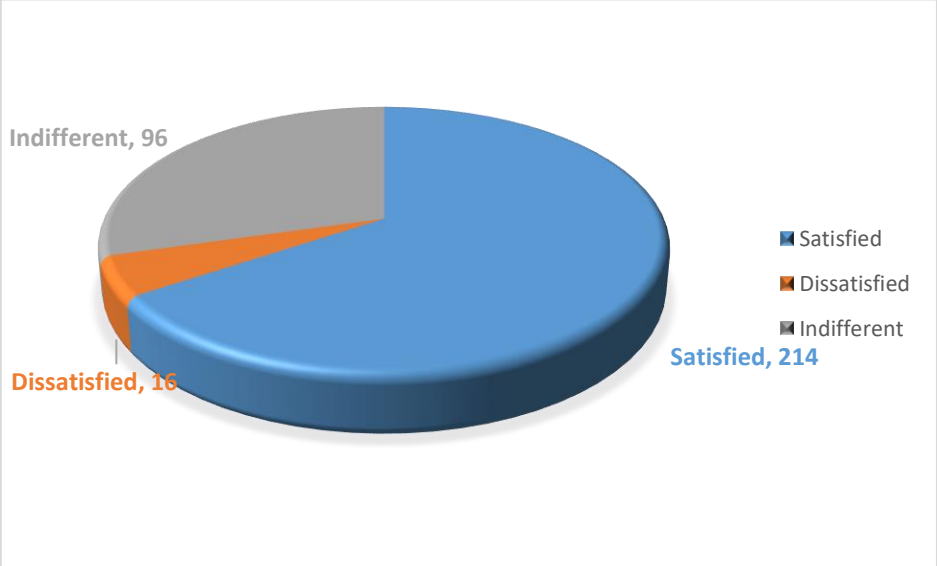

Figure 2. Satisfaction with medical training by the clinical students

Concerning the adequacy of classroom teaching by the clinical lecturers, only 66(20.2%) students expressed dissatisfaction with most of them reporting poor teaching/communication skills by the lecturers which makes learning boring, repetitive, and not engaging while a couple reported frequent verbal abuse and misogynistic comments from the male lecturers. A few students from the University of Port Harcourt complained of a poor physical learning environment/infrastructure with insufficient chairs and poor ventilation as well as no power supply with subsequently no visual projections to aid learning.

Many of the students (79.8%) however expressed satisfaction with teaching in the classroom and reported that lecturers were punctual, professional and approachable as well as patient and enthusiastic in providing adequate resource materials and study guides which motivated them to study harder. Lectures are said to be interactive, inclusive to all students, structured without limiting acquisition of knowledge, delivered properly in clear terms using appropriate lecture materials and illustrations with room for effective communication, questions and feedback. Students reported provision of adequate classroom teaching aids including visual equipment amongst other materials which supports the process of learning.

Clinical medical school was perceived as stressful by 268(82.2%) students while 103 of these students described clinical medicine as "very" stressful with most of these students complaining of poor school-life balance with not enough time for rest and relaxation resulting in adverse mental and physical effects. Only 58(17.8%) students feel the stress level is just appropriate for medical training, however, they emphasize that there has to be proper time management.

Support and resources for managing stress and mental well-being have been made available but only 54(16.6%) of students are aware of these facilities and among the 27(8.3%) students who reported that they had accessed this available support, all 27 persons found the support and resources given to them for managing stress and mental health useful.

Research and global health experiences

Medical students should be exposed to research as early as possible in their curriculum but only 49(15.0%) persons reported participating in scientific research work and manuscript publications with the roles involved being primarily data collection while 16(4.9%) students confirmed authorship of a scientific manuscript.

Almost all the students (299 persons -91.7%) expressed dissatisfaction with the availability of research and manuscript writing opportunities that have been made available to them thus far in their clinical training whereas only 16(4.9%) students had been exposed to global health experiences or international rotations during their medical training albeit virtually.

Discussion

The subject of use of modern teaching methods, curriculum review, and its incorporation in medical education is a global issue, and Nigeria is not an exception [19-22]. This therefore underscores the authors' emphasis on this study. The students' male to female ratio of 0.6:1, indicating a predominance of female students which has been mirrored by other scholars within Rivers State, Nigeria, and Africa. Students from the University of Port Harcourt medical school dominated the study population followed by the Rivers State University which is expected as the University of Port Harcourt is a federal government institution founded earlier in 1975, while the medical colleges in the other two universities are more recent [23-25].

Clinical training, though perceived as crucial by medical students often involve a significant increase in workload and long working hours which can be debilitating. This study is focused on assessing the perspective of medical students on the structure and standard of their clinical training. There were more female medical students compared to males and this gender disparity have also been observed by other researchers [26,27]. Veritably, a recent Medscape article reported that females make up most medical school applicants, total enrolment as well as matriculants [26].

Though a majority of the students (80.4%) feel their curriculum was properly structured and diverse, a few (19.6%) believe their curriculum is inadequate due to multiple factors which include high workload within a short time frame, challenges with comprehension and assimilation of lectures and the "outdated" nature of the curriculum. Likewise, Osoba *et al.* [28] affirmed that the medical curriculum in Nigeria is outdated and medical colleges in Nigeria may lack the necessary tools required to thrive in the 21st century.

Examinations remain an integral part of medical education worldwide and should aid medical students in achieving knowledge, skills and values required in their training. Most of our cohort preferred written exams and OSCE formats of examinations as tools for their evaluation in contrast to the traditional long and short case formats. The recent adoption of the OSCE introduced by Harden *et al.* in 1975 [29] into the Nigerian medical curriculum has not been without pitfalls. Although it has the advantage of being objective, assessing particularly the cognitive and psychomotor aspects of the students, it has failed in assessing the communication skills and ethics of medical students [30].

Good communication skills are fundamental and required for effective training and medical students are not exempted. In our study, 56.1% of the students' report experiencing destructive criticism and professional bullying typically during their clinical attendance and ward rounds and 20.2% expressed dissatisfaction with their training in terms of poor communication skills displayed by their trainers, repetitive non-engaging lectures and verbal abuse mostly from male lecturers. Similar trends were observed by a 2017 study of the Association of American Medical Colleges [31] which reported students' mistreatment rates of 42.1 -47.1% over a 2-year study period resulting in poor students' performance and ultimately patients' care.

Despite the availability of support and resources for stress management by their respective school authorities, only 16.6% and 8.3% of the students are aware and have access to these facilities respectively, and a large proportion of our study population – 82.2% perceive their training as unnecessarily stressful and rigorous with little or no time for relaxation and comparable findings have been reported by another author [32].

Medical education in Nigeria lack access to intercalated degrees as obtainable in developed climes [28]. There is also a dearth of research exposures/opportunities as an integral part of their education thus resulting in mediocre Clinicians. Identical annotation was observed in our study where only 15% of medical students have participated in research and only 4.9% have been exposed to global health practices. The Nigeria medical curriculum therefore needs to be updated to include technological advancements, intercalated medical programs as well as mentoring of medical students in research.

Conclusion

Students showed preference for written exams and objectively structured clinical examinations (OSCEs) over the traditional long cases/clerkship examination. Majority of the students had experienced constructive criticisms from lecturers, and about 56.1% had frequent destructive criticisms. About 80.4% of students considered the classrooms teaching as inadequate, and about a third were dissatisfied with the ward round teachings. Clinical training in medical school is stressful, thus identifying and managing the factors that cause this stress is essential as making necessary adjustments in the curriculum will improve the quality of clinical education.

Declarations

Study Limitations

The study is limited by the recall bias of questionnaire-based studies. The relatively small study sample is also limitation as not all students volunteered to feel the online questionnaire.

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Conflict of Interest

None declared.

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