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Performance of medical students in paediatric examinations and associated factors.

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Abstract

A student who just enrolled in a medical school has several examinations to write and about six to twelve years of major examinations from the very first year of school to becoming a consultant paediatrician. Paediatrics is a major course which needs to be passed before qualifying as a doctor. Attaining this is a rather formidable task in any Nigerian university. High failure rates in this course have become an allegory or a myth. The aim of this present study is to determine the performance of medical students in paediatric examinations and associated factors. This is an observational prospective study involving 102 medical students seen at the paediatric departments of College of Medicine, University of Nigeria, Enugu Campus and 54 medical students from Enugu State University College of Medicine, Enugu. 126 (80.8%) of the students attended lectures regularly. One hundred and fifteen (73.7%) confirmed that ward rounds are very interesting and important. One hundred and thirty students (83.3%) admitted that performance in paediatrics examinations is poor and 147 (94.2%) students attributed this failure to clinicals .Eighty seven (62.2%) students preferred OSCE as a perfect replacement for clinicals.
It is concluded that performance of Medical students in paediatrics is poor and clinical have been pointed out as the major cause of this.

Keywords: Paediatrics; medical students; performance; Nigeria

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Introduction

High failure rates in paediatric examinations in most, if not all, medical schools in Nigeria have become proverbial. This high failure rate is not unique to Nigeria alone but occurs even in other parts of the world [1]. Weatheral et al [2] while criticizing the whole system of examinations in British Medical Education, portrays it rather as: "A trip to the Regent Park zoo which offers the visitors a remarkable panorama of biological diversity. There is even a worse failure rate in paediatric examinations in postgraduate examinations in Nigeria from year to year.

The performance of students is attributable to three major factors: health infrastructure of the country, standard of training in the medical colleges and methods of postgraduate training [3].

The health infrastructure of the country provides the foundation for medical education and training. It is surprising to note that we have completely neglected the importance of this factor. Godfrey [4] described the crucial role of health infrastructure in simple, yet very comprehensive terms: “Quality of graduate = quality of health care infrastructure”. It has also been noted that lecturers also have an important role to play in enhancing students’ performance in paediatrics. In a medical school in Britain, it was found that during a paediatric rotation, only 57% of students had a faculty member observe them throughout the entire process of meeting a child and family, taking a medical history, and doing a physical examination [5].

Christopher, in his letter to the editor, opined “In my day I think it was worse than that: I can’t even recall having a teacher watch me go through the entire process; generally, the students would watch the teacher, then go off and try

things on their own. Of course we weren't allowed to do anything involving needles and such without training and supervision (at least at first), but thinking back it is surprising that we were mostly left to ourselves" [5].

Another important factor that militates against performance of students in paediatrics is poor communication between the students and parents or caregivers. Communication is an essential part of an effective and positive consultation. Good communication skills are essential in building a bond of trust and respect between the doctor and his/her patient [6]. Effective communication skills have been shown to lead to better health outcomes following consultation between physicians and their patients. This includes more accurate identification of patients' problems, and a better understanding by patients of their treatment plans. Patient satisfaction is also positively linked to their perception of the quality of communication skills displayed by their doctor [7].

This study sought to assess the performance of medical students in paediatric examinations and associated factors. To the best of our knowledge there is a dearth of published work on this topic in the area and in Nigeria in general. It is hoped that this study may shed more light on the subject with a view to encouraging better approach in the training of medical students, especially in paediatrics, for optimal results. In addition, this study would also help in establishing baseline data for further studies.

Material and Methods

Study Area

The study was conducted among medical students in the departments of paediatrics of the College of Medicine, University of Nigeria, Enugu Campus and Enugu State University College of Medicine, Enugu. These institutions (and their respective teaching hospitals) are located about 20 km from the city of Enugu in south-eastern Nigeria and within the Enugu city centre, respectively. The sub-serving teaching hospitals receive referrals from various health facilities in Enugu state and the neighboring states of Anambra, Ebonyi, Benue, Imo and Abia.

Study Population

An observational prospective study involving 156 medical students of the College of Medicine, University of Nigeria, Enugu Campus and Enugu State University College of Medicine, Enugu, was carried out using convenient sampling method. All the students who are regular and who either passed paediatrics or had resit exam, who satisfied the inclusion criteria were consecutively enrolled.

Study Procedure:

A structured self administered questionnaire was used to collect information from the medical students in both medical schools. Information sought included socio-demographic characteristics, performance in paediatric examinations and associated factors.

Inclusion Criteria

Medical students who had had experience in this subject and those in whom informed consent was obtained were included in the study.

Exclusion Criteria

Fresh year five students, those who did not give consent and those unwilling to participate in the study were excluded.

Data Analysis

Data was analyzed with SPSS version 19. An initial frequency count of all variables was done and represented in tables. The mean and ranges of all the variables were calculated. The level of significance was set at $p \leq 0.05$.

Ethical Considerations

Ethical clearance for the study was sought from the Ethics and Research Committee of the University of Nigeria Teaching Hospital.

General objective is to determine the performance of medical students in paediatric examinations and the associated factors while the specific objectives are to determine the pass rate, failure rate and factors contributing to the overall performance of medical students in paediatric examinations.

Results

A total of one hundred and fifty six (156) medical students who had had experience in paediatric examination were enrolled in this study. One hundred and one are males while 50 were females giving a male, female ratio of 2:1. Five students were unspecific. The most common age group in this study was 20-25 years old which represents 38.5% of the study population. A majority of the students (82.1%) don't live in hostel. Tables 1 and 2.

Table 1. *Age and Gender of respondents*

Age	Frequency	% of Total
20-25	60	38.5
26-30	50	32.1
31-35	4	2.6
No response	42	26.9
Total	156	100
Gender of respondents		
Males	101	64.7
Females	50	32.1
Not specific	5	3.2
Total	156	100

Attendance of lectures, ward rounds and Quality of lecturers

Majority one hundred and twenty six 126 (80.8%) of the students attend lectures, 115 (73.7%) noted that their lecturers teach well. One hundred and fifteen (73.7%) confirmed that ward rounds are very interesting and important. Table 2

Table 2. *Attendance of lectures, ward rounds and Quality of lecturers*

Designation of respondents	Number	Percentage
No living in hostel	128	82.1%
No off hostel	4	2.6%
No address	24	15.3%
Total	100	
Attendence to lectures		
At times	25	16.0%
All the times	126	80.8%
Not at all	2	1.3%
No answer	3	1.9%
Total	156	
Do the teachers teach well?		
Yes	115	73.7%
No	19	12.2
Don't know	19	12.2%
No response	3	1.9%
Total	156	
Attendance of Ward rounds		
Boring	15	9.6%
Interesting	115	73.7%
Don't know	18	11.6
No response	8	5.1%
Total	156	100%

Table 3. *Performance in paediatrics exams and causes and Reasons for failure*

Performance	No.	%
Good	23	14.7
Bad	130	83.4
No response	3	1.9
Total	156	100.0%
Actual cause of failure	*No.*	*%*
MCQ	2	1.3
Theory	5	3.2
Clinicals (Long and short case)	147	94.2
No response	2	1.3
Total	156	100
Reasons for high failure of clinicals		
Examiners bias	93	59.6
Little time on clinicals	***13***	***8.3***
Unfair in awarding marks	14	9.0
Others	20	12.8
No response	16	10.3
Total	156	100

Performance in Paediatric exams, causes and Reasons for failure

One hundred and thirty students (83.3%) admitted that performance in paediatrics examinations is poor while 14 (14.7%) noted that performance is good. However one hundred and forty seven 147 (94.2%) students attributed failure to clinical, while 93 (59.6%) noted that reasons for failing clinicals are examiners bias and mood. Fourteen (9%) students saw examiners as mark misers while thirteen 13 (8.3%) students saw cause of failure as lecturers having little or no time for them in teaching clinicals. This is illustrated in Table 3.

Opinion on clinicals (Long and short case) and proffered alternative

Table 4 showed that seventy three (46.8%) students wanted long and short case to be replaced while 43

Table 4. *Opinion on clinicals (Long and short case) and proffered alternative*

Opinion on short case and long case		
Opinion	No.	%
Replace	73	46.8
Uphold	43	27.6
Droped	29	18.6
No response	10	6.4
What should be used to replace short and long cases?		
OSCE	87	62.2
Practicals	9	5.7
Models	8	5.1
No response	42	27.0
Who pass paediatrics more?		
Males	2	1.3%
Females	103	66.0%
Can't tell	51	32.7%

(27.6%) wanted it to be upheld and 29 (18.6%) wanted complete abolition of clinical. Eighty seven (62.2%) students preferred OSCE as a perfect replacement for clinicals while 9 (5.7%) wanted practical as a good replacement. It is noted with interest that females 103 (66%) pass paediatrics more than males 2(1.3%).

Discussion

From this study, it is noted that students had a high failure rate in paediatrics and clinical examinations (which involve long and short cases). The high failure rates in examinations are attributed to the relative lack of objectivity of assessment methods. It is important to state here that each assessment method has its own problems. The traditional long and short cases have been criticized most**.** Ex-

aminers bias and mood during long and short cases have been adduced as reasons for this failure. The reasons given above are similar to that in other studies [8,9].

More than half of the students wanted the long and short cases to be dropped and objective structured clinical examination (OSCE) introduced. Objective structured clinical examination (OSCE) was introduced in 1975 as a standardized tool for objectively assessing clinical competencies - including history-taking, physical examination, communication skills, data interpretation etc. It consists of a circuit of stations connected in series, with each station devoted to assessment of a particular competency using pre-determined guidelines or checklists [10].

The Success of OSCE depends on resources, number of students to be examined and adequacy of time and finance. Surprisingly, OSCE has also been criticized for lack of validity, objectivity and practicability. Evidences to show that many OSCEs may be too short to achieve reliable results with no clear cut standards set for passing an OSCE [10]. It is perceived that OSCEs test the students' knowledge and skills in a compartmentalized fashion, rather than looking at the patient as a whole.

Clinical examination involving long and short cases have been seen as the surest way to ascertain clinical competence, provided examiners bias could be eliminated. Kane [11] defined clinical competence as the degree to which an individual can use the knowledge, skills, and judgment associated with the profession to perform effectively in the domain of possible encounters defining the scope of professional practice. This definition highlights a key point about clinical competence appraisal. Evaluators are interested not only in how the clinician performs in observed situations (i.e. judging clinical performance) but also as grounds for generalizing about the practitioner's ability to perform a variety of other tasks in a range of similar clinical situations. These definitions are fulfilled in long and short case where the student gets close to the patient, interact with them and examine them closely. Bernhard et al [12] noted that when medical students are introduced to patient contact, communication skills, and clinical examination, they gain lots of clinical experience. Clerking of patients and thorough physical examination has been noted in Tel Aviv University as a single most important tool in imbibing skills in students [13]. This 8-week clerkship is taught in the third year and imparts to students a body of knowledge, skills and attitudes in child health as a basis for subsequent training in any field of medicine. At the end of the training period, the student is able to identify medical problems in the neonate, infant and child and then define those problems in terms of basic mechanisms of disease related to the process of growth and development [13].

From this study, majority of students attend paediatric lectures, they also noted that the lecturers are good and ward rounds interesting. Attendance of lectures, ward rounds and competence of lecturers have all been noted as important factors that enhance students' performance in paediatrics examination. They however pointed out that lack of infrastructure and distance of their hostel from the medical school could militate this. This was supported by the fact that almost all (82.1%) the students don't live in hostels. These findings were corroborated by Riggs et al [14] who noted that poor student lecture attendance could lead to low clinical science subject examination score.

Muhammad et al [15] noted that though lectures and presentations, conferences, discussions, and self-reading all contribute to the learning and grooming of in-training doctors and medical students, yet ward rounds remain a valuable tool for learning, particularly in the medicine specialties. Ward rounds represent a complex task requiring not only medical knowledge but also communication skills, clinical skills, teaching skills, patient management skills and team-work skills [16, 17]. They constitute the most effective means of providing learners with various tasks and roles that they would have to perform as doctors, including managing a team, the doctor-patient relationship, counseling of patients and their families, and breaking bad news.

It has been noted with interest, that female medical students perform better than their male counterparts' .Share hard work, female students always been around in ward rounds and lectures and resilience have all been given as reasons for these in this study. Melani and co-workers [18] noted the same trend. Though it was noted that brain volume of males are higher than females, yet differences in brain physiology between sexes do not necessarily relate to differences in intellect [19]. Haier et al [20] found that men and women apparently achieve similar IQ results with different brain regions, suggesting that there is no singular underlying neuroanatomical structure to general intelligence and that different types of brain designs may manifest equivalent intellectual performance. Cosgrove and colleagues [21] noted that though men have their gray matter volume in the frontal and parietal lobes, their IQ is not anyhow different compared to women who have theirs in the frontal lobe and Broca's area (which used in language processing)

It can be concluded from the above discussion that the high failure rate of our medical students in paediatrics despite good lectures and ward rounds is an omnious sign militating the whole system of medical education and the health infrastructure in the country. Painfully, a good number of the factors contributing to high failure rate are beyond the powers of the university. The University will however look for a way to maintain clinical (long case

and short case) and try as much as possible to reduce bias among examiners and also improve infrastructure.

The improvement in health infrastructure is of particular importance. Various measures to improve the objectivity and reliability of examinations have improved outcome to an extent but the situations still remains bad due to fact that the health infrastructure is not conducive to the quality of training. This has serious implications for those concerned with academics and teaching in this country. They will have to look beyond the curricula, training programmes and examinations in order to improve the output.

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