

## RESEARCH LETTERS

# ANALYSIS OF FINAL YEAR MEDICAL STUDENTS' EXAMINATION IN SURGERY

Editor,

Medical training involves training of undergraduate students in various specialties at the preclinical and clinical departments of the medical school. The training is for five years for students admitted after advanced level studies or six years for those admitted with secondary school qualification. An exit examination in Surgery is then taken at the end of the final year. Two examinations are conducted yearly, consisting of the main examination and the repeat examination three months later. To pass, students are expected to score at least 50% in the clinical part of the examination which includes long and short clinical cases, and also to score 50% of the total marks. The other aspects of the examination are the theory papers and the *viva voce* oral examination. Paper I of the written examination consists of multiple choice questions and short essays while paper II is the long essay evidence-based clinical questions. Each candidate is also subjected to oral examinations on the principles of surgery and surgical pathology. The clinical and oral examinations are conducted on the same day, after which results are computed and success or failure determined.

The purpose of this paper, therefore, was to determine the parts of the examinations with poor performance in the main and repeat examinations as well as compare gender performances and recommend necessary solutions. In order to address these issues, we prospectively studied the performance of final year surgery examinations of the medical students of the University of Jos, Jos, Nigeria over a 3-year period.

The study was conducted in the Department of Surgery of the University of Jos which is situated in the middle belt region of Nigeria. Approval for the study was obtained from the Jos University Hospital

Ethical Committee. All the results of the final Surgery examination from January 2004 to December 2006 were obtained from the records of the department and the Faculty of Medical Sciences and utilized for the study. Data obtained were the sex of the candidate and whether the candidates passed or failed papers I and II, long and short cases (and total of both), orals, continuous assessment, total score and the final result. Raw marks were not obtained and the matriculation numbers issued to each student at entry and registration were used to calculate the number of years each student spent before passing the final examination in surgery. The data was analyzed using Epi-info 2005 version 3.3.2 and Microsoft. Measures of significance were analyzed using  $\chi^2$  test with level of significance at  $P < .05$

There were 346 candidates at the final examination in surgery from 2004 to 2006. There were 256 males and 90 females. Eighty four females passed compared with 174 males ( $P = .000002$ , odds ratio of 6.6). A total of 316 candidates sat for the main examination out of which 245 passed compared with 30 who sat for the repeat examination out of which 13 passed ( $P < .00001$ ). The candidates had been in medical school for eight to 14 years with an average of 8.1 years. The best results (Table 1) were in the oral section of the examination (89.3% pass, odds of 8.4, odds ratio of 2.8), long case (87.3% pass, odds of 6.9, odds ratio of 2.3) and continuous assessment (85.5% pass, odds of 5.9, odds ratio of 2). The worst results were in the written sections of the examination with a pass rate of 38.4%(odds of 0.6, odds ratio of 0.2) in the multiple choice and short essays and pass rate of 43.1%(odds of 0.8%, odds ratio of 0.3) in the long essays.

**Table 1.** Performance of medical students in final surgery examination

Section of examination	Pass (%)	Fail (%)	Odds of passing	Odds ratio
Orals	309 (89.3)	37 (10.7)	8.4	2.8
Long case	302 (87.3)	44 (12.7)	6.9	2.3
Continuous assessment	296 (85.5)	50 (14.5)	5.9	2
Short case	279 (80.6)	67 (19.4)	4.2	1.4
Overall total	279 (80.6)	67 (19.4)	4.2	1.4
Clinical total	273 (78.9)	73 (21.1)	3.7	1.3
Paper II(long essays)	149 (43.1)	197 (56.9)	0.8	0.3
Paper I(multiple choice and short essays)	133 (38.4)	213 (61.6)	0.6	0.2
Final result	258 (74.6)	88 (25.4)	2.9	

Our main interest was to find out how students performed in the various parts of the final medical examination in surgery and the study showed that students did well in the clinical aspects of the exam but did poorly in answering written questions. Male students and repeating students also did less well in the examinations.

The good performance in the clinical aspect of the exam probably reflects the good attendance at clinical sessions by the students, the large volume of patients attending the hospital (thus improving exposure of students to patients) and the commitment of the clinical teachers to teaching and provision of clinical services. The best result was in the oral section of the examination (89.3% pass, odds of passing of 8.4). This may be due the factors discussed above. In addition, however, many examiners tend to concentrate on surgical emergencies and practical aspects, aimed at assessing if the candidates can practice safely. The candidates find this aspect easier to pass as they are more often than not around the accident and emergency unit which is busy with a wide variety of cases. It can be argued though, that the clinical section (including orals) of the exam has some element of subjectivity, depending on the perception of the examiner, the cooperation of the patient and diagnosis discussed. This individual variation, however, may not affect the overall performance of the candidate as a good candidate is still likely to pass. It is necessary to encourage them to continue to attend clinical sessions. This will help them not only to pass exams but to be good clinicians when they graduate.

The continuous assessment consists of clinical examination at the end of each posting and written examination at the conclusion of lectures on a course unit. At this point, the lectures they have just received are still fresh in their memories so they do well in the written sections. The last stage of the continuous assessment is usually the OSCE (Objective structured clinical examinations) which carries a lot of marks. This is currently most often used to assess undergraduate skills.<sup>1,2</sup> This, however, needs to be standardized in order to eliminate potential for bias.<sup>3</sup>

The poor performance was recorded mainly in the theory section of the examinations. The short essays and the multiple choice questions (MCQ) are usually broad, in-depth and evidence-based, thus requiring a deep and broad knowledge of the subject in order to pass. It thus assesses the candidates' ability to recall, recast, integrate and apply to solve evidence-based clinical problems. It will thus appear that the students are more clinically oriented and may not be paying much attention to deep theoretical aspects. Guessing may also be a factor as negative marking is usually employed in marking the MCQs. The poor outcome in the short essays may also be due to the same reasons. The students need to be encouraged

to pay attention to details while reading. They will also need more tutoring on answering MCQ and writing essays, and will need more practice. Well structured MCQs and OSCE have replaced clinical and oral examinations as more objective tools of assessment in medical schools in many countries and should be considered in places such as ours where it is not yet the practice.

Gender appears to play a role in the exams as the female students are about seven times more likely to pass than their male counterparts. The female students have been noticed to be more dedicated to their studies and are present more often. They may also have less social and financial stresses and are also thought to be better funded by relations and friends. The females generally have better communication skills which enables them express and defend their points better. Knowledge without good expressive ability may be detrimental in especially clinical and oral exams. Examiners, however, should be conscious of these differences and award marks mainly based on points expressed and not necessarily on the mode of expression, though important. Some of the male students are known to be engaged in more extracurricular activities e.g., sports and are also known to do menial jobs e.g., bricklaying to supplement their income. Many of them are solely responsible for their financial commitments in school. Only few students in our environment are on any form of scholarship.

Hamilton<sup>4</sup> has noted that failure in clinical examinations may have a sex related or cultural basis. This was related to the fact that there is a current emphasis on patient centered care and women are more naturally inclined to render empathetic care than men<sup>4</sup> and empathetic care may present a considerable difficulty for students from more paternalistic cultures.<sup>5-8</sup> Yates and James<sup>9</sup> in a study to identify potential predictors of undergraduate students who struggle during their medical training found the male gender to be a significant factor, though less so than other identified factors and suggested that males might do less well on the Nottingham course, a fact they intend to further study. Females have been noticed from literature review to perform better than males in their medical training.<sup>10</sup> It has been observed in Nigeria that men perform much better than women in the preclinical basic sciences courses, but during the clinical years the women close up the gap or even completely take over the scene.<sup>11</sup> The report explained that female medical students become more serious during the clinical studentship than the men who have a whole load of extracurricular commitments. Women also have their own extracurricular passions, but they hardly feel these pressures like the men do, as they adapt more easily to the pressures of life. The author also thinks that women are generally more ostentatiously fearful

than men which makes them study more seriously than the average man would. Moreover, the author believes that due to the feminine appeal, examiners, who are mostly men, tend to be more lenient on female medical students during the bedside oral exams.<sup>11</sup> However the case, it is necessary to encourage male students to pay more attention to their studies. Their financial status also needs to be improved through scholarship and other schemes and probably provide rebates for the very poor to enable them spend less time raising funds.

The candidates had been in medical school for 8-14 years (mean 8.1 years). This is a long average duration, in a school with duration of training of five years for students admitted after advanced level studies or six years for those admitted with secondary school qualification. This long stay has a tendency to cause diminishing returns. Due to the long duration also, financial stresses set in and the students are further diverted by the need to raise funds. It is a known fact that some students are subject to additional stresses, such as balancing commitments and lack of leisure time.<sup>12</sup> They also face extra financial pressures.<sup>13</sup> The period at medical school represents a considerable personal investment of time and money for the student.<sup>9</sup> Providing scholarships and enhancing industrial harmony will benefit students, as well as more seriousness from students.

The poorer result in the repeat as opposed to the main examination may be due to the fact that the best students would have passed, students are at their best before the main exam and there may be a psychological fear of failure, knowing that failure means additional year in school, and additional financial and other stresses.

We conclude that final year students do well in clinical aspects of examination but poorly in theory part, for which they require more guidance and practice. Male and repeating students do less well.

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# PATTERN OF DENTAL DISEASES AMONG SUBJECTS ATTENDING A SHORT-TERM MEDICAL MISSION PROJECT IN UROMI, NIGERIA

Page | 69

Editor,

Dental care is now a common component of medical missions organized by non-governmental or faith-based organizations. Short-term missions engage volunteer health care workers who operate for short periods mostly in deprived communities. Their activities are often sporadic, irregular and difficult to follow up. They are also limited by availability of dental supplies, quality of volunteers and political considerations.<sup>1</sup> Nevertheless the basic epidemiological information gathered can aid in the planning effective and efficient primary oral health care services which are urgently required in Nigeria,<sup>2,3</sup> hence the need to conduct this survey.

Subjects attending a one-week free health care project were seen in local dental clinic. Examination was conducted according to World Health Organization criteria<sup>4</sup> using dental materials, sterilizing solution (Cidex(R))<sup>1</sup> and personal protective equipment (PPE) provided by Pro- Health

International. A structured self-administered questionnaire was filled by participants and consent was implied. Data gathered was analyzed at University of Benin Computer Center using SPSS 10.0.

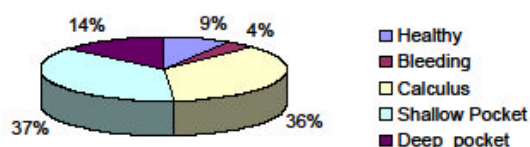
Seventy-eight subjects were seen with a mean age of  $33 \pm 15.6$  years. Age range was 6-75 years (Table 1). Fifty of the patients (64%) were females. The age group 16-30 years (37.2%) accounted for the highest proportion of the clinic attendees. The total mean Decayed, Missing and filled teeth (DMFT) was  $3.3 \pm 4.1$ . Only 28% were caries-free (Figure 1). Females had a higher DMFT ( $3.7 \pm 4.4$ ) than males DMFT ( $2.6 \pm 3.4$ ). The percentages of healthy gum, bleeding on probing, calculus, shallow and deep pockets of 9.0%, 3.8%, 35.9%, 37.2% and 14.1% respectively. Well water (87%) accounted for the major source of drinking water. Only about 18% had knowledge of dental caries, 10% of periodontal disease while nearly 30% claimed a previous dental visit/ contact with dental personnel.

**Table 1.** Previous Dental Visit by Age Distribution

Age (years)	Previous visit to dentist		Total (%)
	Yes (%)	No (%)	
6 -15	3 (3.8)	10 (12.8)	11 (14.1)
16 – 30	8 (10.3)	21 (26.9)	29 (37.2)
31 – 45	9 (11.5)	15 (19.2)	24 (30.8)
46 – 60	3 (3.8)	6 (7.7)	9 (11.5)
61 – 75	-	5 (6.4)	5 (6.4)
Total	23 (29.5)	55 (70.5)	78 (100)

$P = .562$

**Figure 1.** Pattern of periodontal diseases among subjects



The results indicate poor oral health of the participants and reflect not only the increased disease burden in those who seek free dental care offered by short-term mission services but also lack

of access to primary oral health care, an integral component of Primary Health Care (PHC).<sup>5</sup> The use of untreated well water underscores the need for its fluoride analysis.

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