Performance of students in the final examination in paediatrics: importance of the "short cases"

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A wide variety of examination types is in use in the assessment of students' achievements at medical school. They include written tests such as the essay type, short answer questions, and multiple choice questions (MCQs), which constitute the standard form of knowledge testing; and the "long case" and the "short cases" which assess clinical skills. Some examiners view the long case, the short cases, and the viva as being more useful than the other techniques. Recently, the objective structured clinical examination (OSCE), has received wide acceptance.

The Department of Paediatrics at the Faculty of Medicine, Kuwait University organises training in paediatrics for medical students during their second clinical year. One group of students follow a clerkship of three months duration in paediatrics, while others enter comparable groups in obstetrics and gynaecology, psychiatry, or community medicine. On completion, students take an "end of block" examination, which consists of written (50 MCQs of "best answer" and "single true/false" types with no negative marking) and clinical components. The two sections contribute 12 and 18 marks, respectively, to the final examination which is administered to all groups at the end of the year. In the final examination the written section offers candidates 100 MCQs (14 marks) and four out of five essay questions (14 marks). The long case in the clinical section (21 marks) is of 60 minutes duration, and requires history taking and physical examination of a patient. The candidate is then examined on the case for 30 minutes. The two short cases (14 marks), where the candidate is asked to show a particular clinical skill, such as examination of the abdomen or heart, and data interpretation (7 marks) are of 10 minutes duration each. Unlike in the long case, the examiner closely observes the candidate’s performance at all stages in the short cases. The clinical components (both block and final) constitute 60% of the final mark. Final grades are expressed as F, C, C+, B−, B+, A−, and A, corresponding to score ranges of <60, 60–69, 70–79, 80–83, 84–86, 87–89, 90–94, and 95–100, respectively. Candidates who score 85% and above, or just short of 60% (F) are given an oral examination (viva), for a possible distinction pass (A+), or a passing grade, respectively.

Some of the local examiners feel that the short cases discriminate candidates more effectively than the long case, and that this aspect needs to be reflected in the weighting of the different examination components. The objectives of this investigation were to: (1) determine which component of the final examination most effectively identifies the competent student; and (2) assess whether the performance of the candidates in the examination is gender related.

METHODS

The records of candidates’ performances during the period 1991 to 1999 were reviewed. The individual scores that each student obtained in the different components of the final examination were correlated with the aggregate score. The mean difference between the scores for each component and the aggregate scores was computed.

The candidates were divided into three groups, based on the aggregate score: ≥80% (group 1), 70–79% (group 2), and <70% (group 3). The deviations of the individual scores from the aggregate score in each component of the final examination of those in group 1 and group 3 (the relatively high ability and the relatively low ability candidates, respectively) were analysed.

The grade distribution was analysed on the basis of gender. Pearson’s correlation (r) was calculated to assess the correlation between scores of the individual components and the aggregate score of the final examination; the χ² test was used to analyse the significance of differences; χ² for trend was used to investigate the trend in proportions between males and females; and Student’s t test was used to analyse differences between means.

RESULTS

Of 356 students (99.7% valid cases), 160 (44.9%) were males and 196 (55.1%) females.

Abbreviations: MCQ, multiple choice question; OSCE, objective structured clinical examination
The correlation \( r \) between the aggregate score and the short cases, the MCQs, the long case, and the essay were 0.77, 0.71, 0.68, and 0.67 respectively (significant at the 0.01 level).

The mean score deviation of \(-0.43 \pm 7.87\) between the scores in the short cases and the aggregate scores showed no significant difference, while the corresponding mean scores of each of the other components of the examination were highly significant (Table 1).

The mean score deviation between the aggregate score and the short cases score was the lowest in the high ability group (group 1). In the low ability group (group 3), the lowest mean deviation score was observed between the aggregate score and the score for the essay section.

### Performance and gender

Table 2 shows the distribution of grades achieved by the male and female students. The highest proportion of students (males as well as females) fell within the C+ grade. However, there was a small but significant difference (\( \chi^2 \) for trend in proportions = 4.339, \( p = 0.037 \)) in favour of the females.

### DISCUSSION

In general, candidates who performed well in the individual components of the final examination received higher scores for the overall performance. This suggests that the different sections of the examination assessed similar or related competencies. In addition, the substantially high correlation coefficient between the scores for the short cases and the overall score indicates that the performance in the short cases is a better determinant of the overall rank than the scores in the other sections.

A review of the aggregate score and the scores obtained in the individual components of the final examination on the basis of ability levels revealed that students who are competent on an overall basis had acquired satisfactory clinical skills. However, the less competent candidates showed poor clinical skills, although their level of knowledge may have been satisfactory.

### References

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