

Comparative study of effects of semester examinations on Students Performance

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ABSTRACT

This retrospective study compared the performance of medical students in semester examinations and final examinations. The students performance was grouped by the result and analyzed. During the 3 yr analyzed, overall 533 students had an average score of 58.72% (SD 9.9) in the semester examinations and 64.31% (SD 9.9) in the final examinations. Regression analysis showed a non significant correlation ($r=-0.27$, $P=0.16$). We did not found statistically significant correlation between semester and final examinations scores for passed 405 students ($r=-0.24$ $P=0.14$) and failed 128 students ($r=-0.26$ $P=0.13$). Regression analysis showed a significant correlation ($r=0.64$, $P<0.01$) between semester and final examinations in distinction students (>70%). Final examinations scores were significantly higher ($P<0.01$) than semester examinations scores for each of the groups when analyzed by two way ANOVA. For overall, passed and failed students the lack of statistic correlation and two way ANOVA result suggest that students performance was higher in final examinations; and for distinction

students, the strong correlation between terminal and preliminary examinations indicates that competent student performance was independent of evaluation. The results on gender analysis correlates with global data on better performances by female counterparts. Periodical semester examinations had favourable effect on final examinations.

Key words: Medical education, Student assessment, Semester examination, Final examinations.

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INTRODUCTION

The examination reforms has become crucial to all progress in India and has to go hand in hand with the improvement in teaching. There are four major aspects of education reforms, viz., internal evaluation, grading system, question banks and national examination. Assessment and evaluation form an integral part of the total evaluation process. The existing examination is not only concerned with educational institutes but also a major issue in the minds of parents. It is essential that during and at the end of a course of study both the teacher and the taught should evaluate how far they have succeeded in the attainment of the objectives of teaching and learning. Assessment and evaluation is a continuous activity which should be designed simultaneously with curriculum development.¹ A well designed system of assessment and evaluation is a powerful educational device.² Evaluation of students on the basis of external final examination is in vogue in all the teaching institutes. The present type of learning and evaluation method subject the students stress and fear. The percentage of failure in the system is very high with the result that student is likely to resort to malpractice to secure a pass.³

Examination acts as motivation for pupil and teachers. When the Oxford University held the first examination in 1958, it said that examinations would give stimulus to scholars and teachers and would afford an evidence to public how far the effort of both had been successful.⁴ Now passing the examination has become as a matter of fundamental right. The national policy on education, Government of India 1968 mentioned that the major goal of examination reforms should be to improve reliability and validity of examinations and to make evaluation a continuation process helping the students to improve their level of achievement relevant to the needs of society.⁵ Central board of secondary education (CBSE) has introduced the system of grades instead of marks.

The continuous internal assessment and evaluation system is a type of teaching learning activity.⁶ It allows the student to study his valued answer scripts, to discuss them with teachers, to seek clarification on the basis of

assessment and to obtain guidance for improvement.⁷ This acts as an incentive to learning and help the students to plan their studies punctually. This system takes into account such abilities of students as his initiative, discipline, quality and achievement. The final assessment in any subject should be made upon the result of a large number of periodical tests and assignments.⁸ Assessment of learning is one of the more difficult and time consuming aspects of education. In pharmacology, instructions in institutes and knowledge is usually what is assessed. Final examination result is a form of summative assessment which is the result of efforts in terminal and preliminary examinations.¹¹ Students score in one format may not be tightly correlated with another format.¹³ The education reforms recommends not to have unit test periodical examination till standard VIIIth and replace them with formative assessment. This involves developing personality, communication skills and dialogues. Teachers should carry out formative assessment on regular basis via oral exams, interviews, group discussions, project work and open book exams.

AIMS AND OBJECTIVES

To study the effect of semester examinations on final examinations with focus on gender difference.

MATERIALS AND METHODS

It is an observational, retrospective study that utilizes sample 533 second MBBS students of (181), (178), (174) batch. The study was carried out at B.J. Medical College Pune after approval from ethical committee. The Pharmacology duration span of three semesters each of 24 weeks. The course contents include lecture and practical sessions including seminars and tutorials on general pharmacology, autonomic nervous system, cardiovascular system (first semester) central nervous system, gastrointestinal tract, blood, autacoids, respiratory system, endocrine system (second semester) chemotherapy, immunotherapy, rational drug use,

essential drug list, P-drug (third semester). The written theory paper consisted of two components part-I MCQ where four options are given and the single best answer was to be picked; part-2 theory paper BAQ (5 out of 6) LAQ (2 out of 3). The MCQ was timed at 20 minutes for 20 questions with 10 marks. The BAQ and LAQ was timed at 130 minutes for 40 marks. Every effort was made to eliminate examiner's bias when the theory paper was evaluated. The students were grouped as: Group1: Overall students performance, Group2: Passed >50% marks, Group3: Distinction scored>70% marks, Group4: Failed<50% marks.

The batchwise performance in first semester, second semester and final examinations was collected. The information was categorized as per groups: overall, passed, failed, scored >70%. The data was analyzed statistically to find out primary outcome correlation between semester and final examinations. During the period of this study, item analysis was not performed on the MCQs. Data on student performance was presented such that identification of individual performances was impossible, complying with the requirement of the data protection act. Pearson's correlation coefficient (r value) between terminal and preliminary examination was estimated by using Pearson's product moment method. Preliminary scores were compared with terminal scores by two way ANOVA test. In all analysis, P -value<0.05 was considered significant.

RESULTS

Analysis of the data revealed no statistically significant differences in students performance in the 3 yrs studied; hence, the respective marks were combined and analyzed. We did not found statistically significant correlation between semester and final examinations scores for overall 533 students ($r=-0.27$, $P=0.16$), passed 405 students ($r=-0.24$ $P=0.14$) and failed 128 students ($r=-0.26$ $P=0.13$). It indicates that there was no correlation between terminal and preliminary scores in these groups with higher performance in preliminary examination when analyzed by two way ANOVA. Regression analysis showed a significant correlation ($r=0.64$, $P<0.01$) between semester and final examinations in distinction students. It indicates that semester examinations had significant role in final examination performance for overall, passed or failed but however did not had significant role in distinction students. Final scores were significantly higher ($p<0.01$) than terminal scores in all groups when analyzed by two way ANOVA test (Table 1).

Gender differences were analyzed for 533 students (338 male, 195 female). In the first ,second semester and final examinations 57.35%, 58%, 61.21% of female student passed compared with 42.65%, 42%, 48.25% male passed. ($P<0.001$). Female student consistently scored better than their male counterparts (Table 2).

DISCUSSION

No statistically significant correlation was found between semester and final examination who passed, failed or overall students indicating that repeated periodical semester and unit test examination has beneficial effect. We found statistically significant correlation in the performance of distinction student between semester and final examination. Highly competent students who performed well in the semester examinations were also likely to do well in the final examinations. We interpret this to mean that the more competent students had unique strength of punctual studies, strong factual recall abilities, initiative, discipline, quality work and achievement and therefore they can perform well in preliminary examination even without getting repeated input from periodical semester or unit test examination. We recommend to have future study with large sample size. As institutes modify their assessment approach, this type of difference in performance can have a significant impact on final grades earned in a course.¹⁵

The scores on the semester examinations were much lower than would be expected. The minimum performance for passing varies from 50% to 70% of different schools and universities.¹⁴ Despite the different scales, internal and external review of curriculum and student performance have emphasized the validity of the grading schemes using the standard settings, particularly when determining pass/fail threshold.¹⁵

CONCLUSION

No correlation was found between semester and final examinations for overall, passed or failed students. A significant correlation was seen between semester and final examinations in distinction students. It indicates that semester examinations don't have significant role in students who scored >70%. There was no correlation between semester and final examinations for overall, passed or failed students. Final examination scores were significantly higher than semester examination scores in all groups. The semester examination plays an important role for improvement in final examinations. The overall higher performance in final examination indicates that without semester examination, passed students percentage will get decreased. Semester examination should be there, that makes the examination pattern simple and also decreases the students stress and anxiety.

What is already known to this topic

- Semester examinations and its role in improving the students performance has controversy.

Table 1: Semester and Final score for overall students and those who passed, failed or distinguished

Groups	No. of students (n)	Semester score (%)	Final score (%)	Semester versus Final score	
				Pearson's correlation coefficient (r)	P-value
Overall	533	58.72	64.31	-0.27	0.16
Passed	405	52.85	57.27	-0.24	0.14
Failed	128	36.14	44.31	-0.26	0.13
Distinction	70	70.03	74.21	0.64	<0.01

Table 2: Differences in student performance in semester and final examination

Examination group	Male student passed (%)	Female student passed (%)	P- value
First semester	42.65	57.3	$P<0.001$
Second semester	42	58	$P<0.001$
Final	48.25	61.21	$P<0.001$

What this study adds

- No correlation was found between semester and final examinations for overall, passed or failed students.
- This study indicates that a significant correlation is seen between semester and final examinations in distinction students. This suggests that in a batch of highly competent students selected by a very competitive tests conducting periodical semester examinations may not be necessary.
- Final examination scores were significantly higher than semester examination scores in all groups.

CONFLICT OF INTEREST

The authors do not have any conflict of interest financial or otherwise.

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