



Research Article

Assessing the performance of 2nd MBBS students in pharmacology: A corelational study between various parameters of assessment and the final summative examination outcome, in a medical college in north India

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Abstract

Background: Assessment and evaluation is a continuous activity which should be designed simultaneously with curriculum development. Internal assessment plays prominent role in educational process as assessments are educational tools that help teachers to evaluate students' performance and also serve to motivate and help student to structure his academic effort.

Methods: A retrospective, record based, descriptive study was conducted over a period of three months in a medical college in north India by retrieving records of routine assessment and final summative examination based students' performance in pharmacology for four batches (2013-2016). Statistical analysis was performed by Pearson's correlation to observe the correlation between internal assessment scores and final summative examination.

Results: A clear cut correlation between internal assessment marks and final summative examination was observed to be significant, which means continuous assessment has important role in final examination performance.

Conclusion: The study indicates that internal assessment and final summative examination have a strong correlation though not absolutely straight. The study underlines the need for establishing protocols for conducting internal assessment programme as it is a good indicator of academic performance of MBBS students.

Keywords: Internal assessment, indicator, performance, MBBS students, curriculum.

Introduction

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 In view of advances in medical sciences and technology, periodic updating of curriculum is necessary with proper assessment of students as per the standard guidelines of MBBS Course. The continuous internal assessment and evaluation system is a type of Teaching Learning activity.³ Assessment of learning has always been a difficult yet an essential component of an educational programme. Medical student's assessment has received a lot of attention recently as it is an educational tool that helps teachers to evaluate student's performance and also serves to motivate and help student to structure his academic effort.^{4,5} Also it is a deciding factor whether performance of student under standard conditions can predict his/her future performance in final summative examination.

The goal of continuous assessment is to monitor students learning, to provide ongoing feedback that can be used by teachers to improve students skills such as development of oral and written communication skills and study skills as well as important goals specific to the paper. It helps students to identify their strength and weaknesses and target areas that need improvement. Also it helps faculty to recognize where students are struggling and address to their problem immediately. Comparative evaluation of students' learning is done at the end of an instructional unit/session by comparing it against a standard or bench mark that comes under summative assessment e.g. send-up examination. Summative assessments have high point value. Although continuous formative assessment constitutes an integral part in the curriculum but the 'pass/fail' certificates are based to a great extent on student's performance in the final summative examination which consists of written papers, viva-voce and practical exercises.⁶

The purpose of this study was to identify internal assessment as predictor of academic performance of 2nd MBBS students using internal assessment and final summative examinations in pharmacology subject as the variables for assessment of prediction.

Methods

The study was conducted over a period of 3 months from March 2017-June 2017 in the Department of Pharmacology in a medical college in North India. It was a retrospective, record based, descriptive study conducted by retrieving records of students' performance in routine assessment and final summative examination in pharmacology for four regular batches from 2013-2016.

The internal assessment records of students in theory (written +viva-voce) and practical were obtained from score record register maintained by department of pharmacology. The score records of students who appeared in 2nd professional final examination in pharmacology of four batches were obtained from student section of the college after seeking permission from college authority and ensuring confidentiality of individual student's score. Marks obtained by students in theory (written+viva-voce) and practical components of internal assessment and final summative examination were reviewed in order to observe the correlation between two modes of evaluation, the way they are practiced. Written examination consists of structured essay type questions and short notes. In viva-voce examination student is assessed by four examiners i.e. 2 internal and 2 external. Viva-voce in our setup formed a part of theory component of each progress as well as final summative examination for all batches. In order to pass a candidate must obtain 50% marks in aggregate with minimum of 50% marks in theory and 50% marks in practical examination.⁶ Records for 385 students from four regular batches were retrieved. Therefore records of 94 students from batch 2013, 97 students from batch 2014, 98 students from batch 2015 and 96

students from batch 2016 constituted the study sample.

Data was anal used using Statistical Packages for Social Sciences (SPSS), version 17. Pearson’s correlation coefficient was calculated to determine the correlation between internal assessment and final summative examination. The level of significance was taken to be $P < 0.05$.

Results

The marks of each undergraduate student in each batch were taken into account. The internal assessment consisted of 30 marks (15 each in

theory & practical) and Final summative i.e. 2nd Prof. MBBS examination had 150 marks (100 & 50 in theory and practical respectively). Viva-voce marks contributed 20% Of total 100 marks in theory. The relation between internal assessment and final summative examination for each batch was established by using Pearson’s correlation coefficients for theory as well as practical components. The results are detailed in figures 1- 8. There is a clear cut correlation between internal assessment and final summative examination although the correlation is not significant statistically.

Figure1: Comparison of internal assessment vs final summative examination (Batch 2013 Theory)

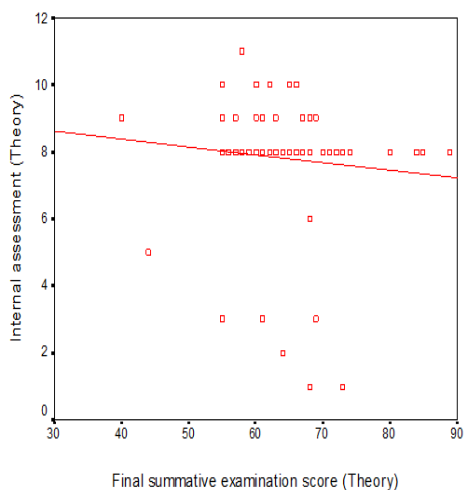


Figure.2: Comparison of internal assessment vs final summative examination (Batch 2013 Practical)

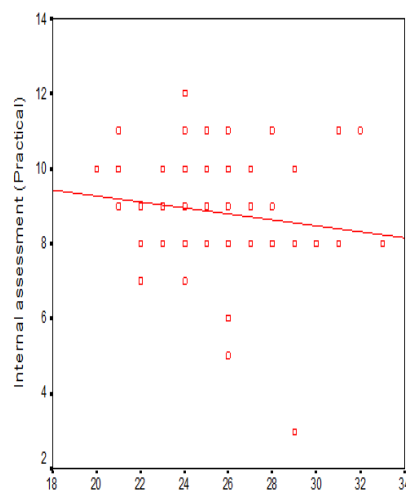


Figure3: Comparison of internal assessment vs final summative examination (Batch 2014 Theory)

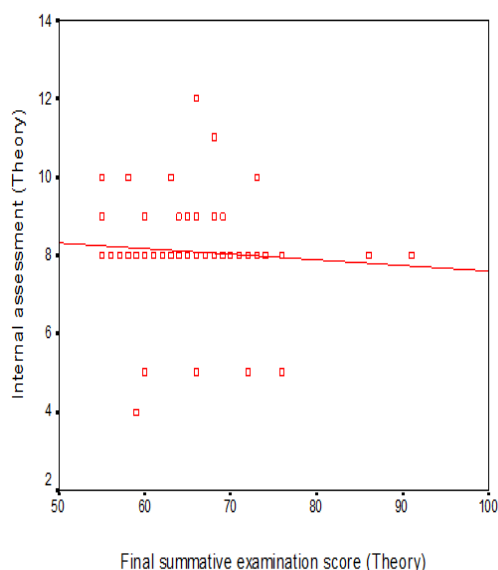


Figure4: Comparison of internal assessment vs final summative examination (Batch 2014 Practical)

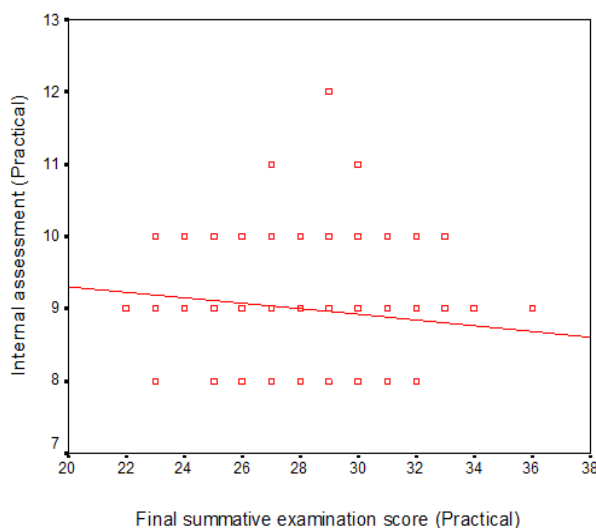


Figure 5: Comparison of internal assessment vs final summative examination (Batch 2015 Theory)

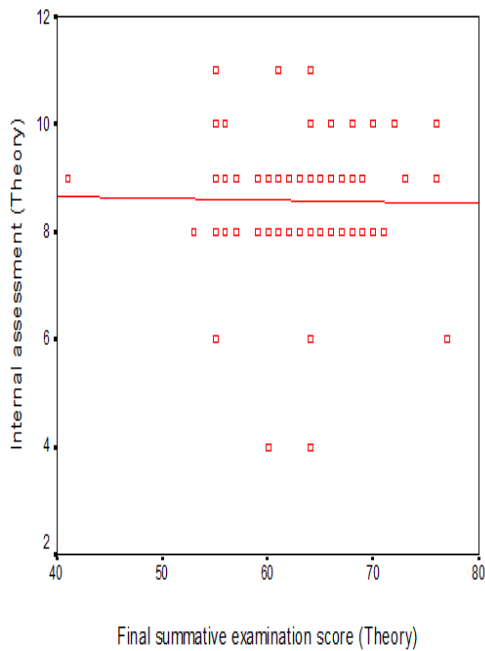


Figure 6: Comparison of internal assessment vs final summative examination (Batch 2015 Practical)

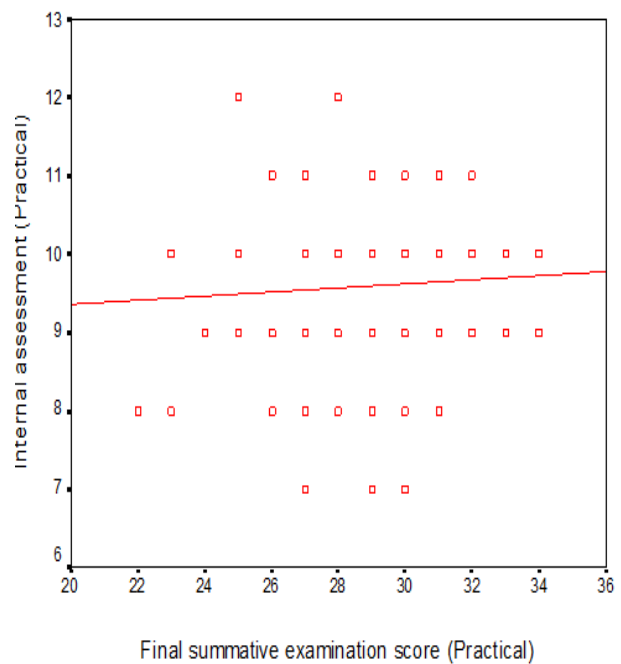


Figure 7: Comparison of internal assessment vs final summative examination (Batch 2016 Theory)

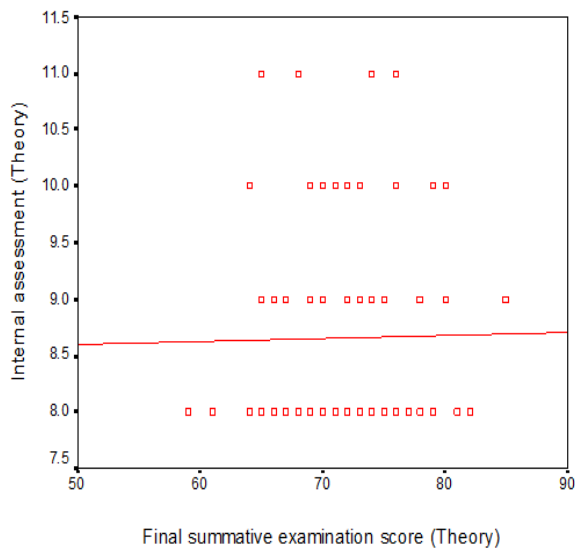
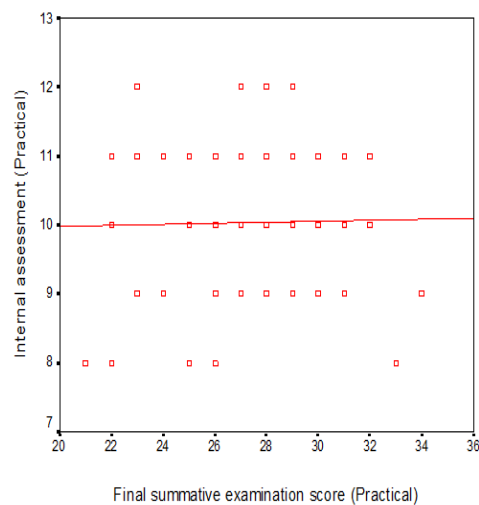


Figure 8: Comparison of internal assessment vs final summative examination (Batch 2016 Practical)



Discussion

Internal assessment results have been known to predict the outcome of final summative examination results.⁷ A relationship was observed between internal assessment and final summative examination performance in the current study. The importance of continuous assessment reveals that the final score of the students is strongly related to their performance all through the preclinical years

and that the final score is not an accident. The current study therefore points to the importance of continuous assessment in medical curriculum. Not only does it help to evaluate a student on regular basis but it also places less emphasis on pure memory (particularly comparative short-term memory) and correspondingly more emphasis on worthwhile learning in the deepest sense of the word.⁸ Continuous assessment encourages regular,

systematic study and discourages last-minute cramming thus rewarding students who work steadily and conscientiously throughout their courses. It enables on-going monitoring of students' performance to take place, it also provides early warnings about students having problems with a subject thus enabling appropriate remedial help to be provided in time for the students to improve.⁹ Practical examination was the least predictor of performance in the professional examination. Therefore, even though practical examination is important, performance does not well predict the overall performance. The correlation of practical in the overall score in this study is lower than that reported by Adeniyi *et al.*⁹ Learning styles (visual, aural, read/write, kinaesthetic and other multimodal processes of learning), demographics (age and gender) and entry qualifications are some of the independent variables in this study that were not taken into account. Previous studies by Ghosh *et al.*,¹⁰ Oyebola *et al.*¹¹, Moqattash *et al.*¹² and Mujeeb *et al.*¹³ observed that the assessment had not been taken into account as an integrative modality of evaluation. This is perhaps the first study in our state which shows a definite correlation between continuous evaluation and the final examinations at the end of 2nd MBBS Pharmacology curriculum in the backdrop of the existing medical education system.

The examiner training is one of the promising areas of research. Medical Council of India made it mandatory for all medical colleges to establish Medical Education Units in order to enable faculty members to avail Medical Education Technology for teaching through faculty development programmes. Personality variables effecting viva-voce and practical examination scores might be second area of research. In order to justify the education technique for large number of candidates, more research is needed on what is being measured till now. Whether it is students' performance in practicals, written examination or viva-voce examination it improves with level of

medical training which remains another area of concern which needs immediate attention.¹⁴

Conclusion

The present study revealed a correlation in the performance of medical students in internal assessment and final summative examination in 2nd Professional MBBS in subject of Pharmacology although relation is not significant statistically, thereby underlining the need for establishing protocols for conducting internal assessment and laying emphasis upon the number of variables influencing the outcome e.g. assessment attitudes, communication skills, ethics, interpersonal skills and medical educational technology through faculty development programme in order to improve the level of performance in continuous assessments as well as in the final summative examination as any single assessment tool might not fulfill all aspects of assessment in the existing system.

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Declarations

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Conflict of interest: None declared

Ethical approval: Approved by institutional Ethics Committee

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