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ASSOCIATION OF INTERNAL ASSESSMENT WITH FINAL RESULT OF SECOND PROFESSIONAL MBBS EXAMINATION

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ABSTRACT

Objective: To explore whether the performance of a 2nd year MBBS student in subject of physiology by continuous assessment method as determined by internal assessment correlates to the final summative evaluation in 2nd professional examination.

Study Design: Cross sectional analytical study.

Place and Duration of Study: Army Medical College, Rawalpindi, from Jan to May 2017.

Material and Methods: Data pertaining to the result of 2nd Professional MBBS examination and internal assessment in the subject of Physiology of the whole 2nd year MBBS class was used making a total sample size of 173. Sample size was calculated using the software G Power version 3.1.9.2. Data were analyzed using SPSS version 23. Mean and standard deviation were calculated for numerical variables. Correlation between marks of 2nd Professional examination and internal assessment was calculated using Pearson Correlation. Association between internal assessment and the result of 2nd Professional examination was computed using Chi Square test and Odds ratio. Alpha value was kept at 0.05.

Results: There were 101 (52.4%) male and 72 (41.6%) female students out of total 173 with a mean age of 20.01 ± 0.69 years. Total marks of 2nd professional examination and internal assessment were normally distributed with mean values of 126.43 ± 17.56 and 36.79 ± 5.9 respectively. Results of the present study reflect significant correlation of 2nd year MBBS professional result with the internal assessment.

Conclusion: A definitive correlation is found between the internal assessment performance and the summative final profession result in 2nd year MBBS students.

Keywords: Internal assessment, Professional exam, 2nd year MBBS class.

INTRODUCTION

Assessment and performance of a student is to be evaluated through examination to assess the level of learning the learner has attained during the conduct of a specific curriculum. It is mandatory to assess a learner not only to ensure the attainment of a level of knowledge required at a particular point in the course of a curriculum but to keep a constant check on the teaching and evaluation tools in order to review and update them according to the needs of learners[1]. Curriculum refers to a formal layout comprising of educational activities offered to the students by the institution in the allocated time however, the skills and techniques are learnt during the commencement of the course[2]. Curriculum development is the foundation stone to aim at the level of learning the student should attain over a stipulated time. Periodic updating of a curriculum is imperative keeping in view the advances in the medical education. Frequency of examination throughout the year differs in different institution and depends solely on tools of examination defined by the faculty and university[3]. The examination systems are formulated to assess whether the level of learning aimed was fulfilled and attained. Various methods are employed to assess the learning of students which include internal assessment, term tests, modular examinations and final professional examinations[4]. Internal assessment is form of the continuous assessment of the student which is the summative projection of performance of the student during various examinations held

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throughout the academic year which include the problem based learning sessions and modular examinations[5]. It is cumulative, regular and comprehensive and spans the performance of student throughout the academic year[6]. The internal assessment has been classified as either formative or summative, it employs the involvement of multiple examiners in the conduct of different parts of the exam. The multiplicity of examiners and meticulous record keeping of results ensure transparency of the examination and overcomes the element of bias. The conduct of internal assessment involves conductance of assessment, compilation and declaration of results. The students are given access to study their marked answer scripts and identify their weakness's and seek guidance from the faculty for future correction of their problem areas in that subject[7].

Predictive validity is a subtype of criterion-related validity, where the criterion is a future test, i.e. university summative examination. If good score in internal assessment predicts a good summative score and vice versa, then it indicates that internal assessment has good predictive utility. In medical education, most concepts are constructs. A construct is a collection of inputs/ evidences which might include content-related evidence, criteria-related evidence, reliability and other related evidences that contribute to validity. The use of multiple methods including subjective and objective methods, blue printing, multiple teachers and day-to-day assessment provides construct-related evidence for validity of internal assessment[1].

The first examination was held in Oxford in 1958 which was targeted to ensure delivery of a stimulus to students as well as teachers culminating in withdrawing an evidence to the public about the level of success attainment at both levels[8].

The objective of the present study was to explore whether the performance of a 2nd year MBBS student in subject of physiology by continuous assessment method as determined by internal assessment correlates to the final summative evaluation in 2nd professional examination.

MATERIAL AND METHODS

This cross sectional analytical study was conducted at Army Medical College, Rawalpindi, from from January to May 2017 after getting formal approval from Ethical Review Committee of the institution. Sample size was calculated using the software G Power version 3.1.9.2. Keeping the values of effect size as 0.5, alpha as 0.05, beta as 0.8 and allocation ratio N2/N1 as 1.0 for a two tailed Pearson's correlation test, a sample size of 132 was calculated. However, we used data pertaining to the result of 2nd Professional MBBS examination and internal assessment in the subject of Physiology of the whole 2nd year MBBS class making a total sample size of 173. Sample size was selected by non-probability purposive sampling.

Physiology paper comprised of two components i.e. theory and practical with 100 marks each making a total of 200 marks. Students attaining less than 50% marks in either theory or practical were declared fail in the Professional examination. Internal assessment marks were 30 each for theory and practical making a total of 60 marks. Internal assessment was calculated based upon the results of three modular and one pre-annual exam. For the sake of cross tabulation with final professional result, the total internal assessment marks were divided into two categories considering 50% as cut off point.

Data were analyzed using SPSS version 23. Mean and standard deviation were calculated for numerical variables like age, marks in professional exam and internal assessment whereas frequency and percentage were calculated for categorical variables like gender, result of professional examination and dichotomous categories of internal assessment. Correlation between marks of 2nd Professional examination and internal assessment was calculated using Pearson Correlation. Association between internal assessment and the result of 2nd Professional examina-

tion was computed using chi-square test and Odds ratio. Alpha value was kept at 0.05.

RESULTS

There were 101 (58.4%) male and 72 (41.6%) female students out of total 173 with a mean age of 20.01 ± 0.69 years. Total marks of 2nd professional examination and internal assessment were normally distributed with mean values of 126.43 ± 17.56 and 36.79 ± 5.9 respectively.

Table-I: Bivariate correlation between marks of 2nd professional MBBS examination and internal assessment.

Variables	r-value	*p*-value
Marks	0.93	<0.0001*
Internal assessment		

**p*-value significant (<0.05).

Table-I shows correlation between marks of 2nd professional MBBS examination and corresponding internal assessment along with Pearson correlation coefficient and *p*-values.

Cross tabulation between internal assessment and result of 2nd Professional exam in terms of fail/pass is shown in table-II. The *p*-value and odds ratio along with 95% confidence interval are also given.

Table-II: Crosstabulation between internal assessment and result of 2nd professional exam.

		Result		*p*-value	Odds ratio	95% confidence interval
		Fail	Pass			
Internal assessment	<50%	7 (35%)	13 (65%)	<0.001*	41**	7.7-216
	≥50%	2 (1.3%)	151 (98.7%)			

**p*-value significant (<0.05), **Association significant

DISCUSSION

The performance of 2nd year MBBS student throughout the academic year is reflected into the internal assessment result and is presumed to serve as a general predictor of final examination results. The results of the present study reflect significant correlation of 2nd year MBBS professional result in the subject of Physiology with the internal assessment. The internal assessment comprises of 30% of the professional marks. Moreover significant association has been observed among the internal assessment marks with the passing or failing students.

The results of this study refer to the impact of the performance of students throughout the year on the final examinations result. The students who performed well throughout the year secured >50% marks in the internal assessment and the passing percentage in final examination was more of these students. However, the students who performed poorly during the whole year secured <50% marks in the internal assessment and majority of them also failed to clear the final examination. This manifests the importance of the continuous evaluation of students through-out the year. The passing percentage of those students was more in final examination who had been studying hard throughout the year and performing well in each examination which was cumulated as internal assessment.

The percentage of marks allocated to the internal assessment in an academic year had a positive impact on the final examination results of the student since the high percentage of marks allocated serves as a motivational or driving factor for students to study harder for the exams throughout the academic year. In our study, 30% of marks were allocated to the internal assessment, the impact of which is clearly reflected on the passing percentage of the students.

In the studies conducted on assessments of medical students by Ghosh *et al*[9], significant correlation was found between marks obtained in year-end comprehensive written exam and viva voce of the students. However, the internal assessment marks were not taken into account. It has been documented that a single comprehensive examination held at end of year has many limitations which includes the variability in marking of essay type questions by the examiners

which has been documented to range between 6 to 15 marks difference when the same script is marked twice by different examiners[10]. Oyebola *et al*[11] conducted a comparative study in pre-clinical physiology highlighting the significant correlation of students performance in MCQ and SEQ questions compared with their GCE scores. In studies conducted by Moqattash *et al*[12] and Mujeeb et al[13], internal assessment was not taken into account as major integrative variable. In our study the continuous assessment through-out the year was compared with the final summative results of professional examination. Moreover a result of a single year end summative examination manifests the product of learning rather than highlighting the level of knowledge and regularity of attendance of individual students[14]. Inclusion of internal assessment modalities as a major tool in learning process has documented to compensate for many cons of a single comprehensive exam at end of year[15]. Santra *et al* documented a significant correlation between the internal assessment and the final professional examination in pharmacology students validating findings of our study[16].

To make it even more comprehensive, comparative studies among groups of students with high and low internal assessment percentages can be done in future. A meta analysis has documented the utility of feedback as a primary tool to improve the process of learning by the students[17]. Feedback aptly enhances the quality and quantity of learning especially in formative learning rather than targeting limited learning. Feedback proformas regarding the impact of internal assessment examination on student study routine can be obtained and analyzed with the teaching aids of faculty to make the curriculum more effective[18]. This will fortify the development of continuous medical education of faculty as well. Moreover, passing of internal assessment should be held mandatory to appear in the final comprehensive examination. This will serve as single and foremost motivational force for the students to inculcate the habit of studying throughout the academic year[15]. Assessment of personality variables including the personality types and attitudes effecting the oral examination can also be taken into account alongwith the performance in written examinations[16].

CONCLUSION

A definitive correlation is found between the internal assessment performance and the summative final profession result in 2nd year MBBS students.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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