

## Performance of undergraduate medical students: traditional viva voce v/s objectively structured viva-voce

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### Abstract

Oral examinations are used as a mode of assessment of medical students. Traditional Viva voce has been used for examining student's knowledge, basic concepts, comprehension level and also communication power in 'question and answer' format. The viva process can be standardized by the use of structured questions, structured mark sheet and pre-decided marking system. This can be achieved using objectively Structured Viva voce (OSVV).

This study was planned to compare the performance in traditional viva voce and OSVV to know whether OSVV can be a better tool for assessment of medical students.

Study was conducted during formative assessment in Microbiology. During II PCT practical examination in microbiology selected participants (50 II MBBS students) selected by systematic random sampling faced OSVV and traditional viva voce. Significantly more number of students passed in traditional viva than OSVV. It was found that number of students getting average marks (5-10) is more in traditional viva. 35 students had better rank on traditional than OSVV while 13 had better rank on OSVV also 2 students do not had any alteration on ranks in both the types of assessment. The results indicate that traditional viva voce received significantly more favorable ranking than OSVV.

OSVV increases objectivity and reduces subjectivity as compared to traditional viva. Performance of students in OSVV can be improved by motivating them to prepare harder than the traditional viva to which they have become accustomed.

**Keywords:** OSVV, Assessment, Traditional viva, Students, Performance, Questionnaire

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OSVV is a new concept with very few studies done specially in medical students.<sup>2,4,5,6,7,8,9</sup> This study was planned to compare the performance in traditional viva voce and OSVV to know whether OSVV can be a better tool for assessment of medical students.

### Introduction

Effective assessment tool for each domain of learning should be able to judge student's performance and progress through the course in a fair and objective manner.<sup>1</sup>

Oral examinations are used as a mode of assessment of medical students. Viva voce has been an old Traditional method of examining student's knowledge, basic concepts, comprehension level and also communication power in 'question and answer' format.<sup>2</sup> In Traditional Viva voce there may be variations in the time allotted to each student, number of questions asked, and difficulty level of the questions. Questions may not cover the entire syllabus. There may be some biases such as the "dove/hawk" effect characterizing some examiners as more lenient or tough than others, the "halo effect" scoring an overall high or low mark based on carryover from a score in one section of the examination.<sup>3,4</sup>

The viva process can be standardized by the use of checklist of questions and pre-decided marking system.

### Material and Methods

This study was conducted in Department of Microbiology, Jawaharlal Nehru Medical College, Sawangi (M) Wardha during second PCT (formative assessment). It was interventional study carried out from February 2015 to June 2015. We included 50 students. Out of 156 2<sup>nd</sup> year MBBS students (2013 batch) 50 students were selected by Systematic random sampling. All the teaching faculties of Department of Microbiology participated in the study.

A written permission from the Institutional Ethic Committee was obtained before starting the study.

The participants were already sensitized (in three sessions) to the OSVV during their regular classes. The entire students were informed about the purpose of the study, OSVV procedure and how they would be judged.

Departmental staff was also sensitized well in advance regarding OSVV. Informed consent of all the participants was obtained. We decided to conduct OSVV. There are 15 marks allotted to viva voce in 2<sup>nd</sup> part completion test.

For OSVV standardized questions with answers were prepared by a group of faculty with inputs from all those who have participated in the teaching process. This structured viva question bank was prepared by covering all the topics of syllabus. Questions were from must know, desirable to know and nice to know areas. These questions were categorized in three levels of difficulty easy questions to probe recall, difficult questions to probe depth of knowledge and very difficult questions to probe application of knowledge. Uniform marking criteria was developed by discussing the accepted and unaccepted answers. This entire process required several rounds of discussions among examiners. 22 question sets with expected answers were prepared. Structured mark sheet was designed. The structured question set cards and structured mark sheets were validated by faculty of School of Health Professional Education and Research.

During II PCT practical examination selected participants faced OSVV after finishing all exercises including traditional viva voce. All the student were once again informed about the purpose of the study, OSVV procedure and how they would be judged. Lottery system was adopted for drawing the question

card, which was drawn by the students themselves. Total 9 minutes were given to each student, 1 minute to read the questions and 8 minutes to answer the questions.

Marks distribution was as follows- Total marks 15, 6 easy questions each 2 marks, 1 difficult question 2 marks and 1 very difficult question 1 mark. Two Examiners Sat Together and Assess The Students. Both the examiners (Examiner II and Examiner III) were provided with standardized marksheet. Question set number of each student was noted and viva recorded. Data of marks obtained analyzed by non-parametric tests.

## Results

Fifty students which included 32 female and 18 male participated in the study. Considering 50% of marks as cut-off value for passing, only 26% students passed in OSVV compared to 48% in traditional viva. The proportion of passing significantly differs in two types of assessment [Table 1].

**Table 1: Performance of students**

	Pass (>50%)		Fail (<50%)		$\chi^2$ test and p value
	No.	%	No.	%	
Traditional viva	24	48.0	26	52.0	$\chi^2=14.3$ p =0.001
OSVV	13	26.0	37	74.0	

It was found that number of students getting average marks (5-10) is more in traditional viva. In contrast number of students getting low marks (0-5) and high marks (10-15) are more in OSVV. [Table 2]

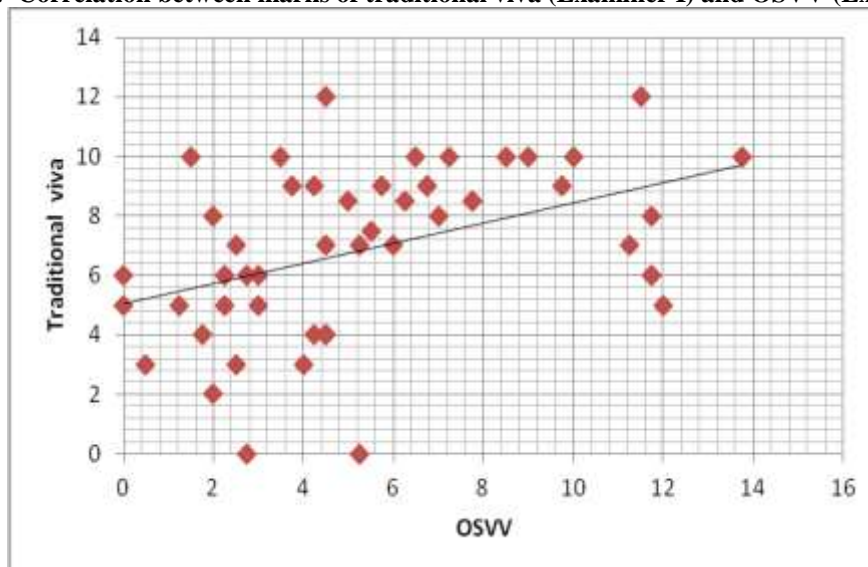
**Table 2: Distribution of students according to marks obtained**

Marks	Traditional Viva	OSVV	$\chi^2$ test and p value
	Percentage of students		
0-5	30.0	52.0	$\chi^2 =10.8,$ p = 0.04
5-10	66.0	34.0	
10-15	4.0	14.0	

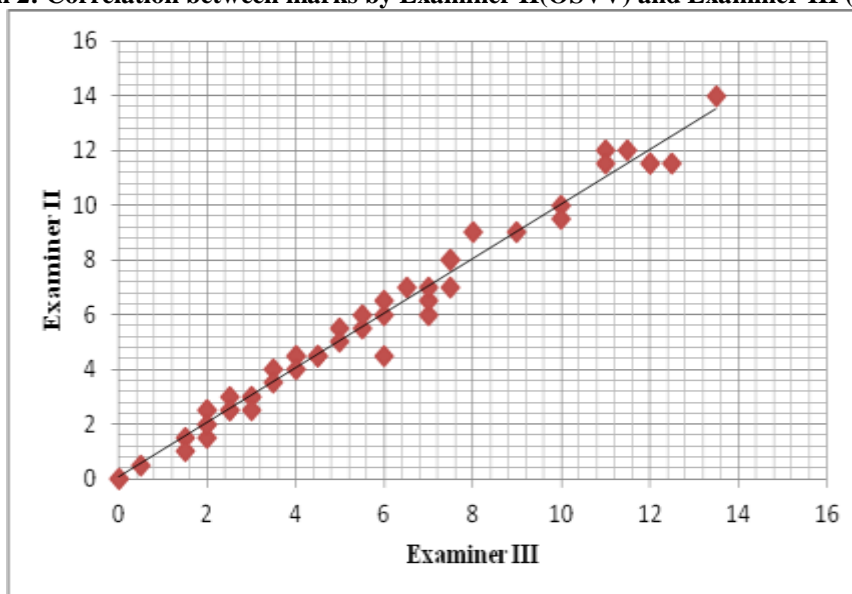
## Correlation between marks given by Examiners

Spearman Correlation was used to see correlation between the marks given by examiners.

Graph 1 presents between the two examiners regarding allotment of marks in OSVV. Moderate correlation was seen between the marks allotted by Examiner I (traditional viva) and Examiner II (OSVV) [Graph 1]. There was very strong correlation between marks allotted by Examiner II (OSVV) and Examiner III (OSVV) [Graph 2]

**Graph 1: Correlation between marks of traditional viva (Examiner I) and OSVV (Examiner II)**

Value of the Correlation coefficient – 0.47. This denotes moderate correlation between marks of traditional viva and OSVV.

**Graph 2: Correlation between marks by Examiner II(OSVV) and Examiner III (OSVV)**

[Value of the Correlation Co-Efficient: Strength of the Correlation 1: Perfect; 0.8 - 0.9: Very Strong; 0.5 - 0.8: Strong; 0.3 - 0.5: Moderate; 0.1 - 0.3: Modest; > 0.1: Weak]

[Value of the Correlation coefficient – 0.99. This denotes very strong correlation between marks of examiner II (OSVV) and examiner III(OSVV)].

### **Difference in ranking by traditional viva and OSVV**

A Wilcoxon matched pairs signed rank test was conducted to determine whether there was a difference in the ranking of two assessments.

**Table 3: Difference in ranking by traditional viva and OSVV (Wilcoxon matched pairs signed rank test) Ranks**

		N	Mean Rank	Sum of Ranks	
OSVV-traditional	Negative Ranks	35 <sup>a</sup>	24.51	858.00	z- 2.770 p- 0.006
	Positive Ranks	13 <sup>b</sup>	24.46	318.00	
	Ties	2 <sup>c</sup>			
	Total	50			

Results of that analysis indicated that there was a significant difference in OSVV and traditional viva  $z = -2.73$ ,  $p < 0.05$ . 35 students had better rank on traditional than OSVV while 13 had better rank on OSVV also 2 students do not had any alteration on ranks in both the types of assessment [Table 3].

### Discussion

Most of the medical colleges in India still conduct the viva by traditional method. There are many deficiencies and biases in traditional viva voce. In the present study conducted during II PCT practical examination in microbiology performance of students in OSVV and traditional viva voce was compared. Significantly more number of students passed in traditional viva than OSVV. It was found that number of students getting average marks (5-10) is more in traditional viva. 35 students had better rank on traditional than OSVV while 13 had better rank on OSVV also 2 students do not had any alteration on ranks in both the types of assessment. Similar finding were observed in the study conducted in Physiology at Ahmedabad where researchers found that in traditional viva students performed better with less failure (5.4%) than in structured viva (27.1%). Number of students getting distinction was more in traditional (58.9%) than in structured viva (40.3%). It was also observed that there was no significant difference in marks obtained in both viva in students with distinction. But rest of the students showed significant difference in marks. So they concluded that structured viva marking system is more reliable and uniform.<sup>5</sup>

Performance was also studied in biochemistry among medical and dental students. It was found that 84% students passed and 40% passed with distinction in traditional viva and 40% students passed and 18% passed with distinction in structured viva.<sup>9</sup>

These results indicate that traditional viva voce received significantly more favorable ranking than OSVV. This may be due to general tendency of leniency, halo' effect, inconsistency of examiners, luck factor etc in traditional viva. In traditional viva examiner's overall judgment about the examinee may be seriously flawed by the external appearance or various situational factors. So overall in traditional viva marking system may be affected by many subjective factors.

In the present study there was very strong correlation between marks allotted by Examiner II (OSVV) and Examiner III (OSVV). These findings correlate with study in formative assessment of biochemistry where perfect agreement was seen between the marks given by two examiners in OSVV.<sup>[12]</sup> This correlation may be the result of structured viva question bank and structured marksheet developed with inputs from all those who have participated in the teaching process. Uniform marking criteria was developed by discussing the accepted and unaccepted answers among faculties.

OSVV provides an opportunity to measure how well students can apply knowledge rather than remember facts. OSVV increases objectivity and reduces subjectivity as compared to traditional viva. Performance of students can be improved by motivating them to prepare harder than the traditional viva to which they have become accustomed. OSVV should be tried in all other medical subjects and in large number of medical colleges.

### Conclusion

There is support from MBBS students and teachers to OSVV. It provides an opportunity to measure how well students can apply knowledge rather than remember facts. It motivates many students to prepare harder than the traditional viva to which they have become accustomed. But there is large amount of preparatory work involved in setting up the protocols and question bank. This is compensated by reduction in time spent during examination. Once approved the same OSVV material can be used in subsequent years. A large sample than used here would be needed to substantiate this trend.

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