



COMPARISON OF VIVA VOCE EXAMINATIONS CONDUCTED IN COMMUNITY MEDICINE IN TWO FORMATS

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ABSTRACT

This comparative descriptive study was conducted on 62 seventh semester MBBS students (30 females: 48.38% and 32 males: 51.62%) to compare the viva voce examinations conducted in two formats. To preclude inter-examiner variability, the same set of teachers conducted the viva voce examinations in both formats. For the structured format, a blueprint grid containing all the topics in Community Medicine was prepared and each student was asked to answer 5 questions from the “must know”, 3 questions from “nice to know” and 2 questions from the “desirable to know” aspects of the syllabus. The mean scores were significantly higher in the structured format for all students ($Z=3.675$; $p=0.0002$), female students ($Z=2.731$; $p=0.0063$) and male students ($Z=2.329$; $p=0.0198$). The gender differences in scores were not statistically significant. Objective structured viva voce examination is resource-intensive and prior preparation would be required to assemble standard questions, reorient examiners, develop a scoring system and determine the optimum duration of viva voce examination, which will utilize time and efforts of enthusiastic teachers. The structured format will increase the confidence of the students in the evaluation system, help trim down bias and subjectivity, ensure uniform evaluation and assess higher domains of learning and communication.

KEY WORDS: Comparison, Examination, Format, Objective structured viva voce.

INTRODUCTION

The assessment methods in medical education include written examinations, project work, student seminars, objective structured clinical examinations, students' log book, clinical simulations, standardized patients, viva voce examinations, direct observation of procedural skills, clinical work sampling, 360-degree evaluation (360 degree) assessment and skill-based assessment.^[1] Changing the method of assessment can reorient the learning methods and focus of medical students since assessment and learning methods are interlinked.^[2]

The oral or viva voce examination^[3] is one of the essential components of assessment of medical students in India.^[4,5] The traditional viva voce (TVV) examination is typically conducted toward the end of the practical examination when a student is mentally fatigued. Multiple flaws in TVV include high subjectivity of the examiners,^[4,6-9] examiners' idiosyncrasies, their interpretation and comprehension of the subject,^[7, 9, 10] their preferred content areas^[11] and their pre- or post-prandial status. Some examiners may prompt or help specific students^[6, 9] or discriminate on the basis of ethnicity, religion, gender, or get prejudiced

by dress, personality, and verbal skills of the students.^[9] TVVs are also weighed down by the “halo effect” (examiners having an excessively positive view of a particular student or using one trait to make a general inference about the student) and a general tendency toward leniency.^[5] Other shortcomings of TVV include the variations in difficulty levels of the questions asked,^[6, 9] validity, objectivity, comprehensiveness, inter-examiner variability, repeatability, and possible gender bias.^[12-14] Therefore, the viva voce examination is frightening, intimidating, threatening^[6, 7, 9] and stressful for the students.^[7] Anxiety experienced by students during TVV may hamper their performance.^[15] Some medical institutions in the developed countries have discontinued routine viva voce examination because of its low reliability and validity.^[7,9] The inherent subjectivity and other factors that tarnish TVV^[8,10] needs to be restructured wisely since viva voce is still a mainstay of student assessment.^[7]

When used rationally and objectively, a viva voce examination can appraise all five cognitive domains (knowledge, comprehension, application, analysis and synthesis);^[16] gauge the attitude and communication

skills in the affective domain;^[4] and can assess what cannot be assessed by a written examination.^[8] The type of assessment method used influences the learning behaviour of students.^[17] Medical examinations ought to assess the higher-order learning and competencies to transform a medical student into a doctor who is competent in clinical as well as communication skills.^[18]

The objectively structured viva voce (OSVV) format, introduced in 2005,^[11] provides every student with equal opportunity of fair and standardized assessment. Using blueprint grid for deciding the subject content, including many questions from the “must know”, fewer questions from “nice to know” and still fewer questions from the “desirable to know” categories, framing questions of increasing difficulty levels, using standardized mark sheet and providing equal time to each student helps in minimizing the shortcomings of TVV. Sufficient reliability can be achieved with OSVV using handpicked examiners.^[5]

This study was conducted to compare the viva voce examinations conducted in two formats.

MATERIALS AND METHODS

This comparative descriptive study was conducted at a medical college in Maharashtra state, Western India. Written informed consent was obtained from seventh semester MBBS students (n=62), who were explained about the OSVV format and the distribution of topics. To avoid inter-examiner variability, the same set of teachers conducted TVV as well as OSVV and allotted marks out of 10 in each format. After TVV, the students appeared for OSVV on the same day. The OSVV comprised 10 pre-tested and pre-validated questions per student with an allotted time of 10 minutes per student. A blueprint grid containing all the topics in Community Medicine

was prepared and each student was asked to answer 5 questions from the “must know”, 3 questions from “nice to know” and 2 questions from the “desirable to know” aspects of the University-prescribed syllabus. The marks obtained were entered in Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) and analyzed using SPSS statistical software Windows Version 25.0 (IBM Corporation, Armonk, NY, USA). The standard error of difference between two means was calculated. 95% Confidence interval (CI) was stated as: [Mean-(1.96)*Standard Error] - [Mean+(1.96)*Standard Error]. The statistical significance was determined at $p < 0.05$.

RESULTS AND DISCUSSION

There were a total of 62 students (30 females: 48.38% and 32 males: 51.62%).

Comparison of scores: The mean scores were significantly higher in OSVV (as compared to that for TVV) for all students ($Z=3.675$; $p=0.0002$), female students ($Z=2.731$; $p=0.0063$) and male students ($Z=2.329$; $p=0.0198$). Reasonable agreement between OSVV and TVV scores has been also reported.^[19] However, a Gujarat-based study^[20] has found poor correlation between marks obtained in the two viva voce formats. Another Gujarat-based study^[21] has reported greater variation in mean marks allotted by two different examiners in TVV, as compared to those allotted in OSVV and that students obtained significantly less marks in the OSVV format. Since the score-sheet of question-answers for each student is maintained by examiner, OSVV facilitates giving comprehensive feedback to the students and also assists the teachers in identifying the topics which are not understood by the students. Thus, OSVV score sheet can be used for modification of teaching in the future.

Table 1: Comparison of scores obtained in TVV and OSVV.

Parameter	All students (n=62)		Females (n=30)		Males (n=32)	
	TVV	OSVV	TVV	OSVV	TVV	OSVV
Mean	5.65	6.69	5.62	6.80	5.69	6.56
SD	1.78	1.34	1.87	1.45	1.71	1.24
95% CI	5.20–6.09	6.35–7.02	4.95–6.29	6.28–7.32	5.09–6.28	6.13–6.99
Z value	3.675		2.731		2.329	
‘p’ value	0.0002 *		0.0063 *		0.0198 *	

SD = Standard deviation; CI = Confidence interval; TVV = Traditional viva voce; OSVV = Objective structured viva voce; *Significant

Table 2: Gender differences in scores.

Parameter	TVV		OSVV	
	Females (n=30)	Males (n=32)	Females (n=30)	Males (n=32)
Mean	5.62	5.69	6.80	6.56
Standard deviation	1.87	1.71	1.45	1.24
Z value	0.153		0.675	
‘p’ value	0.877		0.499	

TVV = Traditional viva voce; OSVV = Objective structured viva voce

Gender differences in scores

In TVV, identical maximum, third quartile and median scores were obtained by students of either gender while the minimum score was lower for males. (Fig 1) In OSVV, the maximum and minimum scores were the same for males and females, while the third quartile and median score was lower for males. The gender differences in scores were not statistically significant (Table 2) and there was no evidence for gender bias, as reported by some other studies. A British study^[22] found that both gender and ethnicity influenced performance in undergraduate medical examinations. Another British study^[23] reported that females perform well in coursework while males do so in unseen examinations. An eight-year American study^[24] found statistically significant gender difference in scores, particularly in course assessment and short answer questions but did not specifically refer to gender bias. But, some studies^[25-27] have explicitly mentioned students' perception about possible gender bias during viva voce examinations.

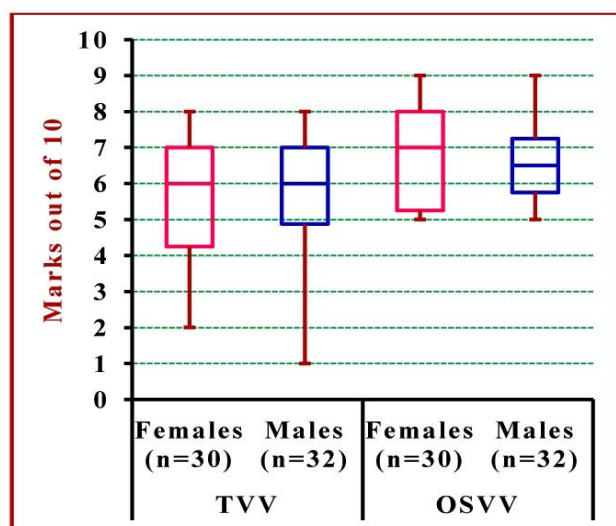


Fig 1: Box plot showing gender-wise distribution of marks.

CONCLUSION

The mean scores were significantly higher in OSVV, as compared to that for TVV. The gender differences in scores were not statistically significant. OSVV is a practicable method of assessment. OSVV is resource-intensive and prior preparation would be required to assemble standard questions, reorient examiners, develop a scoring system and determine the optimum duration of viva voce examination, which will utilize time and efforts of enthusiastic teachers. Introduction of OSVV will increase the confidence of the students in the evaluation system, help reduce much of the bias and subjectivity associated with TVV, bring in uniformity in student evaluation and assess higher domains of learning and communication.

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