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MOCK VIVA AS A TEACHING-LEARNING TOOL IN COMMUNITY MEDICINE

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ABSTRACT

This before-and-after study (without controls) was conducted on 62 seventh semester MBBS students (30 females: 48.38% and 32 males: 51.62%) at a medical college in Maharashtra state, Western India to determine the student scores before and after using mock viva as a teaching-learning tool. After preparing a blueprint grid containing all the topics, a question bank was created, which comprised pre-tested and pre-validated questions from the "must know", "nice to know" and "desirable to know" categories. Before and after the mock viva training, a standardized viva voce examination was conducted, which comprised 10 questions (total 10 marks, with an allotted time of 10 minutes per student). To preclude possible bias, inter-trainer and inter-examiner variability, the same set of teachers was involved in conducting viva voce examinations, as well as in mock viva training. The mean scores were significantly higher after mock viva training as compared to that before mock viva training for all students ($p<0.0001$), female students ($p<0.0001$) and male students ($p<0.0001$) and the gender differences in scores were not significant. The time and manpower required to train student-actors, as well as, compile and validate the question bank, are among the challenges in conducting regular mock viva sessions.

KEYWORDS: Mock viva voce, Oral examination, Teaching-learning tool.

INTRODUCTION

The oral or viva voce examinations[1] are used as supplements to the written exams and are able to assess what a written exam cannot.[2] The viva voce exams facilitate assessment of the students on all cognitive domains of Bloom's taxonomy.[3] The examiner can test the student's knowledge and comprehension (levels 1 and 2), can determine if the student can apply the concepts (level 3), can use a case scenario to assess the student's analytical ability (level 4), can ascertain if the student can amalgamate concepts (level 5), and also verify if the student can critically assess theories (level 6). Though many of these domains can be evaluated through the written exam, the oral exam also tests the psychomotor skill of oral expression and allows the examiner to ask probing questions to gauge the depth of the student's learning.[4]

Viva voce exams can determine the attitude and communication skills in the affective domain;[5] provide a distinctive technique for evaluating students' problem-solving abilities, communication skills, and clinical competence[4] and facilitate the development of oral communication skills, determine the student's comprehension of a topic and encourage critical thinking[6] since these examinations require students to "think on their feet."[7] Oral exams also have the potential to appraise the student's professionalism, ethics, interpersonal competence and qualities.[8]

Examiners could use the viva voce to establish an interactive dialogue with the student, customize the questions asked as per the needs of each student[9] and flexibly move from one area to another during the examination.[10] In order to avoid embarrassment during the viva voce, students try to understand the concepts instead of rote memorization.[11] Moreover, students can receive responsive feedback on their performance, strengths and weaknesses immediately after the exam, which is helpful for students.[11,12]

Since oral communication skills nearly exceed the other skills required for professional medical practice, viva voce examinations ought to facilitate improvement in oral communication skills of future doctors. Effective communication increases the likelihood of patient satisfaction and is the starting point of a successful doctor-patient relationship.[13] In order to produce doctors who are competent in clinical as well as communication skills, medical examinations should evaluate the higher-order learning and competencies.[14] Since the manner of presentation in a viva voce

examination is more essential for scoring than merely knowledge and clinical skills, the medical student can improve scores by developing many aspects of the presentation, as per guidelines.[15]

The viva voce examination is reportedly scary and menacing[16-18] and stressful for the students.[17] Anxiety scores of students were found to be substantially raised, when measured just prior to their taking a viva voce examination[19] and this pre-exam anxiety may cause depleted confidence, examination phobia and communication problems, due to which, students are unable to express themselves adequately, leading to their poor performance.[20]

A mock examination largely functions as rehearsal for future exams and the marks obtained by students in a mock examination are usually not used for formative assessment. In a mock viva, pre-validated questions are asked by teacher-actors to student-actors. The witnessing students familiarize themselves with the process involved in the conduct of a viva voce examination. Video recordings[21] and peer-mentoring[22] have been used to allay anxiety of students. Mock viva examinations have been used as effective teaching-learning tools in medical education.[23-26] The mock oral exam management online system is a useful tool that collects data, calculates statistics, provides reports and diminishes the burden of managing a mock oral exam session.[27]

This study was conducted to determine the student scores before and after using mock viva as a teaching-learning tool in Community Medicine.

MATERIALS AND METHODS

This before-and-after study (without controls) 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 mock viva. Before conducting the mock viva, a blueprint grid containing all the topics in Community Medicine was prepared. A question bank was created, which comprised pre-tested and pre-validated questions from the "must know", "nice to know" and "desirable to know" categories as per the University-prescribed syllabus. Before and after the mock viva training, a standardized viva voce examination was conducted, which comprised 10 questions (total 10 marks, with an allotted time of 10 minutes per student). The script for mock exam was formulated, tested and validated. To preclude possible bias, inter-trainer and inter-examiner variability, the same set of teachers was involved in conducting viva voce examinations, as well as in mock viva training. 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). 95% Confidence interval (CI) was stated as: [Mean-(1.96)*Standard Error)] – [Mean+(1.96)* Standard Error)]. Standard error of difference between the mean scores was calculated to determine the statistical significance of gender differences in scores. Paired t-test value was calculated to verify significance of difference between scores obtained by students before and after mock viva training. 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 after mock viva training as compared to that before mock viva training for all students (paired t-value =6.758; $p<0.0001$), female students (paired t-value = 4.721; $p<0.0001$) and male students (paired t-value = 4.451; $p<0.0001$).

Table 1: Comparison of marks (out of 10) obtained before and after mock viva training.

Parameter	All students (n=62)		Females (n=30)		Males (n=32)	
	Pre-Mock	Post-Mock	Pre-Mock	Post-Mock	Pre-Mock	Post-Mock
Mean	5.61	6.97	5.63	7.10	5.63	6.81
SD	1.15	1.09	1.25	1.16	1.09	1.03
95% CI	5.33–5.90	6.70–7.24	5.19–6.08	6.69–7.51	5.25–6.00	6.46–7.17
Paired t-value	6.758		4.721		4.451	
'p' value	<0.0001 *		<0.0001 *		<0.0001 *	

*SD = Standard deviation; CI: Confidence interval; * Significant*

Table 2: Gender differences in marks (out of 10) obtained before and after mock viva training.

Parameter	Pre-Mock viva		Post-Mock viva	
	Females (n=30)	Males (n=32)	Females (n=30)	Males (n=32)
Mean	5.63	5.63	7.10	6.81
SD	1.25	1.09	1.16	1.03
Z value	0.000		1.038	
'p' value	1.000		0.299	

SD = Standard deviation; Z = Standard error of difference between means

Gender differences in scores: The gender differences in scores were not significant both before and after mock viva training (Table 2). In the viva voce examination conducted before the mock viva training, the minimum, first quartile, median and maximum scores were identical for males and females, but the third quartile was higher for female students. In the viva voce examination conducted after the mock viva training, the minimum, first quartile, third quartile and maximum scores were identical but the median score was higher for females (Fig 1).

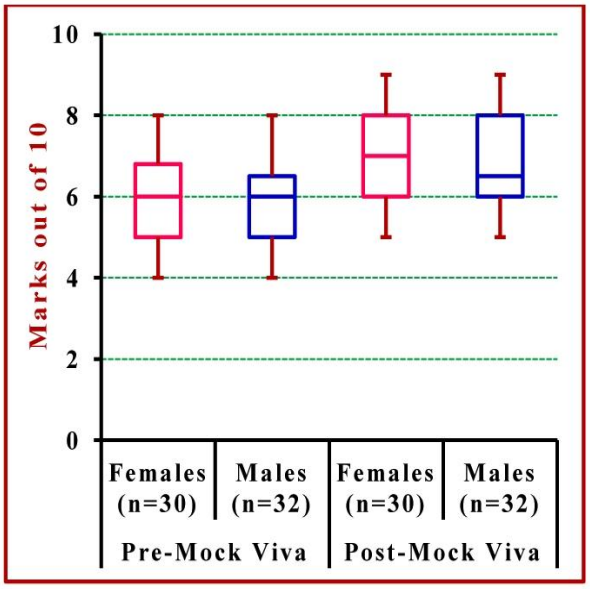

Fig 1: Box plot showing gender differences in scores.

Though the gender differences in scores were not significant in the present study, marks awarded in viva voce examinations have been found to be influenced by personality,[10] the students' verbal style and dress,[28] their ethnicity[29,30] and gender.[29,31] Though one study[32] reported statistically significant gender difference in scores, it did not specifically refer to gender bias, other authors[33] have specifically mentioned students' perception about possible gender bias during viva voce examinations. Studies[34-36] have reported that mock examinations were found to be the most useful by students. A distinctively different approach was used in a Canadian study,[37] wherein oral examinations were conducted in a room with a one-way mirror so that all students could learn from each other and student feedback was obtained immediately after the examination.

CONCLUSION

For all students, female and male students, the mean scores were significantly higher after mock viva training as compared to that before mock viva training. The gender difference in scores was not significant. The time and manpower required to train student-actors, as well as, compile and validate question bank are among the challenges in conducting regular mock viva sessions.

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