

Feasibility study of conducting and evaluating a structured oral examination among undergraduate medical students in Community Medicine

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ABSTRACT


Background: In any examination viva, subjectivity automatically creeps in when the viva is unstructured and goes in multiple directions, owing to the fact that all the medical subjects are vast and exhaustive in nature. **Objectives:** This project tried to see the differences of opinion between two different formats, one structured and other unstructured in the same practical examination, to see whether it is feasible to carry out such examination in routine phase, and to check the validity and reliability of the feedback questionnaire. **Materials and Methods:** The study was a cross-sectional analytical study. Face validity and consensus validity of the questions for difficulty level were assessed for each question of a particular topic by all the authors. **Results:** Coefficient of variation was almost the same for Q. 2, 3, 5, and 6 being above 43%. **Conclusion:** It is quite feasible to conduct the structured examination, providing that a lot of groundwork is done by the examiners.

KEY WORDS: Structured Examination; Feasibility; Undergraduate Medical Students; Focus Group Discussion; Community Medicine

INTRODUCTION

In any examination viva, subjectivity automatically creeps in when the viva is unstructured and goes in multiple directions, owing to the fact that all the medical subjects are vast and exhaustive in nature. The same is true for Community Medicine. Whenever there is term ending, terminal, or professional university examination, during viva, a luck factor is always heard of, from the students. Some students may be asked easy questions, while others have to face difficult ones, is perceived as a very big problem by students. Then, again students may be asked questions from chapters/

topics that they might not be most comfortable in or skipped revising, whereas the well-learned topic question might get omitted in the viva, leading to poor performance. Moreover, on considering questions from the topics that are taught by the examiner, which can sometimes be very specific and in-depth, a thorough and fair assessment of students becomes very tricky. Some students are asked only *nice to know* area questions, while others are inadvertently asked *must know* questions giving rise to totally an unmatched exposure leading to differences in marks. Although there are set of examples of certain organizations restructuring their oral examinations to a structured oral examination (SOE), format with recent research describing the students' response to the SOE has been limited, especially compared to OSCE formats.^[1] Hence, this project tried to see the differences of opinion between two different formats, one structured and other unstructured in the same practical examination, and to see whether it is feasible to carry out such examination in routine phase.

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Aims and Objectives

The study was carried out with objectives of analyzing:

- Differences of opinion between two different formats, one structured and other unstructured, in the same practical examination.
- To see, whether it is feasible to carry out such examination in routine.

MATERIALS AND METHODS

The study was a cross-sectional analytical study. All the 92 students for the terminal examination were participants of the study. The students were well informed regarding the process beforehand; and verbally everyone consented to the same. The current study was approved by the institutional ethics committee. Must know, Good to know, and nice to know area questions were framed from different topics of the subject [Tables 1 and 2]. Face validity and consensus validity of the questions for difficulty level were assessed for each question of a particular topic by all the authors. There were two table vivas in the internal examination headed by two examiners each in both the tables. In one table viva, it was structured and in other unstructured. In the structured group, viva questions were prepared as per the difficulty level in three different sets for each individual topic and for 3 different days of viva examination and set accordingly [Table 3]

In both the formats, all the topics were there and there was no division of topics for structured and unstructured format. In the same way, weight age and marks were pre decided for the type of questions asked in the structured oral examination. For must know questions, marks were put at 2 marks, good to know 2.5 marks and nice to know area 3 marks. Each student answered 9 questions. The student was having liberty to choose out of the pool, 6 must know questions from any topic (from any box), 2 good to know from any topic (from any box) and 1 Nice to know from any topic (from any box). No topic to be left unanswered by any student was a clear-cut instruction. It was predefined in the viva depending on the time that every student will be subjected to 13 min viva duration as each student has to answer all the nine questions compulsorily: 1 min for must know, 2 min for good to know, and 3 min for nice to know. One of the authors also used to keep watch over the time, and the bell rang at an appropriate time of 13 min [Table 4].

The students were briefed about the idea behind conducting the examination in the proposed way before the examination and were subjected to the feedback questionnaire during the 1st theory class after the examination. Semi-structured feedback questionnaire was prepared and was analyzed for the opinions in 3-point Likert scale.

RESULTS

40.2% of students told that they did not like the pattern for the question “based on the examination content; seeing to it that it covers wide variety of questions.” When asked about “liked the idea of asking 60% from must know area (12/20 was from must know),” 45.7% told that they did not like it. 43.5% of students said “did not like” for the question “if a student does not know answer to a single question, it did not affect the overall performance of the student as individual question was given marks.” “Based on the overall liking for this new system,” 48.9% liked to some extent and 45.7% did not like [Table 3].

Coefficient of variation (CV) was almost the same for Q. 2, 3, 5, and 6 being above 43%. It is minimum for Q.7; option 3 (liked very much) was maximally responded for Q.6 [Table 4].

DISCUSSION

In our study, we found that 40.2% of students did not like the pattern as per the response to the question “based on the examination content; seeing to it that it covers wide variety of questions.” When asked about “liked the idea of asking, 60% from must know area (12/20 was from must know),” 45.7% told that they did not like it. 43.5% of students said “did not like” for the question “if a student does not know the answer to a single question, it did not affect the overall performance of the student as individual question was given marks.” “Based on the overall liking for this new system,” 48.9% liked to some extent and 45.7% did not like. CV was almost the same for Q. 2, 3, 5, and 6 being above 43%. It is minimum for Q.7; option 3 (liked very much) was maximally responded for Q.6.

Undergraduate medical education is a professional training, and the minimum standards of professional-practice must be acquired during the course.^[2] The oral examination format enables the instructors to test the students on all five cognitive domains of Bloom’s taxonomy, i.e., knowledge, comprehension, application, analysis, synthesis, and evaluation.^[3] The oral examination or viva is a traditional form of assessment in which the examiners fire questions at the candidate. These oral examinations are reported to have poor validity and reliability. The problems of oral examinations go beyond reliability and validity.^[4] Oral examinations are appealing because of their high face validity, their flexibility, and the possibility that they measure aspects of clinical competence that are perhaps not tapped in written examinations.^[5] In the current project, the students were subjected to two different forms of the examination, one structured and the other traditional viva (two tables). Once all the 3 days’ examination were over, the students were asked to rate the examination pattern on a 3-point Likert scale ranging

from 1 to 3. This feedback was necessary for us to judge for the feasibility and the liking for the two different forms. As stated by Lowry,^[2] an important function of assessment is to aid learning by providing students with a check on their progress and an opportunity to improve. Students should be given opportunity to give feedback so that the assessment can also be useful in refining the way a curriculum is taught and it will ensure that the course objectives are also met. Too much of efforts were also put in by authors to frame questions from nine different topics and from three different difficulty level. Similar findings have also been reported by different authors.^[6,7] Conventionally, the emphasis in medical education has been on acquiring a body of essential facts on each topic, but now more attention is given to the skills and attitudes thought to be important in a “good doctor.” No single examination can be expected to assess such a wide range of features. Lowry^[2] also mentioned that medical examiners should identify those aspects that they wish to test

and then provide a range of appropriate formats. The current examination included both the structured and traditional viva pattern so that we can get to know the students’ opinion regarding the two methods and we can assess the feasibility of conducting such structured oral examination. In the present study, in all the feedback “question constructs,” the maximum number of students’ response was for the “did not like” option. Disliking for all these “question constructs” also suggest that it is difficult for any student to be deviant from any change or things routinely practiced here traditional viva. The oral examination is a traditional part of the assessment and is being used in undergraduate and postgraduate examination for many years and breaking with tradition is difficult. There are difficulties in persuading examining boards and training medical examiners to employ appropriate alternative methods.^[8] Shaikh^[9] in her study found that objectively structured viva examination (OSVE) is a more precise and unbiased way of practical examination. She mentioned that all students faced a prevalidated questionnaire in structured

Table 1: Topics for the examination

Topics for the current examination	Some Particulars	Difficulty level		
		Must know	Good to know	Nice to know
A (Epidemiology)	All the 6 sets were compulsory. Each box heads title/titles as shown (A, B, C, D, E, F). Each plastic box had three sections over which three different difficulty levels were mentioned, containing questions.	6 Questions X (2.0 marks)	2 Questions X (2.5 marks)	1 Question X (3 marks)
B (Communicable and Non Communicable)				
C (International Health + Sociology+ Occupational Health)				
D (Environment)		12 marks	5 marks	3 marks
F (Nutrition)				
E (Concept of Health and disease)				

Table 2: Example format of picking the questions

Topics for the current examination	(Difficulty level)			
	Roll No 1	Roll No 2	Roll No 3	Roll no 4
A (Epidemiology)	MK	GK	MK	MK/MK
B (Communicable and Non Communicable)	MK	MK/GK	GK	MK
C (IH + Sociology+ Occupational Health)	MK/NK	MK/NK	MK/NK	NK
D (Environment)	GK	MK/MK	MK	MK/GK
F (Nutrition)	MK/MK	MK	MK/GK	MK/GK
E (Concept of Health and disease)	MK/GK	MK	MK/MK	MK
Summary figures				
Total questions	MK=6 GK=2 NK=1	MK=6 GK=2 NK=1	MK=6 GK=2 NK=1	MK=6 GK=2 NK=1
Total marks	MK=6 × 2=12 GK=2 × 2.5=5 NK=1 × 3=3			
Grand total	20 marks/student/structured viva			

MK: Must know, GK: Good to know, NK: Nice to know

Table 3: Responses of the students regarding their liking for structured examination

Likert scale	n (%)	Confidence interval
Q.1 Based on the examination content, seeing to it that it covers wide variety of questions		
1 (Did not liked)	37 (40.2)	30.57–50.47
2 (Liked to some extent)	46 (50.0)	39.86–61.14
3 (Liked very much)	9 (9.8)	4.87–17.19
Q.2 Liked the idea of asking 60% from must know area (12/20 was from must know)		
1 (Did not Liked)	42 (45.7)	35.69–55.89
2 (Liked to some extent)	33 (35.9)	26.57–46.04
3 (Liked very much)	17 (18.5)	11.52–27.39
Q.3 Each student is asked standard 9 questions and he/she had to answer all		
1 (Did not liked)	49 (53.3)	43.04–63.28
2 (Liked to some extent)	33 (35.9)	26.57–46.04
3 (Liked very much)	10 (10.9)	5.65–18.52
Q.4 Each student was exposed to all the 9 topics set in the syllabus		
1 (Did not liked)	36 (39.1)	29.57–49.37
2 (Liked to some extent)	43 (46.7)	36.52–56.96
3 (Liked very much)	13 (14.1)	8.091–22.4
Q.5 The student by his/her choice selected the topic for good to know and nice to know questions		
1 (Did not liked)	47 (51.1)	40.92–61.19
2 (Liked to some extent)	33 (35.9)	26.57–46.04
3 (Liked very much)	12 (13.0)	7.26–21.12
Q.6 If a student does not know answer to a single question, it did not affect the overall performance of the student as individual question was given marks		
1 (Did not liked)	40 (43.5)	33.63–53.73
2 (Liked to some extent)	32 (34.8)	25.59–44.92
3 (Liked very much)	20 (21.7)	14.21–31.03
Q.7 Each student gets an opportunity to be judged fairly well on basis of all the 9 standard questions		
1 (Did not liked)	52 (56.5)	46.27–66.37
2 (Liked to some extent)	39 (42.4)	32.62–52.65
3 (Liked very much)	1 (1.1)	0.054–5.243
Q.8 Individual question were given marks and then summation is done to get the actual marks, of 20 which reveal the actual performance		
1 (Did not liked)	54 (58.7)	48.44–68.41
2 (Liked to some extent)	37 (40.2)	30.57–50.47
3 (Liked very much)	1 (1.1)	0.054–5.243
Q.9 Based on the overall liking for this new system		
1 (Did not liked)	42 (45.7)	35.69–55.89
2 (Liked to some extent)	45 (48.9)	38.81–59.08
3 (Liked very much)	5 (5.4)	2.01–11.63
Total	92 (100.0)	

Reliability analysis was done for the feedback questionnaire and Cronbach's alpha was 0.808

viva, and hence, there was no question of discrimination. Traditional method of examination gives the student a chance

to present his communication skills which he is unable to do in OSVE. In the present study, even though 60% of questions were from "must know area" almost 50% of students did not like it. Must know area is an area, for which answers must be known. It may happen in the traditional viva that it starts from a topic and is taken into depth of that topic, and other topics are untouched. This shortcoming was overcome by SOE.

Even though each student was asked standard nine questions (types, but picked by self), over 50% said that they did not like it. It is very common complaint heard from the students after viva that some are being asked many questions and some are asked very few and for some viva just finishes by asking a single question. It happens more for the last few students on different viva days. The blame game comes on luck factor in the examination, i.e. for number of questions and the topics explored during viva. Vankudre *et al.*^[7] in their study on SOE found that students were overall satisfied with the SOE and felt it better than the traditional viva. Kshirsagar and Fulari^[10] in their study in Anatomy subject showed that students liked the structured viva over the traditional viva examination (TVE) because the structured viva minimized the luck factor and reduced bias. In the same study, Vankudre *et al.*^[7] also mentioned that faculty members expressed that SOEs are better in terms of reducing bias, minimizing luck factor, and uniformity of questions which makes SOE a fair assessment tool. Oumachigui^[11] has mentioned that the conventional viva-voce examination (CVE) is fraught with subjectivity and has been found to have poor validity, reliability, and objectivity. According to Simpson and Ballard,^[12] most authors agree that structured examinations have better validity and reliability, with less susceptibility to gender or cultural bias than unstructured examinations. In the current study, the student by his/her choice selected the topic for good to know and nice to know questions but still 50% said that they did not like it. Normally, if a topic is started in a viva, manytimes, it happens that the viva finishes by asking questions from that topic only, but here in the structured viva, it was ensured that each topic is covered; however, still 43.5% of students did not like the structured examination. If a student does not know answer to a single question, it did not affect the overall performance of the student as individual question was given marks, so here in the structured examination, there was a scope of recovering for the marks and to score more marks even if answer is not known to a particular question and if a particular topic is left. Mondal *et al.*^[13] studied the effectiveness of objective structured clinical examination to conventional examination as formative assessment tool in pediatrics. Comparison of the two examination styles showed that students fared better in objective structured clinical examination than in conventional examination. Shah *et al.*^[14] have mentioned that in viva-voce examination, subjectivity and likelihood of judgment of examiners are highly likely because this process is being influenced by various factors. They mentioned that to overcome these factors, examinations too can be standardized and structured. They further

Table 4: Likert scale analysis of feedback questionnaire

Question	Mean±SD	Bench mark (80% of the highest value)	Z score	Area beyond the curve	Percentages	CV	Option 3 (liked very much) in Likert scale (percentages)
Q.1	1.7±0.642	2.4	1.090343	0.1379	13.79	37.76471	9.8
Q.2	1.73±0.757	2.4	0.885073	0.1894	18.94	43.75723	18.5
Q.3	1.58±0.683	2.4	1.200586	0.1151	11.51	43.22785	10.9
Q.4	1.75±0.689	2.4	0.943396	0.1736	17.36	39.37143	14.1
Q.5	1.62±0.709	2.4	1.100141	0.1357	13.57	43.76543	13.0
Q.6	1.78±0.782	2.4	0.792839	0.2148	21.48	43.93258	21.7
Q.7	1.45±0.521	2.4	1.823417	0.0344	3.44	35.93103	1.1
Q.8	1.42±0.519	2.4	1.888247	0.0301	3.01	36.5493	1.1
Q.9	1.6±0.594	2.4	1.346801	0.0901	9.01	37.125	5.4

CV: Coefficient of variation, SD: Standard deviation

mentioned that examiner has to have the openness to relook into the CVE and accept that there is a need to introduce objectivity into the system and must be willing to work toward standardization of the system and this will provide the student a fair chance and effective form of evaluation through oral examination. Over 50% of students opined “did not like” even when student gets an opportunity to be judged fairly well on basis of all the 9 standard questions. More than 50% of students opined “did not like” even when the individual question was given marks, and then, summation is done to get the actual marks, of 20 which reveal the actual performance. Any new change in the already established system is difficult to absorb. It is clear from the students’ perspective that mostly any change is not well accepted and it is hard to deliver something new yet more scientific and good. Shenwai and Patil^[15] in their study expressed that the questions designed were good and coverage of the syllabus was better in SOE as compared to traditional viva. Shenwai and Patil^[15] in their study found significant differences in students’ perceptions about traditional and SOEs. Students felt that the overall viva session in SOE was better than the traditional viva. Unlike as stated by the authors, in the present study, we got a mixed response for these two types. For almost all the “question constructs” of the feedback, the response was almost 50% in “did not like option.” Shenwai and Patil^[15] in their study also mentioned that the atmosphere was less threatening and more students’ friendly during SOE. Due to the uniformity of questions to all the students, “luck factor” or “carry over effect” was minimized. In the present study, luck factor was reported by the students in structured viva when they used to pick questions from the container. They were equally anxious during picking the question from the sets. Shenwai and Patil^[15] mentioned that there was less anxiety among the students during SOE. In their study, regarding gender bias, majority of students disagreed with any such bias during both the viva sessions. In our study, we had a fixed time for structured viva, whereas in a traditional viva, no such time limit is fixed, so it has happened that a good viva may last longer, whereas a non-response during examination may end

the viva soon. Shaikh^[9] in her study commented that time consumption by OSVE is less than TVE. Shenwai and Patil^[15] stated that time allocated to each student was also equal in both the sessions. Shaikh^[9] suggested that in the present setup, OSVE cannot replace TVE; however, a combination of both the methodologies should be used. In the current study, the authors felt that after sometime on a single viva day, the structured viva becomes monotonous, boring, and very much mechanized. The freeness to ask questions and the sense of viva are somewhat missing in the SOE. The same findings were also found by different authors who mentioned that it is very much mechanical to ask same questions repeatedly but looking at benefits of SOE, and it is an excellent tool to reduce biases which comes in traditional oral viva.^[6,7]

Strength and Limitations of the Study

In the same study, all the students were exposed to both the types of the examination, so there was an easy and simultaneous comparison of the two examination pattern.

The results are based on a single exam is the biggest limitation.

CONCLUSIONS

It is quite feasible to conduct the structured examination, providing that a lot of ground work is done by the examiners in pooling the standard questions. Students did not appreciate the move for structured examination.

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