



STRUCTURED ORAL VIVA EXAMINATION AS AN ASSESSMENT TOOL IN PHARMACOLOGY

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Article Received on 20/12/2019

Article Revised on 10/01/2020

Article Accepted on 30/01/2020

ABSTRACT

Background: The traditional viva examination which is still predominantly used in most of the medical institutions as one of the assessment methods has been associated with some demerits like lack of standardization, objectivity & reliability. It involves many faculty members resulting in variations in the time allotted to each student, number of questions asked, and difficulty level of the questions. To some extent, these can be resolved by structuring the oral examination to make it a better assessment tool. The present study was conducted to introduce structured oral examination (SOE) as a novel formative assessment tool for 3rd semester M.B.B.S. students in Pharmacology and evaluating the process by taking feedback from the students and faculty. **Aim and Objectives:** The study aims to introduce SOE in formative assessment of pharmacology and to sensitize the faculty about the process and to record the students' and faculty's perceptions about SOE. **Methodology:** All the subjects [3rd semester M.B.B.S. students (n=152)] were assessed by structured oral viva, thrice for different topics. Feedback in the form of a questionnaire was collected from the students. Questionnaire included various questions based on Likert scales ranging from strongly agree to strongly disagree. Topic for the structured oral examination was pre-decided by the faculty members. A checklist of questions to be asked in the structured viva was prepared and their probable/most correct answers were discussed with the faculty. Students were intimated about the viva process well in advance. **Results:** One hundred fifty two second professional students participated and majority of them were satisfied after being assessed in oral structured viva exam. The results obtained were: Examiner's mood affecting performance: 49 (32%); appropriate time to answer the questions: 101 (66.4%), organization of the questions according to their difficulty level: 100 (65.8%); Stress level reduction with SOE: 58(38.2%); Reduction of bias by examiner: 68 (44.7%); Helpful in enhancing performance in final exam: 81(53.3%); covered whole of the topic: 76(50%); Interested in continuation of SOE: 85(56%) and Overemphasis on Examiner's topic of interest in traditional viva : 32 (21%) Faculty members also expressed that structured oral examinations are better in terms of reducing bias and minimizing luck factor. In addition, uniformity of questions makes SOE a fair assessment tool. **Conclusions:** Most of the students and faculty favored structured oral examination approach of taking viva. It can be a better assessment tool and with some modifications in blueprinting will gain acceptance among the students as well as faculty.

KEYWORDS: Learning and assessment, structured viva, theory and practical examinations.

BACKGROUND

Viva voce examination is an integral part of our assessment system during undergraduate medical examinations in India.^[1,2,3] In the undergraduate medical education system in India, curricular guidelines of the Medical Council of India lay general emphasis on various methods of assessment of knowledge, skills, attitude, and communication.^[4] In fact, in the university examination in pharmacology, considerable marks are assigned for traditional oral examination. It consists of grand viva voce examination primarily focused on theory course. Traditional Viva Examination per se is an old and common assessment method for testing cognitive as

well as higher cognitive domain of students about the subject.^[5] Poor validity and reliability for oral examination has been reported by many authors because of unequal time distribution to student for viva, gender bias, non uniformity of difficult questionnaire, coverage of full syllabus, examiner's mood, anxiety level in students, student's communication skill and so on.^[6,7] Nevertheless, it has also been established that the viva session if carried out in appropriate manner, is an effective tool of assessment that can measure the candidate's knowledge, clinical skills along with attitude and communication skills. Hence, it is considered to be essential component of all summative assessments.

Structured oral examination (SOE), a modified format of oral assessment provides an equal opportunity as traditional viva examination to judge the knowledge and problem solving ability of every student appearing in the exams, and has been reported better in terms of minimising the bias and reducing the luck factor.^[8,9] Traditional viva examination is taken casually and marred by high subjectivity of the examiners.^[10,11,12,13] Examiners are confounded with their whims, fancies, and their way of understanding of the subject, their preferred content area, and by numerous other momentary environmental factors.^[11,13,14] In traditional oral examination, more emphasis is given on comparison between students rather than individual achievements.^[15] To minimize various biases and to make the viva more standardized and uniform, present study was conducted to introduce structured oral examination as an assessment tool for third year MBBS undergraduates in Pharmacology and evaluating the process by taking student's as well as faculty's feedback.

AIM AND OBJECTIVES

Aim: To Introduce Structured oral Examination as an assessment tool in Pharmacology.

Specific Objectives

1. To reduce gross subjectivity in viva voce assessment by structuring it.
2. To sensitize the faculty about SOE process.
3. To introduce SOE in formative assessment in pharmacology.
4. To record student's and faculty's perceptions about SOE.

METHODOLOGY

This cross sectional, interventional study was conducted from April 2018 - August 2018, in department of Pharmacology, Punjab Institute of Medical Sciences, Jalandhar after departmental and institutional permission. A total of 152 students from 3rd semester MBBS were enrolled in to study after informed consent. Faculty members in department of pharmacology were sensitized and trained about SOE. Topic for the structured oral examination was then decided by the faculty members. Students were intimated about the viva process well in advance. The questions were constructed by a group of faculty with inputs from all those who have participated in the teaching process. A number of questions from each topic covering the content area of varying difficulty level among the learning objectives were selected. About 10-15 questions from each topic were shortlisted and final template /checklist of questions to be asked in the viva was prepared. The probable/ most correct answers for these questions were also discussed. Sets of equitable question cards for SOE pertaining to GIT, Anti-hypertensive, and Diuretics were prepared, each having six questions with six parts each, arranged successively with increasing difficulty, domains of learning, and appropriate marks. The process involved all the faculty members from the department of pharmacology

(Assistant professors & above). Checklist was prepared by taking into consideration the 'must know', 'nice to know' & 'desirable to know' aspects of their curriculum. Some of these questions were of recall type and some questions tested analytical & reasoning power of the students. The questions were arranged in an ascending order according to their difficulty level. All the faculty members involved in the viva exam were provided with the checklist in advance, with written instructions regarding the content area to be covered and the nature of competence to be measured.

Next part of the project was introduction of this structured pattern of viva to students who have previously undergone traditional viva for other topics. It was conducted as a routine viva session. In the Structured Viva, all the faculty members conducted viva with the checklist. Students who finished their viva were kept separate from rest of the students. Total no of students who attended the viva was one hundred and fifty two. Feedback in the form of questionnaire as per Likert's scale was collected from students as well as faculty. Questionnaire included various questions (based on likert scale) to get their views on the overall viva process, anxiety levels, uniformity of questions, coverage of syllabus, any sort of bias they experienced etc. Feedback from the faculty members involved in the viva process was also taken.

The study was given ethical exemption by the Institutional Ethics Committee as it was an educational project and oral vivas are a routine part of medical students' assessment.

Statistical analysis was performed by SPSS software version 17. Frequencies were calculated for qualitative responses related to structured viva examination and put in tables.

OBSERVATIONS AND RESULTS

One hundred and fifty two undergraduate medical students willingly participated in this study. The mean age of the participants was 22.3 ± 1.1 years. Among these students, 47% were females while 53% were male participants. Majority of the students were satisfied after being assessed in oral structured viva exam. The responses of participants regarding the items of structured viva examination are presented in Tables 1 and 2 and Graphs 1 and 2.

Table 1: Students' perception of structured viva examination.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Influence of examiner's mood on viva	n=21 13.81%	n=38 25%	n=48 31.5%	n=37 24.3%	n=12 7.89%
2. Too much focus on examiner's topic of interest in traditional viva	n= 27 17.7%	n= 73 48%	n=22 14.4%	n=32 21%	none
3. SOE covered all the relevant topics	n=11 7.2%	n=28 18.4%	n=36 23.6%	n=59 38.8%	n=17 11.1%
4. Questions organized according to their difficulty level	n=6 3.9%	n=16 10.5%	n=33 21.7%	n=82 53.9%	n=18 11.8%
5. Adequate time allotted	n=4 2.6%	n=16 10.5%	n=31 20.3%	n=88 57.8%	n=13 8.5%
6. SOE reduces bias	n=8 5.2%	n=17 11.1%	n=48 31.5%	n=52 34.2%	n=16 10.5%
7. Less stressful than traditional viva	n=20 13.1%	n=22 14.4%	n=52 34.2%	n=40 26.3%	n=18 11.8%
8. SOE can help improve performance in final exam	n=10 6.5%	n=21 13.8%	n=38 25%	n=56 36.8%	n=25 16.4%
9. Agree to continuation of SOE for all topics	n=16 10.5%	n=30 19.7%	n=20 13.1%	n=56 36.8%	n=29 19.1%
10. Suggestions	1. Strong way to complete whole chapter 2. Case based viva should be taken 3. Students should be informed at least a week before. 4. All questions should be later displayed on the noticeboard. 5. Should be continued as it motivates to prepare the topic well.				

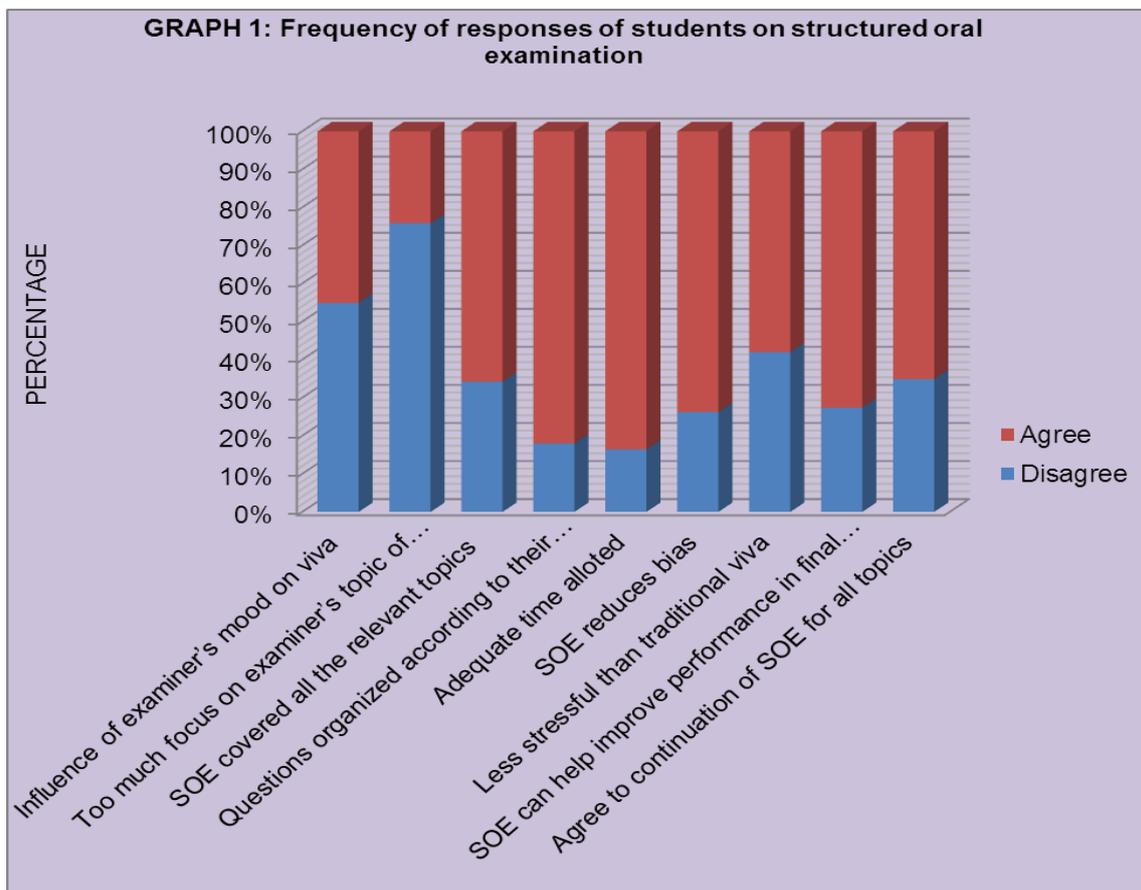
GRAPH 1: Frequency of responses of students on structured oral examination

Table 2: Faculty's perception regarding structured viva examination.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. SOE ensures uniformity of questions asked	none	n=1 14.2%	n=2 28.6%	n=3 43%	n=1 14.2%
2. Coverage of must know areas	none	none	none	n=6 86%	n=1 14.2%
3. Satisfied with time management	none	none	n= 3 42.8%	n=4 57.14%	none
4. SOE is monotonous	none	n=1 14.2%	n=6 86%	none	none
5. SOE lacks flexibility	none	n=1 14.2%	n=1 14.2%	n=4 57.14%	none
6. Students feel more relaxed than traditional viva	none	n=1 14.2%	n=4 57.14%	n=2 28.6%	none
7. SOE reduces teacher's stress also	n=2 28.6%	none	none	n=4 57.14%	n=1 14.2%
8. Better tool to enhance learning than traditional viva	none	n= 3 42.8%	none	n=4 57.14%	none
9. SOE can be introduced in Formative assessment	none	none	n= 3 42.8%	n=4 57.14%	none
10. Suggestions	1. Should be adopted for larger topics 2. Students should be informed beforehand whether the viva is traditional or SOE.				

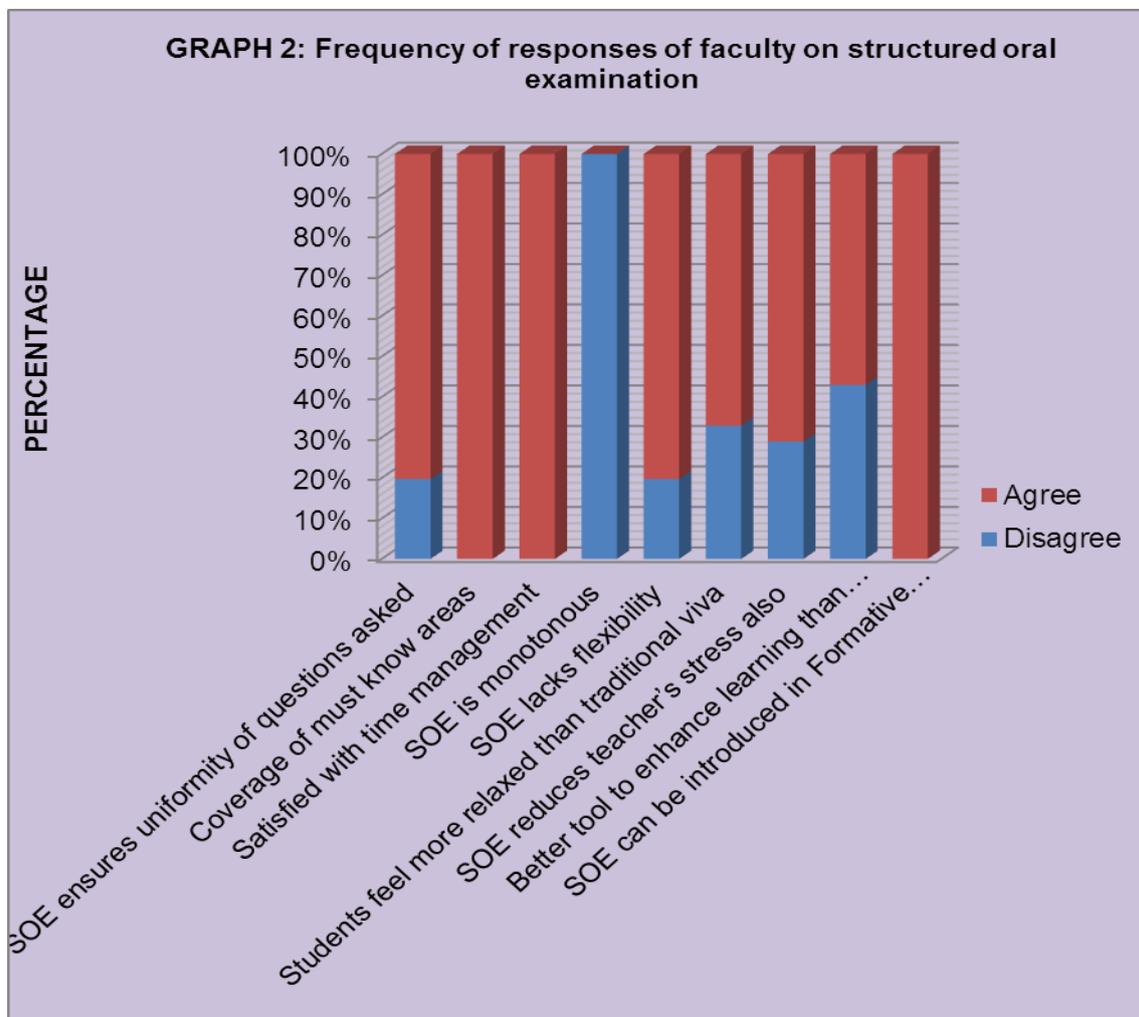


Table 3: Opinion of Faculty (n=7) regarding Structured oral Examination.

MERITS OF SOE	DEMERITS OF SOE
There is a coverage of must-know areas	More monotonous, since the same set of questions are asked repeatedly
Bias due to teacher's liking for a topic or a student is reduced	More time consuming, since faculty needs to be ready with question cards/checklist.
Time allotted is the same for all students, hence equal opportunity	Requires more resources.

DISCUSSION

Although researchers have been working hard to find the best way for assessing the undergraduate medical students, still they could not agree on a single tool. Various assessment techniques and methodologies have been adopted in order to improve the reliability and validity of the assessment process.^[16-18] Structured viva examination is one such example. In some British schools, short orals or vivas have been used in the past to test candidates who were borderline on written examinations.^[19] Orals provide the students an incentive to explore topics, give them a chance to interact one on one with examiners and get excited about learning.^[20] Many institutions are currently restructuring their traditional oral examination to a structured viva format.^[21,22,23] SOE was introduced in formative assessment in pharmacology. A similar method has been used by Verma A *et al.*^[24] In the current study, majority of the students were satisfied with the structured format of the viva examination and they agreed that the questions asked in the exam were relevant to the target course content. Similar findings are reported by Shenwai and Patil where 96.77% students showed their satisfaction with regard to structured viva examination.^[25] A study done in an Indian setup in Anatomy also showed that students liked the structured viva over the traditional viva exam as it minimised the luck factor and reduced bias.^[26]

In our study, seventy four percent students felt that Structured oral Examination (SOE) was comprehensive hence covers all topics which is in accordance with a study by Shah *et al* where 84% students felt so. Almost 77% students agreed that Structured Oral Examination (SOE) reduces most of the biases; Shah H.K *et al.* replicates similar findings (75%).^[27] The faculty involved had a varied teaching experience which affected the ability to evaluate students' performance. However, it is a realistic situation prevailing in most of the departments. No examiner was formally trained in this method of assessment. Training is important for increasing effectiveness of examination.^[28,29] Development of ability in examiners to ask relevant questions in unambiguous words so that almost similar answer comes from all students increases validity of the assessment. This aspect of faculty development is being realized to be important nowadays.^[30] It is very much possible by holding orientation workshops or development of orientation manuals to sensitize the faculty about SOE.

Another important aspect is availability of time and human resources to determine the feasibility of an effective evaluation tool. What should be the appropriate time duration for structured viva voce in pharmacology? This is of importance because ultimately 150–200 students are required to be examined. In one study, authors fixed time duration of 10–15 min for 10 items questionnaire in physiology with items having increasing difficulty levels. Six examiners were involved in taking viva each assessing 6–7 students only.^[31] As reported in another study, each student was engaged for about 25 min and thus only 5–6 students were examined in a day.^[27] One remedy is to reduce the number of items in questionnaire or to increase the time allotted to the student. Conversely, increasing the number of question increases inter-examiner reliability,^[32] reducing the number of items in the questionnaire may become counterproductive. Increasing time duration for each student would result in continued work for the faculty; the entire exercise could be tiring for them and stressful to the students. At present, little is known about the influence of these modifications on the scores obtained.

Limitations

The limitations of this study were that the data collected from the undergraduate medical students represents only one medical college and a questionnaire was used as the only tool to record the students' perspective regarding structured viva examination. Due to these limitations, the results of our study cannot be generalized to other medical colleges or institutes for the implementation of structured viva exam.

CONCLUSIONS

The results of this study support the perception that structured viva can be a better alternative assessment tool to judge the understanding and knowledge of the undergraduate medical students. It is a feasible method of assessment and students do not find any difficulty to the changed format. At the same time, there is a need for training of examiners, development of scoring system, and ascertaining time duration of viva voce examination before SOE can be implemented as a part of fulfillment of university requirement for the summative assessment of student's performance.

REFERENCES

1. Ray MK, Ray S, Ray U. Technology enabled assessment of viva voce: A new challenge. *J Adv Res Biol Sci.*, 2013; 5: 238–42.

2. Ghosh A, Mandal A, Das N, Tripathi SK, Biswas A, Bera T. Student's performance in written and viva-voce components of final summative pharmacology examination in MBBS curriculum: A critical insight. *Indian J Pharmacol*, 2012; 44: 274–5. [PMC free article] [PubMed]
3. Torke S, Abraham RR, Ramnarayan K, Asha K. The impact of viva-voce examination on student's performance in theory component of the final summative examination in physiology. *J Physiol Pathophysiol*, 2010; 1: 10–2.
4. Gazette of India. Medical Council of India: Regulations on Graduate Medical Education. [Last accessed on 2015 Jul 05]. Available from: <http://www.mciindia.org/RulesandRegulations/GraduateMedicalEducationRegulations1997.aspx>
5. Wakeford R, Southgate L, Wass V. Improving oral examinations: Selecting, training and monitoring examiners for the MRCGP. *BMJ.*, 1995; 311: 931–5.
6. Evans LR, Ingersoll RW, Smith EJ. The reliability, validity and taxonomic structure of the oral examination. *J Med Educ.*, 1966; 41: 651–7.
7. Davis MH, Karunathilake I. The place of the oral examination in today's assessment systems. *Med Teach.*, 2005; 27: 294–7.
8. Shenwai MR, B Patil K. Introduction of Structured Oral Examination as A Novel Assessment tool to First Year Medical Students in Physiology. *J Clin Diagn Res.*, 2013; 7(11): 2544–7.
9. Smith LJ, Price DA, Houston IB. Objective structured clinical examination compared with other forms of student assessment. *Arch Dis Child.*, 1984; 59(12): 1173–6.
10. Verma A, Mahajan N, Patel J. Evaluation and comparison of results: Conventional viva vs. structured viva. *Glob Res Anal.*, 2013; 2: 188–90.
11. Davis MH, Karunathilake I. The place of the oral examination in today's assessment systems. *Med Teach.*, 2005; 27: 294–7. [PubMed]
12. Shaikh ST. Objective structured viva examination versus traditional viva examination of medical students. *Anat Physiol*, 2015; 5: 175.
13. Haque M, Yousuf R, Abu Bakar SM, Salam A. Assessment in undergraduate medical education: Bangladesh perspectives. *Bangladesh J Med Sci.*, 2013; 12: 357–63.
14. Singel TC, Shah C, Dixit D. Small group structured oral examination: An innovation in oral examination. *Natl J Integr Res Med.*, 2014; 5: 141–4.
15. Sandila MP, Ahad A, Khani ZK. An objective structured practical examination to test students in experimental physiology. *J Pak Med Assoc.*, 2001; 51: 207–10. [PubMed]
16. Schmutz J, Eppich WJ, Hoffmann F, Heimberg E, Manser T. Five Steps to Develop Checklists for Evaluating Clinical Performance: An Integrative Approach. *Acad Med*. 2014. [Epub ahead of print]
17. Torke S, Abraham RR, Ramnarayan K, Asha K. The impact of viva-voce examination on students' performance in theory component of the final summative examination in physiology. *J Physiol Pathophysiol*, 2010; 1(1): 10–12.
18. Kelly SP, Weiner SG, Anderson PD, Irish J, Ciottono G, Pini R et al. Learner perception of oral and written examinations in an international medical training program. *Int J Emerg Med.*, 2010; 3(1): 21–6.
19. Wass V, Van Der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. *Lancet*, 2001; 357: 945–49. [PubMed]
20. Rangachari P.K. The targeted oral. *Adv Physiol Educ.*, 2004; 28: 213–14. [PubMed]
21. Lawson RJ. The Effect of Viva Assessment on Students' Approaches to Learning and Motivation. *International Review of Social Sciences and Humanities*, 2012; 2(2): 120–132.
22. Cobourne MT. What's wrong with the traditional viva as a method of assessment in orthodontic education?. *J Orthod.*, 2010; 37(2): 128–33.
23. Al-Wardy NM. Assessment methods in undergraduate medical education. *Sultan Qaboos Univ Med J.*, 2010; 10(2): 203–9.
24. Verma A, Mahajan N, Patel J. Evaluation and comparison of results: Conventional viva vs. structured viva. *Glob Res Anal.*, 2013; 2: 188–90.
25. Shenwai MR, B Patil K. Introduction of Structured Oral Examination as A Novel Assessment tool to First Year Medical Students in Physiology. *J Clin Diagn Res.*, 2013; 7(11): 2544–7.
26. Kshirsagar SV, Fulari SP. Structured Oral Examination – Student's Perspective. *Anatomica Karnataka*, 2011; 5(2): 28–31.
27. Shah HK, Vaz FS, Motghare DD. Structured Oral Examination: From Subjectivity to Objectivity - An experience in Community Medicine. *J Educational Res and Med Teach.*, 2013; 1(1): 25–7.
28. Daelmans HE, Scherpbier AJ, Van Der Vleuten CP, Donker AJ. Reliability of clinical oral examinations re-examined. *Med Teach.*, 2001; 23: 422–4. [PubMed]
29. Des Marchais JE, Jean P, Delome P. Training in the art of asking questions at oral examinations. *Ann R Coll Phys Surg Can.*, 1989; 22: 213–6.
30. Rahman G. Appropriateness of using oral examination as an assessment method in medical or dental education. *J Educ Ethics Dent.*, 2011; 1: 46–51.
31. Verma A, Mahajan N, Jasani K, Patel J. Evaluation and comparison of result: Conventional viva Vs structured viva. *Glob Res Anal.*, 2013; 2: 188–9.
32. Pearce G, Lee G. Viva voce (oral examination) as an assessment method insights from marketing students. *J Mark Educ.*, 2009; 31: 120–30.