

## Assessing Pedagogical Innovations: Empowering Excellence with OSVE in Undergraduate MBBS Students at Rai Medical College, Sargodha"

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### ABSTRACT:

**Objectives:** To explore the perception & effectiveness of objectively structured viva examinations (OSVE) in 3rd year MBBS students as compared to routine general viva for future implementation at Rai Medical College, Sargodha.

**Methodology:** This cross-sectional study was performed at Rai Medical College (RMC), Sargodha. The total number of participants were 120 third-year MBBS students. Routine objectively structured viva examinations (OSVE) of forensic medicine was conducted. During the OSVE, each student was assigned to specific stations. The students' viewpoints were evaluated before and after the OSVE through a customized structured questionnaire. Categorical variables including the responses strongly agree, agree, neutral, strongly disagree, disagree are presented as frequencies and percentages. Chi square test was used to check the differences in proportions of perception of male and female concerning various aspects of OSVE. Statistical analysis was done using SPSS 26. P value  $\leq 0.05$  considered significant.

**Results:** This study was comprised of 120 medical students, of which 65(54.16%) and 55(45.93%) were female and male student respectively. Of total participants 39.2 and 25% of students were felt that structured viva format was more convenient than routine unstructured viva. Of total students 47.5 % of students agreed that the allocated time for answering questions in OSVE was appropriate. Concerning encouragement from teacher to give relevant answer during OSVE, 48.3 % and 45.0% of students were strongly disagreed and disagreed respectively rest were agreed or remain neutral. Only 19.2 and 23.3% of students were strongly agreed and agreed presence of bias in unstructured oral viva. Most of students were strongly agreed (37.5 %) or agreed (29.2%) for implementation of OSVE for all academic years for all medical subjects. Significant statistical difference was observed in opinions of male and female with respect to encouragement in OSVE from examiner and biasness during unstructured viva with p values 0.002 and 0.027, whereas we did not find any significant difference among gender point of views for all other aspects of OSVE.

**Conclusion:** Objectively structured viva examinations, as perceived by the participants, was mostly convenient and bias free mode of assessment compared to traditional unstructured oral viva examination. OSVE should be implemented in all academic years for all subjects.

**KEYWORDS:** Assessment, Forensic medicine, medical students, Objective structured viva examination. Traditional unstructured oral viva voce.

## INTRODUCTION

A Pakistani medical student studies Forensic

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Medicine & Toxicology in their 3<sup>rd</sup> year MBBS as part of their MBBS curriculum. Forensic Medicine stands at the intersection of medical expertise and legal application, playing a pivotal role in shaping competent medical practitioners capable of handling complex medico legal scenarios and performing medico legal autopsies.<sup>1</sup> It is carried out under the laws of State only on the requisition of a legal authority responsible for the investigation of sudden, suspicious or unnatural death. The legal authority is usually a police officer not below the rank of sub inspector or an Executive Magistrate.<sup>1,2</sup> Surgeon Medico legal Punjab, Pakistan given directives about the medicolegal and autopsy examination conduct in which the female and male

doctors working on a regular or contract basis in the emergencies of all rural health centers, THQs, teaching hospitals and department of Forensic Medicine are lawful to conduct the autopsy.<sup>2,3</sup> The use of the autopsy in teaching undergraduate medical students is a well-known worldwide practice. Autopsies are used for teaching anatomical and forensic pathology to under- and postgraduate students.<sup>4,5</sup> The subject includes topics such as autopsy procedures, medical legal documentation, and forensic toxicology. It is important for medical students to have a strong foundation in forensic medicine, as it equips them with the necessary knowledge and skills to handle medico-legal cases in their future practice.<sup>1</sup> Assessment fosters learning and plays a crucial role in shaping students' understanding and performance. Traditional assessment methods, such as written exams, may not fully capture students' ability to apply knowledge in real-life scenarios. Traditionally used unstructured viva do not fulfill this purpose either, as it lacks standardized criteria for evaluation. Furthermore, there is reported bias against certain students in unstructured viva assessments, as they rely heavily on subjective judgment.<sup>3-5</sup> In recent years objective structured viva examination (OSVE) has gained popularity and has been used as an alternative assessment method in disciplines of pharmacology, pathology and community medicine and has yielded fruitful results.<sup>6,7,8</sup> Objective structured viva is defined as a form of assessment where students are questioned by a panel of examiners in a structured and systematic manner. It typically involves a combination of oral questions, case scenarios, and practical demonstrations to assess the students' theoretical knowledge and practical skills in forensic medicine. The questions are standardized and designed to cover a wide range of topics, ensuring a comprehensive evaluation of the students' understanding.<sup>3-5</sup> This method allows for a more objective assessment, as it eliminates biases and allows examiners to assess each student's abilities fairly. It has validity and reliability as it provides a

standardized evaluation process, ensuring that all students are assessed on the same criteria.<sup>3-7</sup>

In the pursuit of refining the educational approach to the critical discipline of Forensic Medicine, this research investigates the impact of OSVE through carefully crafted feedback forms filled by one hundred and twenty, year three MBBS students within the precincts of a prominent private medical college in Pakistan. The OSVE, tailored specifically for this cohort, covered a spectrum of essential Forensic Medicine facets, encompassing Forensic Pathology, Toxicology, and legal protocols. This study aimed to examine the effects and perspectives on the subject resulting from the integration of new trends in the medical education curriculum. The comprehensive analysis of student feedback forms about OSVE in Forensic Medicine will serve as a foundation for implementation of OSVE in Forensic Medicine examinations and pave pathway for future research and implementations of objective structured viva examination in medical education within Pakistan's academic landscape.

## METHODOLOGY

This cross-sectional study was performed at Rai Medical College (RMC), Sargodha in September 2023. Ethical approval was taken from the institute (letter#:RMCS/ERC/23/23). All students of 3<sup>rd</sup> year MBBS was enrolled and students of other academic years were excluded from the study. During the routine OSVE as formative assessment each student was positioned according to their stations. The students' perspectives were assessed before and after the OSVE using an especially self-designed structured questionnaire with close-ended questions ranked on a 5-point Likert scale. The table presents responses from 120 participants regarding their perception of encouragement from examiners to provide relevant answers. The responses were categorized into five levels: "Strongly Agree," "Agree," "Neutral," "Strongly Disagree," and "Disagree." This study received and conducted after approval from the institutional ethical committee. To ensure content validity,

expert validation of the questionnaire was undertaken by a panel from Rai Medical College medical education department, while reliability was established through pilot testing by the authors. The questionnaire focused on various aspects such as the perceived usefulness of OSVE examinations in

	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Strongly disagree N (%)	Disagree N (%)
Structured viva format more convenient than routine unstructured viva	47(39.2)	31(25.8)	25(20.8)	13(10.8)	4(3.3)
Time given in OSVE for answering questions was appropriate	57(47.5)	37(30.8)	15(12.5)	10(8.3)	1(8)
Encouragement received from examiners during OSVE	2(1.7)	5(4.2)	1(0.8)	58(48.3)	54(45.0)
Facilitated to give answer in their preferred learning styles	17(14.2)	16(13.3)	1(0.8)	58(49.3)	28(23.3)
Coverage of topics in OSVE	13(10.8)	22(18.3)	26(21.7)	14(11.7)	45(37.5)
Perception of bias among examiners in unstructured oral viva	23(19.2)	28(23.3)	34(28.3)	14.2(17)	18(15.0)
Demotivating nature of unstructured viva	21(17.5)	36(30.0)	29(24.2)	8(6.7)	26(21.7)
Implementation of structured viva examinations	45(37.5)	35(29.2)	27(22.5)	5(4.2)	8(6.7)
Recommend structured viva for all subjects	38(31.9)	40(33.3)	23(19.2)	9(7.5)	9(7.5)

medical education, about its convenience, appropriate time, encouraged by examiners and facilitation in own learning styles, examiner biased, motivation & understanding of the subject matter along with exploration of alternative teaching methodologies. All statistical analyses was

performed using SPSS Version 27 with 95% confidence Interval with a significance threshold set at  $p < 0.05$ .

	Responses	Gender		P value
		Male N (%) n=55 (45.8)	Female N (%) n=65 (54.2)	
Convenience of the new examination format compared to routine viva	Strongly agree	20(36.36)	27(49.09)	0.075
	Agree	15(27.27)	16(29.69)	
	Neutral	16(29.09)	9(16.39)	
	Strongly disagree	2(3.63)	11(16.92)	
	Disagree	2(3.36)	2(3.07)	
Perceptions regarding the appropriateness of the time allotted for answering questions	Strongly agree	27(49.04)	30(46.15)	0.882
	Agree	17(25.45)	20(30.76)	
	Neutral	6(10.90)	9(13.84)	
	Strongly disagree	4(7.27)	5(7.69)	
Encouragement to give relevant answer received from examiners during OSVE	Strongly agree	1(1.81)	1(1.53)	0.002*
	Agree	2(3.63)	2(3.07)	
	Neutral	1(1.81)	1(1.53)	
	Strongly disagree	16(29.09)	42(64.61)	
The perception of biasness in unstructured viva examinations	disagree	35(63.63)	19(29.23)	0.027*
	Strongly agree	10(18.18)	13(20)	
	Agree	15(27.27)	13(20)	
	Neutral	20(36.36)	14(21.53)	
	Strongly disagree	2(3.63)	15(23.07)	
Implementation of OSVE for all classes and subjects	disagree	8(14.54)	10(15.38)	0.149
	Strongly agree	25(45.45)	20(30.76)	
	Agree	17(30.90)	18(27.69)	
	Neutral	7(12.72)	20(30.76)	
	Strongly disagree	3(5.45)	2(3.07)	
	disagree	3(5.45)	6(9.23)	

P value  $\leq 0.05$  considered significant

## RESULTS

The study comprised of 120 students of 3<sup>rd</sup> year MBBS, major contribution was from female students i.e 65(54.16%) and 55(45.93%) were male student. The research findings indicated a generally positive perception among participants regarding

the convenience and appropriateness of structured viva examinations compared to traditional unstructured vivas. Our results reveals that 39.2% and 25% of participants were on the view that structured viva format more convenient than routine unstructured viva (Table 1)

Approximately half (47.5) of participants agreed that the allocated time for answering questions in OSVE was appropriate. However, a notable proportion of participants expressed dissatisfaction with the level of encouragement received from examiners to give relevant answers, concerning this 48.3 % and 45.0% of students were strongly disagreed and disagreed respectively that examiners were encouraging them using OSVE. Additionally, 49.3% students were strongly disagreed that they received any facilitation from teacher for giving answer according to preferred learning styles. Concerns were also raised about the coverage of topics in the examination, with half of the students feeling that the examination did not adequately address the majority of topics (11.7% strongly disagreed, 37.5 %disagreed) whereas few number of students, 10.8% and 18.3% were strongly agreed and agreed respectively concerning full coverage of topic in OSVE. Noteworthy is the perception of bias among examiners during unstructured viva, with 19.2 and 23.3% of participants strongly agreeing and agreeing that bias is present in unstructured viva, whereas 28.3% students were remaining neutral and few numbers of participants were strongly disagreed or disagreed concerning bias-ness among examiners in traditional unstructured viva. Furthermore, a significant portion 17.5% and 30% of students either strongly agreed or agreed respectively that unstructured oral viva examinations are demotivating students. While most participants supported the implementation of structured viva examinations for all subjects with 37.5 % and 29.2% strongly agreement and agreement by the students respectively (Table1) The data was also analyzed to see differences across various aspects of the examination among the gender, both male

and female students exhibited strong opinions on the convenience of the new examination format compared to routine viva, we did not find any statistically significant difference of opinion between gender ( $p$  value = 0.075) as presented in table 2. Additionally, both genders were on the same view concerning' perceptions regarding the appropriateness of the time allotted for answering questions ( $p$  value =0.882). Encouragement from examiners to provide relevant answers was also perceived differently among male and female participants, with a significant difference ( $P$  value = 0.002) Majority of the females strongly disagreed to this view, while male was disagreed concerning getting encouragement from examiners during OSVE, whereas, only few number of male as well as female students were agreed to get encouragement from teachers (Table 2). The perception of bias in unstructured viva examinations yielded significant differences among the views of male and female students with significant  $p$  value 0.027, most of the male students were remain neutral concerning biasness among the teachers, whereas among females different perceptions were noted some of them were in agreement, some were neutral and some were disagreed concerning biasness (Table2).

Furthermore, both male and female students were on the same page, strongly supporting the implementation of OSVE in all academic years of MBBS for all subjects ( $P$  value = 0.149). These results highlight the importance of participant's perception in shaping examination formats and procedures (Table2).

## DISCUSSION

In medical education, it is vital to ensure that all students should accomplished all required competencies and skills before qualifying, so in future professional life they can smartly handle their patients with excellent competencies and knowledge, otherwise patient safety could be at risk.<sup>9</sup> Assessment has pivotal role medical students training, so that they can combat the community

demand affectively.<sup>9</sup> The reliable and validate advanced mode of assessments are required to evaluate medical students during the graduate and postgraduate medical studies, that provides discrimination, differentiation, and judging of the students according to their capacity and potential for progressive learning.<sup>9</sup>

When our graduates enter their professional career, they will have to perform medico- legal and autopsy work which is the backbone of our judicial system in Pakistan and to give justice to the public, so it is crucial for all medical institutions to offer undergraduate instruction in forensic medicine, as it serves as a vital knowledge base that physicians & surgeons may encounter during their practice.<sup>10</sup> It is essential for every physician to possess the confidence to practice forensic medicine, particularly in handling forensic cases. Physicians & surgeons are expected to have a fundamental understanding of forensic principles, typically taught at the undergraduate level.<sup>10</sup>

Current study reveals that more than half of the students were more convenient during OSVE as compared than traditional unstructured viva and the fright of facing the examiners was not there and the students could put in their best.

Nearly half of the participants of current study, expressed agreement that the allotted time for answering questions was suitable. However, concerns emerged regarding the examination's coverage of topics, half of the students felt that it did not sufficiently cover all topic of course. Additionally, notable is the perception of examiner bias during unstructured viva, we noted mix responses i.e about less than half of participants acknowledged its presence during unstructured vivas, rest remained neutral or disagree to this concept. Many researchers worldwide have proposed that in typical oral assessments, examiners may introduce puzzling aspects due to subjective elements such as their moods, expectations, biases, familiarity with the subject matter, preferences, time constraints, and even workplace dynamics.<sup>11</sup> As most of the participants

of the current study was in favor of structured viva, our results are strengthened by a study conducted by Abuzied and colleagues, reported that structured viva or structured oral examination has high levels of validity, reliability, and acceptability as an assessment tool in health professions education compared to traditional viva.<sup>12</sup> Current results are also in line of another Pakistani study conducted in Multan documented that the students of their study were over whelmingly satisfied with structured viva as compared to traditional viva format. They emphasized structured viva as their preferred assessment method as traditional viva does not truly reflect a student's competence.<sup>13</sup>

Our results are also in agreement with Malik et al study who documented structured viva examination be considered as a preferred tool of assessment as it minimizes bias, reduces inter-examiner variation and motivate students to prepare well for viva.<sup>14</sup> Previous study conducted in India by Chhaiya et al also found similar results in pharmacology among medical students and showed positive perception toward OSVE in terms of its acceptability as an assessment tool.<sup>15</sup>

Another Indian study of the similar field performed by Ahsan and colleague reported similar results to our study and found almost all the students felt comfortable during the structured viva. Students were agreed that conducive atmosphere can have a positive impact on their performance as it would reduce their anxiety, that they usually experienced during traditionally viva examination due to one-to-one interaction with examiner.<sup>16</sup> Ahsan et al also suggested that structured viva examination may be considered more reliable and fairer in comparison to a traditional viva examination.<sup>16</sup> Hence, it may be preferred over the traditional viva examination. In comparison OSVE, traditionally, the viva examination in medical colleges is a one-to-one interaction between the assessor and the learner where the assessor is in charge Often, the viva examination is driven by the position, personality, strictness, topic preference, and favoritism of the assessor

rather than the learner's knowledge and subjected to biasness.<sup>16</sup> Imran and his colleagues also support our results and confirm that the structured viva voce (SVV) provides uniform, equitable, unbiased, and reflective assessment of students. This aforementioned study has suggested that comprehensive objective and meaningful assessment can be achieved by structuring of viva voce, written theory and practical.<sup>9</sup>

Many other old studies were also documented that SVV provides advantages of wide coverage of topics and reduced anxiety, improves teacher-student relationship, and offers multiple choices, objectivity, uniformity, and opportunity to answer without threat and fear of the examiners.<sup>17,18</sup>

Strong evidences are established that anxiety and fear have negative impact on performance.<sup>19</sup> Al-Mohaimed et al study concluded that SVV provides a comfortable environment and prevents the student-teacher and student-topic biases, and chance factor get minimized. There is more transparency, fairness, and positive environment in the medical school affecting the student when it is incorporated into the system putting the faith of the students back to the assessment system.<sup>20</sup>

Overall findings of current and previous studies highlight the need for further exploration to grasp participants' diverse perspectives and experiences, which can guide the development of more inclusive and effective educational assessment practices. Qualitative research could offer deeper insights into participants' preferences and aid in making informed decisions about assessment formats and procedures. learner where the assessor is in charge

**Limitations:** Sample size was small may results were not generalized to whole population.

## CONCLUSION

Objectively structured viva examinations, as perceived by the students was mostly convenient, fairer and bias free mode of assessment compared to traditional unstructured oral viva examination.

OSVE should be implemented in all academic years for all subjects.

**Conflict of interest:** None

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## REFERENCE

1. A Pakistani medical student studies Forensic Medicine & Toxicology in their 3rd year MBBS as part of their MBBS curriculum. Forensic Medicine stands at the intersection of medical expertise and legal application.
2. YaserAmeer, GulMaria, Sonomal, MudaserHussainAbbasi. Medical Students' Perceptions regarding autopsy as an educational tool. Pakistan J Med Heal Sci, P J M H S. Vol. 13, NO. 2, 2019 361-364
3. Abuzied AI, Nabag WO. Structured viva validity, reliability, and acceptability as an assessment tool in health professions education: a systematic review and meta-analysis. BMC Med Edu. 2023;23(1):531 doi: 10.1186/s12909-023-04524-6.
4. Anbarasi K, Karunakaran JV, Ravichandran L, Arthi B. Effectiveness of the Structured and Conventional Methods of Viva Examination in Medical Education: A Systematic Review and Meta-analysis. Journal of Clinical & Diagnostic Research. 2022;16(9).
5. Imran M, Doshi C, Kharadi D. Structured and unstructured viva voce assessment: A double-blind, randomized, comparative evaluation of medical students Int J Health Sci (Qassim). 2019;13(2):3-9
6. Chhaiya SB, Mehta DS, Trivedi MD, Acharya TA, Joshi KJ. Objective structured viva voce examination versus traditional viva voce examination-Comparison and students' perception as assessment methods in pharmacology among second MBBS students. Natl J Physiol Pharm Pharmacol. 2022;12(10):1533-1537 doi:10.5455/njppp.2022.12.01049202227012022
7. Syed FN, Sheikh A, Andrabi SA. Perception of fourth year MBBS students about structured and traditional viva examination formats in Pathology department in CIMS Multan-An ethnographic study. Journal of Islamic International Medical College (JIIMC). 2022;17(2):129-134.
8. Vankudre AJ, Almale B, Patil M, Patil AM. Structured oral examination as an assessment tool for third year indian mbbs undergraduates in community medicine. Community Medicine. MVP Journal of Medical Sciences;3(1):33-36.
9. Imran M, Doshi C, Kharadi D. Structured and unstructured viva voce assessment: A double-blind, randomized, comparative evaluation of medical students. Int J Health Sci (Qassim). 2019;13(2):3-9.
10. Razak, Nadiawati Abdul; Haque, Mainul<sup>1</sup> The Vital Role of Forensic Medicine as a 'Hidden Curriculum' in Medical Education: Current Perspectives Advances in Human Biology13(3): p229-231, 2023. doi: 10.4103/aihb.aihb\_61\_23.
11. Torke S, Abraham R.R, Ramnarayan K and 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.

12. Abuzied AIH, Nabag WOM. Structured viva validity, reliability, and acceptability as an assessment tool in health professions education: a systematic review and meta-analysis. *BMC Med Educ.* 2023;23(1):531. doi: 10.1186/s 12909-023-04524-6
13. Syed FN, Sheikh A, Andrabi SAA. Perception of MBBS Students About Structured Versus Traditional Viva Examination Formats. *Jiimc*, 2022;17(21):129-134
14. Mallick AK, Mallick AK, Patel A. Comparison of structured viva examination and traditional viva examination as a tool of assessment in biochemistry for medical students. *Eur J Mol Clin Med.* 2020 ;7(6):1785-1793.
15. Sunita B Chhaiya1, Dimple S Mehta1, Madhav D Trivedi1, Objective structured viva voce examination versus traditional viva voce examination - Comparison and students' perception as assessment methods in pharmacology among second M.B.B.S students. *Natl J Physiol Pharm Pharmacol.* 2022; 12(10): 1533-1537.doi: 10.5455/njpp p.2022.12.0104920222 7012022
16. Ahsan M, Mallick AK. A study to assess the reliability of structured viva examination over traditional viva examination among 2nd-year pharmacology students. *Journal of Datta Meghe Institute of Medical Sciences University.* 2022;17(3):589-594. DOI: 10.4103/jdmimsu.jdmimsu\_449\_21
17. Ray MK, Ray S, Ray U. Technology enabled assessment of viva voce:A new challenge. *J Adv Res Biol Sci.* 2013;5:238–242.
18. Verma A, Mahajan N, Patel J. Evaluation and comparison of results:Conventional viva vs structured viva. *Glob Res Anal.* 2013;2(5):188–190.
19. Holloway PJ, Hardwick JL, Morris J, Start KB. The validity of assays and viva voce examining techniques. *Br Dent J.* 1967;123(5):227–232.
20. Al-Mohaimed A. Perceptions of the educational environment of a new medical school, Saudi Arabia. *Int J Health Sci.* 2013;7(2):150–159. doi: 10.12816/0006039.

#### ***Authors Contribution:***

**Mudaser Hussain Abbasi:** Conception, design and acquisition of data manuscript writing, revised and approved the data

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**Sundas Ahmad:** study design, Data compilation & manuscript drafting revised and approved the article

**Tanveer Zia Qureshi:** Conception & design, data collection, revised and approved the article

**Zahid Masood:** Statistical analysis, manuscript writing and final approval of article

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