

Preferred Assessment Tools from Medical Students Standpoint: a Comparative Study

Hina Khan¹, Sadia Sundus⁴, Muhammad Sajid Khan⁵, Munawar Hussain², Nighat Seema³
and Raja Faisal¹

ABSTRACT

Objective: To evaluate the preferred method of assessment from medical student's perspective.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Al-Tibri Medical College and Hospital, Isra University-Karachi Campus from March-2020 to October-2020.

Materials and Methods: A valid questionnaire was adopted for the evaluation of the preferred method of assessment. Data was collected after the institutional ethical approval, and verbal consent was taken from the respondent. A total of 150 undergraduate students were included through a snow ball sampling method from the 2nd, 3rd, and 4th year of MBBS. Data were analyzed through SPSS version 21.0 and showed in the form of frequency and percentage. The chi-square test was applied to assess the qualitative data and level of significance was taken $P \leq 0.05$.

Results: Out of 150 medical students, the mean age of 2nd-year students was 20.36 ± 4.00 , 3rd-year students with 21.36 ± 0.95 , and the mean age of 4th year was 22.87 ± 2.97 . Male students' frequency was 75(50%), and female participants were 75(50%) of the total numbers of respondents. Numbers of students preferred MCQs a quality choice for assessment in comparison to essay questions. Maximum respondents preferred that MCQs give brief understanding and a wide range of course coverage, while essays enhance the written expression.

Conclusion: Following the present study results concluded that MCQs are a more preferred assessment tool among the students of medical sciences compared to the essay question. MCQs cover more content areas in a limited period and assess the higher level of cognition; the level of competency depends on MCQ's quality structure.

Key Words: Assessment, MCQs, Medical Sciences

Citation of article: Khan H, Sundus S, Khan MS, Hussain M, Seema N, Faisal R. Preferred Assessment Tools from Medical Students Standpoint: a Comparative Study. Med Forum 2021;32(3):24-28.

INTRODUCTION

The word assessment and achievement both are important in the life of students because of its relativity. The objective of the evaluation is to evaluate the learning outcome of students. The main goal is to assess the improved learning abilities including student's competencies and student's versatile approaches based on skills relevant to their curriculum.

The evaluation of learning outcomes is relatively difficult since the attributes are mental representations rather visible. Assessment already plays a role in the learning process throughout the curriculum focused on the students learning goals and achievements¹. For their completion several types of assessment are relevant and available. Briefly, the five levels of measurements are required to accomplish the assessment validation. Evidence-based tools evaluate the general objectives of students while Formative assessment estimates students' psychomotor skills by means of standardized quizzes, MCQs, questionnaires etc². Since assessment measures the quality of the curriculum by focusing on its strengths and goals therefore, it should motivate and reflect the capability of a learner. It can justify the role of facilitator and student, and provide a way to improve the quality of learner³. Validity and reliability of assessment methods like MCQs and short answer questions are still controversial. Assessment strategy must be aligned with the educational goals, and should work efficiently with the simultaneous shift of curriculum from traditional system to the integrated system. This enables the self-directed learning approach of a learner autonomous. This divine shift of education

¹. Department of Anatomy / Ophthalmology² / Pediatrics³, Al-Tibri Medical College and Hospital, Isra University, Karachi Campus.

⁴. Department of Anatomy, Fazaia Ruth Pfau Medical College, Karachi.

⁵. Department of Physiology, Shahida Islam Medical College, Multan-Bahawalpur Road, Lodhran.

Correspondence: Dr. Hina Khan, Associate Professor Anatomy, Deputy Director Research and PG Affairs, Al-Tibri MC and Hospital Isra University. Karachi Campus.
Contact No: 0346-3318553
Email: drhinasalman@gmail.com

Received: November, 2020
Accepted: December, 2020
Printed: March, 2021

tract favors the well-constructed context rich MCQs, validity, reproducibility, and cost effectiveness. The cost-effectiveness questions are entrenched in a clinical vignette. MCQ's helps in building the critical thinking of students⁴⁻⁵.

To assess the cognitive and analytical capabilities of a learner, Evidence-based tools must be implemented such as well-structured MCQ paper. Because, it analyses different concepts of students in a short time while discriminates the upper and low achievers. Flaws lead to affect the students' performance⁶. Open-ended questions are also incorporated, like the long and short essays that recall the basics. Essays are invalid components to evaluate the higher level of cognition, because differences of written expression can change student performance⁷. Our education system requires the similar approach to examine the factual and reason based learning⁹. This study was designed to evaluate the underlying factors to choose the assessment tool, either MCQs or essay type questions. The study's observation helps in the development of effective curriculum considering the student perception to aid the learner-centered approach in our integrated and community-oriented curricula.

MATERIALS AND METHODS

A cross-sectional study was designed at Al-Tibri Medical College and Hospital, Isra University Karachi Campus, from March-2020 to October-2020 after the ethical approval of the concerned institute's Institutional ethical review committee. A total of 150 numbers of students from 2nd, 3rd, and 4th-year MBBS were included through a snow ball sampling technique

without gender differentiation, students were selected by choosing two different colours paper one was red and other was green, and students those pick up green colour paper included in the study. After taking verbal consent, the well-designed questionnaire was adopted to evaluate the assessment tools' student perception. Students from 1st and final year, non-medical disciplines, and allied sciences were not included in this study. A questionnaire was well explained to the respondent and was inquired using 5 points Likert scale. The data was kept confidential, and students were asked not to mention their name and roll number over the questionnaire. Data were analyzed through SPSS version 21.0, and responses were displayed in the form of frequency and percentage, considering the level of significance $P < 0.05$ and applied the Chi-square test.

RESULTS

Out of a total 150 medical students, the mean age of 2nd-year students was 20.36 ± 4.00 , 3rd-year students with 21.36 ± 0.95 , and the mean age of 4th year was 22.87 ± 2.97 . The frequency of Male students was 75(50%), and female participants were 75(50%) of the total numbers of respondents.

Table: 1 shows the frequency and percentage of preferred assessment tool among the participants

Table: 2 shows the frequency and percentage of participants according to their level of education.

Table: 3 shows the frequency and percentage of respondents about the reason behind the choice of an assessment tool that they preferred.

Table No.1: Shows frequency and percentage of preferred assessment tool among the participants

		Preferred			Total	P-Value
		MCQs	Essay	Both MCQs & Essay		
Groups	2 nd Year	44	6	2	52	≤ 0.001
	3 rd Year	23	2	25	50	
	4 th Year	12	13	23	48	
Total		79	21	50	150	

Table No.2: Shows frequency of preferred assessment tool among the participants . (S.A=Strongly Agree, Ag=Agree, N=Neutral, D.A=Disagree and S.A.D=Strongly Disagree) $P < 0.05$

	Questions	2 nd year					3 rd year					4 th year					P value
		S.A	Ag	N	D.A	S.DA	S.A	Ag	N	D.A	S.DA	S.A	Ag	N	D.A	S.DA	
1.	MCQ exam having a chance to achieve a correct answer	50	2	0	0	0	27	23	0	0	0	0	37	4	5	2	≤ 0.001
2.	MCQ comprises of Q&A, thus, keywords can stimulate the memory rather than recall as in case of essay writing	28	16	6	2	0	21	23	4	2	0	20	18	8	2	0	0.652
3.	MCQs are not stressful, and it takes less time to complete	29	16	7	0	0	20	22	5	1	2	21	24	3	0	0	0.193
4.	MCQs not just to hit the learning facts and figures and no critical thinking required, which I find mind-numbing	0	11	13	22	6	0	2	19	24	5	1	3	16	21	7	0.131
5.	I don't like to write an essay and select to answer a question in front of me in	10	16	16	10	0	0	19	16	12	3	4	19	13	9	3	0.067

	someplace.																
6	MCQ assessment be likely to examine the topic extensively	28	20	4	0	0	28	15	6	1	0	23	21	4	0	0	0.652
7	MCQ is an effective assessment method that can evaluate students' academic capabilities in their relevant course content	28	19	5	0	0	25	22	3	0	0	15	24	7	7	0	0.113
8	Essay questions cannot effectively do not assess the level of cognition, only show the written expression.	15	30	7	0	0	19	26	4	1	0	15	21	9	1	2	0.033
9	MCQ can effectively assess the recall knowledge related to the relevant content area	15	30	7	0	0	19	26	4	1	0	15	21	9	1	2	0.335
10	The lecturers and tutors outlined precisely what is to be read to pass the exam successfully.	10	26	10	6	0	19	19	7	5	0	11	17	16	4	0	0.128
11	In MCQs assessment, because choices are given, you could judge that what can be right/wrong, whereas in the essay you might be followed the incorrect track	17	19	4	7	5	7	27	8	8	0	3	25	14	6	0	≤ 0.001
12	The MCQs preparation required a small duration of time and included fewer efforts.	2	13	18	19	0	13	17	0	12	8	3	15	8	19	3	≤ 0.001

Table No.3: Shows frequency of respondent about the reason behind the choice of assessment tool that they preferred

		2 nd year		3 rd year		4 th year		P=
		yes	NO	Yes	No	Yes	No	value
	Which of the following reasons indicate the preference of essay questions for assessment among medical students?							
1	MCQ exam is just an assessment to assess that, and you can choose an answer "most" correct, dictated to you by someone. It is neither intellectually stimulating nor challenging	2	48	4	47	8	42	≤ 0.001
2	Essay raise your spirits of competent reader and critical thinker	7	43	7	43	3	47	0.043
3	The MCQ is limiting, imposing certain clarifications onto students	4	48	4	46	2	46	0.070
4	Essays give you time to recall critically and efficiently about the content given for assessment	2	50	16	34	16	32	≤ 0.001
5	Searching, reading and using other resource materials further one's	44	8	41	9	38	10	0.778
6	knowledge and understanding of the course rather than trying to memorize	37	15	40	10	43	5	0.071

P<0.05 Respondent may choose more than one reason

DISCUSSION

In Pakistan, medical educationists are constantly trying to implement the modern standardized education system from the last five years. Cognitive skills assessment can be tested through multiple-choice questions (MCQs) or short written examination (essays). Similarly, in the present study, the quality of assessment and curriculum is improved by medical students' feedback. Most medical students give importance to multiple-choice questions due to their higher level of achievement, infect they enhance the learner competencies of analysis, synthesis, and develop a better level of critical thinking¹⁰. According

to the present study results, the student favors the role of MCQs in making skills of a critical thinker and problem solver, especially the one best question that triggers the clinical implementation of the knowledge and covers all vital aspects of the course contents. Whereas the majority of the students also favor that essay question helps understand the content because of a wide range of reading¹¹. Following the study evidence the student experiences regarding the assessment methods, the respondent highly remarks on MCQs' strength both in superficial and deep thought of learning. They also incorporate that deep learning favors the better outcome. Similar in the present scenario, the participants openly support the MCQs

compared to essay-type assessments and oblige the deep understanding of the topic and mention the weakness of written expression required to attempt the essay type questions¹². One of the studies that were done on dental students' preference of assessment method with their impact on learning outcomes, the results reveal the significant effects of MCQs and its influence over the learning approach. Two hundred sixty students responded to the 67 open-ended questions, and the most preferred method for assessment was MCQs. As per the study, results confirm the learner approach towards the MCQs as an important tool for assessing medical education due to its higher order of cognition and deep understanding of the contents¹³. A study was designed to assess students' competency level with the application of MCQs as an assessment tool to achieve the learner approach. The results established that good quality of MCQs plays an important part in obtaining a higher quality of assessment and building the learner's desired competency. Similar in our study, most of the students preferred the MCQs due to their reliability and effectiveness in achieving the learner approach compared to essay type questions¹⁴. The study results, which were conducted in Pakistan at Lahore with 219 numbers of participants related to pathology discipline, were included in the study. The study's basic aim was to find out the perception of 3rd and 4th-year MBBS regarding assessment tools used during the internal evaluation examination. Out of 219, 54.3 % of the student preferred MCQs, and 36.7% favors the short essay questions. Only 9.1% of the respondent agreed that MCQs are a least useful tool for assessment, and 14.2 % stated short essay under the least significant method of assessment and in the same way in present study maximum number of participants favors the MCQs and the short essay due to stimulating the skills of a critical thinker. Significantly adopt the MCQs as the best assessment tool due to their time feasibility, distractors are given a chance to pick the option and make it easy to understand the given question¹⁵. One of the studies done in 2018 among the medical students, about 96.55%, strongly favors the MCQs, 96.54% brief essay questions, and 96.57% in favor of short answer questions. These results were found to be similar to the results of the present study; only less percentage of participants accepted the short answers as a valid assessment tool in comparison to MCQs¹⁶. The study that was done in 2018 contained interesting facts regarding MCQs preparation by the medical students of the second year and provided them a significant training regarding the formulation of MCQs according to their objectives, clinically relevant, and reflects the skills of a critical thinker. The results revealed that student based survey documented the fact about MCQs, that they required more reasonable thoughts while preparing MCQs and more difficult to collaborate the key

question with the given distractors require a high level of cognition skills and critical thinker, same characteristics of MCQs were found in the present study from a student perspective about the MCQs¹⁷. One of the studies was done at Jeddah in 2015, included 600 numbers of participants from 4th, 5th, and interns to survey the perceptions towards assessment methods. Significant numbers of participants choose MCQs as the best assessment tool, among others. The same reasons were responding by the medical students of this study^{18, 19}. One of the studies was done among the dental students and was divided into two groups based on their year of matriculation and a significant gap from matriculation to admission. That means of the essay questions showed more accurate evaluation as compared to others. In the present study, the students highlighted the MCQs more reliable tool for assessment and accepted the essay question with a certain level of restriction²⁰. By the study results, there was no gender-based difference in acquiring assessment methods and achieve higher grading among males and females. Similar results were found in this study, with no gender-based alteration in adopting assessment methods²¹.

CONCLUSION

Following the results of the present study concluded that MCQs are a more preferred assessment tool among the students of medical sciences in comparison with the essay question. MCQs covers more content area in a limited period and assess the higher level of cognition; the level of competency depends on the quality structure of MCQs. Essay questions are essential to enhance the writing expression, while the preparation of MCQs takes some time.

Author's Contribution:

Concept & Design of Study:	Hina Khan
Drafting:	Sadia Sundus, Muhammad Sajid Khan
Data Analysis:	Munawar Hussain, Nighat Seema, Raja Faisal
Revisiting Critically:	Hina Khan, Sadia Sundus
Final Approval of version:	Hina Khan

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Dwivedi C. A study of Selected-Response Type Assessment (MCQ) and Essay Type Assessment Methods for Engineering Students. *Journal of Engineering Education Transformations*. 2019 Jan 31;32(3):91-5. <http://dx.doi.org/10.16920/jeet%2F2019%2Fv32i3%2F143024>

2. Pellegrino JW. Assessment as a positive influence on 21st century teaching and learning: A systems approach to progress. *Psicología Educativa* 2014;20(2):65-77.<https://doi.org/10.1016/j.pse.2014.11.002>
3. Kaipa RM. Multiple choice questions and essay questions in curriculum. *J Appl Res Higher Educ* 2020 Apr 27.<https://doi.org/10.1108/JARHE-01-2020-0011>.
4. Bird JB, Olvet DM, Willey JM, Brenner J. Patients don't come with multiple choice options: essay-based assessment in UME. *Medical education online* 2019;24(1):1649959-68.<https://doi.org/10.1080/10872981.2019.1649959>
5. Pellegrino JW, DiBello LV, Goldman SR. A framework for conceptualizing and evaluating the validity of instructionally relevant assessments. *Educational Psychologist* 2016;51(1):59-81.
6. Gronlund NE. *Assessment of student achievement*. Allyn & Bacon Publishing, Longwood Division, 160 Gould Street, Needham Heights, MA 02194-2310; tele; 1998.
7. Al-Rubaish AM, Al-Umran KU, Wosornu L. An audit of assessment tools in a medical school in eastern Saudi Arabia. *J Family Community Med* 2005;12(2):101-5.
8. Islam Z, Usmani A. Psychometric analysis of Anatomy MCQs in Modular examination. *Pak J Med Sci* 2017;33(5):1138-43.
9. Norcini JJ, McKinley DW. Assessment methods in medical education. *Teaching and Teacher Educ* 2007;23(3):239-50.
10. Tabish SA. Assessment methods in medical education. *Int J Health Sci* 2008;2(2):1-7.
11. Minbashian A, Huon GF, Bird KD. Approaches to studying and academic performance in short-essay exams. *Higher Educ* 2004;47(2):161-76.
12. Baig M, Ali SK, Ali S, Huda N. Evaluation of multiple choice and short essay question items in basic medical sciences. *Pak J Med Sci* 2014; 30(1):3-6.
13. Amin TT, Kaliyadan F, Al-Muhaidib NS. Medical students' assessment preferences at King Faisal University, Saudi Arabia. *Advances Medical Educ Pract* 2011;2:95-103.
14. Scouler K. The influence of assessment method on students' learning approaches: Multiple choice question examination versus assignment essay. *Higher Educ* 1998;35(4):453-72.
15. Batool H, Mumtaz A, Chughtai AS. Perception of Undergraduate Medical Students about different formats of assessment in subject of Pathology. *J Univ Med Dent Coll* 2017;8(2):40-5.
16. Rathi RB, Rathi B. Evaluation of third year BAMS students perception and feedback on Teaching-Learning Methods of Kaumarbhritya. *J Ind System Med* 2018;6(3):130-7.
17. Kurtz JB, Lourie MA, Holman EE, Grob KL, Monrad SU. Creating assessments as an active learning strategy: what are students' perceptions? A mixed methods study. *Med Educ online* 2019;24(1):1630239-50.
18. Ibrahim NK, Al Sharabi BM, Al Asiri RA, Al Otaibi NA, Abdullah N, et al. Perceptions of Clinical Years' medical students and interns towards assessment methods used in King Abdulaziz University, Jeddah. *Pak J Med Sci* 2015; 31(4): 757-62.
19. Capan M, Melser M, Steiner-Hofbauer V, Lilaj B, Agis H, Knaus A, Holzinger A. Knowledge, application and how about competence? Qualitative assessment of multiple-choice questions for dental students. *Medical Education Online* 2020;25(1):1714199-208.
20. Aalaei S, Azizi Tas Ahmadi M, Aalaei A. A Comparison of multiple-choice and essay questions in the evaluation of dental students. *Int J Advanced Biotechnol Res* 2016;7(5):1674-80.
21. Sinha M, Ghate J, Chatur DK, Sinha R. Gender difference in performance of undergraduate medical students for subjective and objective evaluation in physiology. *Int J Sci Rep* 2017; 3(2):22-7.