Original Article

MCQ MULTIPLE CHOICE QUESTIONS EXAMINATION WITHOUT ERRORS IN PHARMACOLOGY

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ABSTRACT

Background: *MCQs have been implemented by several medical institutes during the last few years. Maintaining the high quality of these MCQs is crucial. This study aims to assess the MCQ quality by identifying errors in the item writing of Bacha Khan Medical College's pharmacy examinations.*

Study design: *A cross-sectional descriptive Study*

Duration and place of study: *department of Pharmacology at Bacha Khan Medical College from Jan 2005 to July 2005*

Methods: *This analytical research assessed the item writing flaws (IWF) of multiple-choice questions (MCQs) in terms of (a) issues about irrelevant difficulty and (b) issues about test wisdom, which were used in the Bacha Khan Medical College's final pharmacology examinations. Every multiple-choice question was given a unique rating based on its irrelevant difficulty and test knowledge. Grade 1 was assigned for no IWF, Grade 2 for one IWF, and Grade 3 for several.*

Results: *One hundred MCQs in all were examined. Most of the things were found to be correct in item writing. Of the MCQs of irrelevant difficulty, 75% had no IWF—ninety percent of the multiple-choice questions needed to have test-wise problems.*

Conclusion: *Even though the majority of the multiple-choice questions (MCQs) were free of IWF, a significant portion had errors. It is advised that each topic has a systematic faculty development process to raise the quality of MCQs.*

Key Words: *Item Writing Flaws, MCQs Quality, Evaluation.*

INTRODUCTION

The expression "Assessment drives learning" is often used. An excellent evaluation system is necessary for high-quality learning. There are several evaluation tools available. Each has benefits and drawbacks of its own. Our medical education system uses OSPE, oral viva, short essay questions, and multiple choice questions (MCQs) as evaluation mechanisms. However, in pre-and post-graduate medical exams, multiple choice questions (MCQs) are progressively replacing essays owing to their simplicity of marking, human exclusion, and time factor. Current technology has substantially expanded their viability [2]. Assessing many pupils is relatively simple [3].

Many medical schools have adopted this structure for their high-stakes examinations because of the benefits. Above [4, 6]. Since the previous three years, multiple-choice questions (MCQs) covering a range of medical specialties have been offered by Khyber Medical University, the exam-accounting body for KPK (Khyber Pukhtoon Khwa) public sector medical schools.

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In addition to these benefits, the multiple-choice question (MCQ) test style has several drawbacks. Making an appropriate MCQ takes a lot of work to develop [5]. Assessors must also be trained to prepare documents by the suggested criteria. Because of this, the majority of multiple-choice questions (MCQs) in today's exams do not meet the requirements, which lowers the rigor of MCQs regarding validity and reliability. When the normal criteria are broken, item writing becomes flawed [8, 9]. A normal multiple-choice question (MCQ) should, among other things, be free of errors in item drafting.

The literature has distinguished between two categories of item writing errors. These are Test-Wisdom and Irrelevant-difficulty-related issues.

Most research on "Item Writing Flaws" has shown that most MCQs improve MCQ quality by reducing the incidence of item writing errors. Item writing errors are also a result of not using Test Blue Prints [7]. Vyas 13 said that Item Writing Flaws were caused by faculty inexperience and a lack of time. Possess these shortcomings. Khan [15]. Hansen, [10, 11].

Previous research has shown that due to faculty growth, the incidence of item writing errors reduces annually. There have been suggestions that the shortcomings show the faculty's need for more sufficient training [12]. Better faculty training According to this research, if the item writing flaws had been fixed, 10 to 15% of the failing pupils would have passed the test.

Item writing flaws are also claimed to impact discriminative index and difficulty level. Item flaws also prevent the evaluation of the course goals [33]. Tarrant [14] concluded that although writing questions at a higher level corrects many item writing errors, eliminating IWF does not alter the cognitive domain.

MATERIALS AND METHODS

The research was carried out using a quantitative, cross-sectional, descriptive approach. This study comprised 100 multiple-choice questions (MCQs) from the MCQs bank from the Pharmacology final (internal evaluation) examinations.

Two independent assessors examined each multiple-choice question (MCQ) independently for two different kinds of item writing errors: irrelevant difficulty and test-wiseness. The evaluation instru-

ments for the two categories of item writing errors are shown in Tables 1 and 2. Test wisdom and irrelevant difficulty were two different ratings assigned to each multiple-choice item. MCQ was graded as follows: (1) if there were no item writing errors; (2) if there was one item writing error; and (3) if there were multiple items writing errors.16. Every MCQ item's item writing flaws were identified by two evaluators. The agreement between the two assessors was ascertained using the Kappa test.

RESULTS

Test wisdom and irrelevant difficulty were the two types of item writing flaws on which multiple-choice questions were assessed.

Unimportant Difficulty

According to the results, 75% of the MCQs had no problems with irrelevant difficulty, and 20% of the items had a single item with irrelevant difficulty. Only 5% of the items had more than one Grade 3 item for Irrelevant Difficulty. The proportion of MCQs graded based on unrelated difficulty factors is shown in Figure 1. Not containing any writing errors (IWF) Two IWFs. 3. More than two IWF

The results indicate that 90% of the multiple-choice questions (MCQs) had no Test Wisdom difficulties (ranked as 1), but just 8.5% of the items had one difficulty. Less than 1.5% of the items had more than one problem. The proportion of MCQs assessed based on Test-Wisdom concerns is shown in Figure 2.
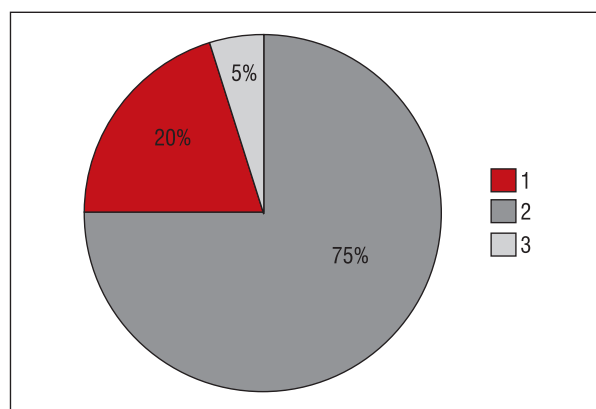

Fig 1: Percentage of Multiple choice Questions rated according to Irrelevant Difficulty Issues
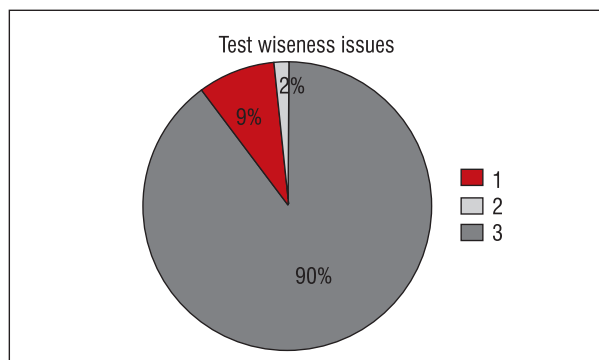
Fig 2: Percentage of Multiple choice Questions rated according to Test wisdom issues

Table 1: Tools for Test-wisdom

MCQ No.Score	Issues related to Test wisdom
	Grammatical cues - one or more distractors don't follow grammatically from the stem
	Logical cues - a subset of the options is collectively exhaustive
	Absolute terms - terms such as "always" or "never" are in some options
	Long correct answer - correct answer is longer, more specific, or more complete than other options
	Word repeats - a word or phrase is included in the stem and in the correct answer
	Word repeats - a word or phrase is included in the stem and in the correct answer
	Convergence strategy - the correct answer includes the most elements in common with the other options

Rating of MCQ according to the issues of test wisdom

Table 2: Tools related to Irrelevant Difficulty

MCQ No.Score	Issues Related to Irrelevant Difficulty
	Options are long, complicated, or double
	Numeric data are not stated consistently
	Terms in the options are vague (e.g., "rarely," "usually")
	Language in the options is not parallel
	Options are in a non-logical order
	"None of the above" is used as an option
	Stems are tricky or unnecessarily complicated
	The answer to an item is "hinged" to the answer of a related item".

Rating of MCQ according to Irrelevant Difficulty

DISCUSSION

Based on the study's findings, most multiple-choice questions (MCQs) needed item writing errors. Of the MCQs of irrelevant difficulty, 75% had no IWF of any kind. Ninety percent of the multiple-choice questions needed to have test-wise problems.

The majority of earlier research conclusions indicated a high degree of IWF. In research by Tarrant 8, item writing errors occurred 46% of the time. Hanson 10 discovered in another investigation that it was 75%. Downing displayed 46%. In the 2009 exam, Khan 15 discovered 67% of the answers were for irrelevant difficulty and 21% for test wisdom. In the following years, the rate drops to 21% for all flaws. This improvement in their research was credited to the faculty members' discovery of flaws [15].

We may have separated the Item Writing Flaws into smaller groups, which reduced the total % for IWF, which may account for the low proportion of Item Writing Flaws (good quality of MCQ) in our research. Another explanation may be that their IWF marking system is more stringent than ours.

Talk:

Identifying IWF brings to light the information that instructors need to get to develop MCQS[12]. Studies have shown that MCQ quality has increased with faculty training due to a decrease in IWF 13 and 15. Every university should conduct appropriate seminars about the MCQ item writing guidelines.

CONCLUSION

A significant percentage of the multiple-choice questions (MCQs) contained mistakes, even though most were free of IWF. To improve the caliber of MCQs, it is suggested that each subject have a methodical faculty development approach.

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