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Research Article

QUIZ AS AN ACADEMIC TOOL FOR TEACHING LEARNING PHARMACOLOGY IN INDIAN MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objectives: The aim of the study is to analyze the effectiveness of quiz as an academic tool for teaching learning pharmacology.

Methods: The study enrolled 150 students of MBBS Phase 2 (batch 2022) of GS Medical College and Hospital, Hapur. Quizzes were conducted throughout the year and feedback was collected by students at the year end.

Results: The data were compiled and analyzed in Microsoft Excel 2016 and is expressed as percentages/number.

Conclusion: Quiz is an effective and interactive teaching-learning method.

Keywords: Quiz, Pharmacology, Feedback.

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INTRODUCTION

As times are changing, the need to reinvent and renew the education system to maximize its effectiveness is increasingly felt. The medical curriculum being an exception to it. Application of knowledge in day-to-day life reflects the success of imparted knowledge gained through any educational tool. Thus, the teaching methodology has changed drastically over the period of time, and now it is shifting toward small group teaching in the form of group discussions, demonstrations, tutorials, and seminars as compared to didactic lectures in large groups using blackboard teaching, overhead projectors, and PowerPoint presentations [1]. Poor results in traditional methods for promoting students' creativity have become the stimulus to finding out newer modalities of teaching [2].

Conventional didactic lectures tend to be very monotonous and make students more oriented toward passing exams by memorizing isolated facts without understanding [3]. The use of effective teaching and learning strategies is crucial for the education system. Therefore, educators must focus on learners and the learning strategy and also, they should strive to adopt new teaching approaches [4].

Furthermore, the concept of passive teaching, for example, didactic lectures is increasingly becoming redundant. Learning process is considered more robust and valuable when there is active participation from the students. Medical colleges should embrace small group learning by introducing tutorials, seminars, workshops, and group practical, where learners can construct their own knowledge [1].

Various teaching styles have been experimented upon to involve students more and refine their critical thinking and attitude [5]. Active learning gets reflected the way learners have developed and changed their attitude and aptitude while analyzing, evaluation, and synthesis of various concepts learned. More emphasis is placed on developing students' skills and engaging them in activities, for example, reading, discussions, and writing [6].

To make teaching more interesting and interactive which also motivates student to gain and develop an attitude for in-depth learning, various teaching-learning methods (such as broken lectures, crossword puzzles, quizzes, think-pair-share activities, etc.) have been developed over a period of time [7,8]. Various studies done in the past reflect that active participation by students in the learning process helps them to retain the information for longer period as compared to when they were mere a passive recipient [9,10].

The present study is planned to explore the use of such an intervention as a tool to analyze deep learning. The study was undertaken to assess the effectiveness of quiz as an academic tool. A quiz was chosen to involve students actively through team participation, develop their interest in pharmacology, and improve their existing knowledge on the subject.

METHODS

Subjects

One hundred and fifty MBBS Phase 2 students (batch 2022) participated in the quiz. The quiz was organized in the lecture theatre of institute.

Instruments

The quiz covered many systems and had questions that tested concepts, applied aspects, recent advances, Scientists, etc. The following rounds were conducted:

- General pharmacology round
- Systemic and applied pharmacology round
- Visual round
- Rapid fire round.

Later on, anonymous feedback was taken from the students under the following headings:

- Pattern of team formation
- Weightage of topics
- Frequency of quizzes
- Duration of each quiz

- Pattern of scoring
- Time for answering questions
- Contents of the quiz
- Different rounds of the quiz
- Difficulty level
- Usefulness in study.

Methodology

One hundred and fifty students of MBBS Phase 2 of GS Medical College and Hospital (batch 2022) voluntarily enrolled for the quiz and were divided into three major groups. Four students from each group were selected in a randomized manner using preliminary rounds to represent their group for each system. The range of topics consisted of many systems and had questions that tested concepts, applied aspects, latest advances, Scientists, etc. The quiz had four rounds: The general pharmacology round, the systemic and applied pharmacology round, the visual round, and the rapid-fire round. Such quizzes were conducted once every 2–3 months for spacing and reinforcement and were of 100 marks each. The winning teams were awarded suitable prizes as an incentive. The duration of each quiz lasted for around an hour and the pattern of scoring consisted of no negative marking. Students were given approximately 1 min time to answer each question. The difficulty level was moderate-hard and the questions were framed from standard textbooks of pharmacology. The incorrectly answered questions were passed on to the audience, and scores were given to correct answers in the audience as an incentive to facilitate cooperative and competitive learning. Teams entering final rounds were decided based on their total scores (score of teams during the participation in respective quiz round and scores attained as audience during quiz of other teams). At the end of the year, they were given a feedback form that had to be filled out anonymously. It had a Likert scale (strongly disagree to agree strongly) that was further analyzed.

Statistical analysis

The data were compiled and analyzed in Microsoft Excel 2016 and is expressed as percentages/number.

RESULTS

i. Feedback on overall usefulness pharmacology quizzes in the study.
   Inference: 59% of students strongly liked the quiz, 40% liked it and only 1% of the students did not like it.
ii. Feedback on structure (content, organization and execution) of the quizzes.
   Inference: Majority of the students liked various contents and organization of the quiz.
iii. Feedback on overall participation and active learning of the quizzes.
   Inference: Most of the students participated actively in the quiz.

DISCUSSION

More and more creative approaches are being used to improve medical education like quizzes in the current context. Our study found that the maximum number of participants liked/strongly liked the inclusion of quiz as an academic tool and found it useful in studies. Furthermore, most of the students liked the content, procedure, and manner of the quiz.

Enthusiastic and trained teachers are now trying to make lectures more interactive and interesting by innovative interventions to encourage deep learning in students [8]. Andragogy, coined by Knowles and Holton, differs from pedagogy in some aspects, such as relevance, congruence with student's needs, interactivity, and connection to student's previous knowledge and experience [11]. Among the various teaching models forwarded for andragogy, one is active learning, where the learner actively participates in his/her learning [12]. Learning is likely to be more efficient when students are actively engaged in a discourse in which they are co-constructors of meaning [13,14].

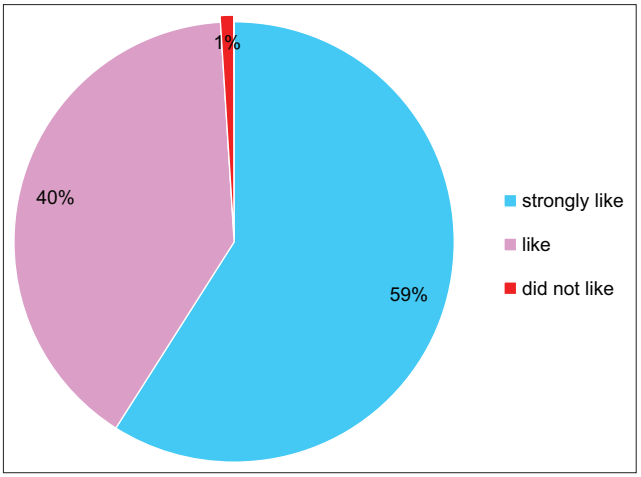

Fig. 1: Students' perspective on overall useful of the quiz

Critical thinking approach of students gets reflected in the questions they ask which forms the very basics of learning. "Skill in the art of questioning forms the basis of all good teaching" [15].

Students appreciated this activity as they found it more interactive and interesting as it helped them being more inquisitive. They viewed the quiz as an opportunity to comprehend the topic and understand the nuances of it. Hesitation prevailing among the students regarding asking questions has also declined which helped them to learn the topics more in-depth. Faculty members are also in favor of this kind of activity as they found that it has multiple benefits such as renewal of team spirit and better bonding among students and faculty members within the department. This intervention is also found to be very economical in terms of logistics involved, no separate module/schedule is required to conduct and complete this activity; hence, one single motivated and dedicated faculty member can also perform this activity with the students.

Thus, quiz in an innovative way may be successful in increasing the in-depth knowledge of the students. However, students find that to motivate themselves for self-study is a challenging task. It is a time-consuming approach and Quiz-based reinforcement systems show promise in fostering active engagement, collaboration, healthy competition, and real-time formative feedback [16].

The limitations of this study were our inability to objectively assess the level of questions and improvement in students' concepts after that. Furthermore, only the teams that were chosen for the quiz were assessed for a particular system although the questions that were incorrect/passed were open to score for the audience later on.

CONCLUSION

From the result of this study, it is evident that the Quiz-based learning process is more interactive and it increased the participation among students. Along with that, it was found in this study that curiosity and eagerness to learn have also increased among the students. The format of the Quiz can be changed according to specific goals based on the target audience and the objective that the teacher wants to achieve. The Quiz-based learning can be made more effective by keeping it dynamic and flexible, which means the format, content, and level of difficulty should be titrated to the needs, strengths, and weakness of the students.

AUTHORS' CONTRIBUTIONS

Dr. Shipra Kaushik and Dr. Shobhit Kaushik contributed in concept and design of the study and in analysis of data. Drafting and revision of manuscript were done by Dr. Jayant Rai and Dr. Harshwardhan.

CONFLICTS OF INTEREST

Nil.

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