

Effectiveness of Incorporating MCQ in Orthodontic Lectures on Short Term Knowledge Retention of BDS Students

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ABSTRACT

Aim: To determine the effect of incorporating multiple choice questions (MCQ) in orthodontic lectures on knowledge retention of BDS students.

Methods: Present study was conducted on 40 BDS final year students of Dental section, Faisalabad Medical University. Students were divided into 2 groups of 20 each. One group received a traditional didactic lecture and other received the same lecture integrated with at least 3 MCQs. Students completed an assessment of MCQ before and immediately after the lecture to determine the effect on knowledge retention. ANOVA test was used for comparison of MCQ scores in both the groups. The level of significance was determined at $p \leq 0.05$.

Results: Results showed that incorporating MCQ in the orthodontic lectures led to statistically significant increase in MCQ scores immediately after the lecture.

Conclusion: The incorporation of MCQ in orthodontic lectures does lead to a significant increase in short term knowledge retention of BDS students.

Keywords: MCQs; Orthodontic; Medical education.

INTRODUCTION

Traditional didactic lectures are basically a part of teacher centric teaching which is devoid of engaging students in learning process¹. In higher education there is increase trend toward switching from teacher centric teaching to student centric teaching²⁻⁵. Student centric teaching having component of active interactions is helpful for learner's development⁶.

Effective learning depends on many factors⁷⁻¹⁰ such as; outcome focused approach, student centric learning, teaching environment, motivation of students and teachers, and student-teacher interactions. Teachers are concerned about student-teacher interaction while delivering lecture to large group of students.¹¹ The audience response system is one of the methods that can be used to engage large group of students while delivering lecture as it allows teachers to get immediate assessment and evaluation¹²⁻¹⁵.

The main disadvantage of audience response system is its cost. Incorporation of Multiple choice questions (MCQ) in lectures can also be used as a tool to engage large group of students while delivering lecture as it can allow teachers to get immediate assessment and evaluation¹¹. This may also allows teachers to get feedback into how to improve their teaching effectiveness and may also allows students to improve their knowledge retention.

The aim of present study was to determine the effect of incorporating multiple choice questions (MCQ) in orthodontic lectures on knowledge retention of BDS students.

MATERIAL AND METHODS

This randomized control trial was conducted at Faisalabad medical university, Pakistan from July 2017 to Feb 2018. Non-probability purposive sampling technique was used. The sample size was based on the total number of fresh BDS students that just got promoted from third year BDS after the final summative assessment¹⁶.

Inclusion Criteria

Fresh final year students of BDS

No prior orthodontic teaching or knowledge

Exclusion Criteria

Detained students or students repeating the final year
Prior orthodontic teaching sessions

According to the selection criteria, 40 fresh BDS final year students of Dental section, Faisalabad Medical University were selected. Students were divided randomly into 2 groups of 20 each, using random number table method.

One group received a traditional didactic lecture and other received the same lecture integrated with at least 3 MCQ. Students completed an assessment of MCQ before and immediately after the lecture to determine the effect on knowledge retention. The lecture in second group consisted of 50 slides of which 3 slides were MCQ based. The topic of lecture was basic definitions of occlusion, normal occlusion,

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ideal occlusion and malocclusions. Teaching delivery was standardized so that the teaching material conveyed to BDS students by the teacher was as similar as possible. Data collected was analyzed by using software SPSS version 20.0. ANOVA test was used for comparison of MCQ scores in both the groups. The level of significance was determined at $p \leq 0.05$.

RESULTS

The difference in mean MCQ between the groups at baseline was statistically insignificant ($P=0.087$). (Table I). The difference in mean MCQ between the groups at post lecture stage was statistically significant ($P=0.000$). The improvement in MCQ scores in both the groups from baseline to post lecture stage increases statistically significantly ($P=0.000$). (Table I)

Table 1: Comparison of MCQ scores in two groups at different times

	Baseline		Post lecture		Difference		P value
	Mean	SD	Mean	SD	Mean	SD	
Conventional lecture	5.5	2.2	7.7	2.1	2.2	1.6	0.000
MCQ integrated lecture	7.3	1.6	12.1	1.7	4.8	1.7	0.000
Difference	1.8	0.7	4.4	0.5	2.6	1.4	
Significance	0.087		0.000		0.000		

DISCUSSION

Traditional didactic lectures are basically a part of teacher centric teaching but in higher education there is increase trend toward switching to student centric teaching.¹⁻³ Effective learning depends on many factors. Teachers are concerned about student-teacher interaction while delivering lecture to large group of students. Incorporation of Multiple choice questions (MCQ) in lectures can also be used as a tool to engage large group of students while delivering lecture as it can allow teachers to get immediate assessment and evaluation and may also allows students to improve their knowledge retention¹¹.

The aim of present study was to determine the effect of incorporating multiple choice questions in orthodontic lectures on knowledge retention of BDS students. The sample size was based on the total number of fresh BDS students that just got promoted from third year BDS after the final summative assessment¹⁶.

Present study was conducted on 40 BDS final year students of Dental section, Faisalabad Medical University. Students were divided into 2 groups of 20 each. One group received a traditional didactic lecture and other received the same lecture integrated with at least 3 MCQs. Students completed an assessment of MCQ before and immediately after the lecture to determine the effect on knowledge retention.

Results showed that the difference in mean MCQ between the groups at baseline was statistically insignificant. The difference in mean MCQ between the groups at post lecture stage was statistically significant. The improvement in MCQ scores in both the groups from baseline to post lecture stage increases statistically significantly.

Thus it was found that the incorporation of MCQ in orthodontic lectures does lead to a significant increase in short term knowledge retention of BDS students. Results are in agreement with findings of Brady and Pampllett, both of them, found that MCQ can test large group of students, in a short time^{17,18}. The present study shows that there is key role of assessments for learning, and the importance of assessment, not at the end but for educational improvement^{19,20}. Therefore the implications of present study influence not only on BDS students, but also on orthodontic lecturers.

Limitation of current study is small sample size, further large scale studies are suggested to determine the effect of incorporating multiple choice questions in orthodontic lectures on knowledge retention of BDS students.

CONCLUSION

The incorporation of MCQ in orthodontic lectures does lead to a significant increase in short term knowledge retention of BDS students.

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