



PROBLEM BASED LEARNING; DENTAL INTERNS' PERCEPTION OF PROBLEM BASED LEARNING IN ORTHODONTIC MEDICAL EDUCATION ON CASE PLANNING

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ABSTRACT... Introduction: The research for finding the most effective teaching method is still on. The aim of current study was to find out the perceptions of dental interns after a problem based learning (PBL) sessions on a topic of orthodontic case planning. **Study Design:** Experimental, Quasi study. **Setting:** Orthodontic Dental Section, Faisalabad Medical University. **Period:** 15.8.2017 to 5.2.2018. **Materials & Methods:** Thirty two dental interns were selected at Orthodontic Dental Section, Faisalabad Medical University. On initial case planning sessions, baseline theoretical knowledge was provided on the topic of 'Premolar extractions'. In between the sessions dental interns were asked to answer five multiple choice questions relative to one orthodontic case (OPG, Lateral cephalograms, Photographs) they were given. On a final case planning sessions, orthodontic case discussion case took place with an expert orthodontist, at the end of which dental interns were asked to rate their experiences about PBL session by filling questionnaire anonymously. **Results:** Results showed that dental interns perceived PBL to stimulate their attentiveness, interest, and interactivity with fellow interns, motivation for additional case study and learning efficacy. **Conclusion:** Perceptions of dental interns were positive after a problem based learning attempt on a topic of orthodontic case planning.

Key words: Problem Based Learning; Medical Education; Orthodontic.

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INTRODUCTION

There are various teaching methods in the field of medicine and dentistry.¹ Most of the commonly methods are didactic in nature in which learners are usually passive.² The research for finding the most effective teaching method is still on, with special emphasis on methods in which learners do active interactions.³

Problem based learning (PBL) in dentistry is a dynamic learning approach in which dental interns explore real world dental cases, do active interactions to solve case based problems.⁴⁻⁸ PBL process usually consists of small group of students with a PBL mentor or facilitator. Group usually meet twice a week for 2-3 hours. In first meeting students are usually trigger with an unfamiliar problem, in between the sessions students formulate problem list and a tentative plan and on second meeting students discuss case planning in presence of PBL mentor.^{9,10} They

discuss what they have learnt and apply this to original case to solve it.

Current evidence suggests that using small group interactive case based study sessions is more likely to lead to changes in doctor's behaviour in routine clinical practices.³ Goals of PBL sessions are to facilitate students in developing case solving abilities, and to stimulate attentiveness, interest, and interactivity with fellow interns, motivation for additional case study and learning efficacy.¹¹⁻¹⁵

Current orthodontic evidence suggests that there are very few studies on subject of investigating perceptions of dental interns after a problem based learning attempt on a topic of orthodontic case planning. Therefore, this study was designed with an aim to find out the perceptions of dental interns after a problem based learning attempt on a topic of orthodontic case planning.

METHODS

Study Design

Experimental, Quasi study.

Setting and Duration

Orthodontic Dental Section, Faisalabad Medical University. From 15.8.2017 to 5.2.2018

SELECTION CRITERIA

Inclusion Criteria

Dental interns which are new to orthodontic department
 No prior orthodontic experience of orthodontic case planning sessions

Exclusion Criteria

Senior dental interns / dental surgeons

Data Collection Procedure

Sample size was calculated using stats from previous studies^{16,17} and a statistical nomogram. With power of research set at 0.80, sample size was found to be 32 dental interns.

Thirty two dental interns were selected at Orthodontic Dental Section, Faisalabad Medical University. On first case planning session, baseline theoretical knowledge was provided on the topic of 'Premolar extractions'. In between first and second case planning sessions dental interns were asked to answer five multiple choice

questions relative to one orthodontic case (OPG, Lateral cephalograms, Photographs) they were given. On a later case planning sessions which took place 5 days after the initial sessions, orthodontic case discussion on answered questions by dental interns on same provided case took place with an expert orthodontist, at the end of which dental interns were asked to rate their experiences about problem based learning session by filling questionnaire anonymously. Questionnaire consisted of 5 questions which were to be answered using a 1-4 ranking scale (Table-I).

Statistical Analysis

Descriptive statistics were applied, using SPSS version 19.0. Results to responses were presented in form of frequency and percentages. The overall response to each asked question was presented in form of mean and standard deviation.

RESULTS

All 32 dental interns returned the filled questionnaires; response rate to all the asked questions was 100%. (Table-I)

Results showed that there was a high rate of agreement in all questions. Dental interns perceived problem-based learning to stimulate their attentiveness, interest, and interactivity with fellow interns, motivation for additional case study and learning efficacy (Table-II).

Questions	Strongly disagree	Disagree	Agree	Strongly agree
1. PBL made me more attentive while session				
2. PBL made the session more interesting				
3. PBL made my learning more efficient after session				
4. PBL made me do more interactions while session				
5. PBL motivated me to do more case study before session				

Table-I. Questionnaire about problem based learning (PBL)

Parameter		Strongly disagree	Disagree	Agree	Strongly agree	Total	Mean	SD
Attentiveness	N	0	2	20	10	32	2.99	0.52
	%	0%	6.25%	62.50%	31.25%	100%		
Interest	N	0	4	18	10	32	3.02	0.44
	%	0%	12.50%	56.25%	31.25%	100%		
Learning efficacy	N	0	2	22	8	32	2.91	0.55
	%	0%	6.25%	68.75%	25%	100%		
Communication with fellow interns	N	0	2	18	12	32	2.77	0.45
	%	0%	6.25%	56.25%	37.50%	100%		
Motivation for more study	N	0	4	18	10	32	2.84	0.43
	%	0%	12.50%	56.25%	31.25%	100%		

Table-II. Perceptions of dental interns after a problem based learning (PBL) attempt on a topic of orthodontic case planning

DISCUSSION

PBL is one the best way to facilitate students in developing case solving abilities, and to stimulate attentiveness, interest, and interactivity with fellow interns, motivation for additional case study and learning efficacy.^{18,19} Present study was designed with an aim to find out the perceptions of dental interns after a problem based learning attempt on a topic of orthodontic case planning.

Thirty two dental interns were selected at Orthodontic Dental Section, Faisalabad Medical University. On initial case planning sessions, baseline theoretical knowledge was provided. In between the sessions dental interns were asked to explore one orthodontic case they were given. On later case planning sessions, orthodontic case discussion took place with an expert orthodontist, at the end of which dental interns' perception was recorded. The participation of dental interns was satisfactory as shown by 100% response rate, it could be due to the fact that response sheet were collected immediately. This is in agreement with the findings of one study by Mavragani M.²⁰

Results showed that dental interns perceived problem-based learning to stimulate their attentiveness, interest, and interactivity with fellow interns, motivation for additional case study and learning efficacy. Results of current study are in agreement with findings of McKenzie,²¹ Kumar,²² and Zhang et al,²³ who reported positive experiences of dental students regarding PBL sessions. McKenzie²¹ in his study in 2012 reported that PBL was found to be having

positive influence on students' knowledge, skills and communication skills. Kumar²² in his study in 2011 reported that 71% of final year BDS students felt that PBL helped them learn the oral and maxillofacial radiology content in a more comprehensive way.

Thus perceptions of dental interns were positive after a problem based learning attempt on a topic of orthodontic case planning. Limitation of current study are its small sample size, however, within these limitations present study provided useful data regarding perceptions of dental interns after a problem based learning attempt on a topic of orthodontic case planning. Future studies with increase sample size are suggested.

CONCLUSION

Perceptions of dental interns were positive after a problem based learning attempt on a topic of orthodontic case planning.

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Doubt kills more dreams than failure ever will.
 – Suzy Kassem –”

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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2	Zubair Hassan Awaisi	Data recording and analysis, Written the manuscript	
3	Yasmeen Anwar	Data analysis.	
4	Arusha Azeem	Data analysis.	