

ASSESSMENT OF CONFIDENCE LEVEL AMONGST UNDERGRADUATE DENTAL STUDENTS IN PERFORMING VARIOUS RESTORATIVE PROCEDURES

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ABSTRACT

This study was done to assess the confidence level of final year undergraduate dental student in terms of their perception at diagnosis of different types of carious lesion, incipient caries, arrested caries, interpretation of radiograph, applying pit and fissure sealants, PRR, use of Mylar strip, and applying rubber dam. This subjective cross-sectional study was conducted at CMH Institute of Dentistry. An anonymous questionnaire was distributed among final year dental students. The questionnaire utilized scaled response to determine the level of confidence for diagnosing various carious lesions, rubber dam application, PRR, applying pit and fissure sealants, use of Mylar strip, performing endodontic treatment. Confidence level was categorized using a 3 point modified Likert's scale as 1=not at all confident, 2=neutral 3=confident. Data were entered and analyzed in SPSS version 20. Counts and percentages were measured for various parameters of respondent's confidence level. The students expressed their confidence in performing basic dental and restorative procedures however low confidence level was expressed in students in performing endodontic treatment in anterior and posterior teeth.

Key words: Dental procedures, student's perception, self-assessment, Likert's scale

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INTRODUCTION

As the life expectancy has increased worldwide, there's a spike in life expectancy due to improvement in general physical health. This has been attributed to greater advancement in health care facilities.¹ This increase in life expectancy urges the patient to preserve their natural dentition in order to enjoy life, good food and taste. This increase in public demand necessitates dental students to effectively diagnose any dental disease, design a treatment plan and execute a safe dental procedure.²

Worldwide dental schools having varying criteria for undergraduate dental students in each dental specialty be it restorative or endodontic dentistry.³

For an undergraduate dental student the curriculum is designed in such a way that apart from theory exam, one has to go through certain number of clinical cases and must be skilled in certain competencies set up by the dental college.³

Similarly the undergraduate student should have adequate experience of endodontic treatment. It is emphasized that the student should be able to complete a specific number of quota that fulfills the quality of work.^{4,5} A dentist who has acquired the necessary competencies in the field of endodontics is obliged to be equipped with multiple qualifications including appropriate patient approach, pain and anxiety management.⁵

Ideally an undergraduate student should have acquired necessary knowledge during graduation so that s/he is able to diagnose dental caries, tooth wear and endodontic cases.⁵ Though there are various studies that aim to evaluate the preparedness of the new graduate for clinical practice in general, to our knowledge there is no study that specifically focuses on endodontics and its clinical content. Therefore, it is anticipated that the present study will be contributory in drawing a general picture regarding students'

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self-evaluation of themselves in a branch they will very frequently be involved in when they start working for the community. Reviewing the literature reveals that there is insufficient data available regarding on quality of endodontic treatment provided by undergraduate students, but less literature is available regarding self- perception of students how do they evaluate their self-confidence in performing various restorative and endodontic procedures.⁶ It will help the teachers to revise and reconsider their teaching methods and it will improve on quality of curriculum and education⁴. This study aimed at evaluating perception and self-confidence of undergraduate dental students regarding diagnosing different caries, performing various restorative procedures and endodontic treatment.

MATERIAL AND METHODS

This cross-sectional study was conducted at CMH Lahore Medical College institute of dentistry. A verbal consent was taken from study respondents. A total of 62 undergraduate students who have done their rotation in operative dentistry were included. The students were informed that their participation was voluntary and their response would not affect their grading of academic performance. They were also explained about confidentiality of their identification and right to participate or refusal. After filling demographics including age and gender the undergraduate students were asked to fill some questions that includes diagnosis of caries, incipient caries and arrested caries. The students filled the questionnaire to answer these questions .Each question consisted of three options which showed the level of confidence at each step. They marked their level of confidence using a modified version of three-point Likert's scale⁷ which is 1=not at all confident, 2=neutral, 3=confident. After collecting the questionnaire that data was analyzed using statistical package for social sciences (SPSS) version 20. Quantitative variable like age was measured as mean and standard deviation. Qualitative variable like gender and confidence level were measured as frequency and percentage

RESULTS

In this study, out of 62 undergraduate dental students, 17 (27.4%) were male and 45 (72.6%) were female. Mean age of participants was. 22 years. In table 1 dental procedures were listed, mean and standard deviation were mentioned for each procedure. In table 2 confidence score of various dental procedures were mentioned .The P –value was kept at 0.05 ,value less than 0.05 was considered significant .The significance value of various dental procedures were mentioned in table 2.

Self- perceived perception of dental students regarding performing of vitality testing was categorized

in 3 point scale .Out of 62 students 12 students (19.4%) were not confident. 29 students (46.8%) were neutral .remaining 21 students (33.9%) were confident in terms of performance of vitality independently.

For interpretation of periapical and bitewing radiograph 4 students (6.5%) had no confidence that they will be able to interpret radiograph independently, 34 students (54.8%) were neutral and rest 24 students (38.7%) were confident in interpretation of radiograph.

For rubber dam placement 9 students (14.5%) had no confidence in placement of rubber dam, 11(17.7%) were neutral, remaining 42 students (67.7%) were confident that they can place rubber dam independently.

Regarding single visit root canal treatment 36 student (58.1%) had no confidence, 18(29.0%) were neutral, rest 8 (12.9%) were confident.

For bicuspid root canal treatment 40 students (64.5%) had no confidence in performing root canal ,17(27.4%) students were neutral ,rest 5(8.1%) were confident in performing root canal independently.

Regarding caries detection clinically 1 student (1.6%) had no confidence 12 students (19.4%) were neutral, rest 49(79.0%) were confident in performing caries detection.

For arrested caries 2 students (3.2%) had no confidence, 21 student's (33.9%) were neutral and the rest 39 (62.9%) were confident.

TABLE 1: DIFFERENT DENTAL PROCEDURES PERFORMED BY FINAL YEAR STUDENTS

Dental procedure	Mean	Standard deviation
Vitality test	2.1935	.69751
Interpretation of radiograph	2.3226	.59435
Rubber dam application	2.5323	.74035
Arrested caries	2.5968	.55691
Bicuspid root canal treatment	1.4355	.64327
Single root canal treatment	1.5484	.71695
Pit and fissure sealants	2.0968	.80388
Shade selection	3.0484	3.80434
Mylar strip application	2.6129	.58267
PRR	2.0806	.81579
Prophy and scaling	2.3548	.67985

TABLE 2: CONFIDENCE SCORE OF UNDERGRADUATE DENTAL STUDENTS

Dental procedure	No confidence	Neutral	Confident	Total	P-value
Vitality					
Male	4.8%	14.5%	8.1%	27.4%	.581
Female	11.3%	33.9%	27.4%	72.6%	
Interpretation of radiograph					
Male	1.6%	16.1%	9.7%	27.4%	.788
Female	4.8%	38.7%	29.0%	72.6%	
Rubber dam application					
Male	3.2%	8.1%	16.1%	27.4%	.497
Female	11.3%	9.7%	51.6%	72.6%	
Single RCT					
Male	19.4%	3.2%	4.8%	27.4%	.400
Female	38.7%	25.8%	8.1%	72.6%	
Bicuspid RCT					
Male	22.6%	1.6%	3.2%	27.4%	.137
Female	41.9%	25.8%	4.8%	72.6%	
Arrested caries					
Male	1.6%	11.3%	14.5%	27.4%	.295
Female	1.6%	22.6%	48.4%	72.6%	
Caries detection clinically					
Male	0.0%	6.5%	21.0%	27.4%	.707
Female	1.6%	12.9%	58.1%	72.6%	
Prophy and scaling					
Male	3.2%	6.5%	17.7%	27.4%	.151
Female	8.1%	35.5%	29.0%	72.6%	
Pit and fissure sealants					
Male	9.7%	4.8%	12.9%	27.4%	.840
Female	17.7%	30.6%	24.2%	71.6%	
Shade selection					
Male	8.1%	3.2%	16.1%	27.4%	.095
Female	4.8%	12.9%	53.2%	72.6%	
Mylar application					
Male	3.2%	6.5%	17.7%	27.4%	.710
Female	1.6%	22.6%	48.4%	72.6%	

For incipient caries 10 students (16.1%) had no confidence, 29(46.8%) were neutral and 23 (37.1%) were confident.

Regarding prophy and scaling 7 students (11.3%) had no confidence, 26 students (41.9%) were neutral and 29 (46.8) were confident.

Regarding pit and fissure sealants 17 students (27.4%) had no confidence, 22(35.5%) were neutral and 23 (37.1%) were confident.

Regarding PRR 18 students (29.0%) had no confidence, 21 students (3.9%) were neutral and 23 (37.1%) were confident.

DISCUSSION

Worldwide the dental education programs are undergoing constant revision, the previous old and traditional methods have been replaced with modern Competency-based approach and the objective is to improve the understanding, skills, and professional

values amongst the dental students.^{8,9}

In the present study students' self-confidence regarding clinical procedures is evaluated rather than competence. Self-confidence is a psychological characteristic that reflects a person's trust in his or her ability to successfully complete an activity. In general, self-confidence is not equal to competence. Mattheos et al. found that students tended to overestimate their competence in relation to the judgments of their instructors on diagnostic skills, but not on skills relevant to treatment. However, the role of studying self-confidence in dental education cannot be underestimated.¹⁰

Student self-assessments surveys serves as a useful tool for evaluation of their knowledge and practical skills and it helps to make a realistic evaluation of dental curricula and the evaluation of the effectiveness of specific dental courses.⁹

In this study Undergraduate students are evaluated on two parameters, firstly, how confident they think they are in diagnosis of dental caries, incipient caries, arrested caries and interpretation of periapical and bitewing radiograph. Secondly how confident they think they are in performing certain clinical procedures like shade selection of composites, use of rubber dam, performing vitality testing to check pulp status, application of pit and fissure sealants, preventive resin restoration (PRR), prophylaxis and scaling.

In the present study, majority of final year students are confident in terms of diagnosis of dental disease that is caries. Few of the students were not sure regarding the diagnosis of different types of caries. An important consideration that is kept in mind that this questionnaire is filled by the students who have had undergone rotation in respective restorative and endodontic clinics. Regarding diagnosis of dental caries this parameter is chosen because it is considered as one of the basic clinical evaluation which should be known to every undergraduate student who will be graduating in 1 year time. Regarding the confidence scoring scale, out of 62 dental students only 1 expressed lack of confidence in diagnosing caries, 12 students (19.4%) were not sure, remaining 49 (79.0%) were confident in diagnosing caries, like wise for arrested caries 2 students (3.2%) had no confidence, 21 students (33.9%) were neutral and 39 (62.9%) were confident in diagnosis of arrested caries, for incipient caries, 10 students (16.1%) had no confidence, 29 students (46.8%) were neutral and rest 23 (37.1%) were confident.

Incipient caries is considered to be relatively difficult to diagnose, then comes arrested caries, the least difficult to diagnose is active caries. In another study done in Riyadh in which dental students from 2 colleges were compared and their confidence level

is measured, it is concluded that by the end of final year, both male and female student are confident in diagnosing dental caries.¹¹

In terms of interpretation of radiograph, only 24 students (38.7%) were confident in interpretation of periapical and bitewing radiograph, only 4 students (6.5%) had no confidence, rest 34 (54.8%) were not sure in interpretation, this indicates that majority of the students think that they are not confident enough in independent evaluation of periapical and bitewing radiograph. However student's perception of interpretation of radiograph was found to be better in students in Riyadh. Dental students were scored for confidence level in shade selection for composite, use of mylar strip for anterior teeth contact build-up, handling of composite and placement of rubber dam. Another study carried out in Islamabad in Islamic international dental hospital and Rawal institute of dental sciences, the level of confidence was low in rubber dam placement.⁶ In another study by Tanolp¹² low confidence in students regarding rubber dam placement. This has been attributed to unavailability of rubber dam in department, its underuse and its difficult application. It is important the application of rubber dam should be made compulsory for dental students for success of restorative and endodontic procedure. Similarly Chinese students in another study were not confident in rubber dam placement due to infrequent usage.¹⁰ In the present study students in CMH Lahore medical college were more confident in performing rubber dam, this is attributed to the availability of equipment in the department and secondly the mandatory step in endodontic and restorative clinic before start of restorative and endodontic procedure.

Students were also assessed in application of pit and fissure sealants, PRR, prophylaxis and scaling. However a study carried out on final year students in King Saud University in Riyadh the students had high level of confidence in performing pit and fissure sealants, PRR and prophylaxis and scaling. The results of the study reflected importance of teaching preventive strategies in undergraduate teaching program in King Saud university.¹¹ Another study on 356 dental students in China were assessed for confidence in different dental procedures. Students were more confident in terms of scaling and polishing, Similarly Honey et al research also revealed similar results, students were found to be good in simple procedures like scaling and polishing in Cardiff and Cork dental school.¹⁰ In the present study students were confident in performing scaling and polishing.

In another study carried out in different institutes of Lahore, dental graduates expressed highest confidence level in history taking, performing clinical

examination and making a diagnosis, performing simple clinical procedures like scaling and polishing, amalgam restorations, making partial and complete dentures.¹³ The students of BDS are assessed in basic dental procedures in their third and final professional examinations.⁹ These are the same procedure in which student expressed highest confidence level in present study. Similarly Shetty surveyed dental graduates in India and found that students were most confident in simple surgical and restorative procedures.¹⁴

In terms of endodontic treatment for single rooted and multi-rooted teeth in anterior and posterior teeth, students in the present study expressed low confidence level in performing root canal treatment. Similar results in another study amongst dental students expressed low confidence level in performing endodontic treatment, students felt increase use of extracted teeth for clinical practice of endodontic treatment would be beneficial in their pre-clinical years.¹⁵ Similar low level of confidence is assessed in another study in Turkish dental students.¹⁶ Similar low confidence level amongst Saudi students in terms of endodontic treatment.¹⁷ This has been attributed to low exposure to clinical practice of endodontic treatment in undergraduate years. In the present study low confidence in performing root canal treatment is attributed to less clinical time allocated to clinical practice of endodontic treatment. It is imperative to incorporate more clinical time to endodontic treatment and more time allocated for clinical practice and demonstrations in learning the art of performing root canal treatment .

CONCLUSION

Based on the study findings, it can be concluded that final year dental students at CMH, Institute of dentistry Lahore were confident in diagnosing different types of caries be it active caries ,arrested caries and incipient caries. They are confident in performing vitality test by electronic pulp tester, use of rubber dam, applying pit and fissure sealants, performing prophylaxis and scaling, shade selection for composite and mylar strip application. However, they were found to have low confidence in performing difficult procedures like root canal treatment of single rooted and multi-rooted teeth. This emphasized the importance of incorporation more of endodontic procedures demonstration in their clinical rotation.

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Proforma designing, data collection.