



## A COMPARATIVE STUDY OF ORAL HEALTH IN PRECLINICAL AND CLINICAL YEARS OF UNDERGRADUATE DENTAL STUDENTS OF PESHAWAR BY USING DECAY-MISSING FILLED TEETH (DMFT) INDEX.

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**ABSTRACT... Objectives:** The present study aim was to compare oral health status among the undergraduate dental students of the preclinical and clinical years. **Study Design:** Cross-sectional comparative survey. **Setting:** Preclinical and clinical Dental students of all dental colleges of district Peshawar. **Period:** 15 December 2016 to 14 May 2017. **Material & Methods:** Clinical examination was conducted among the undergraduate students in all the dental colleges of district Peshawar. The sample was drawn from both the preclinical first year and the clinical final years. Examination was done to evaluate decayed tooth component of DMFT. The questionnaire included demographic details and questions on the students' oral health practices. A clinical oral examination was done to evaluate decayed tooth component of DMFT. **Results:** Chi-square analysis was performed for group comparisons of data. Statistically there is a trend of significance (0.074). In the pre-clinical group almost 66.3% of students had bad oral health status while in the clinical group comparatively a low percent of students (33.7%) had poor oral health status. **Conclusion:** Oral health status and oral hygiene practices of dental students had improved as they advances towards clinical years.

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## INTRODUCTION

Oral health is a comfortable and functional dentition, which allows an individual to continue their social role without any complications. Globally oral cavity diseases are considered to be major public health problem as they can affect anyone regardless of gender, age, ethical or social status with bearing most costly treatments.<sup>1-5</sup> Although there is a marked improvement in dental health in many developed countries but its prevalence has been reported to be on the rise in some developing countries<sup>3</sup> contributed by many factors either directly or indirectly related to oral hygiene maintenance.<sup>4-5</sup> That leads to plaque layer proliferation resulting in acid production which is associated to development of dental caries and periodontal diseases.<sup>1</sup>

Amongst the oral diseases, dental caries is the most prevalent in the industrial and lower income countries owing to its complex etiology.<sup>3-4</sup> Study

done in 2003 by WHO showed that most adults worldwide have experienced caries, with the disease being most prevalent in Asian and Latin American countries and least prevalent in African countries.<sup>5</sup> According to Global Burden of Disease (GBD) 2010, Oral disorders affected 3.9 billion people while untreated caries in permanent teeth being the most prevailing condition with an overall prevalence of 35% for all ages combined.<sup>6</sup> In the past two decades, the overall prevalence and severity of dental caries is reported to be on a decline, still this largely preventable disease is most common, rises significantly with age, and remains a public health problem.<sup>7</sup>

In Pakistan, oral health trends have shown considerably unsatisfactory results.<sup>8</sup> Dentists in general are more concerned with the treatment of oral diseases as compare to the prevention and promotion of oral health.<sup>9</sup> The 2003 National oral health pathfinder survey showed that only 3% of

the oral preventive services (examination, scaling and prophylaxis) were availed by the patients who were experiencing different dental diseases.<sup>10</sup>

Dental academic institutions are considered the essential keystones that reflects nation's oral health trends.<sup>11</sup> The emerging dentists and dental students play a major role in health promotion through providing preventive information to the population. It is therefore essential that their own oral health knowledge be up-to-date. In turn their oral health/ oral habits, reflect awareness and understanding of preventive dental procedures conforming to the expectation of the concern community.<sup>12</sup>

The future Dentists are expected to educate and promote public awareness regarding oral health in the most effective way. This in turn reflects their understanding of the importance of disease prevention and their commitment to improving their patient's oral health.<sup>13</sup> No research or a study is a perfect attempt, it's along the way one understands and appreciates how to improve upon the design and better analyze the problems. Rational of the study, as no such study conducted in our area and no data available regarding oral health status and hygiene practices, so the present study was designed. It will help the future as well as present dentists in education and promotion of public awareness regarding oral health.

## MATERIAL & METHODS

The present study was undertaken to assess Oral health status of dental students through a cross-sectional comparative survey. This survey was conducted in all the dental colleges of Peshawar city. The total population of the present study included all the undergraduate students of district Peshawar. This population was further divided in to two groups, the preclinical and clinical group, for the purpose of comparison. First year and second year were included in the preclinical group. Third and the Final year students were group as the clinical group. For the purpose of this study, consciences of all the students were done, present on the day of data collection that consented to participate in the study. All the students either absent on the day of data

collection or missing due to other reasons were excluded from the study. All the examinations were carried out by one examiner following the methodology and criteria set by the WHO under standard dental light source (20 000 lux) on a functional dental chair. The third molars were not included in the study. The purpose of the study was explained to the participants and Informed consent was obtained before commencing with the questionnaire. Participants were informed about the procedure to be followed and the nature of participation expected during the examination session. They were also informed that participation to the study was voluntary and they could withdraw from the study at any time. The DMFT check list was provided with each of the questionnaire, to be filled by the examining dentist.

In order to assess the oral health status of the students by using the likert scale ,the range of the DMFT score was calculated by taking difference of the maximum(16) and minimum(2) score of the data. This difference<sup>14</sup> was divided by the number of the groups (2) and the cut off point for oral health status was accessed, which was 7. Thus DMFT 2 to 9 was mark as good status while DMFT scores between 10 and 16 were mark as bad oral health status. An arithmetic mean of the target variables were compute using SPSS version 22. Chi-Square test was used to evaluate differences in the distribution of all variables, by level of education at 95% confidence interval (when  $p \leq 0.05$ ).

## RESULTS

The DMFT scores of the dental students during the clinical examination were used to determine their frequency of dental caries.

The average DMFT score of the whole sample was 3.5% (Table-I). Out of the total sample of students, mean dmft of the preclinical students were 3.7%. Amongst the clinical students mean dmft score were 3.2%.

In preclinical group 44% of the teeth were decayed, missing teeth were 1.7%, filled teeth were 11.3% whereas in clinical group 20% had

decayed 4.1% were missing and 19% were filled. (Table-I).

From the total sample examined, only 64% students were observed with decayed teeth, 5.7% with missing teeth and 30.5% with filled teeth. (Table-I).

In group comparison of oral health status between preclinical and clinical groups 50.5% of the preclinical students and 49.5% of the students were having good oral health status (DMFT 2-9). In preclinical group 66% were having bad oral health status (DMFT 10-16) whereas in clinical group only 33% of the participants were having bad oral health status (Table-II).

Education Level	DMFT Scores				Mean Group DMFT
	Decay Teeth	Missing Teeth	Filled Teeth	Total	
Pre-clinical group	589 (44%)	22 (1.7%)	150 (11.3%)	761 (57%)	3.7%
Clinical group	265 (20%)	55 (4.1%)	252 (19%)	572 (43%)	3.2%
Total	854 (64%)	77 (5.7%)	402 (30.5%)	1333 (100%)	3.5%

**Table-I. The Total DMFT scores of dental students.**

Oral Health Status	Group		Total
	Pre-clinical Group	Clinical Group	
Good Oral Health (DMFT scores 2-9)	150 (50.5%)	147 (49.5%)	297 (78%)
Bad Oral Health (DMFT scores 10-16)	55 (66%)	28 (33.7%)	83 (22%)
Total	205 (53.9%)	175 (46%)	380 (100%)

**Table-II. Comparative frequency of dental caries amongst the dental students in pre-clinical and clinical group.**

Statistical analysis for Comparative frequency of dental caries amongst the dental students in pre-clinical and clinical group showed a p value 0.013. Thus motivations towards treatment seeking behavior among the clinical group showed marked improvement.

## DISCUSSION

The oral health status of the whole sample of dental students in the present study was good with an average DMFT of 3.5%. In general the present study DMFT was relatively less than the other international studies done on dental students. In 2013 the DMFT of dental students of Zagreb was reported to be 6.97<sup>14</sup>, while Spanish dental students with a DMFT of 5.9, around 6 in Barcelona<sup>15</sup> and 7.97 in King Saud University<sup>16</sup> respectively. Poland dental students were reported with a DMFT as high as 11.9<sup>17</sup> and 12.8 in saurian<sup>18</sup>, whereas a DMFT of 10 was found in dental population of Kaunas.<sup>19</sup> Only in one international study carried out in dental students of Tunisia 2006 by Maatouk et al the mean DMFT was less than (2.3) the present study.<sup>20</sup>

So far only two studies of DMFT have been

locally reported on dental students. In 2011 study at Liaquat College of Medicine and Dentistry reported a mean DMFT of 1.7<sup>8</sup> followed by a 1.38 scoring of dental population at LMDC in 2013.<sup>21</sup> In each of the studies the mean DMFT was less or in other words better than the present study's finding. So the local results showed different results. This may be due to local differences among population regarding oral health status and hygiene practices.

According to the present findings, the DMFT scores of the pre-clinical group were high (3.7%) as compare to the clinical group (3.2%) with (p=0.07). On defragmentation of the DMFT scorings it was observed that; individual wise the decay (75%) was highest followed by filled (53%) components of the sample and the least was the missing teeth component (17%). While considering the total number of teeth with the irreversible DMFT scores, the decay teeth were 64%; filled 30.5% and 6% were extracted.

In the group comparison the pre-clinical students had double the caries rate (44%) to that of clinical group (20%). In case of treatment seeking

behavior; that is the filled (19%) teeth proportion along with the extractions (4.1%) was double that of pre-clinical students (Table-I).

When observed within the literature the dental student's community were compared to the equally literate groups of other specialty for sack of reference. In such studies, a significant difference was evident between the oral health status of the students. One such study was conducted in 2013 by Simat et al. The mean DMFT of dental students (6.9) was significantly less than the other students of Zagreb University (8.9).<sup>14</sup> In 2002 A Spanish survey of oral health of dental and medical students showed a higher DMFT value at the beginning of the study by dental students compared to medical students (5.91 vs. 4.33), with a similar share of active caries in both groups.<sup>15</sup>

In a number of studies oral health status of dental students were compared within the dental training course at different education levels or by difference of clinical skills. In such studies contrary to the present findings, either no significant difference in DMFT scores was evident or an increase in the DMFT was observed.

In a study done in Kaunas 2003 an increase in the DMFT was observed with advancement in dental studies (preclinical DMFT= 9.04 vs. clinical= 11.03). The author assumed the increase in DMFT was due to an increase in the treatment seeking behavior by the students.<sup>19</sup> In 2006 dabrowska et al. reported an average DMFT of 11.91 in the first year of Poland's dental students, compare to final years of dentistry with 13.56 DMFT.<sup>17</sup> Since DMFT only take in account those teeth as "F" that were filled because of caries. Thus a positive treatment seeking behavior was observed but with the reservation that almost 91% of the students had caries in the first place. Secondly in these studies no specifications of student's inclination towards preventive fillings were made to support the said claim.

Studies were concluded with no significant difference in mean DMFT scores among the pre-clinical and clinical groups. In agreement with the

present study an observation was made about the decay component of the mean DMFT that showed a significantly decrease as compare to the filled component which increased with an advancement in education.<sup>11,15</sup>

Yet in a study conducted in King Saud University, the caries prevalence among the dentistry students was 95.3%, and the mean DMFT score was 7.97 with decay (D) component of 3.59 missing (M) component of 0.67 and filled component of 3.71. But there was no significant difference in mean DMFT scores of students from various academic levels.<sup>16</sup>

The oral health status of present study population was clearly better than many international studies conducted in past. But on the local level the study sample seems to be having higher DMFT scores. Although unlike these local studies an improvement was evident as decrease in DMFT along with decay component was statistically evident.

Thus in the present study the obvious decline in the DMFT scores depicted an improved oral health status with progression in education level. Especially for the Students in the clinical year appear to have half the amount of caries. Additionally the clinical students had more inclination towards improving oral health status by sorting treatments.

## CONCLUSION

The self-assumed oral hygiene practices of the dental students in Peshawar were statistically found improved as the student's progress through the four years of dental course. These findings were cross analyzed and supported by the practical oral health status of the students when accessed through the Decay, Missing and Filled index.

It was evident from the present study's results that an improvement in oral health status was observed with advancement in dental training.

## LIMITATIONS

In the present study the dental students were


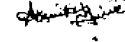
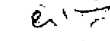

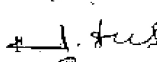
considered as one sample. A further stratification of sample on the basis of institutional grouping can help better differentiate and compare the oral health status on the bases of old establish and new innovative teaching systems.

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5	Kanwal Nazir	Paper write up, drafting.	
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