DMFT Index and dental carries assessment for 12-14 years old students, Ahvaz - Iran in, 2010-2011

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Abstract

Introduction: Oral and dental health is an important public health indicator and general health is more depends on the oral and dental health and if not dealt with in childhood and adolescence ages the future health of the community will be compromised. The purpose of this study was to assess DMFT (Decay, Missing, Filled, Teeth) index and dental carries for 12-14 years old students..

Materials & Methods: A descriptive-cross sectional research was conducted to assess DMFT index and dental carries. The research units included 1000 boys aged between 12-14 years old, from first to third grade, which were selected randomly from secondary schools, based on multistage sampling. The data collection tools were a questionnaire and an observation record sheet. Using descriptive and inferential methods collected data was analized by SPSS ver. 15 statistical software.

Results: Results extracted from this study showed that the mean of decay, missed and filled permanent teeth in all the age groups of 12-14 years, were 2.37, 0.61 and 0.32 respectively, and mean of DMFT was 1.1. Also, 76 percent of the DMFT score was related to decayed teeth and mann-whitney test shows that there is no significant relationship between DMFT index and brushing teeth.

Conclusion: Considering the high percentage of dental caries in this study, it is necessary that students, especially in this growth ages have paid attention from the education authorities and must be done basic measures to reduce or eliminate this problem in health planning for these ages.

Keywords: Assessment, DMFT, Carries, Students

Introduction

Tooth decay is one of the most common diseases of hard tissues of the mouth. It is an infectious bacterial disease, and mainly involves the tooth enamel. The disease begins with dissolution of minerals, resulting in the dissolution of the enamel (1).

Tooth decay is also the most common chronic disease of childhood that is a multifactorial infectious disease (2). In addition, it can cause side effects such as pain, discomfort, absenteeism from school, and cosmetic defects for individuals, and imposes huge costs to families and society, while its identification and treatment, if diagnosed early, are very easy (3).

In a study that was conducted by Tellez et al. in the United State on 110 students aged 12 was 54 percent (4). In another study that

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was carried out by Sadeghi and Bagherian in Rafsanjan on 353 students aged 12, mean DMFT was equal to 2.46 (5).

According to the statistics provided by the Ministry of Health's Office of Oral Health (2011), every 12-year-old Iranian student has two decayed teeth. On the other hand, the latest studies in the country show that the dental caries index in children under 12 years has been equal to 2.2 percent.

Basir et al. in Khuzestan also showed that the mean DMFT of students aged 12-15 was equal to 1.15; and 44.36 percent of the students had at least one decayed tooth in their mouths (6).

In the study of Asl Aminabadi et al. on children aged 12 years and over in Tabriz (7), in the study of Pakpoor et al. in Qazvin on children 14 years of age (8), and in the study of Ghorbani Birgani and Gholizadeh in Gachsaran on children 12-14 years of age (9) the DMFT was reported at 2.9, 2.19 and 3.64, respectively.

For the planning in the field of health/prevention, provision of valuable dental services, and application of new knowledge and practices in this regard, the need to identify and evaluate information on the health status and dental disease, oral health status and dental caries of people in society is more felt.

Collection of such data, on the one hand, shows the status and treatment needs; and on the other hand, it is effective in the health planning on prevention and treatment.

Considering the importance and necessity of such research at different levels of education, this investigation tried to do this research on the topic above.

It is hoped that policy makers and those who is responsible for oral hygiene in the Ministry of Health, community health nurses, particularly school health officials will add the importance of oral health among adolescents and their efforts in this regard, by making available the results of research, because awareness of the various aspects of public health can play an significant role in screening and case-finding programs; and most importantly, it can prevent future dental problems effectively. Becuase of these reasons this study was done to assess DMFT (Decay, Missing, Filled, Teeth) index and dental carries for 12-14 years old students.

Materials and Methods

This is a cross-sectional study that was conducted to determine the DMFT index and dental caries among a number of 12-14 year old students in Ahvaz in the school year of 2010-11. The study population includes all boy students from junior high schools, who were studying in the education regions in Ahvaz, at the time of the study.

A cluster type sampling method was applied to participated 1000 junior high school boys for this investigation. Access to these samples was provided by the researchers' referring to junior high schools in four areas of Ahvaz, which lasted from Aban until the end of Dey 1389.

The research sample consists of male students aged 12-14 years who were studying in public junior high schools in Ahvaz in first to third grades.

A demographic questionnaire and checklist of the state of decayed teeth were designed; and Iranian medical flashlight

model 3343 (beam type), tongue blades and disposable gloves were used.

In this study, content validity was used to obtain the validity of the data collection instruments, whose questions were set by reading books, papers and dissertations, according to the research objectives.

The instrument was verified by at least 15 members of nursing and midwifery faculties of Shahid Beheshti and Tehran universities of medical science, Faculty of Dentistry of Ahvaz's Jundishapour University of Medical Sciences, and a number of school health professionals. After collecting comments and final approval, the necessary changes were made and the final questionnaire was set. To determine the reliability of the observation record sheet, simultaneous observation was used. The researcher and two colleagues who were similar in terms of knowledge, observed 10 subjects in the study. Then, the mean kappa coefficient observed between the people, which was given by three observers was equal to 0.91 (Kappa> 0.91) that indicates the reliability of the observation record sheet.

After ensuring the validity and reliability of the data collection instrument, the trained researchers referred to the intended schools, with the permission and cooperation with school principals during office hours. Contributors were randomly selected based on statistical student profile book, and were called by the vice-principal to the examination room (one of the classrooms or prayer room of school); and this procedure was followed during all examinations.

The status of the teeth and the amount of decayed, missing and filled teeth were examined and a World Health Organization criterion (i.e. the DMFT index), spatula and flashlight were used.

Examination of the teeth was started from the most posterior tooth on the bottom right, and ended on the left side of the jaw, and then it was followed by the upper left side, and was ended on the upper right side.

Because the assessment of screening tests was used to examine the DMFT index in a number of students, there was the possibility of false positive or negative responses to the examination. Therefore, it was tried to reduce this limitation by referring to a dentist and following up all cases.

Methods of descriptive and inferential statistics were used to analyze the data: descriptive statistics was used for the table of the age frequency distribution of the study samples, the level of parental education, and other demographic information; and chi-square tests, t, Fischer, analysis of variance, Kruskal-Wallis and Mann-Whitney test were used for data analysis, through inferential statistics as appropriate. All the numerical calculations in this study were conducted using computer and statistical software SPSS 15.

Ethical considerations
Permission from Ethics Committee of Gachsaran Islamic Azad University was obtained.

Results

Mean DMFT of all boys aged 12-14 examined in this study was obtained equal to 1.1 with a standard deviation of 1.83. Furthermore, the mean and standard deviation of decayed, missing and filled permanent teeth in the age groups of 12-12.9 years were equal to 2.37, 2.33, 0.61, 0.35, 0.32, and 0.26, respectively.

Although mean DMFT in the first age group (12-12.9) is higher than that in the second age group, the difference is not significant (p=0.111) (Table 1).

No significant relationship was observed between DMFT and tooth brushing in the age groups (Table 2).

Table 1: Statistical indices of decayed, missing and filled permanent teeth of study units in terms of the age group

Permanent teeth Age group (years)	Decayed		Missing		Filled		DMFT Index	
	Number	Mean±SD	Number	Mean±SD	Number	Mean±SD	Number	Mean±SD
12-12.9	460	1.84±1.89	460	0.13±0.34	460	0.76±1.21	460	1.86±2.25
13-13.9	540	1.51±3.12	540	0.17±0.50	540	0.03±1.34	540	1.56±2.81
Sum	1000	2.37±2.33	1000	0.61±0.35	1000	0.32±0.26	1000	1.1±1.83
Result of Kruskal-Wallis test	p=0.091		p=0.796		p=0.228		p=0.111	

Table 2: Statistical indices of DMFT in the study samples in terms of the situation of tooth brushing

Age group (years) Status of tooth brushing	12-12.9 N=514		13-13.9 N=486		Result of Mann-Whitney test
	Number	Mean±SD	Number	Mean±SD	
Brushes	366	2.18± 2.14	351	3.10± 2.85	p=0.502
Does not brush	148	2.31± 3.36	135	3.51±2.98	

Of the total DMFT, 6 percent was related to the missing teeth, and 18 percent to the filled teeth. The 76 percent that was associated with the decayed teeth remained without any treatment.

The study showed that the majority (45.2 percent or 452 people) of the participants brushed once; and 28.3 percent or 283 people of the total population did not ever brush.

A percentage of 73 had a history of toothache; and statistically significant correlation was observed only between the mean DMFT and demographic factors of father's education and number of children in family, so that the DMFT index decreased with increasing higher educational levels of father, and it increased with the number of children.

Discussion

Considering its importance in different societies, the DMFT index in this study was

29

obtained equal to 1.1 with a standard deviation of 83.1 in the age groups of 12-14 years, which is placed in low-caries group, according to the classification proposed by the World Health Organization in 2010 (2).

The results of the study by Eslamipoor et al. on Isfahan's students aged 12-14 showed that mean DMFT in the age group of 12 to 14 years was 2.84 (10). Also in the study of Gorbatova et al. on 12-year-old students in Russia, the DMFT was equal to 2.95 (11).

The DMFT rate obtained in this study is lower, compared to the study of Ferro et al. in Italy (12), Eslamipoor et al. in Isfahan (10), and Gorbatova et al. (10) in Russia on 12 to 14 year old students, which obtained the amount of DMFT at 3, 2.84 and, 2.95 respectively. In addition, the rate of dental caries in the study of Ferro et al. in Italy was 63.4 percent (12), which is in a more favorable situation, compared with the present study. However, the difference of the results obtained from these studies could be due to difference in the age group of subjects, lack of oral hygiene, as well as different economic, social and cultural situations, or differences in the way that scientists do research, but their common point is that in all studies, the majority of children and adolescents were in "low or medium" status of oral health.

A comparison of this prevalence rate with the rates measured in the same age group in other countries, such as the United States (54%) (4), developed countries and Egypt (51.4%) (13) and developing countries shows that tooth decay is widespread among students in the study.

The reasons for this can be outlined due to lack of awareness of oral health, negligence and neglect of families in this regard, as well as delayed referrals of families because of the high cost of dental services to repair dental decay, which it leads to an increase in dental caries among their children. In this regard, the following are recommended: education of oral health; explaining the proper method of brushing; using dental floss and proper techniques of using mouthwash; restrictions on the sale of sweets; creating or activating a community-based dental units across the country, using the young dentists and oral health practitioners; the use of sodium fluoride mouthwash program at preschool to high school levels; providing insurance services for dental problems in schools; conducting annual screening examinations of oral health for students at the beginning of the school year, and creating the interaction, coordination and cooperation between the education department and health centers.

Conclusion

The results of this study showed that the dental caries prevalence and DMFT index was high. Therefore, the necessity and importance of more attention to provide the necessary training in the field is evident in the family and community level.

Acknowledgements

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