

DMF-T index and caries prevalence of international class students of Faculty of Dentistry Universitas Padjadjaran

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ABSTRACT

Dental caries is a localized destruction of the tooth surface initiated by decalcification of the enamel followed by lysis of organic structure leading to cavity formation. The purpose of this research was to discover the DMF-T index and caries prevalence of all international class students of Faculty of Dentistry of Universitas Padjadjaran. This research was a descriptive study with the survey method. Data from 176 samples (batch 2004 until 2010 students) were taken through clinical examination and questionnaires. The result of this research showed that the average DMF-T index was 2.8, while the caries prevalence was 81.8%. From this research can be concluded that the average DMF-T index of all international class students of Faculty of Dentistry of Universitas Padjadjaran was categorized as moderate, while the caries prevalence was high.

Keywords: Caries prevalence, dental caries, DMF-T index, international class student.

INTRODUCTION

The World Health Organization (WHO) defined health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”.¹ Oral health has been defined as “the standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort and embarrassment and which contributes to general well-being”. Oral health has strong biological, psychological and social projections, because it affects our aesthetic and communication, and the quality of life affiliated with oral health status.²

Dental caries is a disease of multifactor etiologies, which are substrate like dietary,

carbohydrate, bacteria, tooth resistant and time.³ Other etiologic factors that also cause dental caries is predisposition factors, which includes gender, level of education, economic status, environment, attitude and habit towards oral health.⁴

Based on the survey on adult people conducted by Oral Health Division, Ministry of Health Malaysia shows a total of 10,891 subjects were interviewed and examined, of which 87.2% were from Peninsula Malaysia, 5.2% from Sabah and 7.6% from Sarawak. The largest ethnic group was the Malays (57.8%) who were evenly distributed in urban and rural areas, with Chinese and Indian subjects being predominantly urban. The largest proportion of the study population was from the age group 15-24 (24.6%) followed

by the age group 35-44 (21.4%). Caries prevalence among subjects examined was 90.7%. Caries prevalence increased with age from 15 years up to 54 years. The comparison of data was from age 15-19, 20-24, 25-29, 30-34, and 45-54. Caries prevalence was significantly higher among female (92.0%) compared to male (89.0%). Besides that, almost similar proportions of subjects with caries were seen in all Education Levels. The DMF-T index showed prevalence and severity of dental caries. Based on NOHSMA 2000, there was an increase in DMF-T index in different age group. The comparison of data from age 15-19, 20-24, 25-29 dan 30-34 years old indicated that the DMF-T index was 2.9, 4.4, 6.0 and 8.4.⁵

Malaysia government since 1968 has been sending their student to study in universities in Republic of Indonesia. In year 2011 there is around 6000 to 7000 Malaysian student study all over Indonesia. In 1968 it's only 500 Malaysian students studying in Bandung, but now until 2010 there are 700 to 800 Malaysian student studies in Universitas Padjadjaran. First batch of Malaysian student study in faculty of dentistry is in year 2003, and the amount of that time there were only 15 students, but now until 2010 there are 149 students.

The DMF-T index and prevalence of dental caries is remarkably high in Malaysia, hence it made the writer interested in doing a research on evaluating the DMF-T index among all international students of Faculty of Dentistry Universitas Padjadjaran. The purpose of this research was to discover the DMF-T index and caries prevalence of all international class students of Faculty of Dentistry of Universitas Padjadjaran.

METHODS

The type of research conducted is descriptive with surveying technique. The population for this research was all student of international class of Faculty of Dentistry Universitas Padjadjaran. The sample for this research was the students from batch 2004, 2005, 2006, 2007, 2008, 2009 and 2010. The overall number of the sample was 176 students. List of equipments used were as follows: (1) Mouth mirror; (2) Dental explorer; (3) Tray; (4) Tweezers; (5) Masks & gloves; (6) Disposable cups; (7) Dental Unit; (8) Stationeries; (9) Dental and

oral health assessment form; (10) Questionnaire forms. The data obtained were processed and presented in a tabulated form and analyzed to get the result and conclusions.

RESULTS

This study was conducted at Dental Hospital of Faculty of Dentistry Universitas Padjadjaran, from the period of July until August 2010. A total number of 176 samples were taken involving all international class students, ranged from batch 2004 until 2010. All samples were comprised of

Table 1. Data distribution of D, M, F of all international class students of Faculty of Dentistry Universitas Padjadjaran

Batch	D	M	F	Total DMF
2004	9	0	11	20
2005	21	2	47	70
2006	40	1	79	120
2007	11	1	60	72
2008	19	0	51	70
2009	21	0	28	49
2010	65	5	29	99
Total	186	9	305	500

55 male and 121 female, aged between 20 and 34 years old. Based on clinical examination and also the data obtained, DMF-T index and caries prevalence were calculated and presented in Table 1 and Table 2.

Table 1 showed that the total amount of the decayed teeth among all international class students of Faculty of Dentistry Universitas Padjadjaran batch 2004 until 2010 was 186. The total amount of missing teeth was 9, and total amount of filled teeth was 305. The average DMF-T

Table 2. Caries prevalence from all international class students of Faculty of Dentistry Universitas Padjadjaran

Batch	Total amount of students	Infected by caries
2004	10	7
2005	26	21
2006	30	28
2007	24	21
2008	28	24
2009	26	17
2010	32	26
Total	176	144

index of all the students was 2.8.

Table 2 showed that the caries prevalence from all international class students of Faculty of Dentistry Universitas Padjadjaran was 81.81%. The sample consisted of 144 students who were infected by caries while the other 32 students were caries free.

DISCUSSION

The research showed that the DMF-T index of all students from International Class of Faculty of Dentistry Padjadjaran University (batch 2004 until 2010) was 2.8, which meant that an individual had an average of 2 to 3 teeth infected by caries. Based on WHO, the value of DMF-T index between 2.7 and 4.4 was the moderate level concerning the severity of caries. On the other hand, the results showed that caries prevalence involving all students from International Class of Faculty of Dentistry Padjadjaran University (batch 2004 until 2010) is 81.81%. According to the Ministry of Health of the Republic of Indonesia in 1994, the percentage of caries prevalence was between 80% and 100% was considered as high in caries severity.⁶

Based on Table 1 showed that the amount of filled teeth was 305 which were higher than the number of decayed teeth, 186. Table 1 also showed only 9 missing teeth were observed. In addition, the result from the questionnaires showed that all of the students brush their teeth every day and 82% of them brush their teeth twice a day. The majority of them also have been using other dental aids such as dental floss and mouth wash to maintain their oral hygiene. These data indicated that all students have high dental awareness by means of restoring and preserving decayed teeth rather than letting it be and extracting those teeth. Equally from this data, it also shows that the students has knowledge concerning good oral hygiene and implements them by daily practices to prevent dental caries.

According to Axelsson in 2000, dental caries is a multifactorial disease. Besides the etiological factors, prevention and control, there are other factors that may affect the prevalence of caries and caries progression rates. These factors consist of external factors (environmental factor) and internal factors (endogenous factor).

The external factor involved in dental caries are the carbohydrate diet, poor socioeconomic status, behaviors and habits of poor dental health maintenance.⁷ According to Fajerskov and Kidd in 2003, external factors that may play a role in the formation of caries lesions is the socio-economic status, education, habits and behaviors as well as geographical conditions.⁸

Another fact from the research showed that young adult (20-34 years olds) were busy with learning activities and being away from their families can cause a change in their lifestyle and this gives a direct impact on diet and the maintenance of the oral cavity. These students concentrated much of their time on campus life that indirectly causes a change in their eating habits. Fast food consumption, lack of regular meals, frequents snacking and less frequent use of toothpaste are typical lifestyles of many young adults. These types of food usually contain high amount sucrose and are very acidic. Each bite of food or sip of drink containing carbohydrate causes the bacteria plaque to produce acid from fermentation which can last for about 40 minutes, longer if the food debris is entrapped or remain in the mouth. Snacking frequently does not leave enough time for teeth to recover from acid attack and for remineralization to occur. Besides that the decreased or delayed oral clearance is associated with increased risk of caries.⁹⁻¹⁰

Results obtained from the research showed that as much as 35.8% student admitted that they like to consume sweet food, but as dentistry student, besides brushing the tooth and visit the dentist twice a year these students were also using dental aids such as mouthwash, tooth pick and dental floss as one way of maintaining dental health. As dentistry students, these students were gaining most of their dental health knowledge from their lessons in college.

Internal factors that influence the occurrence of caries are the saliva and tooth. Saliva has multiple functions in protecting the integrity of the oral cavity from food residue, debris and bacteria. The lack or absence of saliva has been associated with increased caries rate and subsequent destruction of tooth. Saliva also provides the ions needed to remineralize the teeth and it also has antibacterial, antifungal and antiviral capacity. While physical characteristic

of the teeth may increase the risk for the development of caries, for example tooth size, tooth morphology, cusp and fissure pattern, enamel structure, the morphology of the cemento-enamel junction and exposed root surface. In addition, the chemistry of the enamel, dentin and root cementum may influence caries susceptibility.⁷

Consumption of fruits and vegetables are one way to maintain oral health. Eating fibrous fruits and vegetables will facilitate the drainage of saliva, so it can drain the remaining food and plaque on the teeth. In individuals who rarely consume fibrous foods, usually dental plaque is bound to be found in excess and cause a high incidence of dental caries in the oral cavity.¹¹

The research results showed that the DMF-T index of all international class students of Faculty of Dentistry Universitas Padjadjaran batch 2004-2010 was 2.8, which was considered as moderate level in caries severity according to WHO classification. Caries prevalence was 81.81%, considered to be high in caries severity. Based on this research, the outcome was positive because the value of DMF-T index and caries prevalence were lower than the corresponding figures in National Oral Health Survey of Malaysian Adults (NOHSMA) in 2000 was 9.9 and 90.7% respectively. The author assumed that this was due to an education level and knowledge on oral health of these dental students was quite high. This may result in better oral hygiene practices and home care which leads to low caries formation.

CONCLUSION

From this research can be concluded that the average DMF-T index of all international class students of Faculty of Dentistry of Universitas Padjadjaran was categorized as moderate, while the caries prevalence was high.

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