



## DENTAL HEALTH PROBLEMS AMONG SANTRI AT ISLAMIC BOARDING SCHOOLS IN MEDAN, NORTH SUMATERA

Tri Bayu Purnama<sup>a\*</sup>; Samsul Askhori<sup>b</sup>; Devi Juliana Pohan<sup>c</sup>; Dwichy Augie<sup>d</sup>

<sup>a,b,c,d</sup> Faculty of Public Health ; Universitas Islam Negeri Sumatera Utara  
Medan 20371 ; Indonesia

### Abstract

Dental health remains a public health problem with increased the prevalence of dental problems from 2007 to 2013. The problem is highest in the early adolescent age group. A dental problem occurs due to lack of behavior on the routine toothbrush (2.8%). The purpose of this study was to describe dental problems in Islamic boarding schools in Medan. This study used a cross sectional design in seven Islamic boarding schools in Medan with a total sample of 436 students in the 5.319 total population. System random sampling was applied in this study and the questionnaire was distributed to sample. The data analysis used was descriptive frequency. The results showed that the behavior of brushing teeth based on age group was highest in the early adolescent group in the category of brushing teeth in the morning (78%) and afternoon (92%). Based on gender, both men and women showed the highest tooth brushing behavior in the morning (37.8%; 40.4%) and afternoon (45.9%; 46.6%). Dental health problems by age group were included in the category of healthy teeth (49.1%). Based on gender also showed dental problems for both men and women (25.9%; 24.1%) in the category of healthy teeth. Dental health among female students is still found to have dental health problems caused by the behavior of brushing teeth that is not in accordance with the recommendations of the Ministry of Health, namely after breakfast and before going to bed at night.

**Keywords:** *brushing teeth; behavior; dental problem*

### 1. Introduction

Dental health is still a public health problem in the children's and adults whom are still complain of dental problems such as cavities. Unhealthy teeth condition affects daily activities that always feel pain, discomfort, and are disturbed when eating or sleeping and in school children can interfere with learning time. Immediate treatment is required for severe level on dental health condition (Ministry of Health of Republic of Indonesia, 2014).

Based on Indonesia survey, the percentage of the population that has the problem with tooth and mouth was being increased in 2007 until 2013, (23.2% to 25.9%). Among them, 31.1% had diagnosed by dentist and 68.9% without treatment. Basically, every person has a probability to be affected by the disease in the

teeth, both of male and female and also young and elderly. The highest prevalence of dental problems occurred in the 12 year old age group (24.8%) (Ministry of Health of Republic of Indonesia, 2013).

Dental problems that occurred were poor habits of behavior on brushing teeth to prevent caries in teeth and other dental health issues. The minimum routine habitual of brushing teeth twice a day which was after breakfast and before bed at night. In Indonesia, the habit of brushing teeth every day is estimated at 94.7 %. However, the behavior of properly brushing teeth (brushing teeth after sleeping and before going to bed at night) is still very low at 2.8% (Ministry of Health of Republic of Indonesia, 2018).

The frequency of improper brushing can affect a person's dental health status (Budiarti, 2013). In the same study also found that the behavior of brushing teeth that students

\*) Corresponding Author (Tri Bayu Purnama)  
E-mail: [tribayupurnama@uinsu.ac.id](mailto:tribayupurnama@uinsu.ac.id)

regularly was doing at the morning bath of 64% which should be done when after breakfast and before bed. This habit that will cause damage to the tooth surface and led to cavities and other dental problems in students (Budiarti, 2013). This study aims to describe dental problems in Islamic boarding schools in Medan while limited number of study was focused on santri/student in islamic boarding school (pesantren).

## 2. Method

### *Research design*

This study used cross sectional study to describe dental health problem among student in Islamic Boarding School (pesantren) in Medan. The occurrence of pain in the teeth indicates a wrong behavior in dental maintenance. Brushing teeth according to the recommendation of the Indonesian Ministry of Health program should be done after breakfast and before going to bed at night. If these recommendations are implemented properly, dental problems can be avoided. Dental health problems that can arise are tooth decay/cavities, namely the condition of cavities in permanently damaged carried out by dental medical personnel in all types of health services (Ministry of Health of Republic of Indonesia, 2018). A tooth that is lost due to being pulled out or is lost is a condition when the tooth is lost from the oral cavity on purpose or accidentally. Tooth filling is a form of treatment for cavities to cover the cavities. Wobbly teeth is a condition where the teeth can become wobbly when moved by hand or when chewing.

### *Population and Sample*

The seven Islamic boarding schools were selected according to the research criteria, namely those that have or use the boarding system (boarding) for their students. This research is descriptive quantitative who use design cross sectional study were all students in Boarding School of Medan on the level of junior high school (Madrasah Tsanawiyah/MTS) and senior high school (Madrasah Aliyah/MA). The sampling technique used was Simple Random Sampling so that each student had the same opportunity to become a sample. The sample size was calculated using a categorical descriptive survey formula based on the data from previous research surveys and the results of these calculations obtained a sample size of

436 samples with total population estimated 5.319 students. Student whom filled out questionnaire completely was selected as sample in this study.

### *Data collection*

Self-questionnaire was used in this study to determine the variable characteristics of the samples, tooth brushing behavior and dental health problems among students. Samples characteristic variables include age, gender and education level. The variable of brushing behavior included time or frequency of brushing teeth. The variables of dental health issues include the condition of damaged teeth, missing teeth, filled teeth and wobbly teeth.

### *Data Analysis*

The results of statistical analysis are described and presented in the frequency distribution table of each research variable. So that it can be observed the highest or lowest percentage of data from each variable. This study approval has been obtained from faculty of medicine Universitas Islam Sumatera Utara Medan, Indonesia.

## 3. Result and Discussion

In table 1, the most samples age category is early adolescence (99.0%), this is based on the fact that some sample populations (Islamic boarding school) only have classes at the Madrasah Tsanawiyah/MTs level which directly affect the age of the samples. Then in the next table, male are more than female (51.6%), but the difference in the number of samples is not so significant. The data shows that the majority of samples sit in MTs (72.8%) because some sample populations (pesantren) only have classes at the MTs level.

**Table 1.** Characteristic demographics of sample

Samples Characteristics	N	Percentage (%)
Age		
Early teens	432	99
Late teens	4	0.9
Total	436	100
Gender		
Male	225	51.6
Women	211	48.4
Total	436	100
Samples Characteristics	N	%
Class		
MTs	317	72.8
MA	119	27.2
Total	436	100

Table 2 indicates the majority of samples (early teens) brushing his teeth in the bath in the morning (78%) and during the afternoon showers (92%), while samples (late teens) often brushed his teeth in the bath afternoon (50%) and at bedtime (50%). There were several samples (0.7%) who did not brush their teeth

every day, namely in the early teen group. Although the number of samples in the late adolescent category is quite low, this figure is of particular concern to providing education about the importance of brushing teeth to students.

**Table 2.** Distribution of Age Frequency Based on Toothbrush Time Behavior

Age	Tooth brushing behavior													
	Before Breakfast		After breakfast		After lunch		Morning bath		Afternoon showers		Before sleeping		Don't brush your teeth	
	n	%	n	%	n	%	N	%	n	%	n	%	n	%
Early teens (n=432)	205	47	31	7.1	15	3.4	340	78	401	92	232	53.2	3	0.7
Late teens (n=4)	1	25	1	25	0	0	1	25	2	50	2	50	0	0

Table 3 indicates the majority of samples brushing his teeth in the bath in the morning (73.3%) and during the afternoon showers (89.9%), as well as the samples most frequent brushing his teeth in the bath in the morning (38.9%) and in the afternoon shower (91.8%). There were several samples (1.3%) that did not brush their teeth every day. Table 4 shows the majority of samples in early adolescence has damaged teeth (38.2%) and

healthy teeth (49.5%), and all samples in late adolescence all have healthy teeth (100%). Table 5 indicates the majority of samples have broken teeth (37.3%) and healthy teeth (50.2%), as well as the samples majority has damaged teeth (36.6%) and healthy teeth (47.5%). The total number of samples with healthy dental health problems was the same as the samples who had healthy teeth.

**Table 3.** Gender Frequency Distribution Based on Toothbrush Time Behavior

Gender	Tooth brushing behavior													
	Before breakfast		After breakfast		After lunch		Morning bath		Afternoon bath		Before going to bed at night		Don't brush your teeth	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Male (n=225)	131	58.2	24	11.1	13	5.7	165	73.3	200	89.9	85	37.8	0	0
Women (n=221)	75	34	8	3.6	2	0.9	176	38.9	203	91.8	149	67.4	3	1.3

**Table 4.** Age Frequency Distribution Based on the classification of dental health problems

Age	Dental Health Problems									
	Broken Teeth		Missing Teeth		Teeth Filled		Loose Teeth		Healthy Teeth	
	n	%	n	%	N	%	n	%	n	%
Early teens (n=432)	165	38.2	68	15.7	45	10.4	64	14.8	214	49.5
Late teens (n=4)	0	0	0	0	0	0	0	0	4	100

**Table 5.** Gender Frequency Distribution Based on Dental Health Problems

Gender	Dental Health Problems									
	Broken Teeth		Missing Teeth		Teeth Filled		Loose Teeth		Healthy Teeth	
	n	%	n	%	n	%	n	%	n	%
Male (n=225)	84	37.3	40	17.8	17	7.5	38	16.8	113	50.2
Women (n=221)	81	36.6	28	12.6	28	12.6	26	11.7	105	47.5

Time to brush the teeth are properly carried out 2 times a day, in the morning before or after breakfast with 30 minutes, and when the night before sleep (Ministry of Health of Republic of Indonesia, 2019). In the research showed that only a small proportion of samples

(22.2%) do the right toothbrush as recommended by the Ministry of Health of the Republic of Indonesia. It has an influence on a person's behavior and attitudes, increasing age, growing also of perception and mindset of someone so that the knowledge gained will be

better.

In our study also showed that the teething problems between male and female in equal numbers. These results are in line with research which reports that there is no relationship between gender and dental problems (Prada, 2020). While others study found that significantly between types of sex with the health of teeth (Arangannal et al., 2016; Sevekar et al., 2012), women tend to be more at risk of experiencing problem on the teeth than men which is associated with food intake, diet pattern, habit of consuming of consuming snacks and might be correlated with of hormonal fluctuation during the period of puberty (Patloth, T., Reddy, S., Puppala, R., Kethineni, B., & Peddi, 2017).

The significant comparison of the number of samples between early teens and late teens makes the results of this study can be drawn on the age category. However, if we observed at the category of early teens, the results show that more than half of the samples (50.4%) have dental health problems. This figure certainly has a significant influence on the dental health status of students in Islamic boarding schools in Medan City. Late teen have better knowledge of oral health, but oral hygiene practices are not followed effectively (Geethapriya & Kandaswamy, 2017). There is no relationship between knowledge with attitude dental and oral health maintenance, in line with our study obtained are still many students who have dental care attitude despite they already know.

In the research we conducted, it was found that quite a number of students used proper methods of brushing their teeth, thereby reducing the risk of health problems in their teeth. It is in line with study that concluded that most samples have knowledge the importance of the health of the mouth is satisfactory (A. Togoo et al., 2012; Al-Darwish, 2016). There is a significant relationship between knowledge in brushing teeth and the incidence of dental caries in children. Knowledge about brushing teeth which includes how to brush teeth properly, namely brushing not only to clean dirty parts that are easily visible or only for the purpose of cleaning teeth, but attention is also paid to cleaning plaque or gums (Andhini & Permatasari, 2014). Some limitations such as age of the samples have comparison significant and also variables studied were rigid and therefore cannot dig more in about the problems teeth in various schools, Medan and further study

should be accomodated the study limitation. However, researchers think the results obtained are sufficient to see the size of dental problems currently occurring in various Islamic boarding schools in Medan.

#### 4. Conclusion and Suggestion

According to the results of the research showed that there are still many students who having dental health issues, this is due to the small number of students who brushing teeth properly as directed by the health ministry's after breakfast and before bed at night. There were several samples who did not brush their teeth every day, so that it certainly caused more severe dental problems later. Although this study has limitations on several variables, it is sufficient to provide an overview of dental health problems in Islamic boarding schools in Medan City.

Oral and dental health is an individual right, but in a dormitory-based educational environment, students must pay more attention to the health of the students themselves. Health problems as well as individual behavior can certainly spread to those around them, especially in a busy environment and for a long time. There needs to be an effort to increase the knowledge of the students about the importance of maintaining oral health in improving the health status of students.

#### 5. Acknowledgments

Author would like to thank for everyone who helped the research very well.

#### 6. References

- A. Togoo, R., Yaseen, S., Zakirulla, M., V S, N., & Al Zamzami, M. (2012). Oral hygiene knowledge and practices among school children in a rural area of southern Saudi Arabia. *International Journal of Contemporary Dentistry*.
- Al-Darwish, M. S. (2016). Oral health knowledge, behaviour and practices among school children in Qatar. *Dental Research Journal*.  
<https://doi.org/10.4103/1735-3327.187885>
- Andhini, D., & Permatasari, I. (2014). Hubungan Perilaku Menggosok Gigi dan Pola Jajan Anak Dengan Kejadian Karies Gigi Pada Murid SD Negeri 157 Palembang. *Jurnal Keperawatan Sriwijaya*.
- Arangannal, P., Mahadev, S. K., & Jayaprakash,

- J. (2016). Prevalence of dental caries among school children in Chennai, based on ICDAS II. *Journal of Clinical and Diagnostic Research*.  
<https://doi.org/10.7860/JCDR/2016/14731.7523>
- Budiarti, R. (2013). KESEHATAN GIGI MASYARAKAT MUSLIM: Studi Kasus Karies Gigi pada Santri di Madrasah Aliyah Keagamaan Pesantren Darunnajah, Jakarta Selatan. Sekolah Pascasarjana UIN Jakarta.
- Geethapriya, P., & Kandaswamy, D. (2017). Comparison of Oral Health Status and Knowledge on Oral Health in Two Age Groups of Schoolchildren: A Cross-sectional Study. *International Journal of Clinical Pediatric Dentistry*.  
<https://doi.org/10.5005/jp-journals-10005-1462>
- Ministry of Health of Republic of Indonesia. (2013). Indonesia Health Survey. In Ministry of Health of Republic of Indonesia. <https://doi.org/10.7860/JCDR/2016/14731.7523>
- Ministry of Health of Republic of Indonesia. (2014). Oral and dental health Indonesian situation. In Pusat Data dan Informasi Kementerian Kesehatan Republik Indonesia.
- Ministry of Health of Republic of Indonesia. (2018). Indonesia Health Survey. In Ministry of Health of Republic of Indonesia. <https://doi.org/10.7860/JCDR/2016/14731.7523>
- Ministry of Health of Republic of Indonesia. (2019). National dental health. In Pusat Data dan Informasi Kementerian Kesehatan RI.
- Patloth, T., Reddy, S., Puppala, R., Kethineni, B., & Peddi, R. (2017). Prevalence Of Dental Caries Among 5-12 Year Old School Going Children In Urban And Rural Areas Of Mahabubnagar District, Telangana, India. *Annals and Essences of Dentistry*.
- Prada, I. (2020). Prevalence of dental caries among 6-12 year old schoolchildren in social marginated zones of Valencia, Spain. *Journal of Clinical and Experimental Dentistry*.  
<https://doi.org/10.4317/JCED.56390>
- Sevekar, S., Shingare, P., Jogani, V., Patil, S., & Jha, M. (2012). Dental Caries Prevalence among 3- to 14-Year-Old School Children, Uran, Raigad District, Maharashtra. *Journal of Contemporary Dentistry*.  
<https://doi.org/10.5005/jp-journals-10031-1002>