

Correlation Between Age, Gender and Bad Oral Habit of 7-9-year-old Children in Karangjati Primary School, Kasihan, Bantul, Yogyakarta

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ABSTRACT

Introduction: Bad oral habit is an intraoral abnormal habit, if it continues until school-age children, it needs more attention because of its effects on craniofacial growth. It can be caused by pathological conditions, anxiety, or psychological disorder. The school-age period is a new environment. Children adjust to some conditions that may cause problems but if they cannot, resulting in psychological tension. Girls have a higher level of anxiety than boys. The boys tend to against the advice of their parents, including stopping doing bad oral habits. **Purpose:** This study aimed to determine whether there was a correlation between age, gender, and bad oral habit of 7-9-year-old children. **Materials and Methods:** A cross-sectional study has been done in Karangjati elementary school. The 107 children were examined their oral cavity to observe clinical symptoms that might be lead to bad oral habits. Their parents were asked to fill out the questionnaire to determine whether there were bad oral habits. The data were analyzed by the chi-square. **Result:** Oral habits were present in 67 from 107 children (62.62%) and mostly in 8 years old group (26.17%); more occurred in males (36.45%) than females (26.17%). The highest prevalence was nail-biting (28.97%), followed by lip sucking (23.36%), lip biting (23.36%), thumb/finger sucking (20.5%), bruxism (13.08%) and mouth breathing (8.41%). Chi-square test showed that $p\text{-value}=0,037$ and 0.038 for the correlation between age, gender, and bad oral habit, respectively. **Conclusion:** There were correlations between age, gender, and bad oral habits of 7-9-year-old children.

Keywords: Bad oral habit, gender, age, 7-9-year old children

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INTRODUCTION

Malocclusion is a significant oral and dental health problem in Indonesia and is ranked third after dental caries and periodontal disease.¹ Bad oral habit is an extrinsic factor that causes malocclusion.² Bad oral habits in children can cause serious effects on the growth of the face and teeth. The prevalence of oral habit for the mixed dentition was 54.2%.³

Oral habits are classified as physiological and non-physiological oral habits. Physiological oral habit is a normal habit such as chewing, swallowing, and nasal breathing. Non-physiological (abnormal) oral habit is called parafunctional or harmful, also called bad oral habit is the oral habit that causes pressure, persist, and carried out continuously thus affecting craniofacial growth.⁴ Bad oral habits inherent in children when emotional distresses are intolerable for children.⁵ They can feel safe with these habits, such as thumb/finger sucking, pacifier sucking, lips sucking lip biting, nail-biting, bruxism, mouth breathing, and tongue thrusting. Several effects in the oral cavity essentially depend on the onset and duration.⁶

Children at a school-age period are in a new environment, school environment, and they begin to adjust to social, language, emotional, moral, and motoric developments. Through these developments, sometimes they feel that they have many shortcomings and unable to overcome their problems, resulting in psychological tension that can lead them to have bad oral habit problem.⁴

It is important to examine these oral bad habits because if these habits duration are 6 hours per day and continuous intensity can cause malocclusion.⁷ Diagnosis of bad oral habits is very important because it can cause disruption of the normal growth of jaws, development of occlusion and leads to the development of malocclusion.⁸

Research from Garde showed that the prevalence of bad oral habits was more common in females (31%) than males (20.1%).⁹ Females tend to be more anxious and sensitive, while

males tend to be more active and explorative.¹⁰ However, males tend to against the advice from their families compared to the female, at the time when they asked to stop their bad oral habit.¹¹ The subjects of this study were children aged 7-9 years because the children were in mixed dentition period and from the previous study it was known that the prevalence of BOH in this period was 54.2%.³

MATERIALS AND METHODS

This was an observational study with a cross-sectional design. The population of this study was 7-9-year-old students in Karangjati elementary school, Kasihan, Bantul, Yogyakarta. The subjects were 107 children in 7-9 years old (54 males, 53 females) with valid consent forms signed by their parents. Children's oral cavity was examined to observe the clinical symptoms that might be lead to bad oral habits. Their parents were asked to fill out the questionnaire as supporting data to determine whether there was a bad oral habit. The children with craniofacial anomalies, current or previous orthodontic treatment were excluded from this study.

Bad oral habits that were observed were oral habits that persist until this research was conducted. The questionnaire and the children's data were recorded as well as the presence or absence of bad oral habits such as mouth breathing, thumb/digit sucking, nail-biting, bruxism, and lip sucking/ biting. The presence of bad oral habits was determined by examined clinical signs that lead to bad oral habits, such as thumb/finger sucking can be identified by finger defect, anterior open bite, protrusion of maxillary incisors, high palate, and posterior crossbite. Nail-biting habit can be determined by the presence of inflammation around the nails, crowding or rotation and attrition of incisors, and maxillary incisor protrusion. Lip sucking/biting can be identified by the presence of inflammation around the mouth or vermilion hypertrophy, dry lips, maxillary teeth protrusion and mandibular teeth retrusion; and the clinical



signs of bruxism are attrition in canines and molars deciduous teeth. Mouth breathing was checked by a mirror test. A double-sided mirror was held between the nose and mouth. Fogging on the nasal side of the mirror indicates nasal breathing while fogging on the oral side indicates mouth breathing. The questionnaire was filled out by their parents as supportive data of this study.

RESULT

This study was conducted in Karangjati Elementary School, Kasihan, Bantul, Yogyakarta, in 107 children aged 7-9 years (54 male and 53 female) who fit the inclusion criteria as the subjects. The highest number of subjects was children in the 8-year-old group, 48 children (44.86%). This result can be seen in Figure 1. This figure also represented that there were more male subjects in this research. The prevalence of bad oral habits based on the age

categories can be seen in Figure 2. The most number of bad oral habits was in the 8-year-age groups as many as 28 children (26.17%) and these were more common in the male, 39 children (36.45%) than in the female, 28 children (26.17%) (Figure 3).

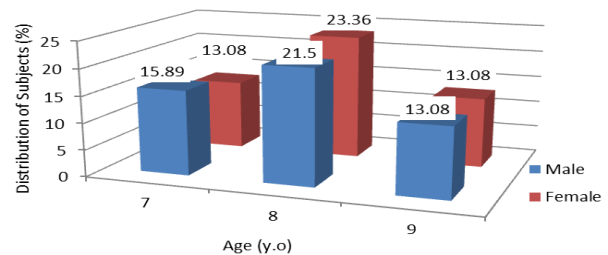


Figure 1. Distribution of subjects

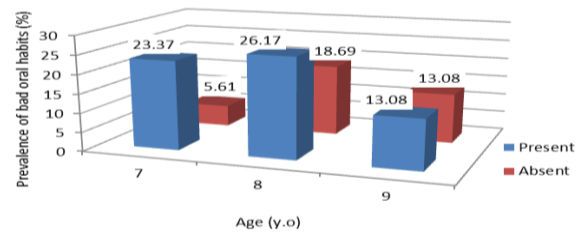


Figure 2. Prevalence of bad oral habits based on age

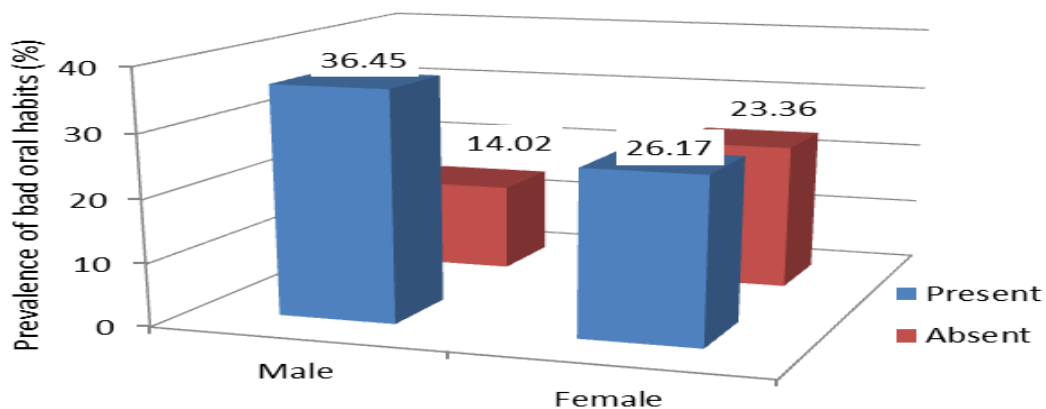


Figure 3. Prevalence of bad oral habits based on gender

Table 1. Prevalence of bad oral habits in 7-9-year-old children based on gender and age

Gender	Age (y.o)	Mouth Breathing		Thumb/Finger Sucking		Nail-biting		Lip sucking		Lip Biting		Bruxism	
		n	%	n	%	n	%	N	%	n	%	n	%
Male	7	2	1,87	6	5,61	4	3,74	6	5,61	6	5,61	4	3,74
	8	2	1,87	7	6,54	7	6,54	5	4,67	8	7,48	1	0,93
	9	2	1,87	2	1,87	5	4,67	6	5,61	4	3,74	3	2,80
Female	7	1	0,93	2	1,87	4	3,74	4	3,74	3	2,80	4	3,74
	8	2	1,87	4	3,74	10	9,35	3	2,80	3	2,80	1	0,93
	9	0	0,00	1	0,93	1	0,93	1	0,93	1	0,93	1	0,93

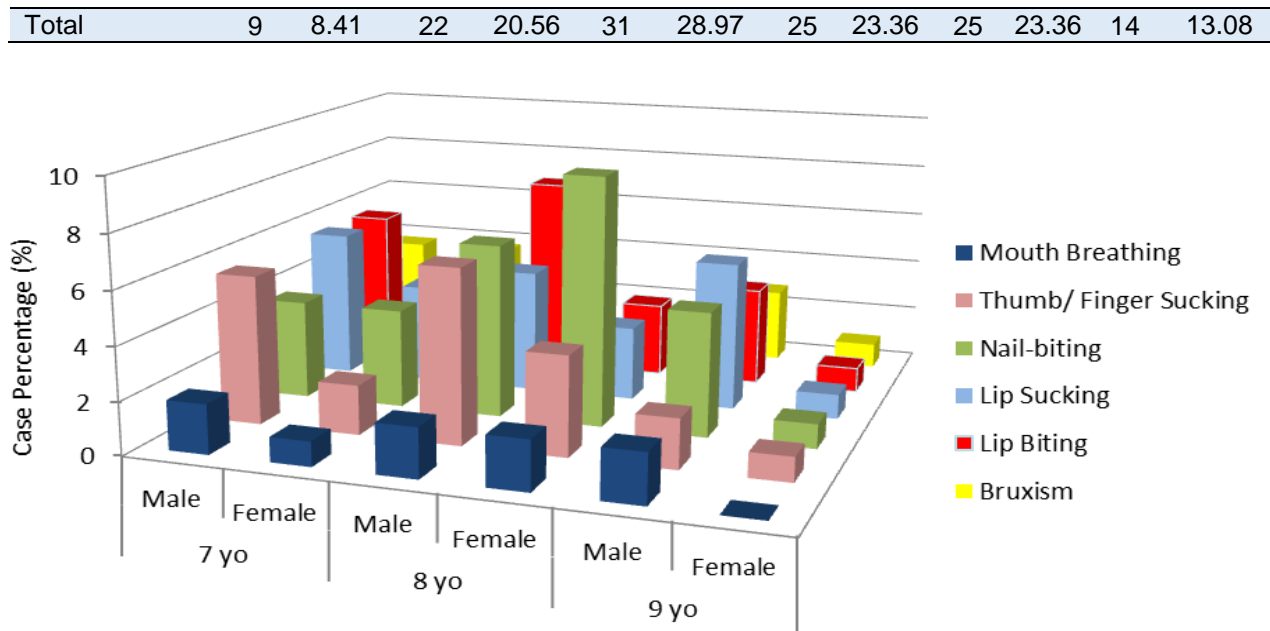


Figure 4. Prevalence of bad oral habits in 7-9-year-old children based on gender and age

Table 1. Chi-square test of gender and bad oral habit

	Value	df	Asymp Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.297 ^a	1	.038		
Continuity Correction ^b	3.508	1	0.61		
Likelihood Ratio	4.332	1	0.37		
Fisher's Exact Test				0.47	0.30
Linear-by-Linear Association	4.257	1	0.39		
N of Valid Cases	107				

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 19,81.

b. Computed only for a 2x2 table

Table 2. Chi-square test of age and bad oral habit

	Value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	6.585 ^a	2	.037
Likelihood Ratio	6.965	2	.031
Linear-by-Linear Association	5.977	1	.014
N of Valid Cases	107		

a. 0 cells (0,0%) have expected count less than 5.

The minimum expected count is 10,47

Examination of individual prevalence of oral habits revealed that 9 children (8.41%) had mouth-breathing habit, 22 children (20.56%) had thumb/finger sucking habit, 22 children (20.56%) had the nail-biting habit, 25 children (23.36 %) had the habit of lip sucking, 25 children (23.36) had lip biting and bruxism was found in 14 children (13.8%) (Table 1).

Chi-square test of gender and bad oral habits using a significance value (p) of 0.05 showed the result that $p=0.038$. It suggesting that in this study, there was a significant correlation between gender and bad oral habits in 7-9-year-old children (Table 2).

As well as in Table 3 showed that there was a significant correlation between age and

bad oral habits in 7-9-year-old children ($p=0.037$).

DISCUSSION

Oral habits have been the topic of interest to the dentist, especially the pediatric dentist. Bad oral habits in children that persisted in the age of more than six years frequently lead to malocclusion and facial deformities.^{12,13} This present study evaluates the bad oral habit prevalence and the correlation between age, gender, and bad oral habits. A total of 107 children aged 7-9 years were evaluated. Figure 1 showed the characteristics and distribution of the samples used in this study. It was seen that more males ($54=50.47\%$) than female ($53=49.53\%$) subjects in this study. Oral habits were present in 67 from 107 children (62.62%).

The 8-year-old group of age was the most subject ($48 = 44.86\%$) in this study, and also it was the most age category that having bad oral habits (26.17%) as seen in Figure 2, because at this age children start to make friends, many inter-communications harm children, which can result in psychological disorders that lead to the onset of bad oral habits.^{14,15} Actually if it is calculated based on the number of subjects per group of age, the percentage of bad oral habits in the 8-year age group was lower than in the 7-year age group. It was in line with the result of Basra's research. Basra, et al stated that as age increased, bad oral habits decreased.¹⁶ The existence of bad oral habits at the age of 7 years in this study perhaps due to being a new elementary school student where there was a transition from preschool to school period. The presence of children entering a new and more complex school environment which was more complex allowed stressors to them, so they felt uncomfortable, afraid, and anxious. This situation triggered the children to do bad oral habits if they were unable to handle these problems. Emotional and psychological disturbances of the children cannot be separated from bad habits.¹⁷ Oral habits in the infant period

and young children were normal things. This habit is considered abnormal when they settled on the age of the child above 3 years old.¹⁸ If the bad oral habit continues after the 6-year-old, it can cause dentofacial abnormalities such as malocclusion and abnormalities in the shape of the face and palate.¹⁷

Based on gender, the results of this study indicated that bad oral habits occurred more in males ($39=36.45\%$) than in females ($28=26.17\%$). It was illustrated in Figure 3. This is in line with the result of Septuaginta's research which showed that boys have more bad oral habits.¹³ The results of this study were also consistent with research conducted by Vishnoi, et al¹⁹ which showed that bad oral habits more common in boys than girls. Bad oral habits that occur in boys due to their attitude that tends to resist demands. Parents who might be mistaken in providing education and supervision of children resulting in children have psychological and mental disorders, thus the psychological disorders that occur can encourage the child to do bad oral habits¹³. Another underlying reason bad oral habits that persist longer in boys than girls because boys are likely to violate the advice of parents, including when they were asked to stop doing bad oral habit.¹¹

The most of bad oral habit occurred in this study was nail-biting ($31=28.97\%$), and then followed by lip sucking/lip biting ($25=23.36\%$), thumb/finger sucking ($22=20.56\%$), Bruxism ($14=13.08\%$) and the last is mouth breathing ($9=8.41\%$). These can be seen in Figure 4. Mouth breathing was rarer when compared with other bad oral habits. According to Jefferson, people with mouth breathing habit will have an inhibited maxillary growth, a narrow palate that tends to have an overcrowded of maxillary anterior teeth.²⁰ The result of other studies indicates that lips sucking habit is rarer when compared with other bad oral habits. The habit of sucking or biting the lips is usually performed on the lower lip. It causes the lower teeth move lingually and the maxillary teeth to move anteriorly. As a result, protrusion of maxillary



anterior teeth, retrusion of mandibular anterior teeth, soft tissue inflammation, and anterior open bite.²¹ Bruxism can cause damage to the teeth structure causing teeth hypersensitivity in changes of temperature, mobility of the teeth, fractures on the cusps, pulpitis, and pulp necrosis.²² Nail biting causes crowding, incisal rotation and attrition of the maxillary and mandibular incisors, protrusion and also diastema of the maxillary incisors.²³ The conditions caused by thumb/finger sucking are palatal vaults, inter-canine, and intermolar narrowing arch widths, increasing arch depth, a labial inclination of the maxillary incisors, increasing overjet, the spacing of the maxillary incisors and anterior open bites.²⁴

These habits can be caused by environmental factors and psychological factors that can lead to abnormal malocclusion.²¹ The presence of bad oral habits on the whole subject of study is quite high, as many as 62.62% (67 children), as illustrated in Figure 3. In different countries, the prevalence of bad oral habits is varied greatly. Urzal, et al., showed the prevalence of high bad oral habits that occurred in the deciduous teeth period amounted to 43.5% and 54.2% in the mixed dentition period.³

The result of this study showed that there was a significant correlation between gender and bad oral habits (Table 2). This was in line with research conducted by Motta, et al., which showed that bad oral habit was more common in boys and there was a significant correlation⁴, and also consistent with Jajoo research who compared the prevalence of bad oral habits in boys and girls which was showed that statistically significant differences and the prevalence of bad oral habits in boys are more than girls, too.²⁵ Besides the correlation between gender and oral habits, this study also showed that there was a significant correlation between age and bad oral habit, therefore early prevention of bad oral habits is important for the oral cavity health in children.²⁶ This result was in accordance with Basra's research which states that there was a correlation between bad oral habits and age.¹⁶ Unconsciously, parents as the primary

educators for children can determine whether bad oral habits will be permanent in their children or not. Presence or absence of bad oral habits that persist influenced by parent's knowledge and attitudes.²⁷

From this study, it can be concluded that there was a relationship between age, gender, and bad oral habits in children among 7-9 years old. There was a high prevalence of bad oral habit and the most common was nail-biting. The most of bad oral habit was in 8 years old group and based on gender, there were more bad oral habits occurred in male compared to female. A holistic approach is needed to replace bad oral habits in children with other good habits, things to do such as counseling for children and parents as well as the use of a special tool to stop bad oral habits.

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