

## Examining the Knowledge and Practices of Oral Hygiene Among Secondary School Teachers in Klang, Selangor

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**Abstract:** Teachers play a big part in delivering the message of health and hygiene to students as they spend the most time with them. Teachers can act as a role model or as a pioneer to the students in regards to health matters, especially on matters such as oral hygiene. Oral health is essential to the general health and well-being of all children and adults. Thus, the aim of this study was to examine the practices of oral hygiene among primary school teachers in Malaysia. A survey with a descriptive quantitative design was performed at the SMK Rantau Panjang, Klang, Selangor, during November 2019 before COVID'19. The instrument used in this study was a questionnaire. The respondents had a good knowledge of oral health and oral diseases. The majority had a positive attitude concerning oral health care. Over all the female teachers in this study practiced oral hygiene methods more frequently, and were the majority of those concerned regarding their oral health. Both male and female schoolteachers have a regular pattern of visiting the dentist rather than visiting the dentist when in the dental pain (toothache). All the teachers participated in this study knew that tooth cleaning with brush or miswak was important for good dental health. Brushing teeth twice daily was more common among the female higher income group of schoolteachers. There is a need to enhance the knowledge of oral health and disease among schoolteachers, so they could dissipate the knowledge to their pupils.

**Key Words:** Oral hygiene; School teachers; Toothache; Visiting dentist.

### 1. INTRODUCTION:

Education plays an important role<sup>3</sup> in a person's life. An average person spends almost 10-12 years of his life in school. With this in mind, The World Health Organization (WHO) in 1995 has launched a Global School Health Initiative to highlight the importance of school as an important tool in delivering health education. School acts as an important forum for general health issues as well as oral hygiene issues. As projected by a Public Dental Institute in Karachi, Pakistan (2013), the most significant period of a child's life is spent at school, and it is here that their lifetime beliefs and habits develops. Teachers play a big part in delivering the message of health and hygiene to the students as they spend the most time with them. Teachers can act as a role model or as a pioneer to the students in regards to health matters, especially on matters such as oral hygiene. In Malaysia, the Ministry of Education (MOE) has always focused on the importance of health education and also the role of teachers in transferring the knowledge about health to the students. Oral hygiene practices among Malaysian students have also been one of the main agenda of the MOE. Many programmes and initiatives have been taken by the MOE with the help of the Ministry of Health in all government aided primary and also secondary school all over the country.

Oral health means more than healthy teeth. The World Health Organization(WHO), has a definition of good oral health: "Oral health means being free of chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the mouth and oral cavity" (WHO, 2009).

Oral health is essential to the general health and well-being of all children and adults. The majority of dental diseases can be prevented but oral care resources are not available in many parts of the world (Petersen, 2006; Petersen, 2008). Meanwhile according to O'Connor (2012) oral hygiene means interventions to prevent plaque related disease including care of oral mucosa, tongue, teeth, lips, gums and dentures. Oral diseases are among the most common chronic diseases in the world, and are more common in developing countries than in industrial countries. This is due to poor oral hygiene, inadequate dental health care, lack of dental programs and policies, economic stagnation, and a shortage of dental personnel (Goldman et al., 2008; Sheiham, 2005).

The majority of children worldwide show signs of gingivitis and 50-90 % of adults are affected (Petersen et al., 2005; Pihlström et al., 2005). Oral hygiene is poorer, and gingivitis is more common in all age groups in developing countries compared to industrial countries (Burt, 2005). Gingivitis arises from accumulation of dental plaque and the signs are red and swollen gum with bleeding, especially when brushing the teeth. If not treated, it might lead to

periodontitis (Coventry et al., 2000).

Oral health knowledge is considered to be an essential prerequisite for health-related practices and studies have shown that there is an association between increased knowledge and better oral health (Groove & Batch, 1987, Smyth et.al., 2007). Those who are more likely to adopt self-care practices have assimilated the knowledge and feel a sense of personal control over their oral health (Freeman et.al., 1991). Similarly, for those with more positive attitudes towards oral health are influenced by better knowledge in taking care of their teeth (Cheah et. al., 2009). By providing adequate information, teachers can build healthy attitude among students (Smyth et.al., 2007). In order to create such health education, the assessment of health related knowledge, attitude and practice is essential (Al-Omiri et.al., 2006).

Various authors have estimated that the caries and periodontal diseases would become a considerable problem in the future, and recommended that country wide preventive and educational programs should be instituted (cited in Rafi et.al., 2012). It was found that teachers traditionally have educated children regarding oral health and often participated in school-based prevention program (cited in Almas et.al, 2003). According to Loupe and Fazier (1983), Freed and Goldstein (1976) reported that the college teachers were often lacking in inadequate and incorrect oral health information.

One study in Sweden shows that a reason in low priority in health care facilities is lacking routines for assisting oral health care (Wardh et.al, 2000 in Hakansson & Struresson, 2010). Another study found that high school and intermediate teachers had lacking knowledge and attitude in preventing from oral hygiene issues (Wyne et.al., 2003). The teachers, themselves, need to have a good knowledge and attitude towards oral health in order to instill healthy preventive oral habits.

Thus, the aim of this study was to examine the practices of oral hygiene among primary school teachers in Malaysia. In order to achieve the aim, the following objectives have been formulated

## **2. STUDY OBJECTIVE:**

- i. To identify the knowledge of secondary school teachers on the practices of oral hygiene.
- ii. To identify the knowledge of secondary school teachers on preventing caries and periodontal disease related to of oral hygiene.

## **3. METHODOLOGY:**

A survey with a descriptive quantitative design was performed at the SMK Rantau Panjang, Klang, Selangor, during November 2019 before COVID-19. The instrument used in this study was a questionnaire. The use of questionnaires for data collection method is most popular in the design of survey (Chua, 2006). The questionnaire included 16 items that were divided into seven parts;

- i. General information
- ii. Knowledge of tooth decay
- iii. Knowledge of cause of gingival disease
- iv. Knowledge of oral hygiene method
- v. Comparison of preference of using toothbrush and miswak
- vi. Frequency of the method and daily use of toothbrush and miswak
- vii. Frequency of visiting dentist regularly and by interval of visit

The questionnaire was handed to secondary teachers at the ages between 25 and 50 years. In order to eliminate misunderstandings in the questionnaire and to ensure that important details would not be missed, a pilot study was conducted including secondary teachers who were randomly selected by the local supervisor. The participants were asked to discuss their opinions with the authors concerning each question separately. This resulted in that one question was excluded, and few other questions were revised. These teachers were excluded from the main study. The population for this study were secondary school teachers of SMK Rantau Panjang, Klang. There were 168 secondary school teachers in that area from which 79 teachers returned the questionnaires. The data were analyzed in descriptive ways using SPSS 23.0 version software.

### **3.1 ETHICAL CONSIDERATIONS:**

To respect the participants autonomous choices and integrity, they were informed verbally that the study was voluntary, and if somebody changed his or her mind before or while answering the questionnaire, he/she was allowed

to discontinue the participation at any time. The teachers were also informed that the answers in the questionnaire were confidential and would not be read by anyone else but the author. The answered questionnaire would be destroyed when the study results have been compiled and passed examination (Olsson & Sörensen, 2007)

#### **4. DISCUSSION:**

The present study was conducted to look into the knowledge of schoolteachers regarding oral health and their oral hygiene methods. The results were compared for male and female schoolteachers from secondary school. The clinical examination would help to assess the gap between knowledge and practices of oral hygiene methods.

Effective removal of dental plaque can result in the prevention or reduction of dental caries, gingivitis and periodontitis disease as bacterial plaque plays an important role in the aetiology of these diseases. Mechanical cleaning procedures are reliable means of controlling plaque.

Overall, the female teachers in this study practiced oral hygiene methods more frequently, and were the majority of those concerned regarding their oral health. Both male and female schoolteachers have a regular pattern of visit to dentist rather than visiting the dentist when in dental pain (toothache). Almas et.al (2003) indicated that there was no significant difference among both male and female schoolteachers as far as attendance to the dentist was concerned. A total 39 teachers in a study carried out by Wyne et.al. (2003) were aware of the importance of good dental health for good general health and that routine check-up dental visits help in maintaining good dental health. However, a majority (48.7%) actually never made a routine check-up visit. This indicates a discrepancy between the attitude and the actual practice, and need for continuous reinforcement of good preventive habits from the dental health care worker.

Almost quarter of the teachers did not have knowledge regarding microbial relationship of caries and periodontal disease. These responses emphasize that there is a need of delivering the basic knowledge and information of health sciences especially the knowledge of oral health, hygiene practices and life style of the diseases.

Both male and female schoolteachers had a very high level of knowledge regarding tooth brushing, role of sugar in dental caries and the importance of regular visit to dentist. These findings are in line with results from previous study conducted by Almas et.al. (2003).

Wyne et.al. (2002) also indicated the same findings. The results indicate that although there are some shortcomings in the area of preventive practices, yet the teachers' knowledge regarding oral health is satisfactory and their attitude towards oral health is very positive.

Approximately 15% of males and 14% of female schoolteachers did not know the bacterial relationship to the dental caries. 23% of males and 28% of female schoolteachers did not know details regarding the microbial relationship to periodontal disease.

Almas et.al. (2003) found 23% and 32% of males and 30% and 39% of female schoolteacher did not know the bacterial and microbial relationship to the dental caries and periodontal disease respectively.

About 62% of males and 41% of schoolteachers using tooth brush instead of miswak for better cleaning. However, 62% of males and 46 % of female schoolteachers thought that the use of miswak is due to sunnah.

The findings from the study conducted by Almas et.al (2003) stated that 45% of males and 48% of females schoolteachers using tooth brush instead of miswak for better cleaning, and 62% of both male and female schoolteachers used miswak due to sunnah.

Wyne et.al. (2002) reported that all the teachers participated in their study knew that tooth cleaning with brush or miswak was important for good dental health, but there was a discrepancy in the opinion regarding the optimum tooth cleaning frequency and the actual practice.

In this study, two times daily tooth brushing was more common among the female higher income group of schoolteachers instead of three times in the study conducted by Almas et.al (2003).

The majority 73 % of females and 77 % of male teachers were regular visitors to the dentist. In the study conducted by Hind al-Johani (2008) on oral hygiene practice among saudi patients in Jeddah indicated that having dental pain was the reason for visiting the dentist giving by 57% of the patients. Al-Johani also cited in his study that findings from Behbehani & Shah (2002) in line with his results, that is 49% of females who had visited a dentist during the last 12 months.

#### **5. RESULT:**

Seventy-nine teachers, 66 (83.54%) female and 13 (16.46%) male secondary schoolteachers participated in the study.

##### **5.1 Knowledge of tooth decay**

Regarding the knowledge of teachers, the cause of dental carries, 62% of male and 91% of female teachers responded that it is due to tooth brushing by a wrong method.

Total 77% of males and 86 % of females were aware of role of sugar and sugary drinks in dental caries. Almost 62% males and 77% of female teachers thought that it might be due to not visiting the dentist. About 15 % of males and 14% females did not know that bacteria is the cause of dental caries.

Table 1: Knowledge of cause of dental caries (tooth decay)

CAUSES OF DENTAL CARIES	YES		NO		Don't know	
	n	%	n	%	n	%
Brushing the wrong way						
Male	8	61.5	2	15.4	3	23.1
Female	60	90.9	0	0.0	6	9.1
Consumption of too many drinks and sweets						
Male	10	76.9	0	0.0	3	23.1
Female	57	86.4	3	4.5	6	9.1
Not visiting dentist						
Male	8	61.5	4	30.8	1	7.7
Female	51	77.3	9	13.6	6	9.1
Bacteria is the cause						
Male	11	84.6	0	0.0	2	15.4
Female	57	86.4	0	0.0	9	13.6

### 5.2 Knowledge of cause of gingival disease

Regarding the knowledge pertaining to periodontal diseases, 54 % of male and 64 % of female teachers responded that irregular tooth brushing is the cause of gingival disease. Regarding etiology of periodontal disease, 23% of male and 28% of female teachers did not know with regards to microbial relationship in the gums disease.

Table 2: Knowledge and frequency of oral hygiene method by gender and income.

CAUSES OF GINGIVAL DISEASE	YES		NO		Don't know	
	n	%	n	%	N	%
Irregular teeth brushing						
Male	7	53.8	2	15.4	4	30.8
Female	42	63.6	15	22.7	9	13.6
Virus in the mouth						
Male	7	53.8	3	23.1	3	23.1
Female	45	68.2	15	22.7	6	9.1
Bacteria in the mouth						
Male	12	92.3	0	0.0	1	7.7
Female	57	86.4	6	9.1	3	4.5
Microbes in the mouth						
Male	8	61.5	2	15.4	3	23.1
Female	39	59.1	12	18.2	15	22.7

### 5.3 Knowledge of oral hygiene method

Regarding oral hygiene methods, 77 % of male and 100 % of female teachers used brushing. On aggregate data, teachers who income of more than rm 5000, had the habit of brushing by 100 % while who had income less than rm 5000, 93% of them used to brushing teeth

Table 3: Knowledge and frequency of oral hygiene method by gender and income.

Variables	Nothing		Brushing		Miswak		Both		Fingers	
	n	%	n	%	n	%	n	%	n	%
Male			10	76.9	2	15.4	1	7.7		
Female			66	100						
Income < RM5000.00			35	100						
Income > RM 5000.00			44	100						

### 5.4 Comparison of preference of using toothbrush and miswak

Towards preferences of using toothbrush or miswak, 62% of males and 41% of female teachers preferred to use a toothbrush due to better cleaning effect. Regarding the use of the Miswak, 62% of males and 46 % of females used it due to sunnah, while 23 % of males and 13% of females used it due to freshness.

Table 4: Comparison of preference of using toothbrush and Miswak by gender.

Preferences	Better cleaning		Freshness		Latest		Better cost		Others	
	N	%	n	%	N	%	n	%	n	%
Reason for using toothbrush instead of miswak										
Male	8	61.5	4	30.8	0	0.0	1	7.7	0	0.0
Female	27	40.9	21	31.8	3	4.5	6	9.1	9	13.6
Reason for using miswak instead of toothbrush					Traditional		Sunnah			
Male	2	15.4	3	23.1	0	0.0	8	61.5	0	0.0
Female	6	9.1	9	13.6	6	9.1	30	45.5	15	22.7

### 5.5 Frequency of visiting dentist regularly and by interval of visit

The majority of the teachers, males 39% used horizontal brushing method, while 16% of female teachers used circular brushing.

5% of female teachers used miswak once a day while 15 % of male teachers used miswak more than 3 times a day.

Table 5: Frequency of the method and daily use of miswak by genders and income comparison.

Gender	Vertical		Horizontal		Scrubbing		Circular		Randomly	
	n	%	n	%	n	%	N	%	n	%
Male	4	30.8	5	38.5	1	7.7	2	15.4	1	7.7
Female	18	27.3	12	18.2	3	4.5	27	40.9	6	9.1
	<b>Once</b>		<b>Twice</b>		<b>3 Times</b>		<b>&gt; 3 Times</b>			
Male	1	7.7	7	53.8	3	23.1	2	15.4	-	
Female	3	4.5	42	63.6	18	27.3	3	4.5	-	
	<b>Once</b>		<b>Twice</b>		<b>3 Times</b>		<b>&gt; 3 Times</b>			
Income < RM5000.00	7	20.0	19	54.3	6	17.1	3	8.6	0	0.0
Income > RM 5000.00	6	13.6	29	65.9	5	11.4	4	9.1	0	0.0

### 5.6 Frequency of visiting dentist regularly and by interval of visit

The majority of the male teachers had a lesser monthly income compared to females; such as 11% of males and 45% of female teachers had a monthly income more than rm 5000. The majority 73 % of females and 77 % of male teachers were regular visitors to the dentist. Only of the males 15% and females 9% visited the dentist only on feeling pain.

Table 6: Frequency of visiting dentist regularly and by interval of visit.

Gender	Yes				No					
	n	%	n	%	n	%	n	%	n	%
Male										
Female										
	<b>3 months</b>		<b>6 months</b>		<b>Yearly</b>		<b>feeling pain</b>		<b>Others</b>	
Male	2	15.4	7	53.8	1	7.7	2	15.4	1	7.7
Female	9	13.6	27	40.9	12	18.2	6	9.1	12	18.2

## 6. CONCLUSION:

The respondents had a good knowledge of oral health and oral diseases. The majority had a positive attitude concerning oral health care. Over all the female teachers in this study practiced oral hygiene methods more frequently, and were the majority of those concerned regarding their oral health. Both male and female schoolteachers having a regular pattern of visit to dentist rather than visited the dentist in the dental pain (toothache). All the teachers participated in this study knew that tooth cleaning with brush or miswak was important for good dental health Two times daily tooth brushing was more common among the female higher income group of schoolteachers. There is a need to enhance the knowledge of oral health and disease among schoolteachers, so they could dissipate the knowledge to their pupils.

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