



## Knowledge and Self Perception about Preventive Dentistry among Indonesian Dental Students

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### Abstract

**Objective:** To investigate the knowledge and self-perception of Indonesian dental students in giving oral health education and preventive treatment. **Material and Methods:** This was a cross sectional study, with 208 clinical students (54 males and 154 females). Knowledge and self-perception of preventive dentistry was assessed using multiple choice questionnaire based on a four-point likert scale written in Indonesia, at Dental Hospital of Hasanuddin University. Assessment of preventive dentistry knowledge on clinical students by answering 14 questions, while self-perception in providing oral health education and preventive treatment was assessed using general questions. Statistical evaluation was done using Chi-squared test and t test. The significance level was set at 5%. The analyses were performed with SPSS 12 statistical package. **Results:** Both male and female students are reported to have high competence in giving oral health education and preventive treatment (94-99%), but there was no significant difference between genders ( $p > 0.05$ ). Almost all questions were answered by agree or strongly agree. 75% of study participants disagreed with the statement that the use of fluoride toothpaste is more important than the brushing technique for dental caries prevention (PK2,  $p < 0.05$ ). **Conclusion:** The perceptions of clinical students participating in the study have high competence (94-99%) in providing education and preventive care to their patients, but there is still a lack of prevention knowledge.

**Keywords:** Students, Dental; Knowledge; Preventive Dentistry; Self Concept.

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## Introduction

Preventive dentistry is an aspect of dentistry, which concentrate on practices, and procedures that ensure dental diseases do not occur or progress to a more severe form. It includes two aspects of dental care both performed to help patients avoid dental disease or to target them in their early more treatable stages. In part, it is the oral hygiene care performed by the patient at home. Preventive dentistry also encompasses what is done by the dental staff in the clinic to help patients maintain health in the oral cavity. In either case, the objective is to stop the development of oral disease or to find it at an early stage. Dental health professionals most often look for early signs of periodontal disease, dental caries and other changes in the soft tissue of the mouth that could lead to oral pathology [1].

High relative risk of oral disease relates to socio-cultural determinants such as poor living conditions; low education; lack of traditions, beliefs and culture in support of oral health. Communities and countries with inappropriate exposure to fluorides imply higher risk of dental caries and settings with poor access to safe water or sanitary facilities are environmental risk factors to oral health as well as general health [2]. Oral health is still not a national health priority, particularly in low and middle-income countries, and the prevalence of oral diseases has been increasing. Additionally, in such countries, there are insufficient numbers of dentists and other dental healthcare personnel, and the availability of oral healthcare services is limited populated cities. Nonetheless, oral health might improve if services were focused on primary healthcare and prevention [2-4].

Epidemiological data show that the prevalence of dental caries in most developed countries has declined in recent decade [5]. It has been suggested that it is due to influence of multiple factors including use of fluoride, enhanced oral hygiene including brushing and flossing, dietary changes, xylitol and specific procedure performed in dentists office such as routine examination including diagnostic radiographs, scaling and polishing, fluoride applications, and sealant [6-9].

Clinical and public health research has shown that a number of individual, professional and community preventive measures are effective in preventing most oral diseases [2]. Oral health education and professional knowledge of preventive dentistry allow dentists to be role models for the public. Positive attitudes toward health promotion need to be developed during students' days rather than afterward. The health beliefs and attitudes of dental students are important because these individuals are the future dental health providers. Their attitudes not only affect their oral self-care but also potentially influence their patients' ability to take care of their teeth and shape the public's oral health education level. Dental health providers should be an example for their patients, family, and friends by maintaining good oral health themselves. In the future, today's students of dentistry will provide dental services and will be responsible for public oral health education. Therefore, it is important to investigate their knowledge and self-perception about preventive dentistry [10].

## Material and Methods

## Design

This cross sectional study was conducted at Dental Hospital of Hasanuddin University, Sulawesi Selatan, Indonesia, which was held on July 2017. The population of this study was clinical students registered at Dental Hospital at July 2017 period, which amounted to 417 people. The subjects of the study were all clinical students who attended each clinical department at the time of the study.

## Data Collection

Instruments in this study include informed consent forms and questionnaire sheets. The questionnaire sheet consisted of clinical student data, assessment of prevention dentistry knowledge, and self-perception in providing oral health education and preventive treatment from the previous studies consisting of 23 questions [3,11].

Assessment of preventive dentistry knowledge on clinical students by answering 14 questions. Answers are given on a 4-point Likert scale that ranges from strongly disagree (1) to strongly agree (4), and additional 'do not know' options (excluded from analysis). A high score illustrates the level of student knowledge [3,11].

Self-perception in providing oral health education (OHE) and preventive treatment is assessed using general questions with 4 choices of answers: very competent (1), quite competent (2), not very competent (3), and not at all competent (4). These answers were reclassified into two levels, namely the competent consists of very and quite competent, while the incompetent consists of incompetent and not at all [3,11].

## Statistical Analysis

Statistical evaluation was done using Chi-squared test and t test. The significance level was set at 5%. The analyses were performed with the Statistical Package for the Social Sciences (SPSS), version 12 (SPSS Inc., Chicago, IL, USA).

## Results

Of the 417 people enrolled, only 208 students (48.9%) returned the questionnaire. The subjects consisted of 54 (25.9%) males and 154 (74.1%) females (Table 1).

**Table 1. Frequency distribution of participants' characteristics in male and female.**

Variables	Gender	
	Male (n=54)	Female (n=154)
Mean age in years (SD).	23.2 (1.2)	22.8 (1.05)
Mean years of study (SD).	1.5 (0.8)	1.4 (0.7)

n = 208; SD = Standard Deviation.

Table 2 shows self-perception reports in providing oral health education and preventive treatment based on self-perception questions. Both male and female students are reported to have high competence (94-99%). There was no significant difference between genders ( $p>0.05$ ).

**Table 2. Self-perception in providing education and preventive treatment.**

	Quiet competent	Very competent	Quiet competent + Very competent	p-value
	n (%)	n (%)	n (%)	
Self perception in giving preventive oral health education				
Male	45 (83.3)	6 (11.1)	51 (94.4)	0.053
Female	127 (82.5)	26 (16.9)	153 (99.4)	
Self perception in giving preventive oral health treatment				
Male	38 (70.4)	15 (27.8)	53 (98.2)	0.226
Female	114 (74.0)	40 (26.0)	154 (100.0)	

Table 3 illustrates the median score for 14 statements regarding the knowledge of preventive dentistry. The highest score was found in the PK10 statement '*It is beneficial to visit a dentist for check-ups*' with the mean of  $3.62 \pm 0.4$ . This followed by PK14 '*Having dental problems can lead to a general health problems*' of  $3.52 \pm 0.5$ . The lowest score found in PK2 '*using fluoride toothpaste is more important than the brushing technique to prevent dental caries*'. A significant difference in knowledge was seen between the male and female students regarding the use of fluoride toothpaste is more important than the brushing technique to prevent dental caries (PK2;  $p < 0.05$ ).

**Table 3. The level of knowledge of different aspects of preventive knowledge (PK) among the clinical students by gender.**

Students by gender:

PK	Variables	Knowledge Score			Mean (SD)	p-value
		Total	Female	Male		
Knowledge about Fluoride						
PK1	Brushing teeth with fluoride toothpaste prevent tooth decay	3 (2-4)	3 (2-4)	3 (2-4)	3.44 ± 0.5	0.973
PK2	Using fluoridated toothpaste is more important than the brushing technique to prevent caries	2 (1-5)	2 (1-5)	2 (1-5)	2.23 ± 0.6	0.019*
PK3	Fluoride is the most important factor for tooth susceptibility to decay	3 (1-5)	3 (2-5)	3 (1-4)	3.08 ± 0.5	0.331
PK4	Fluoridation of the drinking water is an effective, safe, and efficient way to prevent dental caries	3 (2-5)	3 (2-5)	3 (2-4)	3.02± 0.5	0.904
PK5	It is beneficial to recommend fluoride tablets and/or topical fluorides for children in areas without a fluoridated water supply	3 (2-5)	3 (2-5)	3 (2-4)	3.25 ± 0.5	0.617
Knowledge about Sugar						
PK6	The frequency of sugar-consumption has a greater role than the total amount of sugar consumed in causing caries	3 (2-5)	3 (2-5)	3 (2-4)	3.21 ± 0.5	0.166
PK7	Sugar-free chewing gum has a positive effect on dental health	3 (2-4)	3 (2-4)	3 (2-4)	3.15 ± 0.4	0.919
Knowledge about Xylitol						
PK8	Xylitol is not only non-cariogenic, but also suppresses the growth of acidogenic bacteria in dental plaque	3 (2-5)	3 (2-5)	3 (2-5)	3.23 ± 0.5	0.698
Knowledge about Sealant						
PK9	Sealant is effective in prevention of pit and fissure caries in molars	3 (3-5)	3 (3-4)	3 (3-5)	3.48 ± 0.5	0.748
Knowledge about Frequency of Dental Visit						
PK10	It is beneficial to visit a dentist for regular check-ups	4 (3-4)	4 (3-4)	4 (3-4)	3.62 ± 0.4	0.874

Knowledge on Gingival Health						
<b>PK11</b>	Regular brushing helps in prevention of gum problems	3 (2-5)	3 (2-5)	3 (3-5)	3.36 ± 0.5	0.711
<b>PK12</b>	Gingivitis is caused by dental plaque	3 (2-5)	3 (2-4)	3 (3-5)	3.39 ± 0.5	0.294
<b>PK13</b>	Gingivitis can be cured by effective oral hygiene	3 (2-5)	3 (2-4)	3 (3-5)	3.47 ± 0.5	0.677
Knowledge on Dental and General Health						
<b>PK14</b>	Having dental problems can lead to general health problems	4 (3-5)	4 (3-5)	3 (3-4)	3.52 ± 0.5	0.478

Range 1-4; Strongly disagree - disagree - agree - strongly agree; 5 = do not know. A high score describes the level of knowledge; \*Significant differences between gender.

## Discussion

Most oral diseases remain untreated in low-income or developed countries due to limited financial and resources. Indonesia is one of the developed countries in the world. For most people, regular dental expenses will be too expensive and access to dental services is centralized only in cities and less affordable in rural areas. It is therefore important that emphasis should be given to prevention rather than treatment of oral diseases [3,11]. In relation to this, our study shows that the clinical students already have a good knowledge of preventive dentistry, and a positive self-perception report in providing preventive treatment and providing DHE to their patients.

Fluoride has been described as a major factor contributing for the decline in the prevalence of dental caries worldwide. In Table 3, 75% of study participants disagreed with the statement that the use of fluoride toothpaste is more important than the brushing technique for dental caries prevention (PK2), this is in line with previous studies conducted in Mongolia [12] and Nigeria [13]. In fact, previous research conducted on dentists in Nepal also has similar results with this study [3]. This may illustrate that the current dental education curriculum places more emphasis on prevention approaches that focus on aspects of maintaining oral hygiene to prevent caries. In addition, the lack of knowledge about fluoride toothpaste can be due to cultural differences and traditions. However, no specific explanation about sex relationship with the use of fluoride toothpaste is more important than the brushing technique for dental caries prevention [5,11,12].

In Table 3, in all of 14 questions on preventive knowledge, almost all questions were answered by agree or strongly agree. The results of this study are in line with research conducted in Nepal [3], India [5], Turkey [10], Nigeria [12] and Iran [13]. Even in some aspects of preventive dentistry knowledge has a better level. The study also illustrates that clinical students have a high competence in providing education and preventive treatment to their patients [12-15].

The presence of bias on different levels is a challenge for most observational studies. "Social desirability bias" could explain why some relatively high students agreed to participate in this research when invited. Clinical students may have been too exaggerated to the global "good behavior" to give answers in socially acceptable directions and present a good self-image. "Information bias" may exist, because the question can be misinterpreted [3].

Providing information to patients about good oral hygiene habits and improving their vigilance to avoid mouth disease is an important thing of a health care provider. Since dentistry

students are healthcare providers in the future, they must have good attitudes and habits of oral and dental health since the time of college to direct their patients properly [14,15].

## Conclusion

The perceptions of clinical students participating in the study have high competence (94-99%) in providing education and preventive care to their patients, but there is still a lack of prevention knowledge, regardless of the possibility of bias.

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