

Determinant Factors Affecting Public Awareness in Maintaining Dental and Oral Health in Wonokromo and Sawunggaling Subdistricts, Surabaya, East Java

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ABSTRACT

Background: Dental and oral health maintenance is one of the most supporting aspects in healthy paradigm, and it's a national development strategy to create Indonesia's Healthy life. Dental and oral health among Indonesian people still needs serious attention. Therefore, dental and oral health maintenance needs to be considered. This study aimed to analyze the theory of Health Belief Model (HBM) consisting of knowledge, environment, perceived barriers, perceived susceptibility, perceived benefits, and cues to action on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Subdistricts, Surabaya.

Subjects and Method: An observational analytic with a cross sectional research design was conducted at Wonokromo and Sawunggaling Subdistricts, Surabaya, East Java from July to September 2022. A total of 400 people were selected for this study. The dependent variable was awareness in maintaining dental and oral health. The independent variables were knowledge, environment, perceived susceptibility, perceived severity, perceived barrier, perceived benefit, and cues to action. The data were analyzed using linear regression.

Results: Maintaining dental and oral health increased with the environment ($b=0.02$; $p=0.181$), perceived severity ($b=0.01$; $p=0.676$), perceived benefit ($r=0.007$; $p=0.304$), and cues to action ($r=0.01$; $p=0.181$), but statistically not significant.

Conclusion: Maintaining dental and oral health increased with environment, perceived severity, perceived, and cues to action, but statistically not significant.

Keywords: public awareness, dental health, oral health, health belief model, HBM.

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BACKGROUND

In maintaining dental and oral hygiene is one of the supporting aspects in the healthy paradigm, as well as a national development strategy to realize a healthy Indonesia 2025 which aims to increase the awareness,

willingness and ability to live healthy for everyone in order to improve and realize the highest degree of public health (Depkes RI, 2009). The 2019 Global Burden of Disease Study estimates that nearly 3.5 billion people worldwide experience caries

in permanent teeth and 486 million children suffer from caries in primary teeth (GBD, 2019). Dental and oral health among Indonesian people still needs serious attention.

According to Riskesdas in 2013 and 2018, the percentage of the Indonesian population who had dental and oral problems increased from 25.9% to 57.6%, this was due to poor oral hygiene causing problems such as dental plaque, bad breath, tartar and cavities or dental caries (Yusdiana & Restuastuti, 2020). The emergence of dental and oral health problems is influenced by several factors, one of the causes is the level of knowledge.

Knowledge is influenced by internal factors consisting of age and gender, as well as external factors consisting of sources of information, occupation, social culture and environment. A good environment will make a big contribution, especially in the formation of behavior (Ratih & Yudita, 2019). According to Blum (1908) in Notoadmojo (2012), an individual's dental and oral health status is influenced by four important factors, namely heredity, environment (physical and socio-cultural), behavior, and health services. Of the four factors, behavior plays an important role in influencing oral health status.

According to Janz and Becker (1984), the Health Belief Model (HBM) is a concept that can reveal the reasons for these individuals. There are 5 dimensions that describe how individuals believe in healthy behavior: perceived susceptibility (perceived self-susceptibility to a risk of disease), perceived severity (perceived disease severity), perceived barriers (barrier in healthy behavior), perceived benefits (belief in the benefits felt), and Cues to action (gestures to take action).

Based on the secondary data in dental polyclinic at Wonokromo Health Center in

Surabaya from January to May 2022, dental and oral diseases showed 793 cases consisting of Pulp and periapical diseases (388 cases); Destruction of supporting tissues (253 cases); Gingivitis and Periodontal Disease (50 cases); Dental caries (59 cases); and Tooth persistence (43 cases). The number of cases can be detailed as follows: Wonokromo Village (711 cases); Sawunggaling Village (51 cases); Jagir Village (2 cases); Ngagelrejo Village (5 cases); Ciliwung Village (1 case); Ngagel Village (3 cases); and 20 other cases not included in the Wonokromo District area. This shows that there are still many people who experience dental and oral problems.

The awareness is a part of the individual that is needed as a sense of awareness that arises from the heart and mind to behave and take action. In building awareness can be influenced by many things, one of which is knowledge and understanding. These two things encourage a person to apply habits for a healthy life (Arditama & Lestari, 2020). Based on this background, this study aimed to analyze the theory of Health Belief Model (HBM) consisting of knowledge, environment, perceived barriers, perceived susceptibility, perceived benefits, and cues to action on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Sub-districts, Surabaya.

SUBJECTS AND METHOD

1. Study Design

This study was an analytical observational study with a cross-sectional study design. The research was conducted on July – September 2022 in Wonokromo and Sawunggaling, Sub-districts Surabaya, East Java.

2. Population and Sample

The study population was all the people around Wonokromo and Sawunggaling,

Sub-districts Surabaya. A total of 400 respondents selected by accidental sampling.

3. Study Variables

The dependent variable was awareness in maintaining dental and oral health. The independent variables were knowledge, environment, perceived susceptibility, perceived severity, perceived barrier, perceived benefit, and cues to action.

4. Operational Definition of Variables

The Awareness in Maintaining Dental and Oral Health is the result of knowledge understanding of a condition where if the condition of the dental and oral is good or healthy it will have an impact on physical appearance, communication skills, and the ease of chewing food. The measuring tool using a questionnaire.

Knowledge is the result of individual knowledge of awareness in maintaining dental and oral health, including preventing, screening, or controlling dental disease. The measuring instrument using a questionnaire.

Environment is everything in the individual, both the physical and social environment and its influence can be influencing the development and behavior of the individual especially in maintaining dental and oral health. The measuring instrument using a questionnaire.

Perceived Susceptibility is a subjective perception of individual regarding risk level followed by the effect if they did not maintain dental and oral health. The measuring instrument using a questionnaire.

Perceived Severity is a subjective perception of individual about the severity of the disease and the consequences if they did not maintain dental and oral health. The measuring instrument using a questionnaire.

Perceived Barrier is the barrier aspect experienced by the individuals in main-

taining dental and oral health. The measuring instrument using a questionnaire.

Perceived Benefit is the positive aspect experienced by the individuals in maintaining dental and oral health. The measuring instrument using a questionnaire.

Cues to action are the action that could be the reason for individuals to change their awareness in maintaining dental and oral health. The measuring instrument using a questionnaire.

5. Study Instruments

In this study, the measuring instrument used a questionnaire. The questionnaire was a list of statements about the awareness in maintaining dental and oral health, where the respondents give a certain mark and previously done validity and reliability tests.

6. Data Analysis

The data analysis was used univariate, bivariate, and multivariate analysis using statistical test assisted by SPSS. The hypothesis test was used a linear regression test.

RESULTS

1. Univariate Analysis

Table 1. shows the results of the total score questionnaire of respondents, namely: knowledge with the highest score in high category 364 respondents (91%), environment with the highest score 267 respondents (66%); perceived susceptibility 224 respondents (56%); perceived severity with the highest score in moderate category 337 respondents (84%); perceived barrier with the highest score in low category 297 respondents (74%); perceived benefit with the highest score in moderate category 212 respondents (53%); Cues to action with the highest score in moderate category 342 responden (85%); and the awareness in maintaining dental and oral health with the moderate category 278 responden (69%).

Table 1. The results of total score questionnaire based on categorized in Wonokromo and Sawunggaling, Sub-districts Surabaya, East Java.

Variables	Category		
	Low	Moderate	High
Knowledge	1	35	364
Environment	2	131	267
Perceived Susceptibility	2	174	224
Perceived Severity	4	337	59
Perceived Barrier	297	102	1
Perceived Benefit	1	212	187
Cues to Action	14	342	44
Awareness in Maintaining Dental & Oral Health	1	278	121

Table 2. Characteristics of Research Subjects Based on Age, Gender, and Education in Wonokromo and Sawunggaling, Sub-districts Surabaya, East Java.

Characteristics	Category	Frequency (n)	Percentage (%)
Age	12-16	2	0.5
	17-25	42	10.5
	26-35	47	11.7
	36-45	94	23
	46-55	120	30
	56-65	58	14.5
	>65	12	3
	Unidentified	25	6.2
Gender	Male	96	24
	Female	304	76
Last Education	Elementary School	37	9.25
	Junior High School	51	12.75
	Senior High School	186	46
	S1/S2/S3	2	0.5
	Unidentified	4	1
Dental pain	Ever had	329	82
	Never had	71	17.75

2. Bivariate Analysis

Based on table 3, it showed that HBM theory is not strong enough to influence public awareness in maintaining oral health. Knowledge ($r = -0.02$; $p = 0.660$), perceived susceptibility ($r = -0.08$; $p = 0.564$), perceived severity ($r = -0.02$; $p = 0.982$), perceived barrier ($r = -0.05$; $p = 0.995$), perceived benefit ($r = -0.04$; $p = 0.310$), and cues to action ($r = -0.03$; $p =$

0.346) showed a negative correlation with awareness in maintaining dental and oral health, but not statistically significant.

The environment showed a positive correlation with awareness in maintaining dental and oral health, even though it was not statistically significant ($r = 0.001$; $p < 0.468$).

Table 3. The relationship between HBM analysis on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling, Sub-districts Surabaya.

Independent Variables	r	p
Knowledge	-0.02	0.660
Environment	0.001	0.468
Perceived susceptibility	-0.08	0.564
Perceived severity	-0.02	0.982
Perceived barrier	-0.05	0.995
Perceived benefit	-0.04	0.310
Cues to Action	-0.03	0.346

3. Multivariate Analysis

Table 4 showed the results of multiple linear regression analysis awareness in maintaining dental and oral health increased with environment (b=0.02; p=

0.181), perceived severity (b= 0.01; p= 0.676), perceived benefit (r= 0.007; p= 0.304), and cues to action (r= 0.01; p= 0.181), but statistically not significant.

Table 4. Multiple Regression linear analysis statistical test of HBM analysis on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling, Sub-districts Surabaya, East Java.

Independent Variables	b	p
Knowledge	-0.033	0.115
Environment	0.02	0.181
Perceived Susceptibility	-0.016	0.197
Perceived Severity	0.01	0.676
Perceived Barrier	-0.006	0.611
Perceived Benefit	0.007	0.304
Cues To Action	0.01	0.181

DISCUSSION

1. Knowledge factor on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Subdistricts, Surabaya.

Generally, dental and oral health knowledge influences dental and oral health maintenance behavior in individuals (Hidayah et al., 2021). Scientifically, knowledge can be obtained based on personal experience, or hearing individuals' complaints about pain and how to deal with it. So that from this experience a person will

gain knowledge about how to maintain health and prevention efforts (Silfia et al., 2019).

The results of the total questionnaire showed that the knowledge factor in the Wonokromo and Sawunggaling Subdistricts tends to be high but does not influencing the awareness in maintaining dental and oral health, and the statistical results on table 4 namely sig 0.115 means there is no significant relation between knowledge factor on public awareness in maintaining dental and oral health.

This is in line with the research of

Rahtyanti et al. (2018), that respondents with good knowledge had poor dental and oral health. This is because of high knowledge is not optimally applied in encouraging daily dental and oral health maintenance behavior even though it has been having good dental and oral health knowledge, not all knowledge can be put into practice because there are other supporting factors that can influence knowledge, for example environmental, socio-economic, and other factors.

Knowledge is one of the important things in shaping health behavior. However, in reality if good knowledge is not driven by good attitudes and intentions, it will affect an individual's awareness of healthy behavior (Astannudinsyah et al., 2019). Dental and oral health knowledge is all the data an individual has to understand about various conditions in the oral cavity, how pain appears and understand the steps to protect them. However, knowledge itself is not enough. An individual also have the motivation to behave healthier. It is the individual himself who plays an important role in determining his own health (Prasetyo, 2015; Smyth et al., 2015).

Good knowledge is not always taking a good action. This is because knowledge is only limited to closed behavior, meaning that it is still limited in the form of attention to feelings and perceptions (Rahtyanti et al., 2018). So, the researchers assume that, the people in Wonokromo and Sawunggaling Villages have an awareness of maintaining oral health which tends to be moderate not due to lack of knowledge but lack of interest in healthy living behavior, lack of health socialization, work factors, economic factors, or due to the involvement of other factors that are not examined.

2. Environmental Factor on public awareness in maintaining Dental

and Oral Health in Wonokromo and Sawunggaling Urban Villages, Surabaya

The environmental factor is everything around the individual, both the physical and social environment, and its influence can affect the individual's behavior (Ratih & Yudita, 2019). The statistical results in table 4 with sig. 0.013 ($p < 0.05$), that means H1 accepted and the significance value in table 3 with sig. 0.045, which means that there is a significant correlation between environment factor on public awareness in maintaining dental and oral health.

Factors that can determine whether oral health is good or not can be categorized into individual physiological functions, psychosocial functions, and the status of the disease itself. One of the factors that can influence awareness of maintaining dental and oral health is the social and physical environment. Behavior in maintaining health can be determined by the social environment (Abreu et al., 2021).

The results of the total data questionnaires in table 1 showed that environmental factor is influencing public awareness in maintaining dental and oral health. Based on Blums's Theory, dental and oral health is influenced by four important factors, one of them is environment (both physical and socio-cultural). The environment is a factor that influences an individual's oral health. It can support both physically and culturally will have a great influence an individual's awareness and behavior in maintaining dental and oral health (Astannudinsyah et al., 2019; Rakhmawati et al., 2020).

This is in line with Prasetyo (2015), which states that there is a correlation between environment, in this case family support can be one of the influential factors in determining beliefs and attitudes from within individuals in their awareness of maintaining dental and oral health beha-

behavior (Pratiwi et al., 2020). This is accordance with the research of Abreu et al (2021), which showed that an individual with a high socioeconomic environment has good dental and oral health behavior compared to individual who has a low socioeconomic environment.

So the researchers assume that environmental factors both physical, cultural, socioeconomic are factors that influence public awareness in maintaining oral health, including the living environment also influences awareness in healthy behavior. An environment with limited facilities and infrastructure can also be an obstacle that ultimately affects individuals in their awareness of carrying out dental and oral health maintenance.

3. Perceived barrier on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Urban Villages, Surabaya.

Perceived barrier is a negative aspect of each individual that prevent the individual from behaving healthily. The construct of HBM in dealing with these problems is the perceived resistance to making changes. Perceived barriers are the most significant thing in determining behavior change (Notoatmodjo, 2007). An individual may not take an action even though they know the benefits because of barrier such as high costs, remote locations, troublesome, unpleasant and painful. Otherwise, even individuals with low barriers may not take health actions because they do not feel the seriousness of the illness they are feeling, as well as the individual's lack of intention (Abreu et al., 2021; Rachman et al., 2021).

The statistical result in Table 4 showed the coefficient ($p= 0.220$), which means that there is no strong significant correlation between environmental factors on public awareness in maintaining oral

health. In a critical review by Janz and Becker (1984) in a book (Glanz et al., 2006) said that perceived barriers is the strongest predictor of all studies and behavior, although perceived susceptibility and perceived benefits are also important. However, the results of the study indicate that the barriers is not strong enough to influence public awareness in maintaining dental and oral health, this is due to the possibility that there are factors that influence individuals in behaving in maintaining dental and oral health, namely factors from within the individual itself and factors from outside the individual such as environmental influences, and others (Setiari & Sulistyowati, 2018).

This is in line with Aristi & Sulistyowati (2020), which states that there is no significant correlation between perceived barrier with personal hygiene. According to Mahfoedz & Suryani (2009), there are two beliefs that an individual has, namely the consideration of the benefit and the disadvantage that allows individual to take preventive action. The barrier will found affect the size of the actions. If the perceived barrier is high, then it is possible that individual's action will be smaller, conversely if the perceived barrier is low, then it is possible that individual's action will be great. An individual's response to a stimulus will also be different because it is influenced by several factors such as personal experience, culture, and the mass media. These factors make it possible to provide a stimulus but do not necessarily increase attitudes and awareness.

In addition to the factor components in the HBM theory, factor modifications such as knowledge and sociodemographic factors are also known to influence health perceptions. Although the HBM theory can be used to identify individual health behaviors, the relationship between these beha-

vivors cannot be determined. This ambiguity causes variation in the application of the HBM theory, as there are several other theoretical approaches that can be used to identify individual health behaviors (Glanz et al., 2002).

Based on the study, the researchers assume that the low perception barriers does not sufficiently affect public awareness in maintaining dental and oral health in the Wonokromo and Sawunggaling Villages due to other influencing factors such as internal and external factors of the individual, there are variations in the application of the HBM theory which needs to be combined with other theoretical approaches such as: Theory of Planned Behavior (TPB), Integrated Behavioral Model (IBM), ABC Theory, or the possibility of the involvement of other factors not examined.

4. Perceived susceptibility on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Urban Villages, Surabaya.

Perceived susceptibility is an individual's belief about self-susceptibility to a disease risk in encouraging an individual to carry out healthier behavior. This perception refers to a subjective assessment of the risk of developing health problems (Notoatmodjo, 2007).

The results of this study, using multiple linear regression analysis shows a significance level of sig. 0.013 ($p < 0.05$), H1 accepted and the statistical results in table 4 with sig. 0.007, which means that there is significant correlation between the perceived susceptibility on public awareness in maintaining oral health. The susceptibility and seriousness felt by an individual to take an action to prevent disease or treatment (Setiari & Sulistyowati, 2018).

An individual who feels susceptible and severity of a disease will be motivated

to engage in healthy behavior by choosing the best action for his health balanced by perceived barrier and benefits (Mohebbi et al., 2019). Behavior is a form of response or reaction to external stimuli, but the response depends on the characteristics or other factors of the person concerned. This means that even though the stimulus is the same for some people, the response for each person is different (Hestieyonini et al., 2013).

This research is in line with (Kusumawardhani et al., 2020), explained that there is a significant correlation between perception of susceptibility on behavior in maintaining oral health. An individual who has a high perception of susceptibility tends to have the awareness behavior to maintain good dental and oral health compared to individuals who has a low perception of susceptibility. This is accordance with Rosenstock's opinion in the book Health Behavior and Health Education which states that individual beliefs or perceptions about susceptibility have an influence on an action or awareness. If an individual considers himself or herself to be susceptible to a condition and believes that the condition will have the potential for serious consequences.

According to Sanaeinasab et al (2022), when an individual feels they are vulnerable to dental and oral health problems and understands the severity of the problem, they are more likely to carry out awareness behaviors to maintain dental and oral health. Based on this theory, the researchers concluded that someone who has a belief is vulnerable to a health problem in himself, then that person will make a decision to take a health action. Based on the theory and analysis, it was found that the perception of susceptibility is the dominant factor influencing a person to take awareness actions to maintain

dental and oral health in the Wonokromo and Sawunggaling Villages, Surabaya.

5. Perceived severity on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Urban Villages, Surabaya.

Perceived Severity is an individual's belief in a disease which is often based on information or knowledge of treatment, and may also come from individual beliefs (Notoatmodjo, 2007). Perceived severity is also an individual's perception of how serious the impact of the disease is if treatment is not carried out, including evaluation of medical consequences. The combination of perceived susceptibility and severity is referred to as perceived threat (Glanz et al., 2002).

The statistical result Table 4 with sig. 0.009 ($r = 0.04$), which means that there is a positive significant correlation between perceived severity on public awareness in maintaining oral health. This research is in line with Kusumawardhani et al. (2020), that there is a significant correlation between perceived severity and behavior in maintaining oral health in children. In individuals who has a belief in the severity of a health problem will tend to have an awareness behavior to maintain good dental and oral health.

This is accordance with with Rogers' opinion in the book Health Behavior and Health Education which states that individual beliefs or perceptions regarding severity or seriousness have an influence on an action or health awareness. The severity felt by an individual will affect the individual's intention to behave (Glanz et al., 2006). This is also in line with the research that states there is a significant relationship between perceptions of severity on behavior to maintain dental and oral health (Lee et al., 2018). This can happen if

an individual thinks the disease can have a serious impact, then that person tends to take preventive measures to avoid or reduce the risk of the disease (Estu et al., 2019).

According to Setiari & Sulistyowati (2018) research, about the perceived severity in preventing dental caries, it shows that there is a correlation but the correlation is not strong enough, this means that if someone has high seriousness beliefs, not all of them will take good preventive action, but only most will have anxiety and worry so he will take precautions.

Based on this study, the researchers concluded that perceptions of severity affect public awareness in maintaining oral health. An individual who feels the seriousness or severity of a health problem, especially dental and oral health, will take preventive and treatment measures to prevent the risk of the disease from getting worse. In this case the HBM theory can identify an individual's health behavior.

6. Perceived benefits on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Urban Villages, Surabaya.

According to Notoatmodjo (2007), when an individual feels the severity of his health condition, this perception leads to a change in behavior that is influenced by the perceived benefits of taking preventive action. This perceived benefit refers to an individual's assessment of the value or benefits of an action in reducing the risk of disease (Rachman et al., 2021). In Table 1 showed that respondents with a moderate category, namely 202 respondents. an individual who has confidence in benefits of health behavior will take a health behavior himself, but in reality if the individuals feels the great benefits of an action then the cost of taking health behavior will be lower (Setiari & Sulistyowati, 2018).

Based on the HBM theory, the perceived benefits determine the actions a person will take. The advantages or benefits that will be obtained will trigger someone to take actions that are beneficial to him (Glanz et al., 2006; Notoatmodjo, 2007). The statistical result shows a significance value with sig. 0.008, which means that there is a significant correlation between perceived benefit on public awareness in maintaining dental and oral health.

This is in line with Mohammadkhah et al (2022), which states that there is a significant correlation between perceived benefits on behavioral intentions in maintaining oral health. Perception in benefit is defined as a person's belief in taking steps to reduce the risk of health problems. This is accordance with Rogers' opinion in the book *Health Behavior and Health Education* which states that the benefits felt by an individual will affect individual's awareness in healthy behavior, because one's actions to prevent the onset of a disease are driven by the benefits felt.

An individual's intention to carry out a certain behavior is a reflection of the person's motivation to carry out the behavior, whether the person shows a desire or not to behave consciously in maintaining dental and oral health (Mohammadkhah et al., 2022). Perceived benefit is a construction of the HBM theory which refers to a person's belief about the benefits of conscious behavior to reduce the risk of a disease. According to Setiawan & Zubaedah (2020) in their research, there are benefits felt by an individual after carrying out a dental and oral health action so as to avoid the risk of dental and oral health problems.

Based on this theory, researchers argue that the perception of benefits in individuals will generally affect an individual's awareness of maintaining healthy teeth and mouth. Although some indivi-

duals who feel the benefits are not great so they tend to lack awareness of maintaining oral health, they are encouraged by the intention and motivation so that awareness behavior is created to maintain good dental and oral health.

7. Cues to action on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Villages, Surabaya.

Cues to action can appear from the outside such as communication between individuals like an advice and messages from the media in influencing an individual's behavior (Fitriani et al., 2022; Solhi et al., 2010). In this research, cues to action or cues to act on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Subdistricts of Surabaya shows that respondents have cues in awareness of maintaining dental and oral health. The statistical test results showed a significant level in table 4 with 0.031 ($r=0.03$), which means that there is a positive correlation between cues to action factors on public awareness in maintaining oral health.

Based on the results showed that some respondents took awareness actions to maintain dental and oral health only when they already experienced dental and oral health problems and there were also respondents who took awareness actions to maintain dental and oral health as a good habit to prevent the risk of disease. The belief that an individual feels to take action (cues to action) is not only influenced by self-ability, but also influenced by encouragement from outside the individual to take action (Setiari & Sulistyowati, 2018).

Cues to action are needed by individuals before they carrying out an action, both from external factors such as the mass media, the role of family or friend support, and internal factors such as the individual's

own illness (Glanz et al., 2006). Cues to action that are both internal (illness and symptoms) and external (there is media information, both print and social media) are needed so that an individual is willing to take health action. This relates to individual perceptions of vulnerability, severity, benefits, and barriers (Rachman et al., 2021). This is in line with Aristi & Sulistyowati (2020), which states that individuals who have cues to take great actions influence their personal hygiene awareness actions or maintain healthy teeth and mouth. This is also in accordance with the results of research which shows that there is a relationship between cues to action and prevention efforts (Attamimy & Qomaruddin, 2018).

Based on the theory in a book of Health Behavior and Health Education, it explains that cues to action is a concept formulation of a health belief model that is believed to trigger an action, which is a stimulation that facilitates a decision-making (Glanz et al., 2006; Nafisah et al., 2020).

According to Setiawan & Zubaedah (2020), vulnerability from within the individual, beliefs about the severity of a disease, perceived benefits and obstacles in taking preventive action affect an individual's cues in taking awareness actions to maintain dental and oral health. In addition, there are perception factors that can influence health awareness behavior indirectly such as sociodemographic factors which include age, gender, cultural background, socio-economic, sociopsychological factors (personality), and structural factors (knowledge) (Eni et al., 2018).

Based on the study, the researcher assumes that the results of perceived cues to action have an influence on public awareness in maintaining dental and oral health in the Wonokromo and Sawung-

galing Subdistricts, but are also influenced by internal and external factors that can play a role in influencing awareness of maintaining dental and oral health.

8. All the factors on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling Urban Villages, Surabaya.

The results of multiple linear regression analysis showed that there is a significant correlation on public awareness in maintaining dental and oral health in Wonokromo and Sawunggaling, Sub-districts Surabaya with Sig. 0.013 ($p < 0,05$), H_1 accepted. The awareness of maintaining dental and oral health on public is still often be a problem, this is related to the many dental and oral problems among the community as shown in the respondents' characteristic data (Table 1) shows that 329 respondents had their dental pain experienced.

Generally, knowledge can affect the awareness in maintaining dental and oral health. However statistically, the knowledge factor did not show a correlation. This is because high knowledge is not optimally applied in encouraging daily dental and oral health maintenance behavior even though they already have good dental and oral health knowledge, not all of them can be practiced because there are other supporting factors that can affect knowledge, for example environmental, socio-economic, and other factors (Rahtyanti et al., 2018).

The HBM theory contains several main concepts that are used to predict why individuals make decisions by taking precautions, screening, or controlling disease conditions (Aristi & Sulistyowati, 2020). Statistically in this study, perceived barriers also did not show a significant correlation on public awareness in maintaining oral

health. This is in line with Aristi & Sulistyowati (2020), which states that there is no correlation between perceived barrier with personal hygiene. Generally, the individuals' actions will more influenced by the perceived benefits than the barrier that encountered. An individual's response to a stimulus will also be different because it is influenced by several factors such as personal experience, culture, and the mass media. These factors make it possible to provide a stimulus but do not necessarily raise attitudes and conscious actions.

Based on the analysis that has been done, it was found that environmental factors, perceived susceptibility, perceived severity, perceived benefits, and cues to action have a significant correlation on public awareness in maintaining oral health. The HBM theory is a theoretical model that can be used to encourage individuals to take health actions, one of which is awareness of maintaining oral health. There are modifying factors that can affect action, namely age, gender, socio-economic, and personal experience (Setiari & Sulistyowati, 2018).

According to Xiang et al. (2020), health behavior in the theory of the health belief model depends on two conditions, namely perceptions of risks to threats, and perceived barrier and benefits. On the other hand, the correlation between intention and behavior is shown by individuals who want to behave healthier. The Health Belief Model is believed to have efficiency in determining oral health behavior in individuals. The more individuals have the belief and awareness to behave in a healthy manner, the greater the healthy behavior that is carried out. The result of the coefficient of determination (R square) is 0.780, which means that the correction between variables is said that public awareness in maintaining dental and oral health is influenced

by the HBM theory by 78% and the other 22% is influenced by other factors not examined.

Based on the results of this study, the researchers concluded that there was a relationship between the determinants of the factors studied (environmental factors, perceived susceptibility, perceived severity, perceived benefits, and cues to action) on public awareness in maintaining dental and oral health in Wonokromo and Sawungaling Subdistricts, Surabaya. However, knowledge factor and perceived barrier did not affect public awareness in maintaining dental and oral health. This is due to the involvement of other modifying factors such as demographic factors (age, gender, socioeconomic), intention, motivation, factors from within and outside the individual, and the possibility of modification of the HBM theory.

AUTHOR CONTRIBUTION

Diajeng Ayu PY is the main researcher and the author of the publication manuscript. Byba Melda and Katmini review the research document.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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