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Knowledge, Attitudes Toward Dental Health and The Impact on Number of Funtional Teeth: A Cross-Sectional Study

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ABSTRACT Background: Elderly people are expected to have a minimum of 20 functioning teeth so that mastication, speech, and aesthetic functions are assumed to be normal. However, tooth loss still occurs in some elderly people, due to the lack of knowledge about dental health. Which can impact on attitudes and actions in maintaining dental health. Problem: Low percentage of functioning teeth in the elderly. Research Objective: To determine the relationship between knowledge and attitudes toward dental health and the impact on number of functional teeth in elderly at Integrated Service Post Melati VI, Karanglo Village, Mojowarno District, Jombang Regency. Method: This type of research is cross-sectional analytical research. The sample of respondents was 52 elderly people. The data obtained were analyzed using non-parametric tests with chi square. Results: The elderly's knowledge of dental health is mostly in the poor category (82.7%), and the attitude of the elderly is mostly in the medium category (73%). 35 of Elderly have less than 20 functional teeth. Results of chi-square analysis, the level knowledge towards dental health is not statistically correlated with the number of functional teeth ($0,193 > 0,05$). The level attitudes towards dental health statistically correlated with the number of functional teeth ($0,001 < 0,05$). Conclusion: There is no relationship between knowledge toward dental health and the impact on number of functional teeth in elderly. There is a relationship between attitudes about dental health and the impact on the number of functional teeth in elderly

INDEX TERMS Knowledge, Attitude, Functional Teeth, Elderly.

I. INTRODUCTION

The elderly are one of the groups that are vulnerable to experiencing dental and oral problems. Individuals who have reached the age of sixty years and over are considered elderly, citing Minister of Health Regulation No. 25 of 2016 [1]. Elderly people are expected to have a minimum of 20 functioning teeth [2]. It is hoped that with a minimum of 20 teeth, chewing function, speech function, and aesthetic function are assumed to be normal [3]. However, some elderly people still experience tooth loss, resulting in the elderly having less than 20 functioning teeth. Periodontal disease and dental caries are the two most common causes of tooth loss in the elderly.

The prevalence of tooth loss problems experienced by the elderly in the Global Oral Health Status Report is estimated at a global average prevalence of total tooth loss of almost 7%, with more than 350 million cases worldwide. For those aged sixty years and over, the average global prevalence of edentulism is much higher, estimated at 22.7% [4]. The incidence of tooth loss due to self-extraction or loss in the elderly in Indonesia reaches 30.6% [5]. This figure is quite a lot considering that elderly people should have at least 20 functioning teeth [2], This aims the elderly enable to chew, speak and aesthetics to approach normal.

The reason the number of functioning teeth is less than 20 is due to tooth loss in the elderly. Tooth loss in the elderly is generally caused by caries and periodontal disease. Untreated dental caries can result in the spread of caries and result in

partial or complete loss of the tooth crown, leaving only the tooth root. So, the teeth cannot be treated and must be removed [6]. Diseases of periodontal tissue are divided into 2 types, namely gingivitis and periodontitis. Disease of the periodontal tissue can be the cause of tooth loss due to the accumulation of plaque, which attacks the periodontal tissue. Gingivitis occurs due to inflammation of the gingiva, but the gingiva does not lose its attachment. Meanwhile, periodontitis causes inflammation of the gingiva, which results in loss of attachment. If you do not receive immediate treatment, it can lead to tooth loss [7]. The impact of tooth loss in the elderly is reduced alveolar bone in areas that do not have teeth, interference with chewing function, difficulty speaking clearly, a potential impact on the temporomandibular jaw joint, and several other problems [8]. Loss of anterior teeth can cause individuals to have difficulty in pronouncing the letters d, f, n m, s, sh, t, v, z. This is because the pronunciation of some of these letters requires contact with the lips, tongue, and anterior teeth. As a result, when the individual speaks it becomes less clear [9].

Chewing is a mechanical process of breaking down food so that food becomes smoother to make it easier when the process of swallowing food provides nutrients to the body. The number of posterior teeth remaining in the oral cavity can affect the masticatory function, because the smaller the number of posterior teeth remaining in the occlusion, the less the masticatory function [10]. The loss of a molar tooth can place a detrimental load on the joint. Due to asymmetrical tooth loss (left / right) it can result in asymmetrical chewing load pressure on the teeth (malocclusion). As a result of this malocclusion can cause degenerative changes in the temporomandibular joint [11].

Decreased masticatory function in the elderly can affect the elderly's desire to consume food so that it can have an impact on the elderly's dietary habits and preferences. Lack of food intake can occur if the problem of tooth loss in the elderly is not addressed immediately. Decreased nutritional status in the elderly can be caused by inadequate nutritional intake [12]. The elderly usually experience dental problems due to a lack of awareness and understanding of the elderly regarding dental and oral health [13]. One factor that can influence individual behavior is having sufficient knowledge [14]. If individuals have a good understanding of their dental health, this can influence the formation of attitudes towards maintaining their dental health. So that from this positive attitude, positive behavior will be formed, namely the behavior of maintaining healthy teeth and mouth [15].

The results of the initial survey conducted on September 16, 2023, examining the number of teeth that were still functioning with a target number of 10 elderly people at the Melati VI Integrated Service Post, Karanglo Village, Mojowarno District, Jombang Regency, showed that 80% (8 elderly people) had a total of functioning teeth. less than 20. Meanwhile, only 20% (2 elderly) have a total of more than 20 functioning teeth.

Looking at the results of the initial survey, the number of functional teeth in the elderly is less than 20 teeth and there is no dental health education at the elderly Integrated service post. Therefore, researchers want to know and examine the correlation between knowledge, attitudes about dental and oral health and the number of functional teeth in the elderly.

II. METHODS

This type of research is analytic using a cross-sectional design. The reason for choosing cross-sectional analytic research is because this research aims to study the relationship between risk factors (causes) and their effects. This research was carried out using approaches, observations, or data collection all at once. The population in this study consisted of 60 elderly people who were at the Melati VI Elderly Integrated Service Post, Karanglo Village, Mojowarno District, Jombang Regency. The sample used in this study consisted of 52 elderly people who were determined using the Slovin formula. Purposive sampling was used to collect samples, which required many considerations based on inclusion and exclusion criteria. The inclusion criteria for this study were elderly people aged 60 years and over who were willing to become respondents, did not experience physical and mental limitations, and were willing to become respondents and fill out informed consent forms. Outside these criteria are exclusion criteria. To determine the level of knowledge and attitudes regarding oral health of the elderly, a questionnaire was used as a data collection tool. The dental health knowledge questionnaire consists of 20 questions. The dental health attitude questionnaire consists of 24 elderly statements. To find out the number of teeth that are still functioning in the elderly using a dental examination sheet. Before data collection is carried out. The knowledge and attitude questionnaire were tested for validity, which aims to measure the accuracy of an instrument in measurement. As well as reliability tests to ensure that the instruments used are reliable and consistent if the measurements are repeated.

The research data collection procedure was carried out by first asking permission from the integrated service post to conduct research. Then explain the procedure to the integrated service post management regarding systematic data collection. Before collecting data, respondents who have signed an informed consent sheet and have explained that the data obtained will be kept confidential and not disseminated. Then explain the data collection procedure to the respondent, and after data collection the respondent will be given a gift. The data from the questionnaire results on knowledge, dental health attitudes that have been obtained will be analyzed descriptively. Data on the number of functioning teeth of the elderly obtained through dental examination sheets will be analyzed descriptively to determine the average. All variable data analyzed to see whether there is a significant relationship between the three variables will be tested one by one using the chi-square test.

The analysis test was performed using SPSS with the provisions that H1 is accepted or H0 is rejected if the ρ value < 0.05 and vice versa ie H0 is accepted and H1 is rejected if the ρ value > 0.05 . The hypothesis in this research is H0 which is that there is no relationship between knowledge, attitudes about dental and oral health and the number of functioning teeth in the elderly at Integrated Service Post Melati VI, Karanglo Village, Mojowarno District, Jombang Regency in 2024. While H1 shows there is a relationship between knowledge and attitudes about dental and oral health with the number of functioning teeth in the elderly at Melati VI Integrated service post, Karanglo Village, Mojowarno District, Jombang Regency in 2024.

This research has been approved by the Health Research Ethics Commisions of the Surabaya Health Polytechnic, with the approval number No.EA/2429/KEPK-Poltekkes_Sby/V/2024.

III. RESULTS

Based on the results of research on 52 elderly respondents who met the inclusion criteria with the following characteristics:

TABLE 1

Distribution of Age, Gender and last educational status of Elderly at Melati VI Integrated Service Post, Karanglo Village, Jombang in 2024

		Frequency (n)	Percentage (%)
Gender	Woman	39	75
	Man	13	25
Age	60-69	32	61,5
	70-79	17	32,7
	80-89	2	3,9
	>90	1	1,9
Last Education	Elementary School	34	65
	Junior High School	2	4
	Senior Hight School	7	13
	Associate Degree/Bachelor	3	6
	elior		

According to TABLE 1, the age distribution of the elderly population at the Melati VI integrated service post, Karanglo Village, Jombang is mostly in the range of 60-69 years, consisting of 32 people (61.5%). Most of the elderly are women, accounting for 39 people (75%). In addition, the educational attainment of the elderly population is especially at the primary school level, with 34 people (65%) having completed this level of education. The prevalence of dental problems in this elderly population can be affected by their age and educational background. Given that most individuals are

between the ages of 60-69 and have only an elementary school education, there may be a need for a customized dental health education program. Additionally, a higher proportion of women in this group may indicate potential gender differences in oral health care access or habits, which require further investigation

TABLE 2

Frequency Distribution of Dental and Oral Health Knowledge Levels for the Elderly at Melati VI Integrated Service Post, Karanglo Village, Jombang 2024

Level of Dental and Oral Health Knowledge	Frequency (n)	Percentage (%)
Good	0	0
Enough	9	17,3
Poor	43	82,7
Total	52	100

Based on TABLE 2 obtained from the analysis of the results of filling out the questionnaire, it shows that the level of knowledge of dental and oral health of the elderly at Melati VI Integrated Service Post, Karanglo Village, Jombang in 2024 tends to be in the poor category, with a total of 43 elderly (82.7%).

TABLE 3

Frequency Distribution of Dental and Oral Health Attitude Levels for the Elderly at Melati VI Integrated Service Post, Karanglo Village, Jombang 2024

Level of Dental and Oral Attitude Knowledge	Frequency (n)	Percentage (%)
High	4	8
Medium	38	73
Low	10	19
Total	52	100

Based on TABLE 3 obtained from the analysis of the results of filling out the questionnaire, it shows that the level of oral health attitudes of the elderly at Melati VI Integrated Service Post, Karanglo Village, Jombang in 2024 tends to be in the medium category, with a total of 38 elderly (73%).

TABLE 4

Distribution of the Number of Functioning Teeth by Age and Gender in the Elderly at Melati VI Integrated Service Post, Karanglo Village, Jombang 2024

Age	< 20 Functioning teeth		> 20 Functioning teeth	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Woman				
60-69 Years	13	37,1	13	76
70-79 Years	9	25,7	1	6
80-89 Years	1	3	1	6
≥ 90 Years	0	0	1	6
Man				
60-69 Years	5	14,2	1	6
70-79 Years	7	20	0	0
80-89 Years	0	0	0	0
≥ 90 Years	0	0	0	0
Total	35	100	17	100

TABLE 4, derived from the analysis of the examination results regarding the number of functioning teeth, indicates that the elderly population at the Melati VI Integrated Service Post in Karanglo Village, Jombang, predominantly exhibits fewer than 20 functioning teeth, with 35 elderly individuals (32.7%) falling into this category. The prevalence of fewer than 20 functioning teeth is most pronounced among women aged 60-69 years, comprising 13 elderly individuals (37.1%).) This significant prevalence of elderly individuals with fewer than 20 functioning teeth highlights a critical oral health issue within the community. The disproportionate impact on women aged 60-69 years suggests a potential need for targeted interventions and dental health programs for this demographic. These findings underscore the importance of comprehensive geriatric dental care and preventive measures to maintain oral function and overall quality of life among the elderly population in Karanglo Village

TABLE 5

The Relationship Between Knowledge About Dental and Oral Health with the Number of Functioning Teeth at Melati VI Integrated Service Post, Karanglo Village, Jombang 2024

Level of Dental and Oral Health Knowledge	< 20 Functioning teeth		> 20 Functioning teeth		Sig.
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Good	0	0	0	0	0.193
Enough	5	14,3	4	23,5	
Poor	30	85,7	13	76,5	
Total	35	100	17	100	

Based on TABLE 5 obtained from the chi-square test analysis, it is found that there is no significant relationship between oral health knowledge and the number of functioning teeth in the elderly at the Melati VI Integrated Service Post, Karanglo Village, Jombang in 2024, with the significance value of p value between the two variables is $p = 0.193$ ($p > 0.05$).

TABLE 6

The Relationship Between Attitudes About Dental and Oral Health with the Number of Functioning Teeth at Melati VI Integrated Service Post, Karanglo Village, Jombang 2024

Level of Dental and Oral Health Attitude	< 20 Functioning teeth		> 20 Functioning teeth		Sig.
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
High	0	0	4	23,5	0.001
Medium	32	91,4	7	41,2	
Low	3	8,6	6	35,3	
Total	35	100	17	100	

Based on table 6 obtained from the chi-square test analysis, it is found that there is a significant relationship between oral health attitudes and the number of functioning teeth in the

elderly at Posyandu Melati VI, Karanglo Village, Jombang in 2024, with the significance value of p value between the two variables is $p = 0.001$ ($p < 0.05$).

IV. DISCUSSION

A. KNOWLEDGE ABOUT DENTAL AND ORAL HEALTH OF THE ELDERLY AT MELATI VI INTEGRATED SERVICE POST, KARANGLO VILLAGE, JOMBANG 2024

According to the findings of a study conducted on senior citizens at the Melati VI Integrated Service Post in Jombang, most of the elderly had poor category knowledge about dental health. According to the results of the questionnaire recapitulation, it was found that there were still many elderly people who could not answer correctly due to tooth loss. Almost all elderly people do not know that the causes of tooth loss, jaw joint disorders, and reduced intake of body nutrients are the result of tooth loss. This finding is in line with research conducted by Febrianti et al. (2022) , which shows that the elderly's knowledge of the consequences and treatment of tooth loss is in the poor category [16].

Lack of knowledge among the elderly regarding how to maintain oral and dental health. The elderly have not been able to answer correctly regarding the treatment performed on cavities. Most of the elderly answered that if cavities occur, it is enough to drink medicine. In line with research conducted by Ramadhan et al. (2023), people dealing with toothaches only drink painkillers to deal with dental pain, because not everyone who has a toothache can go to the dentist [17].

There is a lack of knowledge of the elderly regarding the use of dental floss and mouthwash. Elderly people have not been able to answer correctly regarding these questions. Respondents think that cleaning teeth only uses a toothbrush.

The lack of knowledge among the elderly about oral health causes them to be reluctant to go to the dentist for dental care. Almost all respondents stated that they visited the dentist when they experienced toothache. In line with research conducted by Ramadhan et al. (2023), people will not visit the dentist if they do not feel pain. They only visit the dentist if they cannot stand prolonged pain [17].

According to Irwan. (2017), the result of knowing about an object through sensing is the definition of knowledge. According to Ramadhan et al. (2023), knowledge about dental health is an effort to reduce dental health problems through educational media [17], [18].

The elderly have a poor category about dental health knowledge due to a lack of information regarding the causes and implications of dental health problems, as well as how to maintain healthy teeth. This is further supported by the lack of dental health education at the Integrated Service Post.

The impact of the elderly's lack of knowledge about dental health such as dental problems, how to maintain dental health. Can cause the elderly to be vulnerable to dental health problems. They assume that if there is a dental problem it is

not that important so just take medicine and do not do treatment. Which in turn exacerbates problems with the teeth and mouth of the elderly. They also think that if they experience tooth loss, they just ignore it and don't need to be treated because it doesn't have any impact.

The elderly will better maintain their oral health to prevent dental health problems if they have good knowledge about oral health. So that the elderly avoid dental and oral problems and can maintain 20 functioning teeth so that chewing, pronunciation, and aesthetic functions are close to normal.

B. ATTITUDE ABOUT DENTAL AND ORAL HEALTH OF THE ELDERLY AT MELATI VI INTEGRATED SERVICE POST, KARANGLO VILLAGE, JOMBANG 2024

According to the findings of a study conducted on senior citizens at Melati VI Integrated Service Post, Jombang, found that most of the elderly's dental and oral health attitudes were in the moderate category. The elderly show a positive attitude towards the habit of brushing their teeth at least twice a day and reducing their consumption of sweet foods. Most of the elderly stated that they did not agree with the statement that respondents brushed their teeth at least twice a day after breakfast and before going to bed at night, because respondents usually brush their teeth twice a day in the morning and evening. According to Wong. (2020), good dental and oral health depends on effective oral care, including brushing your teeth and cleaning the oral cavity properly [19].

However, there are still many elderly people who do not understand the right time to brush their teeth. Most of the elderly know that brushing their teeth is done in the morning and evening while bathing. This is because they do not know the reason why brushing teeth at night before bed is important. Brushing teeth at night before bed is done because during sleep oral activity decreases which results in decreased *saliva* production. When sleeping at night bacteria develop faster and are more likely to stick to the teeth. So that it can cause increased acid production in the oral cavity which can dissolve tooth enamel [20]. As a result of this lack of knowledge, it can affect the attitudes and actions of the elderly who brush their teeth in the morning and evening. Relevant to the Indonesian Ministry of Health (2018), the Riskesdas report shows that there are still very few elderly people who brush their teeth at the right time [5]. Most seniors agree that reducing their consumption of sticky and sugary foods can prevent cavities. This is relevant with the research of Jiang et al. (2023), respondents realized that consuming sugar could cause dental caries [21]. According to Afrinis et al. (2020), carbohydrates found in foods that contain sugar and stickiness are a source of energy for bacteria, which can lower the pH of the mouth. Demineralization of teeth can occur because bacteria convert the sugar in carbohydrates into acid [22].

Most elderly people don't know about dental floss and its function. So many of the respondents do not use dental floss. relevant with the research of Chisnoiu et al. (2022), only a few

respondents used dental floss, and many of them did not know about dental floss [23]. Dental *floss* serves to clean plaque and food debris in areas that cannot be reached by a toothbrush, namely between the teeth [24]. So that teeth become cleaner and avoid plaque buildup that can cause dental problems.

Most elderly people do not have their teeth checked by a dentist every 6 months because they do not know that a visit to the dentist can help detect dental disease early so that problematic teeth can be treated immediately. And respondents do not know whether dental examinations at the dentist are comfortable or not. This is caused by the tendency of the elderly to overcome the problem of cavities simply by taking medication. If the tooth no longer hurts, they feel there is no need for further treatment. Elderly people usually only go to the dentist when the pain they feel is unbearable. In line with research conducted by Wong. (2020), elderly people visit dental health service facilities only when they experience oral problems such as toothache or bleeding gums [19].

This research is not relevant to the research by Nzabonimana et al. (2024), research respondents agreed that visiting the dentist regularly should be done even if they do not experience oral problems [25]. They think that if they wait to visit the dentist when they have a toothache, it could lead to tooth extraction. The purpose of conducting periodic dental controls every 6 months is to enable early detection and timely intervention of oral problems, thereby reducing the burden of disease and medical costs [26]. According to Pakpahan et al. (2021), An attitude is an individual's internal response to stimuli or objects [27]. According to Namira et al. (2021), attitude is a predisposing factor in the formation of actions and behavior [28].

The elderly attitude towards maintaining dental and oral health is generally in the moderate category because the elderly only know how to maintain basic dental and oral health, such as brushing their teeth and reducing their consumption of sweet foods. However, there are still many elderly people who do not know about the use of dental floss and the importance of visiting the dentist every 6 months.

Lack of knowledge among the elderly can have an impact on determining attitudes and actions in maintaining dental health such as the assumption that pain due to toothache only needs to be treated with medication and does not require further dental care. Whereas it is known that cavities if not treated immediately can cause the tooth cavity to get bigger and deeper. The elderly have an attitude to reduce the consumption of sweet foods in addition to maintaining blood sugar levels, they also think that brushing their teeth and reducing sweet foods is enough to maintain oral health. Whereas brushing teeth regularly and reducing the consumption of sweet foods is not enough to maintain oral health. So, it is necessary to straighten out this incorrect assumption so that the elderly are aware and pay more

attention to their dental health. As well as the formation of correct dental health care behavior.

C. NUMBER OF FUNCTIONING TEETH AT MELATI VI INTEGRATED SERVICE POST, KARANGLO VILLAGE, JOMBANG 2024

According to the findings of a study conducted on senior citizens Melati VI Integrated Service Post, most elderly people have less than 20 functional teeth. Relevant to the research by Mabruroh et al. (2022), most elderly people have <20 teeth [29]. And relevant to the research by Fatmasari et al. (2022), most elderly people experience tooth loss of 6-23 teeth [30]. This is because the elderly experience tooth loss, which results in the elderly having less than 20 functional teeth. Relevant to the Kementerian Kesehatan RI. (2018), the prevalence of elderly people who experience tooth loss either because they are removed or fall out themselves in Indonesia reaches 30.6% [5].

Tooth loss is caused by two causes, namely dental caries and periodontitis. In line with Sunarto et al. (2021), that as age increases, the risk of tooth loss increases due to the accumulative effects of caries and periodontal disease [31]. Many elderly people think that tooth loss is caused by tooth decay. In fact, the condition of brittle teeth experienced by the elderly is caused by cavities that do not receive immediate treatment. Most seniors who have fewer than 20 functioning teeth say they rely on medication to manage the pain and do not seek further treatment after the pain subsides. According to Fadjeri et al. (2020), if dental caries is left without treatment, it can cause the spread of caries and partial or complete loss of the tooth crown, leaving only the tooth root [6]. Based on the elderly's statement, one of the factors causing tooth loss is dental disease in the form of caries. This is in line with Sari and Jannah. (2021), poor dental and oral health in the elderly generally can cause tooth loss [14].

Periodontitis is a dental health problem that can be one of the causes of fewer than 20 functional teeth. As we age, the prevalence of periodontal tissue damage increases. This is relevant with Setiawati et al. (2022), that the prevalence of periodontal tissue damage increases with increasing age [32]. This condition results in a decrease in the defensive ability of periodontal tissue against bacterial plaque and irritation. Visiologic changes in the cementum and salivary glands facilitate the formation of dental plaque in the elderly. Dental plaque is considered the primary cause of damage to periodontal tissue. In line with Wulandari et al. (2022), periodontitis is progressive damage characterized by loss of clinical attachment, which leads to deeper pockets and changes in the density and height of the alveolar bone [33]. And in line with Surachman et al. (2019) one of the causes of tooth loss is periodontitis. Because inflammation occurs in the gingiva, which results in loss of attachment to the teeth. If

treatment is not immediately carried out, it can result in loose teeth and tooth loss [7].

Various factors can cause many elderly people to have <20 functioning teeth. Disease factors, such as dental caries and periodontitis that do not receive immediate treatment and can result in tooth loss or teeth that cannot be treated and end up being extracted. In addition, knowledge factors and attitudes towards dental health can also have an impact on the behavior of the elderly in maintaining dental health. which can indirectly affect the oral health of the elderly. Having fewer than 20 functional teeth can lead to impaired chewing ability in the elderly, which may affect their dietary patterns. If the elderly are unable to meet their nutritional needs, it can negatively impact their nutritional status over time [12]. Furthermore, a reduced number of teeth in the oral cavity can significantly impact masticatory function, aesthetic appearance, and phonetic ability, resulting in deviations from normal oral function. The diminished dentition may also lead to a decrease in overall quality of life, affecting social interactions and self-esteem. Moreover, tooth loss can result in alterations to facial morphology, potentially accelerating the aging process and influencing the individual's physical appearance. These functional and aesthetic challenges may necessitate the implementation of dental prostheses or implants to restore optimal oral health and function.

D. RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDE ABOUT DENTAL AND ORAL HEALTH WITH THE NUMBER OF FUNCTIONING TEETH IN THE ELDERLY AT INTEGRATED SERVICE POST MELATI VI, KARANGLO VILLAGE, MOJOWARNO DISTRICT, JOMBANG YEAR 2024

The results of the data analysis show that there is no relationship between knowledge about dental and oral health and the number of functioning teeth in the elderly at Melati VI Integrated Service Post, Karanglo Village, Mojowarno District, Jombang in 2024 ($p > 0.05$). This research is relevant with Rosa et al. (2023), who also found that there is no significant relationship between the level of knowledge of elderly people and tooth loss [34].

This research is not relevant to Sijabat et al. (2020), who stated that the knowledge of the elderly has a close relationship with the status of dental and oral hygiene. And it is not relevant with Mabruroh et al. (2022), which show that there is a relationship between knowledge and the incidence of missing teeth [29], [35]. Some elderly people have a poor level of knowledge about dental health but have > 20 functional teeth, because in this research questionnaire most of the elderly people do not know about functional teeth, tooth function, causes of tooth loss, and the consequences of tooth loss. Relevant with Sunarto et al. (2021), the elderly's knowledge regarding the causes and impacts of tooth loss is in the poor category [31].

However, some elderly people understand maintenance related to dental health so that it can have an impact on the number of functional teeth >20 teeth. Relevant to Wong. (2020), the elderly have basic knowledge about oral health care. However, they do not have in-depth knowledge related to oral health problems [19]. Some elderly people have sufficient knowledge, but their number of functional teeth is <20. This happens because the elderly only know about dental and oral health, but they do not take action to maintain healthy teeth and mouths. In line with research by Bidjuni et al. (2023), Good knowledge alone does not ensure oral health Because the knowledge possessed by individuals is not balanced with appropriate actions, so individuals may know how to maintain dental health without practicing it [36].

Change the main factors in shaping individual behavior change is knowledge. These changes are reflected in actions that influence individual behavior. An individual's dental health status is greatly influenced by their knowledge of the importance of dental and oral hygiene. However, knowledge alone is not enough if it is not supported by appropriate attitudes and actions [37].

The results of the research show that there is a relationship between dental and oral health attitudes and the number of functioning teeth in the elderly at Integrated Service Post Melati VI, Karanglo Village, Mojowarno District, Jombang in 2024 ($p < 0.05$). This is relevant to research by Nora et al. (2023), there is a relationship between attitude and dental hygiene among the elderly. And relevant with Aulia et al. (2021), there is a relationship between dental health attitudes and oral hygiene [37], [38].

This research is not relevant with Sijabat et al. (2020), that the attitude of the elderly has no relationship with the status of dental and oral hygiene. This is because the attitude level of the elderly in this research is at the lowest level, namely accepting [35].

The elderly's attitude toward oral health maintenance can impact the number of functional teeth they have. Those with a low attitude towards dental and oral care are more likely to neglect their dental and oral health. In line with research conducted by Nora et al. (2023), negative attitudes about personal hygiene are associated with a lack of motivation and reluctance to clean teeth among the elderly [38].

Elderly people with a positive attitude towards oral hygiene tend to be more motivated to pay attention to their dental health. In line with Nora et al. (2023) elderly people who view dental health positively tend to have good dental hygiene, while elderly people who view dental health negatively tend to have poor dental hygiene. This condition is influenced by the attitude of the elderly towards their beliefs about maintaining dental hygiene [38].

According to Liza and Diba. (2020), Having sufficient knowledge and a positive attitude toward dental and oral health is crucial for developing consistent behaviors [39].

According to Mahirawatie et al. (2021), individuals with good knowledge tend to form attitudes that support maintaining dental and oral health, there by influencing their actions and the formation of behaviors to maintaining dental and oral health [15]. This aims to ensure that elderly people can maintain a minimum of 20 functioning teeth. So that the teeth can perform nearly normal functions. Both from the mastication function, speech function, and aesthetic function.

V. CONCLUSSION

Based on the results of the study on the relationship between knowledge, attitudes toward dental and oral health, and the number of dental functions in the elderly at Posyandu Melati VI, Karanglo Village, Mojowarno District, Jombang Regency in 2024, it can be concluded that the knowledge of dental and oral health of the elderly at Posyandu Melati VI Karanglo Village, Mojowarno District, Jombang Regency in 2024 is mostly in the poor category. Furthermore, regarding the attitude of dental and oral health of the elderly at Posyandu Melati VI Karanglo Village, Mojowarno District, Jombang Regency in 2024 is mostly in the medium category and the number of teeth that function in the elderly at Posyandu Melati VI, Karanglo Village, Mojowarno District, Jombang Regency, in 2024, will be an average of <20 functioning teeth. The results of the analysis showed that there was no relationship between dental and oral health knowledge and the number of dental functions in the elderly at Posyandu Melati VI, Karanglo Village, Mojowarno District, Jombang Regency in 2024. As for dental and oral health attitudes, there is a relationship with the number of functioning teeth in the elderly at Posyandu Melati VI, Karanglo Village, Mojowarno District, Jombang Regency in 2024.

The data from this study can be used as input and consideration for the puskesmas to carry out counseling programs related to oral health and routine dental examination programs every 6 months to improve the insight of the elderly and the degree of dental health of the elderly. It is hoped that the elderly can increase independent efforts in maintaining oral health. The effort in question is in the form of brushing teeth at least 2 times a day after breakfast and before going to bed at night, reducing the consumption of sweet and sticky foods, and checking teeth to the dentist every 6 months. This aims to maintain the number of teeth that are still functioning in the oral cavity as long as possible and so that the teeth can carry out their functions optimally.

The limitation in this study is the limited number of research respondents. It is recommended to conduct further research, especially in measuring dental health attitudes and considering the addition / replacement with other variables.

VI. REFERENCES

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