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The Effect of Oral Health Status on Elderly Quality of Life in Makassar District, Indonesia

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ABSTRAC

The objective of this study is to determine the effect of oral health status on the ty of life of older people living with families in Tamalanrea District, Makassar. This study was an observational analytic study with a cross-se nal design. The study was conducted on 268 elderly samples, dental and or alth status was measured using the S index and DMF-T. The level of quality of life was measured by GOHAI. The study sho that caries affected the quality of life of the elderly (p = 0.), oral hygiene affected the quality of life of the elderly (p = 0.001), tooth loss affected the quality of life of the elderly (p = 0.000), and using dentures affected the quality living elde (p = 0.000). Based on the study conducted, there is an effect of dental and oral health status on the quality of life of elderly living with families in Tamalanrea District, Makassar.

Keywords: Elderly; Oral and dental health status; Quality of life.

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INTRODUCTION

Advances in science and technology have succeeded in reducing in t and child mortality and slowing death resulting in an increase in the number of older people. As the health and welfare level of the population increases, it will affect the growth in Life Expectancy (UHH). The elderly age in the world is increasing rapidly, even compared to other age groups.[1]

Along with the increasing number of population and the expected age of the elderly can cause various problems such as health, psychological, and socioeconomic problems to be felt by the elderly. Dental and oral health blems that often occur in the elderly is an increase in dental caries of periodontal disease, ich is a major cause of tooth loss for the elderly. Quality of life is a multidimensional phenomenon. World Health Organization (WHO) established an instrument to measure the quality of life of a person from 4 aspects, namely physical, psychological, social, and environmental.[2]

Dental and oral ealth contribute physically and psychologically to quality of life. Quality of l , according to the World Health Organization (WHO) is a person's perception in the context of culture and norms that are in accordance with the person's place of life and are related to goals, expectations, standards, and care throughout his life.[3]

MATERIAL AND METHOD

This study was an analytic observation with a cross-sectional design, and was conducted for one month in August until September 2019 by visiting the elderly in the Integrated Health Service Post and culminating in a door-to-door approach in Tamalanrea District, Makassar. The technique used was purposive sa ing, with a total sample of 268 that met the research criteria. The inclusion criteria were the elderly aged 60 years and over, domiciled in the Tamalanrea district of Makassar, able to hear and speak well, and to be a research subject.

Dental and oral health was measured by DMF-T and OHI-S indexes. DMF-T (Decay Missing Filling-Teeth) DMF-T value is a number that shows the number of teeth with caries in a person or group of people. Direct examination of the teeth with a mouth glass, half-moon dental, and recorded on the form. DMF-T formula = Decay (D) + Missing (M) + Filling (F). OHIS (Oral Hygiene Index Simplified) is an index used to measure the surface area of teeth covered by debris and calculus. Which is the sum of the Debris Index (DI) and Calculus Index (CI). Debris and calculus examinations are performed on certain teeth and on certain surfaces of these teeth[6,7], namely

For the maxilla examined:
a. Right first molar on the buccal surface.
b. Right first incisor on the labial surface.
c. Left first molar on a buccal surface.

For mandible examined:
a. Left first molar under the lingual surface.
b. Left first incisor on the labial surface.
c. Right first molar on the lingual surface.

The Geriatric/ General Oral Health Assessment Index (GOHAI) questionnaire is recommended for clinical and epidemiological surveys that assess oral health in the elderly. In addition, this questionnaire is widely used in various countries and has been validated; consists of 3 domains and 12 question items corresponding to oral function, anxiety, and pain / discomfort. The response to each question is categorized as: very often = 1; often = 2; sometimes = 3; rarely = 4; never = 5 for the past 3 months. The GOHAI average score is obtained by adding up all the scores in each item. The range of values ranges from 12-60, where higher scores indicate better Oral Health-Related Quality of Life (OHRQoL) or lower impact on quality of life. GOHAI final scores for everyone are categorized as good (57-60), moderate (51- 56) and bad (≤50).

results of the study were processed and analyzed using the chi square test in the SPSS 21 program and presented in tables.

RESULTS

The data obtained regarding the general characteristics of the elderly is presented in Table 1, to see the frequency of answers from the GOHAI questionnaire consisting of 12 questions divided into 3 dimensions about quality of life could be seen in table 2.

DISCUSSION

Based on gender characteristic, the female sample (63.4%) was more than the male (36.6%). This is in line with the sex ratio (sex ratio) in the city of Makassar in 2016-2018 of 98.04%, i.e. the total female population is greater than the male population.[4]

Based on age, the distribution of the number of samples in the elderly category (60-74 years) was more than the old age category (75-90 years) both in the elderly who do not use dentures or who use dentures. This was in accordance with the life expectancy of the elderly in Indonesia, based on the 2011 United Nations report, in 2000-2005 UHH was 66.4 years (with the percentage of the elderly population in 2000 being 7.74%)[5]

On the education category, most respondents were at the elementary school level, namely 153 samples (57.1%), while the lowest was at the diploma level with 8 samples (3.0%) and S1 with ten samples (3.7%). This showed a deficient level of education in the elderly in Tamalanrea District due to economic factors and the scarcity of schools or places to study when they were still at school age. Study by Henniwati cited by Handayani stated that the higher a person's education was, the more knowledge and information obtained were also high. This showed that the higher the education, the higher the demand for health services, the lower the education level, making it challenging to receive counseling.[6,7]

In table 2, the most frequently responded "Very Frequently" to the question was being able to swallow food comfortably (P3) as many as 48 samples (17.9%) followed by questions limiting the number/types food due to dental / denture problems (P1) as many as 24 samples (9.0%). This might be because most elderly respondents refine food by grinding using certain tools before eating. Also, the selection and restrictions on the type of food was one of the reasons many older people remain comfortable when eating and swallowing food. This was in accordance with Santucci and Attard's research, which states that the elderly tend to accept and be able to adapt to the condition of their oral cavity. On the dimensions of pain and discomfort, the question most frequently responded to "Never" was taking drugs to reduce pain/discomfort in the oral cavity (P8) by 100 samples (37.3%). This showed that their teeth/dentures did not cause many serious problems in the state of the oral cavity.[8]

The dimension of psychosocial aspects most responded "never" as many as 636 samples (47.5%). This was probably because most respondents accepted the decline in dental health as a natural process that always occurs in all elderly. This could also be influenced by social aspects or place of residence in this family support. According to study by Yulianti, it was found that family support had a relationship with the quality of life of the elderly with a moderate level of closeness. In addition, Sutikno's research results on the relationship between family function and quality of life of the elderly showed that there was a significant relationship between family function and quality of life in the elderly.[9]

The results for the study of caries experience (DMF-T) in table 3 showed the most respondents at the high caries experience level, namely 101 samples. Higher results in the studies of Rosli et al. reported that more than 90% of the elderly have a high caries experience. The high caries experience in the elderly might be due to low dental and oral health knowledge and lack of dental care visits and lack of maintenance of optimal oral hygiene. As for effect on the quality of life, elderly respondents with the highest quality of life mostly had low caries experience, which was 10.5%, and respondents with the highest quality of life had the highest caries experience at 87.1%, and the results of statistical analysis showed a significant influence between caries experience. On the quality of life of the elderly ($p<0.05$). These results are in accordance with research conducted by Samnieng and Lekata; meaningful results were obtained between the number of carious teeth and the quality of life of the elderly. These results are following the data of Wangsarahardja et al., that there was a significant relationship with a positive correlation between dental and oral health status with the quality of life of the elderly. However, different results reported by Ingle et al. that there was no meaningful relationship between the two. This might be due to severe caries that could cause pain, discomfort, disability, acute or chronic infections, eating and sleeping disorders, and expensive medical costs. In addition, Santucci also stated the existence of shame due to appearance that was less aesthetic. Caries was a serious dental and oral health problem in the elderly. The final consequence of caries was tooth loss, which could then affect general health and quality of life.[5,9]

For table 4 on oral hygiene status, the highest quality of life was highest among respondents with good OHI-S which was 16.7% and poor quality of life most of the respondents with poor OHI-S was 87.7%. The significance value of p <0.05 means that there was a significant relationship between oral hygiene status with the quality of life of the elderly. Ratmini, et.al; conducted research and obtained results that showed the status of poor oral hygiene could be influenced by knowledge about the oral hygiene of the individual itself. A healthy way of life in maintaining oral health was formed from good education, so oral hygiene status will also be good. Conversely, if the knowledge of maintaining oral hygiene was not good, then the status of oral hygiene would also be bad, so it tends to be at risk of developing caries and mouth disease. In Sintawati's research, there is an influence between education on the cleanliness of the first cavity, because one's level of education is associated with the ease of capturing information. As with study by Desi; it was found that there was a significant relationship between the level of dental and oral health knowledge and the level of oral hygiene in the integrated healthcare center for elderly in the working area of the Kalisat Health Center in Jember Regency.[10]

Based on research on the number of teeth could be seen in Table 5, it is found that the elderly with the best quality was the elderly with the number of teeth> 20 by 10.2%, while in the elderly with the number of teeth 0-9 there was no sample that represents good quality of life. Statistical analysis showed a significant effect between the number of teeth on the quality of life of the elderly ($p<0.05$). These results were consistent with research conducted by de Andrade et al. significant results were obtained between the number of teeth and the quality of life of the elderly. This might be because tooth loss can cause pain and limitations to chew and talk. The disruption of the function

of mastication causes the elderly to reduce food choices and nutrient intake so that the risk of malnutrition increases. In addition, the psychological aspects of tooth loss could cause embarrassment and adversely affect the elderly self-regard. As with study by Biazevic quoted by Khai; that the effects of edentulous, caries, periodontal disease, coupled with the consequences of comorbidity such as diabetes and xerostomia, had significant effect to elderly. This effect was in physical consequences, economical, and psychological, including the ability to chew, eat, and talk.[6,8]

In 46 samples of full denture users, there were 15.2% of samples with good quality of life compared to samples that did not use full denture of which 7 samples did not have good quality of life. The results of statistical analysis show a significant influence between users and non-users of full denture on the quality of life of the elderly ($p < 0.05$) the difference is significant. The results obtained were also supported by research conducted by Zainab S, who concluded that elderly denture users had a significantly better quality of life than older people who did not use dentures because there is no difficulty in chewing, feeling more comfortable when eating and not avoiding food certainly.[11]

Tooth decay, teething, caries, halitosis, gingivitis, gingival recession, loss of periodontal attachment, and alveolar bone changed in periodontal tissue that are commonly found in the elderly. This if not treated could lead to unsteadiness and the loss of teeth which would disrupt the function and activity of the oral cavity so that it would have an impact on the quality of life. People who lose teeth needed dentures to restore some of the tooth's function.[12]

CONCLUSION

From the discussion, it could be concluded that there was an effect of dental and oral health status on the quality of life of elderly living with families in Tamalanrea District, Makassar.

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Table 1. Frequency distribution of elderly respondent characteristics in Tamalanrea District in 2019

Characteristics		Frequency (n)	Percentage (%)
Gender	Male	98	36.6
	Female	170	63.4
Age	Elderly	240	89.6
	Old	28	10.4
Education	Indeks school	35	13.1
	Elementary	153	57.1
	Junior High	29	10.8
	Senior High	33	12.3
	Diploma	8	3.0
	Bachelor	10	3.7

Table 2. Frequency of answers to GOHAI quality of life questions in Tamalanrea District in 2019

Item	Question	Very often	often	sometimes	rarely	never
		n %	n %	n %	n %	n %
Physical function						
P1	Limiting the amount / type of food due to dental / denture problems	24 9.0	26 9.7	55 20.5	60 22.4	103 38.4
P2	Difficulty in biting / chewing hard foods	23 8.6	26 9.7	57 21.3	64 23.9	98 36.6
P3	Can swallow food comfortably	48 17.9	66 24.6	85 31.7	37 13.8	32 11.9
P4	Dentures / dentures limit when talking	10 3.7	16 6.0	37 13.8	57 21.3	148 55.2
Pain and discomfort						
P5	Eating without discomfort	39 14.9	51 19.0	41 15.3	51 19.0	86 32.1
P8	Taking drugs to reduce pain / discomfort in the oral cavity	2 0.7	22 8.2	55 20.5	89 33.2	100 37.3
P12	Teeth / gums are sensitive to food cold or hot drinks	21 7.8	51 19.0	69 25.7	48 17.9	79 29.5
Psychosocial effect						
P6	Limiting interactions with other samples due to dental / denture conditions	7 2.6	15 5.6	25 9.3	59 22.0	162 60.4
P7	Feel happy with the appearance of teeth / dentures	16 6.0	51 19.0	92 34.3	62 23.1	47 17.5
P9	Feeling anxious or worried about the condition of the teeth	8 3.0	18 6.7	40 14.9	71 26.1	131 48.9
P10	Feeling insecure due to dental problems	7 2.6	15 5.6	27 10.1	68 25.4	151 56.3
P11	Feeling uncomfortable when eating in front of other samples	5 1.9	17 6.3	26 9.7	75 28.0	145 54.1

Table 3: Effect of caries status (DMF-T indeks) on the quality of life of the elderly in Tamalanrea District in 2019

Caries status (DMFT)	Quality of Life						Total		p-value
	Good		Moderate		Poor				
	n	%	n	%	n	%	n	%	
Low	6	10.5	21	36.8	30	52.6	57	100	0.000
Moderate	2	3.1	21	32.8	41	64.1	64	100	
High	5	5.0	8	7.9	88	87.1	101	100	

Table 4: Effect of oral hygiene (OHI-S index) on the quality of life of the elderly in Tamalanrea District in 2019

Oral Hygiene Index (OHIS)	Quality of Life						Total		p-value
	Good		Moderate		Poor				
	n	%	n	%	n	%	n	%	
Good	1	16.7	2	33.3	3	50.0	6	100	0.001
Moderate	8	5.9	42	31.1	85	63.0	135	100	
Poor	4	4.9	6	7.4	71	87.7	81	100	

Table 5: Effect of the number of existing teeth on the quality of life of the elderly in Tamalanrea District in 2019

Number of existing teeth	Quality of Life						Total		p-value
	Good		Moderate		Poor				
	n	%	n	%	n	%	n	%	
>20	11	10.2	34	31.5	63	58.3	108	100	0.000
11-19	2	2.6	14	17.9	62	79.5	78	100	
0-10	0	0.0	2	5.6	34	94.4	36	100	

Table 6: Effects of the use of dentures on the quality of life of elderly people living with families in Tamalanrea District in 2019

Dentures usage	Quality of Life						Total		p-value
	Good		Moderate		Poor				
	n	%	n	%	n	%	n	%	
Not using complete dentures	0	0	0	0	7	100	7	100	0.000
Using complete dentures	7	15.2	24	52.2	15	32.6	46	100	

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