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RELATIONSHIP BETWEEN SOCIO-ECONOMIC LEVEL AND TOOTH LOSS IN ELDERLY AGE IN CIREUNDEU VILLAGE

(HUBUNGAN TINGKAT SOSIO EKONOMI DENGAN KEHILANGAN GIGI PADA USIA LANJUT DI DESA CIREUNDEU)

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ABSTRACT

Tooth loss in the elderly is a health problem that has a significant impact on aesthetic function, mastication, and quality of life. Socioeconomic factors, such as education, income, and occupation, contribute to the rate of tooth loss. This study aims to evaluate the relationship between socioeconomic level and tooth loss in the elderly in Cireundeu Village; analytical observational research with a cross-sectional design using primary data taken directly during research activities carried out using the total sampling technique. The analysis was conducted using Fisher's exact test. The study was conducted on 62 elderly respondents ($\geq$60 years old) in Cireundeu Village. The analysis showed that the majority of respondents had a low education level (91.9%) and low income (80.6%). The average number of tooth loss in respondents was 19.92. There is a significant relationship between socioeconomic level and tooth loss; respondents with lower education, income, and no work

experience have more tooth loss than respondents with higher socioeconomic levels (p-value <0.05). Socioeconomic level has a significant relationship with tooth loss in the elderly in Cireundeu Village. Low education, income, and not working are factors that can increase the risk of tooth loss.

Keywords: socioeconomics; tooth loss; elderly; dental health

ABSTRAK

Kehilangan gigi pada usia lanjut merupakan masalah kesehatan yang berdampak signifikan pada fungsi estetika, pengunyahan, dan kualitas hidup. Faktor sosio ekonomi, seperti pendidikan, pendapatan, dan pekerjaan, berkontribusi terhadap tingkat kehilangan gigi. Penelitian ini bertujuan untuk mengevaluasi hubungan tingkat sosio ekonomi dengan kehilangan gigi pada usia lanjut di Desa Cireundeu.; Penelitian observasional analitik dengan desain cross-sectional menggunakan data primer yang diambil secara langsung saat kegiatan penelitian dilaksanakan menggunakan teknik total sampling. Analisis dilakukan dengan uji fisher exact.; Penelitian dilakukan pada 62 responden usia lanjut (≥60 tahun) di Desa Cireundeu. Analisis menunjukkan bahwa mayoritas responden memiliki tingkat pendidikan rendah (91,9%) dan pendapatan rendah (80,6%). Rata-rata jumlah kehilangan gigi pada responden adalah 19,92. Terdapat hubungan signifikan antara tingkat sosio ekonomi dengan kehilangan gigi, responden dengan pendidikan, pendapatan, dan tidak bekerja mengalami kehilangan gigi yang lebih banyak dibandingkan responden dengan tingkat sosio ekonomi lebih tinggi (nilai p<0,05).; Tingkat sosio ekonomi memiliki hubungan yang signifikan terhadap kehilangan gigi pada usia lanjut di Desa Cireundeu. Rendahnya pendidikan, pendapatan, dan tidak bekerja menjadi faktor yang dapat meningkatkan risiko kehilangan gigi.

Kata kunci: *sosio ekonomi; kehilangan gigi; usia lanjut; kesehatan gigi*

INTRODUCTION

The percentage of elderly people continues to increase every year. This is also the case in Indonesia, which, since 2021, has entered an aging population structure with an increase of around 4% from 2010 to 2022. According to the Central Statistics Agency (BPS), in 2023, the elderly population in Indonesia will reach 11.75%, and in the city of Cimahi, the number of people over the age of 60 will be 9.40%.[1,2]

During the aging process, the percentage of tooth loss will increase due to the difficulty of cleaning the mouth, which increases the risk of periodontal disease and caries that can cause teeth to fall out.[3,4] According to the 2018 Basic Health Research (Riskesdas) in Indonesia, the percentage of partial tooth loss was 51.4%, with the highest proportion occurring in the elderly at 78.2%, and the percentage in Cimahi City reaching 21.80%.[5,6]

Maintaining dental and oral health is an important aspect that is often overlooked in practice, especially among the elderly. This can lead to various oral health problems, such as dental caries, periodontal disease, and ultimately tooth loss.[7] Aging is known to affect oral hygiene due to a decline in motor function, resulting in an inability to maintain oral hygiene.[8] Oral hygiene is not only influenced by age but also by socioeconomic status. Although dental and oral health problems can be avoided by practicing proper oral hygiene and preventive measures, these issues continue to occur in many countries.[9]

The socioeconomic level in Cimahi City in 2023 increased by 5.19%, with the largest contribution coming from the manufacturing sector, which accounted for 45.74% of the Gross Regional Domestic Product (GRDP). However, based on distribution, household consumption expenditure had the largest contribution at 71.15%.[2] The socioeconomic level in Cimahi City has generally increased, but Cireundeu Village still faces its own challenges related to oral health.[10] Research on Cireundeu Village, which has unique socioeconomic and cultural characteristics, has not yet been conducted. Therefore, this study aimed to analyze the relationship between socioeconomic status—specifically education level, income, and employment status—and tooth loss among the elderly population in Cireundeu Village.

METHOD

This study used an analytical observational method with a cross-sectional study design. The study population consisted of all individuals aged over 60 years in Cireundeu village who met the inclusion criteria. There were 100 elderly residents in Cireundeu village, but only 62

met the inclusion criteria. The sampling technique used in this study was total sampling. The tools and materials used during the intraoral examination consisted of an instrument tray, a rinsing glass, basic tools consisting of a mouth mirror, a probe, tweezers, an excavator, alcohol, a mask, gloves, tissues, a slaber, povidone iodine, as well as writing instruments and forms used to record data on tooth loss status and socioeconomic status, including occupation, income, and education. This study was conducted in Cireundeu Village from November to December 2024.

The collection of respondent identity and socioeconomic status data was filled out on an examination form containing questions relevant to the research objectives, followed by an objective examination to assess tooth loss status. The criteria for assessing socioeconomic status were divided into three categories, namely income (high >3.6 million, medium 1-3.6 million, low 0-1 million), low education (elementary school, junior high school) and high education (high school, college), and employment status (employed or unemployed). Data on tooth loss status is divided into three categories: significant loss of more than 10 teeth, moderate loss of 6 to 10 teeth, and minor loss of less than 6 teeth.

Data analysis was performed using the chi-square test, but if more than 20% of cells had an expected count of less than 5, the chi-square test was considered invalid and replaced with Fisher's exact test.

RESULT

Research conducted on 62 elderly respondents in Cireundeu Village obtained statistical test results showing a significant relationship between socioeconomic status and tooth loss in old age in Cireundeu Village. In terms of education level, the p-value was 0.002, which means p<0.05. This shows that tooth loss of more than 10 teeth was more prevalent among respondents with low education (89.8%) compared to respondents with higher education. A significant relationship was also seen in employment status, with a p-value of 0.015, which means that tooth loss in the "many" category was more prevalent among respondents who were unemployed (94.9%). In terms of income, the results were also very significant, with p=0.000, with the majority of tooth loss of more than 10 teeth occurring in respondents with low income (94.0%). This shows that socioeconomic status is related to tooth loss in old age.

Table 1. The Relationship Between Socioeconomic Status and Tooth Loss in Old Age in Cireundeu Village.

| Variable | Tooth Loss | | | P |
| | > 10 | 6-10 | < 6 | Value |

Education				
High	0 (0%)	2 (66.7%)	1 (33.3%)	0.002
Low	53 (89.8%)	3 (5.1%)	3 (5.1%)	
Employment status				
Employed	16 (69.6%)	4 (17.4%)	3 (13.0%)	0.015
Unemployed	37 (94.9%)	1 (2.6%)	1 (2.6%)	
Income				
High	0 (0%)	0 (0.0%)	1 (100%)	0.000
Moderate	6 (54.5%)	4 (36.4%)	1 (9.1%)	
Low	47 (94.0%)	1 (2.0%)	2 (4.0%)	

DISCUSSION

Based on the results of the study, it was found that socioeconomic status, namely education, income, and employment status, had a significant influence on the incidence of tooth loss in older adults in Cireundeu Village. The number of teeth lost in older adults in Cireundeu Village ranged from 3 to 32, with an average of 19.92 teeth lost.

Inequalities related to socioeconomic status in oral health have been observed in several countries. Socioeconomic status is one aspect of social determinants that greatly influences health. Individuals with low socioeconomic status are vulnerable to dental and oral health problems due to limited access to health services, while individuals with higher socioeconomic status are able to clean their teeth better and take various preventive measures that can be done independently at home.[11]

Based on the results of this study, the socioeconomic level in terms of education shows that 57 people (91.9%) with a low level of education experienced more tooth loss than those with a high level of education. The results of this study are directly proportional to the results of research conducted by Riska Hariani, which found that understanding oral health is an effort to maintain and preserve dental health as well as possible, which needs to be done regularly and periodically to avoid the risk of increasing tooth loss. This care can begin by reducing the intake of sugary foods and foods that are difficult to clean with just rinsing or brushing, cleaning plaque and food debris by brushing, treating calculus, and filling cavities if present.[12]

In addition to education, factors that can influence tooth loss are income and employment status. The results of this study show that there is a significant relationship between employment status and income, with p-values of $p=0.015$ and $p=0.000$, respectively. This study is consistent with the results of research conducted by Hanmo Yang et al. in China, which found that higher per capita household income can reduce the risk of tooth loss, which increases with age. especially for people who do not live in urban areas. Lower living standards and the scarcity and difficulty of availability, accessibility, and quality of dental services in rural areas can lead to a

lack of preventive and curative efforts in controlling dental and oral health conditions, especially for vulnerable people, one of whom is someone who has entered the elderly phase.[13]

This study found a significant relationship between socioeconomic status and tooth loss in older adults in Cireundeu Village, with p-values of less than 0.05 in each case. This is consistent with research conducted by Gustavo G Nascimento among people over the age of 60, which found a significant difference between people with low and high socioeconomic status in terms of the percentage of tooth loss in older adults. Tooth loss usually occurs as a result of untreated tooth decay or long-term periodontitis, but other factors, such as dental injuries, can also cause tooth loss. Tooth loss is intrinsically related to a person's income and education level and is more evident in low socioeconomic groups, with significant differences in the number of teeth, edentulism, and the use of dentures. Therefore, attention should be given to people with low socioeconomic status, as they have poor oral health, which can lead to an increase in tooth loss rates.[14]

Based on the results of the research that has been conducted, suggestions can be made for further research by adding other variables, such as diet, smoking habits, history of systemic diseases, quality of life,

and psychological conditions related to tooth loss in old age. Conduct similar research in other villages in Cimahi City or expand the coverage to the entire subdistrict of Cimahi City. Focus on specific age groups to determine whether there are differences in the rate of tooth loss based on age, for example, the young elderly category aged 60 to 69 years, compared to the elderly aged 80 years and above.

CONCLUSION

This study demonstrates a significant relationship between socioeconomic status—education level, income, and employment status—and tooth loss among older adults in Cireundeu Village. Elderly individuals with lower education and income levels and those who were unemployed experienced greater tooth loss. These findings highlight the important role of socioeconomic factors in influencing awareness and practices related to dental and oral health, which may contribute to the prevention of tooth loss in old age.

CONFLICT OF INTEREST

There is no conflict of interest in the writing of this article.

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