



Factors related to the event of dental caries in students of SDN Pasar Kamis 1, Banjar Regency

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Keywords

Dental caries
Age
Gender
JKN membership status
Toothbrush

Received: 21 February 2022

Accepted: 17 April 2022

Published: 20 August 2022

Abstract

Dental Caries has the highest prevalence of oral disease in Indonesia and occur in all age range. Based on WHO, about 60-90% of students worldwide have dental caries. The purpose of this research was to determine the relationship between age, gender, JKN membership status, toothbrush behavior, and consumption of cariogenic food with dental caries among students from Pasar Kamis 1 Elementary School Districts Banjar, South Kalimantan Province. This study used cross-sectional design. The research subjects consist of 65 students From Pasar Kamis 1 Elementary School Districts Banjar, South Kalimantan Province. Descriptive and statistical analysis of data using chi-square test and logistic regression test. The results of chi-square analysis showed p values for age ($p = 0.026$), gender ($p = 0.017$), JKN membership status ($p = 0.013$), toothbrush behavior ($p = 0.006$) and cariogenic food consumption ($p = 0.001$). The results of regression logistic showed values of p and Exp B for age ($p = 0.008$, Exp B = 2.569), gender ($p = 0.017$, Exp B = 1.956), JKN membership status ($p = 0.031$, Exp B = 1.667), toothbrush behavior ($p = 0.006$, Exp B = 2.742), and consumption of cariogenic food ($p = 0.006$, Exp B = 2.952) There was a significant relationship between age, gender, JKN membership status, toothbrush behavior and cariogenic food consumption with dental caries at students from Pasar Kamis 1 Elementary School Districts Banjar, South Kalimantan Province. The most dominant variable related to dental caries was cariogenic food consumption.

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I. INTRODUCTION

The province of South Kalimantan showed the prevalence of dental and oral problems was 60% and an increase of 40% compared to the 2013 Riskesdas data. Then the prevalence of dental caries in South Kalimantan was 46.9%. Banjar Regency has dental and oral health problems, which are quite high, with a percentage of 54.5%, while for DMF-T caries in Banjar Regency, it is 7.8%. Based on Riskesdas 2013 to 2018, there was an increase in dental and oral health problems in South Kalimantan. A preliminary study conducted at SDN Pasar Kamis 1 with 10 students showed that 100% of students had dental caries [1].

The problem of dental caries can be caused by many factors, including non-restorative management, namely plaque con-

trol, risk reduction, maintenance of the dental coating, and advanced treatment, in addition to aetiological factors and risk factors, namely dental biofilm, irregular diet, dry mouth, dental care. Unhygienic oral cavity, lack of fluoride, vulnerable dental conditions, as well as continuous management of dental caries care, host, microorganism, substrate, time, attitude, education, demographic status, income, occupation, JKN membership, cariogenic food, oral health literacy mouth, water source content, ethnicity, regional specialties that tend to be sweet, and the habit of brushing teeth so that if these factors are not treated, infection will occur so that tooth pain, eating disorders, affect child growth and development, loss of school time because of the presence of problems with teeth, difficult to carry out

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activities, Digestion is not perfect and reduces the number of health degrees in the community.

Based on the previous research by Fauzi [2] in this study, most of the respondents experienced dental caries, as many as 52.9% of children. At SDN Pasar Kamis 1, Banjar Regency consumes more consumption of cariogenic foods such as chocolate, candy, sweet cakes, and snacks; this is supported by the observation that the salespeople around SDN Pasar Kamis 1 sell foods that contain cariogenic.

Based on research conducted by Wende [3] states that dental health services are related to the occurrence of dental caries. A child who rarely goes to a health facility for dental treatment will have problems. Currently, there are around 26,000 dentists in Indonesia to provide dental and oral health services for 257 million Indonesians. So each dentist to population ratio is 1:10,700 people. However, the distribution of dentists in Indonesia is not evenly distributed, as concentrated on the islands of Java, Bali, and Sumatra.

Based on the description above, the incidence of dental caries in SDN Pasar Kamis 1 students is still high. The conditions described above provide an overview of the factors that cause dental caries in SDN Pasar Kamis 1 students, Banjar Regency. For this reason, it is necessary to conduct research on factors related to the incidence of dental caries in SDN Pasar Kamis 1 students, Banjar Regency, South Kalimantan, in terms of age, gender, JKN participation, cariogenic food consumption, and tooth brushing habits. This study's purpose was to determine the analysis of factors related to the incidence of dental caries in students of SDN Pasar Kamis 1 Banjar Regency, South Kalimantan.

II. METHOD

This research tried to identify how and why health phenomena happened. Then it analyzed the dynamics of the relationship between phenomena or between risk factors. The research design was a cross-sectional survey design. The population of this study was 149 students of SDN Pasar Kamis 1, Banjar Regency, South Kalimantan Province.

The sampling technique uses strategies of proportional random sampling by dividing the population into proportionally homogeneous groups. After that, a sampling frame (N) is made for each proportion. From each proportion, a random sample is taken.

The sample size formula is:

$$n = \frac{N \cdot Z^2 \cdot p \cdot q}{d^2 (N - 1) + Z^2 \cdot p \cdot q}$$

Description:

n: number of samples

p : proporsi (0,07) [4]

q: 1 - p

Z_{1- α /2} : statistic Z (Z = 1,96 untuk α = 0,05)

d: presisi absolut (5%)

N: large population

III. RESULT AND DISCUSSION

Pasar Kamis 1 Elementary School, Banjar Regency, South Kalimantan Province From the analysis on 65 students of Pasar Kamis 1 Elementary School, Banjar Regency, South Kalimantan Province, as many as 36 people (55.4%) stated that they were young, and 29 people (44.6%) stated that they were preadolescent. The results of the Chi-Square test with a 95% confidence level showed *p* value = 0.026; then the decision is H₀ rejected (*p* < 0.05), which means that there is a significant relationship between age and the incidence of dental caries in students of Pasar Kamis 1 Elementary School, Banjar Regency, South Kalimantan Province. This shows that the age level has a relationship with the incidence of dental caries in students.

The results showed that 21 people (58.3%) suffered from poor dental caries and 15 people (41.7%). Thus, it can be seen that young respondents stated that there were fewer sufferers of bad dental caries than those who suffered from poor dental caries.

8 people (27.6%) suffered from poor dental caries, and 21 people (72.4%). Thus, it can be seen that preadolescent respondents stated that they suffered from bad dental caries more than those who suffered from poor dental caries. This research is in line with Arifin et al. [5] based on the results of the chi-square test statistic, the sig value is 0.030 with a significance level of 95% (α = 0.05), it can be concluded that the *p*-value < (0.030 < 0.05) then H₀ is rejected, meaning that there is a relationship between age and patient satisfaction. at the Muara Laung Health Center. Based on the results of the study, it was found that from 100 respondents, it was known that there were 52 respondents (52%) with a young age. Most of the young respondents have a poor level of satisfaction with the health services provided, as many as 35 respondents (67.3%).

The Relationship Between Gender and The Incidence of Dental Caries In Elementary School Students Pasar Kamis 1 Banjar Regency, South Kalimantan Province From the results of research on 65 students of Pasar Kamis 1 Elementary School, Banjar Regency, South Kalimantan Province, 33 people (50.8%) were male, and 32 (49.2%) were female. The results of the Chi-Square test with a 95% confidence level showed *p* value = 0.017; the decision is H₀ rejected (*p*

< 0.05), which means that there is a significant relationship between gender and the incidence of dental caries in students of Pasar Kamis 1 Elementary School, Banjar Regency, Kalimantan Province. South. This shows that gender has a relationship with the incidence of dental caries in elementary school students.

The results showed that the male sex suffered from bad dental caries in 20 people (60.6%), and the male sex suffered from bad dental caries in 13 people (39.4%). Thus, it can be seen that respondents of the male gender stated that they suffered from poor dental caries less than those who suffered from poor dental caries.

The female sex suffered from bad dental caries in 9 people (28.1%), and on the contrary, the female sex suffered from bad dental caries in 23 people (71.9%). Thus, it can be seen that respondents of the female gender stated that they suffered from bad dental caries more than those with poor dental caries.

The Relationship Between National Health Insurance Participation and Dental Caries Incidence in Pasar Kamis 1 Elementary School Students, Banjar Regency, South Kalimantan Province.

From the results of research on 65 students of Pasar Kamis 1 Elementary School, Banjar Regency, South Kalimantan Province, 39 people (60%) do not have national health insurance, and 26 people (40%). The results of the Chi-Square test with a 95% confidence level obtained p value = 0.013; then the decision is H_0 rejected ($p < 0.05$), which means that there is a significant relationship between national health insurance participation and the incidence of dental caries in elementary school students Pasar Kamis 1 District Banjar, South Kalimantan Province. This shows that participation in the National Health Insurance is related to the incidence of dental caries in elementary school students.

The results showed that by having a National Health Insurance membership card, 17 people (65.4%) suffered from poor dental caries, and 9 people (34.6%). Thus, it can be seen that respondents who have a National Health Insurance participant card stated that they suffer from poor dental caries less than those who suffer from poor dental caries. By not having a National Health Insurance card, 12 people (30.8%) suffered from bad dental caries, and 27 people (69.2%) did not have a National Health Insurance card. Thus, it can be seen that respondents who do not have a National Health Insurance card stated that they suffer from bad dental caries more than those who suffer from bad dental caries. This research is in line with Wende MA3 dental examination of health facilities ($p = 0.000$) H_0 is rejected ($p < 0.05$) then there is a significant relationship between the

factor of dental examination at health service facilities and the incidence of dental caries in grade 1 elementary school children at the Inpres Oebufu elementary school.

This research is not in line according to Viola OP dkk [6], the Mann-Whitney test showed that the DMFT and OHIS values were not significantly different ($p_{DMFT} = 0.624$; $p_{OHIS} = 0.960$). Another result of this study shows that 50% of participants in the National Health Insurance know the benefits of dental services national health insurance. A total of 7.53% of participants of the National Health Insurance and 10.35% of non-participants of health insurance use dental services in a year. The level of understanding of the National Health Insurance and the health behavior of the research respondents were not significantly different, making the dental health status in this study no different. The conclusion of this study is that there is no difference in dental health status between participants of the National Health Insurance and non-participants of health insurance.

The Relationship Between Teeth Brushing Behaviour and The Incidence of Dental Caries in Elementary School Students Pasar Kamis 1 Banjar Regency, South Kalimantan Provinc.

From the results of research on 65 students of Pasar Kamis 1 Elementary School, Banjar Regency, South Kalimantan Province, it can be seen that there are 38 people (58.46%) bad brushing behaviour and 27 people (41.54%) good brushing behaviour. The results of the Chi-Square test with a 95% confidence level obtained p value = 0.006; then the decision is H_0 rejected ($p < 0.05$), which means that there is a significant relationship between tooth brushing behaviour and the incidence of dental caries in elementary school students Pasar Kamis 1 Banjar Regency South Kalimantan Province. This shows that the behaviour of brushing teeth is related to the incidence of dental caries in elementary school students.

The results showed that with good brushing behaviour 17 people (63.0%) suffered from poor dental caries and 10 people (37.0%). Thus, it can be seen that respondents who have good tooth brushing habits suffer from less bad dental caries than those who suffer from poor dental caries.

It is known that the bad habit of brushing teeth suffers from bad dental caries among 12 people (31.6%), and the bad habit of brushing teeth suffers from bad dental caries among 26 people (68.4%). Thus, it can be seen that respondents with poor tooth brushing behaviour stated that they suffered from bad dental caries more than those with poor dental caries.

This research is in line with Agung [7] tooth brushing behavior obtained sig value. 0.015. Spearman correlation test

between dental caries variable and tooth brushing behavior obtained sig value. 0.015. This value is less than 0.05. This means that there is a relationship between the variable dental caries and tooth brushing behavior. This research is in line with Hasiru [8]. There is a relationship between the health behavior of brushing teeth and dental caries in the fifth and sixth graders of the Inpres Winangun Elementary School, Manado City.

The Relationship Between Consumption of Cariogenic Food with Dental Caries Incidence in Elementary School Students Pasar Kamis 1 Banjar Regency, South Kalimantan Province. From the results of research on 65 students of Pasar Kamis 1 Elementary School, Banjar Regency, South Kalimantan Province, the consumption of bad cariogenic food was 51 people (78.46%), and the consumption of good cariogenic food habits was 14 people (21.54%). The results of the Chi-Square test with a 95% confidence level obtained p value = 0.001, then the decision is H_0 rejected ($p < 0.05$), which means that there is a significant relationship between consumption of cariogenic food and the incidence of dental caries in elementary school students Pasar Kamis 1 Banjar Regency South Kalimantan Province. This shows that the consumption of cariogenic foods is related to the incidence of dental caries in elementary school students.

The results showed that the consumption of good cariogenic food suffered from bad dental caries by 12 people (85.7%), and the consumption of bad cariogenic food suffered from bad dental caries among 2 people (14.3%). Thus, it can be seen that respondents who have good cariogenic food consumption state that they suffer from bad dental caries less than those who suffer from poor dental caries.

It is known that with the consumption of bad cariogenic food, 17 people (33.3%) suffer from bad dental caries, and 34 people (66.7%). Thus, it can be seen that respondents who consume bad cariogenic foods suffer from bad dental caries more than those who do not have good dental caries. This research is in line with Hamzah [9] shows. This study describes the majority who experience a bad cariogenic food consumption pattern namely, the results obtained are 71 children or about 92.2%. $p = 0,000$ where $p < (0,05)$. There is a relationship between cariogenic food consumption patterns and the incidence of dental caries in elementary school children.

The Relationship Between Age, Gender, National Health Insurance Participation, Toothbrushing Habits and Consumption of Cariogenic Foods with Dental Caries Incidence in Elementary School Students Pasar Kamis 1 Banjar Regency, South Kalimantan Province.

Multivariate analysis was carried out on five independent

variables that met the requirements of the multivariate model, namely age, gender, participation in the National Health Insurance, brushing teeth, and consumption of cariogenic foods. The variables of age, gender, participation in the National Health Insurance, a habit of brushing teeth, and consumption of cariogenic foods after being tested together turned out to have a significant partial relationship with the incidence of dental caries in elementary school students. The age variable has a significant partial relationship with the incidence of dental caries in elementary school students, with a p -value of 0.008 and an exponential value of 2.569, which means that the incidence of dental caries in the younger age group suffers from bad dental caries compared to the preadolescent age group.

The gender variable has a significant partial relationship with the incidence of dental caries in elementary school students, with a p -value of 0.017 and an exponential B value of 1.956, which means that the incidence of dental caries in the female gender is more likely to suffer from bad dental caries than the male gender male.

The National Health Insurance participation variable has a significant partial relationship with the incidence of dental caries in elementary school students, with a p -value of 0.031 and an exponential B value of 1.667, which means that the incidence of dental caries who do not have a national health insurance card suffers more from bad dental caries than those who do not have a national health insurance card. Who has a National Health Insurance card? The variable of brushing habits has a significant partial relationship with the incidence of dental caries in elementary school students, with a p -value of 0.006 and an exponent B value of 2.742, which means that the incidence of dental caries with poor brushing habits is more likely to suffer from bad dental caries than those who have bad tooth brushing habits have a good habit of brushing teeth.

The variable consumption of cariogenic food has a significant partial relationship with the incidence of dental caries in elementary school students, with a p -value of 0.006 and an exponent B value of 2.952, which means that the incidence of dental caries with poor consumption of cariogenic foods is more likely to suffer from bad dental caries than those who have bad caries. have a good habit of brushing teeth.

Based on the multivariate results of the five independent variables that met the requirements of the multivariate model, the cariogenic food consumption variable was the most dominant variable (very strongly) associated with the incidence of dental caries with an exponent B value of 2,952. The second dominant variable (strong) is the habit of brush-

ing teeth, with an exponential B value of 2.742. The third dominant variable (weak) is age, with an exponential B value of 2.569. The fourth dominant variable (weakest) is gender, with an exponential B value of 1.956. The fifth dominant variable (very weak) is participation in national health insurance, with an exponential B value of 1.667.

Based on research data, the incidence of dental caries in elementary school students was 36 people (55.4%) in the preadolescent period as many as 29 people (44.6%), while the preadolescent period was more likely to suffer from bad dental caries as many as 21 people. (72.4%) compared to 15 people (41.7%). Age is the third dominant variable (weak) that has a relationship with the incidence of dental caries in elementary school students. In this study, the consumption of cariogenic food was the most dominant factor; the first to be associated with the incidence of dental caries in elementary school students was the consumption of poor cariogenic foods. Consumption of bad cariogenic food suffers from bad dental caries more than consumption of cariogenic food. As well as the consumption of good cariogenic foods, pay attention to dental and oral health.

In this study, the habit of brushing teeth is the second most dominant factor related to the incidence of dental caries in elementary school students is bad tooth brushing habits. Bad tooth brushing habits suffer from bad dental caries more than good teeth brushing. As well as brushing your teeth properly, pay attention to dental and oral health.

In this study, age became the third most dominant factor re-

lated to the incidence of dental caries in elementary school students, namely in the preadolescent period. Preadolescents suffer from bad dental caries more than youth. And in preadolescents, pay less attention to dental and oral health. In this study, gender became the fourth most dominant factor related to the incidence of dental caries in elementary school students. The female sex suffers from bad dental caries more than the male sex. And the male gender pays attention to dental and oral health.

In this study, National Health Insurance participation became the fifth most dominant factor related to the incidence of dental caries in elementary school students who did not have a National Health Insurance card; those who did not have a National Health Insurance card suffered more bad dental caries than those who had a National Health Insurance card. National Health. And those who have a National Health Insurance card pay more attention to dental and oral health.

IV. CONCLUSION

Based on the results of the study, there is a relationship between age, gender, participation in national health insurance, brushing habits, and consumption of cariogenic foods with the incidence of dental caries in elementary school students Pasar Kamis 1, Banjar Regency, South Kalimantan Province. The consumption factor of cariogenic food is the factor most associated with the incidence of dental caries in elementary school students in Pasar Kamis 1, Banjar Regency, South Kalimantan Province.

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