# The Analysis of Behavioral Risk Factors on Periodontal Diseases in the Hospitalized Public Health Centre of Cempaka Region Banjarbaru

**Anderi Fansurna[1], Ardik Lahdimawan[2], Adenan[3], Husaini[3], Eko Suhartono[2], Roselina Panghiyangani[2]**

*[1]Master of Public Health Science, Faculty of Medicine, Lambung Mangkurat University,
[2]Faculty of Medicine, Lambung Mangkurat University, [3]Public Health Study Program, Faculty of
Medicine, Lambung Mangkurat University, Idonesia*

## ABSTRACT

Periodontal disease is one of the main problems of oral and dental health. Periodontal disease covers gingivitis and periodontitis. The high rate of this disease is strongly influenced by behavioral factors of the society. The research aims to analyze behavioral risk factors for the incidence of periodontal disease between male and female aged 20-44 years at The Hospitalized Public Health Centre of Cempaka Region Banjarbaru. This research is a quantitative research of analytic observational type with cross-sectional approach. The study population as many as 236 cases of the respondent, the respondent sample of 80 cases which were determined using the inclusion criteria (accidental sampling). The research instrument used questionnaire and Community Periodontal Index of Treatment Needs (CPITN). In male respondents, there are 4 behavioral risk factors that influence to periodontal disease that is toothbrushing behavior, smoking, fruit and vegetable consumption, and bread consumption. While the female has 3 risk factors that influence the behavior of periodontal disease that is the toothbrushing behavior, the pattern of consumption of fruits, vegetables, and bread. There is a significant difference between male and female only in smoking behavior. In the male most behavioral risk factors affecting the incidence of periodontal disease is the behavior of brushing teeth, whereas in the female the most influential behavioral risk factors are the behavioral pattern of fruit and vegetable consumption.

***Keywords***: behavioral risk factors, periodontal disease

## INTRODUCTION

Periodontal disease is one of the most common dental and oral diseases in the world, especially in Indonesia. The most common periodontal diseases are gum inflammation or gingivitis and periodontitis. As a result of a periodontal disease that can damage the bone structure of the jaw, so it causes the disruption of activity, even that bacterial infections continue to develop can lead to systemic diseases until death. In Indonesia, the prevalence of periodontal disease in all age groups reached 96.58%.[1]

The national prevalence of dental and oral health problems is 25.9 percent. Kalimantan Selatan ranks second with troubled dental and oral populations above the national prevalence rate by 36.1%.[2] The high rate of dental and oral disease is currently strongly influenced by several factors, one of them is the behavioral factor of society.[3].

Banjarbaru city occupied the highest percentage of gum /*periodontal treatment* with 4.1% in Kalimantan Selatan. Population aged 10 years and over who behave properly brush his teeth in the town Banjarbaru just 2.4, this figure is the second lowest of the city in Kalimantan

**Corresponding Author:**
**Anderi Fansurna**
Master of Public Health Science, Faculty of Medicine, Lambung Mangkurat University, Jalan A. Yani, Km.36, Banjarbaru, Kalimantan Selatan, Indonesia, email: anderi3arkan@gmail.com

Selatan. Data of proportion of population ≥ 10 years according to smoking habit in Banjarbaru of 22.8. Data of fruit/vegetable servings per day in the week of the population aged 10 years and over for Banjarbaru with dominant 1-2 portions of 93.3 and population aged 10 years and above for Banjarbaru none or 0% for consumption of fruit/vegetables per day in a week ≥ 5 servings. Data on the proportion of population aged 10 years and over with the consumption of bread and biscuits by district/city of Kalimantan Selatan, for the city of Banjarbaru with numbers 1-6 times per week highest regency/cities and above provincial consumption figures. The bread consumption is 73.6 with the consumption rate of 62.8 and biscuit 74.7 that above the province rate of 62.1.[4]

Gum and periodontal disease showed the second largest number. The Hospitalized Public Health Centre of Cempaka Region with the biggest number of gum disease and periodontal by 1,345 events (18.11%). According to a characteristic of the age group of gum disease and periodontal type in a group of 20-44 years with a

monthly average of monthly entity equal to 49.15 %.

## MATERIALS AND METHOD

The type of this research is observational analytic with cross-sectional research design. This research held in The Hospitalized Public Health Centre of Cempaka Region, March-April 2018. The study population was all male and female patients with periodontal disease age 20-44 years old who treated in dental clinic The Hospitalized Public Health Centre of Cempaka Region. The sample of this study was chosen by using the method accidental sampling with inclusion criteria, age 0-44 years with a diagnosis of periodontal disease, no history of systemic disease risk factors for periodontal disease (diabetes mellitus, stroke, hypertension, stress). The number of samples was calculated using the Lemeshow formula that a sample of at least 32 samples of male and 32 female samples. The instrument used is a questionnaire and periodontal health measurement with CPITN.

## FINDINGS

**Table 1. Differences Risk Factors for Behavior Against Periodontal Disease**

| | Male | | Asymp. Sig./ p-value | Female | | Asymp. Sig./ p-value | Mann-Whitney's Different Test |
|---|---|---|---|---|---|---|---|
| | n | % | | n | % | | |
| Toothbrushing Behavior | | | | | | | |
| Correct | 23 | 57.5 | 0.000 | 24 | 60.0 | 0.001 | 0.821 |
| Wrong | 17 | 42.5 | | 16 | 40.0 | | |
| Smoking Behavior | | | | | | | |
| None | 19 | 47.5 | 0.000 | 37 | 92.5 | 0.553 | 0.000 |
| Smoker | 21 | 52.5 | | 3 | 7.5 | | |
| Chewing Tobacco | | | | | | | |
| None | 39 | 97.5 | 0.269 | 38 | 95.0 | 0.152 | 0.559 |
| Chewing | 1 | 2.5 | | 2 | 5.0 | | |
| The Pattern of Fruits & Vegetable Consumption | | | | | | | |
| Good | 19 | 47.5 | 0.000 | 18 | 45.0 | 0.000 | 1.000 |
| Less | 21 | 52.5 | | 22 | 55.0 | | |
| The Pattern of Bread Consumption | | | | | | | |
| Low | 17 | 42.5 | 0.006 | 26 | 65.0 | 0.050 | 0.504 |
| High | 23 | 57.5 | | 14 | 35.0 | | |
| The Pattern of Biscuit Consumption | | | | | | | |
| Low | 25 | 62.5 | 0.418 | 29 | 72.5 | 0.294 | 0. 343 |
| High | 15 | 37.5 | | 11 | 27.5 | | |

**Table 2.  Results of The Final Model of Multivariate Analysis of Behavioral Risk Factors for Male Periodontal Disease**

| Variable | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Toothbrushing Behavior | 3.425 | 1.402 | 5.967 | 1 | .015 | 30.713 | 1.968 | 479.380 |
| Smoking Behavior | 2.801 | 1.404 | 3.983 | 1 | .046 | 16.462 | 1.051 | 257.746 |
| The Pattern of Fruits & Vegetable Consumption | 2.801 | 1.404 | 3.983 | 1 | .046 | 16.462 | 1.051 | 257.746 |

**Table 3.  Results of The Final Model of Multivariate Analysis of Behavioral Risk Factors for Female Periodontal Disease**

| Variable | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Toothbrushing Behavior | 2.246 | .951 | 5.574 | 1 | .018 | 9.448 | 1.464 | 60.954 |
| The Pattern of Fruits & Vegetable Consumption | 2.745 | .922 | 8.868 | 1 | .003 | 15.560 | 2.555 | 94.750 |

## DISCUSSION

### Toothbrushing Behavior Against Periodontal Disease

There is influence between toothbrushing behavior toward incidence of periodontal disease in both male and female in work area of  The Hospitalized Public Health Centre of Cempaka Region because of research result even though behave with daily toothbrushing frequency (100%), but, there is behavior wrong time and manner of toothbrushing with the correct procedure. There were no significant differences in the behavior of brushing teeth, but there were still wrong toothbrushing, in male the behavior of wrong brushing teeth as many as 17 people (42.5%) and in female as many as 16 people (40.0%).

### Smoking Behavior Against Periodontal Disease

Periodontal disease in male more experienced in the respondents with the behavior of smokers category that is 16 people (40%) whereas in the female of periodontal disease heavy category of smokers only 2 people (5, 0%). There were significant differences between male and female in relation to smoking behavior because of male respondents with smoking behavior as much as 28 people (70%), smoking duration more than 1 year as 27 (67.5%), and smoking every day as many as 20 people (50%) whereas in female the behavior never smoked only 4 people (10%), smoking duration more than 1 year as 4 people (10%), and smoking every day only 1 person (2.5%).

### Chewing/Tobawbing Behavior Against Periodontal Disease

There is no influence between chewing tobacco to the periodontal disease because of 3 respondents with the category of chewing not including chewing tobacco every day (100%) and chewing behavior no more than 1 time (100%). Supported with the results of the study showed that there was no significant difference between the two groups of male and female in relation to chewing tobacco because most of the people in The Hospitalized Public Health Centre of Cempaka Region is the category not chewing tobacco, in male 39 male (97.5%) and 38 female (95.0%).

Behavior Pattern of Fruit and Vegetable Consumption Against Periodontal Disease

There is no effect on the behavior patterns of consumption of fruits and vegetables toward the incidence of periodontal disease and there are no significant differences between male and female in relation to the behavior patterns of consumption of fruit and vegetables for the boys male and female in large categories with less consumption, in male as many as 21 people (52.5%) in female as many as 22 people (55.0%).

Behavioral Patterns of Bread Consumption Against Periodontal Disease

There is an influence on behavioral pattern of bread consumption to the occurrence of periodontal disease and there is no significant difference between male and female in relation with behavioral pattern of bread consumption because even in most male with high consumption behavior that is 23 people (57,5%) and female mostly with low consumption behavior that is 26 people (65,0%), but in male with daily consumption of bread as only 5 people (12,5 %).

Behavioral Patterns of Biscuit Consumption Against Periodontal Disease

There is no influence between biscuit consumption pattern behavior to the occurrence of periodontal disease and there is no significant difference because of most of the consumption pattern of biscuits with low consumption category, in male as many as 25 people (62, 5%) and female as many as 29 people (72.5%). Supported by the results of the study in 100% male was not consuming biscuits every day with the amount of consumption mostly less than 2 times per day (65.0%) and female mostly did not consume biscuits every day (75.0%) with total consumption is also less than 2 times per day (72.5%).

Differences of Risk Behavior Factors on Periodontal Disease Between Male and Female

In the male, there are 3 variables that influence the behavior of brushing teeth, smoking and consumption patterns of fruits and vegetables. In the behavioral variables of brushing teeth, if the correct number of brushing teeth increases 1 x then the periodontal climber will decrease 30.713 x compared to the wrong tooth brushing behavior. In the variable of smoking behavior, if the non-smoker rate increases 1 x then the periodontal climber will decrease 16.462 x compared to the smoker. In the variable behavioral behavior of fruit and vegetable consumption, if the good consumption figure increased 1 x then the periodontal disease will decrease 16.462 x compared to less consumption.

In the female, it is known there are 2 variables that influence the behavior of brushing teeth and fruit and vegetable consumption patterns. In the variable behavioral behavior of fruit and vegetable consumption, if the good consumption figure increased 1 x then periodontal disease will decrease 15,560 x compared to less consumption. Behavioral brushing behavior variable, if the correct number of behavioral brushing teeth increases 1 x then the periodontal disease will decrease 9,448 x compared to the behavior of brushing wrong teeth.

There are differences in the effect of behavioral risk factors on periodontal disease between male and female because the tendency of male behavior is more not pay attention to their own condition including tooth hygiene and mouth in this behavior brushing teeth can be seen from behavior of brushing wrong teeth at man equal to 17 people (42,5%). In contrast to a female who feel shy faster and seek to look beautiful and clean to facilitate interaction with the environment, including in terms of brushing teeth can be seen from the behavior of brushing teeth wrong in female 16 people (40.0%). Female has more positive behaviors for oral hygiene and have high confidence to improve their oral hygiene. Female also have a much higher level of anxiety than male so they are more likely to reduce their fears by seeking and taking preventative and curative measures advocated by health practitioners than male.[5]

Behavior pattern of fruit and vegetable consumption have a more positive effect on periodontal disease in a female in The Hospitalized Public Health Centre of Cempaka Region because of female tendency to consume less fruit than recommended bigger than male, female 72,5% while male 65,0 %. The behavior of male though tends to ignore the type of food eaten every day, but in terms of food is not too difficult in terms of food eaten, in contrast to a female who is more motivated to regulate the type of food eaten every day.[6]

## CONCLUSION

In the male, There are 4 behavioral risk factors that

affect the periodontal disease ie toothbrushing behavior, smoking, fruit and vegetable, and bread consumption patterns.

In the female, There are 3 behavioral risk factors that affect the periodontal disease that is the behavior of brushing teeth, the pattern of consumption of fruits and vegetables.

There is a significant difference in behavior risk factors between male and female in relation to smoking behavior.

In male behavioral variables brushing teeth have a more positive effect on periodontal disease than smoking behavior and consumption behavior of fruits and vegetables.

In the female, the variables of fruit and vegetable consumption are more positive for periodontal disease than tooth brushing behavior.

**Ethical Clearance:** Before conducting the data retrieval, the researchers conducted a decent test of ethics conducted at the Faculty of Medicine, Lambung Mangkurat University to determine that this study has met the feasibility. Information on an ethical test that the study is eligible to continue. The feasibility of the research was conducted in an effort to protect the human rights and security of research subjects.

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