

# Relationship between Cigarette Consumption with Farmer Gingiva Health Level Using Regresi at Highland

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**Abstract:-** Smoking habits not only could cause systemic effects but also pathological conditions of the oral cavity, which is periodontal disease. Periodontal disease is the second most common tooth and mouth disease in the community. One of the most common forms of periodontal disease is gingivitis. Data WHO in 2012 shows Indonesia ranked third with the largest number of smokers in the world. Smoking is an important risk factor for development of periodontal disease. Although smoking habits adversely affect health but the prevalence of smokers continues to increase. In Indonesia prevalence of adult smokers increased from 26.9% to 31.5%. The purpose of this study is to determine the relationship between of cigarette consumption per day with health condition of gingiva, on young adult. This research used descriptive analytic method with Cross sectional approach, sample size 96 respondents by simple random sampling. Data were collected using questionnaires and gingival health checks based on the gingival index. The result of this study shows the most number of respondent is medium smokers, 59 people (61,5%). Periodontal tissue condition on gingivitis respondents suffering from gingivitis with moderate criteria are 65 people (67,7%). Chi square test shows that there is relationship between of cigarette consumption with health of gingiva.

**Keywords:-** Number of Consumption of Cigarettes, Gingiva Health, Young Adult.

## I. INTRODUCTION

The World Health Organization (WHO) has set the 31st of May as a worldwide tobacco-free day, indicating increasing global concern for the negative effects of smoking on health and well-being. Indonesia ranks third largest number of smokers worldwide reaching 147 million people (1). The percentage of smokers increases every year in developing countries, whereas in developed countries this figure declines by about 1.1% per year. Smoking is a habit that until now often found in the community. Number of smokers in Indonesia continues to increase every year (2). Based on the results of Riskesdas 2013 in Indonesia the prevalence of smoking among adults increased from 26.9% to 31.5% (3). The high prevalence of smoking among young adults can certainly have a major impact on the health of the cavity mouth (4).

Smoking habits not only cause systemic effects on the body, but also can cause pathological conditions in the oral cavity, one of which is gingivitis. This is because the oral cavity is the site of the absorption of substances from the burning of cigarettes, especially soft tissues of the mouth that are more vulnerable to exposure to the effects of cigarettes (4).

The oral cavity is the gateway for passing food and drink, including other ingredients and cigarette smoke. The mouth cavity of a smoker is very easily exposed to the adverse effects of smoking. The occurrence of changes in the oral cavity is very likely to occur because the mouth is the beginning of the absorption of substances from burning cigarettes. Hot smoke that blows constantly into the oral cavity is a heat stimulus that causes changes in blood flow and reduces salivary expenditure. As the result the oral cavity becomes dry and more anaerobic thus providing an appropriate environment for the growth of anaerobic bacteria in plaque. By itself is at greater risk of infecting bacteria that cause dental supporting tissue diseases than nonsmokers (5). The loss of gingival attachment increases by 0.5% by smoking one cigar per day, while smoking 10-20 cigars per day loses it to 5-10% (6). Smoking classification can be divided into 3 groups, in example light smokers, someone who smokes cigarettes less than 10 cigarettes per day; medium smokers, someone who smokes between 10 to 20 cigarettes per day; heavy smokers, someone who smokes more than 20 cigarettes per day (6).

The effects of smoking are influenced by the large number of cigarettes smoked, the duration of smoking, the type of cigarettes smoked, even related to the cigarette suction that is done meaning, the more cigarettes smoked, the longer the smoking habit, the higher levels of tar and nicotine are sucked, the more deeply a person sucks it, the higher the damage effect will occur (7).

Previous research has explained that at the time of smoking, tar contained in cigarette smoke into the oral cavity and settles on the tooth surface. The precipitate causes the tooth surface to become so rough that plaque is easily attached (8). Plaque is a major cause of gingivitis. Smoking habits cause changes in vascularization and salivary secretion due to heat generated by cigarette smoke, resulting in dilation of the capillary blood vessels and infiltrating inflammatory agents so that enlargement of the gingiva occurs. The accumulation of plaque on tooth surfaces is exacerbated by poor oral hygiene resulting in

increased gingivitis levels (9). Sham A. et al. (10) suggests that gingivitis is also affected by the quantity of smoking daily cigarettes and smoking duration (11).

Jorong Galaga is located in one village / nagari in Kanagarian Alahan Panjang Kabupaten Solok, located at an altitude of 1400 m above sea level. Based on the preliminary survey The majority of people's livelihoods are farmers, they have a long time off work and cold temperatures make people want to smoke more cigarettes. Found some health problems of oral cavity in the smokers farmers are swollen and bleeding gums. Mullaly's study suggests periodontitis due to smoking can occur due to consumption of cigarettes with high doses and in the long term (12).

The purpose of this study to determine the effect of the number of cigarettes smoked per day in young adulthood with the severity of gingival health.

**II. MATERIALS AND RESEARCH METHODS**

This research is a descriptive analytic research with cross sectional approach. The population of this study is young adult community Jorong Galaga Kenagarian Alahan Panjang Solok District. The inclusion criteria specified were male, young adult age, smoking more than 5 years. Exclusion criteria use prosthesis and have systemic disease. The total respondents were 96 people with simple random sampling.

Before the research conducted first conducted preliminary study and then carried out the licensing process. All subjects were given an explanation of the objectives, research procedures and the filling of informed consent. Data collection was done by visiting respondent house by door to door for 2 weeks in accordance with the agreement. Then the researchers conducted interviews with respondents asked how much cigarette consumption a day and recorded. Respondents were instructed to rinse with a quads before the examination.

Furthermore, the examination of gingival health status using Gingival Index. The tool used in this research is the mouth mirror and periodontal probe Gingival Index recorded in the examination format. This index is used to check the severity of gingival inflammation. Assessment using six teeth called Ramfjord teeth are 16, 21, 24, 36, 41 and 44. Gingival measurements Index tissues are covered each tooth divided into 4 sides ie facial papilla distillation, facial margin, mesio facial papilla and lingual gingival margin. Scores for each tooth were obtained by summing the scores for the four examined teeth divided by the number of examined teeth obtained by the score of the gingival index for the individual. If the score was 0.1 to 1.0: mild gingivitis, a score of 1.1 to 2.0 gingivitis and score 2.1 - 3.0 severe gingivitis. Data that have been obtained from the examination results using Gingival Index then recorded. The data obtained are then tabulated and presented in percentages. Data analysis was done by Chi-Square test with significance level  $p < 0,05$ .

**III. RESULT**

Research on Relationship Between Cigarette Consumption and Farmer Gingiva Health Level has been done in Jorong Galaga Kenagarian Alahan Panjang Solok District. The study involved 96 respondents of active smokers. The results of research on Jorong Galaga Kenagarian Alahan Panjang Solok District can be seen in the table below.

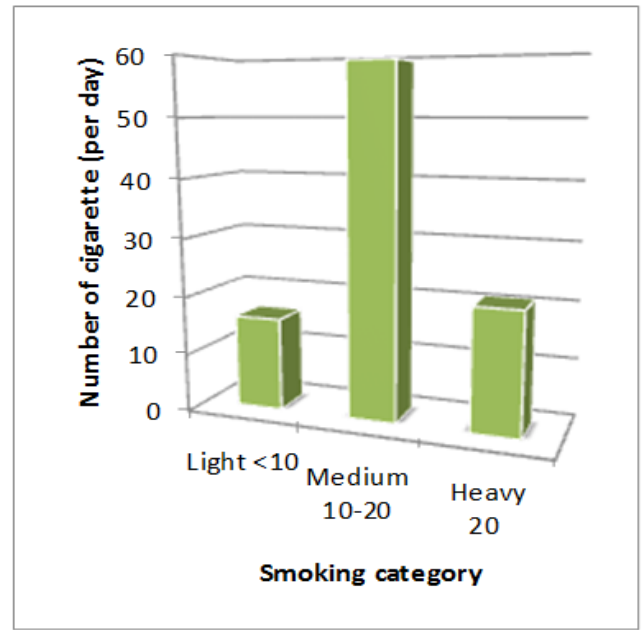


Fig 1:- Distribution of frequency of smoking habit based on numbers of cigarette

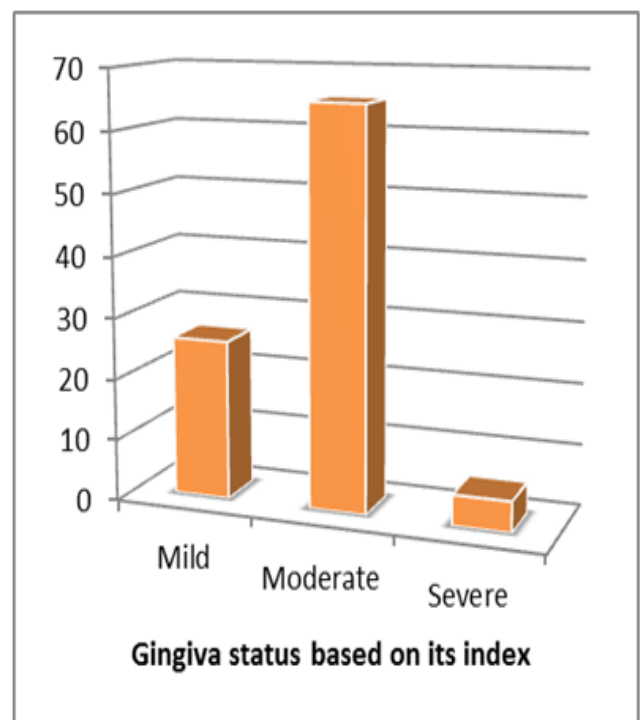


Fig 2:- Distribution of frequency of health condition of gingiva based on its index

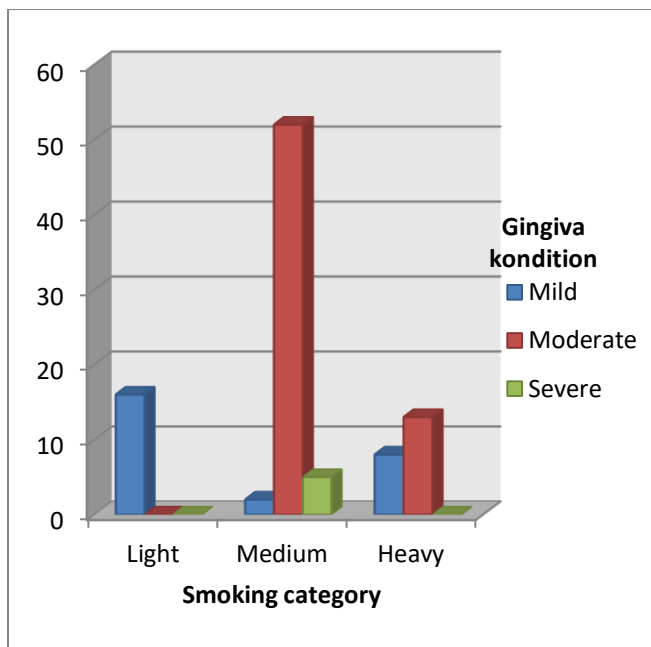


Fig 3:- Frequency distribution of respondents by category of smoking habits and gingival health in Jorong Galaga Community Kenagarian Alahan Panjang Kabupaten Solok

The result of the analysis of the influence of daily consumption of cigarettes smoked per day with the degree of severity of gingival health was found that of 16 respondents who smoked lightly found no moderate or severe gingivitis and from 59 respondents with the category of smokers there were 52 (88.1%) respondents who were moderate gingivitis, as well as the heavy smokers category there were 13 (61.9%) moderate gingivitis and no healthy gingival status was found.

➤ *Chi-Square Test*

	Value	Df	Asymp. Sig. (2-sided)
Pearson chi- Square	62.289 <sup>a</sup>	4	.000

Table 1:- Chi-Square test results between the consumption of the number of cigarettes smoked per day in young adulthood with the severity of gingival health status

Based on Chi Square test results obtained  $p = 0,000$  then it can be concluded there is a significant influence between the consumption of the number of cigarettes smoked per day in young adulthood with gingival health status.

**IV. DISCUSSION**

The result of the cigarette consumption which have the highest amount of respondents is moderate smokers (10-20 pieces per day) are 59 people (61,5 %). This result is the same as the previous research (13).

Based on the results of a gingival health examination as shown in Picture 1, it shows that moderate gingivitis in smokers is having a greater outcome than in light smokers and heavy smokers. This study is consistent with previous

studies which suggest that smokers are at higher risk of (10). It can be explained that smoking may alter the gingival response to dental plaque. Cigarette smoke that contains acrolein cyanide can inhibit the function of PMN leucocytes resulting in decreased lysosomes (14). Lysosomes play a role in the body's immune system, with the decline of lysosomes in the environment favorable for the growth of bacteria that cause periodontal disease (15).

In addition to the content in cigarette smoke, the heat from cigarette smoke can also cause vascularization changes that occur in the gingiva (16). The heat causes capillary dilatation, resulting in increased blood flow and infiltration of the inflammatory agent consequently the gingiva appears reddish and enlarged as a clinical sign of gingivitis (17). In the inflammatory process will be followed by an increase in the number of inflammatory cells in the form of lymphocytes and macrophages that can cause the loss of collagen and connective tissue in gingiva (18). At the time of smoking, tar enter into the oral cavity in the form of steam which will then become solid and settle after the cold. Tar deposition on tooth surface will make the surface become coarse so easily attached to plaque (4).

Continuous plaque accumulation allows bacterial enzymes to enter the gingival tissue. Hyaluronidase enzymes cause widening of intracellular space so that bacteria can easily penetrate the epithelial thus accumulation of excessive plaque and containing various kinds of bacteria is the cause of gum inflammation (19).

The result of statistical test as shown in Picture 2, gives result  $p = 0,000$ . Statistically there is a significant influence between cigarette consumption and gingival health. This can happen because the content of nicotine in cigarettes causes dependence effects. The more the number of cigarettes smoked, the content of nicotine into the body becomes larger and the body needs to get nicotine will be even greater (20). Increasing the amount of nicotine in the tissues results in peripheral vascular constriction that can cause blood flow to the gums to be reduced. Reduced blood flow causes decreased oxygen supply to the tissues. Reduction of the oxidation potential of the reduction causes the pH to be more acidic because of the more anaerobic state. In such circumstances the microflora will be more active and the number of anaerobic bacteria will increase. Increasing the number of anaerobic bacteria is proportional to the products produced so that it can trigger the occurrence of gingivitis of (10).

The results of this study are consistent with previous studies suggesting that gingivitis is influenced by the daily quantity of smoking cigarettes and smoking duration (. Prabaningtyas, 2010).

## V. CONCLUSION

Based on the research that has been done can be drawn the conclusion that there is influence consumption of the number of cigarettes smoked with the health status of gingiva in young adult smokers.

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