

THE RELATIONSHIP OF PREGNANT WOMAN WHO CONSUME BETEL NUT TO PERIODONTAL DISEASE WHICH WILL AFFECT PREGNANCY OUTCOME

by Applonia Leu Obi

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**THE RELATIONSHIP OF PREGNANT WOMAN WHO CONSUME BETEL NUT TO PERIODONTAL DISEASE WHICH WILL AFFECT PREGNANCY OUTCOME****Christina Ngadilah¹, Applonia Leu Obi², Melkisedek O. Nubatons²**¹PUI P2TBK, Poltekkes Kemenkes Kupang, Poltekkes Kemenkes Kupang, Jl. Piet A. Tallo, Kupang, Nusa Tenggara Timur 85361, Indonesia²Program Studi Kesehatan Gigi, Poltekkes Kemenkes Kupang, Jl. Piet A. Tallo, Kupang, Nusa Tenggara Timur 85361, Indonesia*christinangadilah62@gmail.com**ABSTRACT**

Several studies have found that areca nut increases gingival inflammation, inhibits immune reactions, affects osteoblasts, and may be cytotoxic to periodontal fibroblasts. Pregnant women who consume betel nut, the assumption is that it will worsen the condition of periodontal tissue so that it will affect the condition of pregnancy outcome, including low birth weight. Analyzing the influence of pregnant women who consume betel nut on the condition of the periodontal tissue that will affect pregnancy outcome. Using a cross sectional analysis to analyze the effect of consuming betel nut on periodontal tissue damage that will cause bad pregnancy outcomes by accidental sampling in pregnant women aged between 17-50 years at the Lelogama Health Center, South Amfoang, Kupang Regency. There is a relationship between consuming betel nut and the severity of periodontal tissue, $P < 0.05$, where there is a strong correlation of 48.3%. Mothers consumed betel nut whose gums 69% in poor periodontal condition. About 6.2% of mothers knew that betel nut affects pregnancy outcome, the remaining about 93.8 don't understand. The large number of mothers who consume betel nut with poor periodontal tissue conditions, it is feared that disturbances in pregnancy outcomes such as low birth weight and stunting can occur.

Key words: periodontal disease; pregnant women beel chewing

BACKGROUND

A number of diseases associated with bad habits, lifestyle and environmental factors are increasingly interesting to study. Worldwide, it is estimated that 600 million people consume betel nut. Likewise in Indonesia there are still some areas that admire this betel nut as a complement in their association. In Kalimantan, Maluku, Sumatra and some areas in Java they still consume betel nut. In East Nusa Tenggara, apart from the Timorese, almost all ethnic groups consume betel nut. Some of them use tobacco as a complement other than betel nut and lime. Various studies report that consuming betel nut in various forms is detrimental to dental and oral health and has a high health risk. Areca nut has been included in the group of carcinogens group 1, meaning cancer-causing ingredients (WHO, 2012), and this is a big problem facing the world today. This habit has spread throughout the mainland of Timor, Flores, Sumba, Sabu and Rote, East Nusa Tenggara province. In developed countries such as Britain and America, immigrants from Asian countries also spread this habit.

Oelnanineno Village, Takari District, Kupang Regency, 80% of elementary school children consume betel nut (Ngadilah, Sihombing, 2011), while adults aged 17-50 years 79% more consume betel nut in Kupang Regency (Ngadilah, 2019). This habit is not only carried out by men but women who are pregnant and children. Women who are pregnant have certain reasons to consume betel nut, among others, to prevent vomiting. The World Health Organization (WHO), 2012 has compiled various problems caused when someone consumes betel nut, neck and mouth cancer, respiratory cancer, and throat. In addition to neck and mouth cancer, other consequences of consuming betel nut are diabetes, cardiovascular, communicable diseases

(hepatitis, tuberculosis), mental disorders and abnormalities in babies conceived by a mother who consumes betel nut such as LBW (Low Birth Weight Babies). including stunting, premature birth, spontaneous abortion (WHO, 2012) . The effect of areca nut is caused by a carcinogenic substance is arecolin, which in various in vitro studies has resulted in damage to the gingival tissue and to the periodont²⁰. Anemia is the most widespread health disorder⁶ in the world. Different studies report that women who chewing betel nut during pregnancy have an increased risk of adverse pregnancy outcomes such as anemia, miscarriage and side effects on the fetus (Chue, 2012).

¹⁹ It has been found that consumption of betel nut by chewing tobacco is associated with folate deficiency and increased susceptibility to DNA damage¹⁵ (Kader, 2013). It is known that deficiency during pregnancy can cause many adverse things including neural tube defects, low birth weight, premature birth, growth retardation and megaloblastic anemia (Kader, 2013). Pregnancy outcome in pregnant women various depending on many things, including habits of a pregnant woman. Maternal anemia has an etiology and prevalence of varying severity among different populations. The prevalence various greatly due to differences in socioeconomic conditions, lifestyle and health seeking, behavior among different populations in various studies in both developed and developing countries.

Research conducted by Khursheed, (2017) states that the consumption of betel nut products during pregnancy is strongly associated with anemia in pregnancy which can affect fetal development either directly or indirectly through poor maternal health conditions. It is recommended that all pregnant women during the prenatal, antenatal and postnatal periods should be provided with sufficient information and counseling to recognize the potential adverse health effects of betel nut products. According to Wali et al, 2013 that betel nut does not cause much caries but a lot of periodontal tissue damage is found. Recent research (Leonie, 2017) found a positive association between periodontal tissue damage and pregnancy outcome. Women during pregnancy will experience hormonal changes that will worsen the condition of the periodontal tissue. Arecholine which is a carcinogen contained in areca nut directly damages the gums by sticking the betel nut on the surface of the gums and passing through the placenta to the baby in the mother's womb. Pregnant women who consume betel nut, the assumption is that it will worsen the condition of the periodontal tissue so that it will affect the condition of pregnancy outcome, including low birth weight and stunting. betel nut on pregnancy outcome. The Aim of this research Analyzing the influence of pregnant women who consume betel nut on the condition of the periodontal tissue that will affect pregnancy outcome

¹⁰ METHOD

This type of research is observational-analytic, with a cross-sectional design to answer research questions. The design of this research is cross-sectional, namely data collected at a certain time to describe the conditions and activities at that time. Meanwhile, to see that toothbrushes often bleed, sometimes bleed and do not bleed, they consist of pregnant women aged 17-50 years with the reason that this age is called productive age. The population of this research is the people of Kupang Regency, East Nusa Tenggara Province which consists of 1 sub-district, namely South Amfoang District, Kab. Kupang Namely Health Center Lelgama. Samples were taken by accidental sampling with criteria for pregnant women aged between 17-50 years, who eat betel nut and who do not eat betel nut. Data Collection Procedures and Instruments used were pregnant women who checked their health at the Puskesmas in the South Amfoang sub-district. The analysis used logistic regression analysis and chi squared test. Informed consent was obtained from each respondent after being given an explanation of the purpose of this study. Respondents at the South Amfoang Health Center. After filling in the identity to the

characteristics of the respondent, age, gender, occupation, education. About consuming betel nut, they were also asked how many times a day to consume betel nut. In view of the covid 19 conditions, direct observation of the gingiva was not carried out, but conducted interviews about how to brush teeth. Respondents were interviewed about their gingiva and periodontal tissue with the provision of a toothbrush that did not bleed a score of 0 (healthy), sometimes bleeding was rated 1 (moderate) and often bleeding was rated 2 (severe)

RESULTS

In the following table, a table of the respondent's age group, occupation, education, how many times a day consumes betel nut and a table of the respondent's level of knowledge about the consequences of consuming betel nut in pregnant women on pregnancy outcome will be shown.

Age

Table 1.
 Age range of pregnant women chewing betel nut

| Age | % |
|---------------------|------|
| Age (17 – 20 years} | 10.8 |
| Age (21 – 30 years) | 41.2 |
| Age (31 – 40 tahun) | 48.0 |

The age of most respondents is between 31-40 years

Employment

Table 2.
 Employment of pregnant women who consume betel nut

| No | Employment | Prosentase |
|----|-----------------------------|------------|
| 1 | housewife | 72.2 |
| 2 | farmer | 25.8 |
| 3 | Teacher/government employee | 2.1 |
| | Total | 100.00 |

Most of the respondents' occupations are farmers

Education

Table 3. Education of pregnant women who consume betel nut

| Education | % |
|--------------------|------|
| Elementery school | 78.4 |
| Yunior High school | 10.3 |
| Senior high school | 9.3 |
| College | 2.0 |

The education of the most respondents is elementary education 78.4%

11 How many times a day do pregnant women consume betel nut?

11 Table 4.
 How many times a day consume betel nut

| How many time a day | % |
|---------------------|------|
| low | 20.6 |
| Average | 15.5 |
| High | 63.9 |

Respondents betel nut chewing 63.9% quite a lot 5 times or more in a day

The relationship between consuming betel nut with severity periodontal tissue

Tabel 5.

The relationship between consuming betel nut with severity periodontal tissue

| | | Gum bleeding | | | Total | P |
|------------------|-----|-----------------|-----------------------|---------------------|------------|--------|
| | | No bleeding gum | Moderate Bleeding gum | Severe bleeding gum | | |
| Betel nut chwing | Yes | 1 10% | 16 16.5 | 66 68.0 | 83 85.6 | < 0.05 |
| | No | 1 10% | 12 12.4% | 1 10% | 4 14.4% | |

There is a relationship between consuming betel nut with the severity of periodontal p < 0.05. Where the strong relationship is 48.3%.

Table 6.

The relationship between the frequency of consuming betel nut with the severity of periodontal tissue

The frequency of consuming betel nut and the severity of bleeding gums

| | | Bleeding gums condition | | | Total | P |
|------|---------|-------------------------|-------------|---------------------|------------|--------|
| | | No Bleeding gum | Moderate | Severe bleeding gum | | |
| Low | | 1 10% | 17 17.5% | 2 2.1% | 20 20.6 | < 0,05 |
| | Average | 0 0.0% | 7 7.2% | 8 8.2% | 15 15.5 | |
| High | | 1 10% | 4 4.1% | 57 58.8% | 62 63.9 | |

There is a relationship between the frequency of consuming betel nut with the severity of periodontal tissue because the p value 0.000 is smaller than = 0.05 and the relationship is 58.6% strong. The more often you consume betel nut, the more severe the condition of the periodontal tissue

DISCUSSION

According to the UN Women's World Survey (2019), what is meant by women in poverty is low economic status, which is measured from a social perspective with low income, not working, and low education. In this study, the average mother's education was elementary school, the average occupation of the mother was a farmer in dry land and a housewife so that respondents with the above symptoms would affect the future of women, especially those who were pregnant. Pregnant women need adequate education, adequate economy for proper survival.

The Millennium Development Goals (MDGs) which are followed by the SDGs have an specific objectives to eradicate extreme poverty and hunger, achieve universal education, promote gender equality and empower women, reduce child mortality, improve maternal health, control infectious diseases, ensure environmental sustainability, and develop a global partnership for development. In this study, the conditions are almost the same as the conditions for women related to poverty. According to the CDC (2019) pregnancy can make women more susceptible to periodontal (gum) disease and cavities. Oral health can be considered as an important part of prenatal care, considering that poor oral health during pregnancy can lead to poor health

outcomes for both mother and baby. Furthermore, it is said that periodontal disease apart from bacteria and their products are harmful to the unborn baby, it also causes tooth loss. due to missing tooth supporting tissue. Pregnant women in this study who consumed betel nut as much as 85.6%, while they were 72.2% not working and 25.8% were farmers. Their education is Primary school 78.4%. The characteristics of the respondents describe the condition of poverty according to the WHO epidemiological perspective (2019).

Various kinds of behavior and experiences of pregnant women both before, during pregnancy and after pregnancy are associated with outcomes during childbirth, both the condition of the mother and the baby. Complications can include hypertension, bleeding, and infection, premature delivery, infant mortality, low birth weight and stunting. Mei *et al* 2020 in his research reports that the prevalence of consuming betel nut in pregnant women is associated with low birth weight babies, as well as stunting. Another study in Karachi reported that 60.9% of pregnant women consumed betel nut. In this study, almost 80% of pregnant women who consumed betel nut with various variations consumed 1 time a day, 2 times, 3 times, 5 times to more than 5 times a day. Even according to the statement of most mothers that they are not patterned in consuming betel nut but when they like to chewing they chwing but in a day they definitely chewing. The results of research conducted by Khuursheed and Madhudas in 2017 related to betel nut and pregnant women that consuming betel nut during pregnancy is strongly associated with anemia in pregnancy which can affect development of the fetus either directly or indirectly through the poor condition of the mother's health.

The severity of periodontal tissue was expressed by bleeding gums when brushing teeth which were categorized as healthy, moderate and severe. Severe condition of the gingiva in pregnant women who consumed betel nut about 69.1%. This indicates that pregnant women who consume betel nut suffer from periodontal tissue damage. In women with periodontitis or periodontal tissue damage, the infected periodontal tissue can act as a reservoir of bacteria and their products that can spread to the fetal-placental unit (Marcela, 2015). Patients with severe periodontitis, infectious agents and their products are capable of activating local and extraoral inflammatory signaling pathways, including the placenta-fetal unit, which not only induce preterm labor but also cause PE (preeclampsia) and limit intrauterine growth (Marcela, 2015). Most studies on the relationship between periodontitis and pregnancy complications regard subjects as sick or healthy. However, the incidence of preterm delivery increases with increasing severity of periodontitis. Periodontitis is associated with socioeconomic status, demographic status and poor oral hygiene (Babieri, 2018). Research conducted by Bansal, (2013) concluded that periodontal infection has a negative impact on pregnancy outcome in some women. Periodontal tissue status worsens during pregnancy but improves after delivery (Jaranay, 2017). Recent studies have concluded that there is a significant relationship between gestational periodontal disease in the mother and preterm birth and low birth weight in the newborn (Iyaya, 2020). Aizawa *et al* (2019) in their research concluded that many factors that influence the incidence of adverse pregnancy outcome (APO), and periodontal tissue damage according to epidemiological and experimental studies are independent factors. Periodontal bacteria, especially *P. gingivalis* can damage trophoblasts both morphologically and functionally. Periodontal pockets elicit an immune response in the fetoplacental. Favero, 2021 emphasized that although pregnancy is a special event with many changes in the oral cavity, treatment and care for pregnant women can still be carried out in the second trimester.

A comprehensive review by Daalder LA *et al* (2018) on the effect of periodontal tissue destruction on pregnancy outcome found strong evidence for an association between periodontal disease and various adverse pregnancy outcomes. Although this should be

interpreted with caution in terms of causality, this study appears to suggest that periodontal disease during pregnancy makes an important contribution to the overall risk of preterm delivery, low birth weight, and preeclampsia. According to Daalderoop et al, (2018) the findings clearly support a strong positive association between periodontal disease and impaired pregnancy (its pregnancy outcome) and were very consistent across systematic reviews. Several authors have reported a significantly higher prevalence of adverse pregnancy outcomes, including spontaneous abortion, low birth weight, and preterm delivery, among women who consumed betel nut during pregnancy than nonconsumers..

However this study there was a relationship between the frequency of consuming betel nut with the severity of periodontal tissue in pregnant women consumed betel nut. Periodontal disease consists of various inflammatory conditions that affect the supporting structures of the teeth (gingiva, bone and periodontal ligament), which can lead to tooth loss and contribute to systemic inflammation (Dennys, 2017). Judging from the level of the number/frequency of pregnant women consume betel nut about 63.9% consume betel nut 5 times a day or more. Research by Kuhrseed et al in 2017 yielded as many as (69.83%), and this affects the level of damage to pregnancy outcome...Kuhrseed's research is slightly more pregnant women who consume betel nut with the most frequency and routine. It is recommended that all pregnant women during the prenatal, antenatal, and postnatal periods should be provided with intensive enough information and counseling regarding the potential adverse effects of areca nut products on health, especially for pregnancy outcome because it will affect the health of the child and mother.

CONCLUSION

There is a relationship between pregnant women who consume betel nut and periodontal tissue damage. There is a relationship between the frequency of consuming betel nut and the severity of periodontal tissue. Most pregnant women do not know the dangers of consuming betel nut for pregnancy outcome. It is recommended that all pregnant women during the prenatal, antenatal, and postnatal periods should be provided with sufficient intensive information and counseling regarding the potential adverse effects of betel nut products on health, especially for pregnancy outcome because it will affect the health of the child and mother.

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