



## ARTICLE

### PERIODONTAL CARE IN PROLANIS DIABETICS: SUNGAI ULIN AND SOUTH BANJARBARU PRIMARY HEALTH CARE STUDY

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#### ABSTRACT

The research focused on oral health among diabetes mellitus patients, particularly in preventing periodontal disease within the prolanis group. Using analytical descriptive methods, the study evaluated oral cavity abnormalities. Findings at Sungai Ulin and South Banjarbaru Community Health Centers revealed a significant number of respondents with tartar and shallow gum pockets, indicating a substantial need for care. The majority scored 2 on the CPITN scale (61.8%), underscoring the demand for attention from healthcare providers including community health workers, dentists, and dental nurses. Recommendations stress the pivotal role of oral health maintenance for diabetes mellitus individuals. These suggestions encompass regular blood sugar monitoring, consistent dental hygiene, tartar removal, denture care, and eliminating local factors causing gum infections. Periodontal disease's impact on daily life includes chewing difficulties, speech impediments, and tooth loss, accentuating the urgency of preventive measures for diabetes mellitus patients. In summary, proactive preventive actions are crucial to address periodontal disease among diabetes mellitus individuals, aiming to diminish its occurrence and improve their overall well-being and quality of life.

**Keywords:** Prevention, Diabetes mellitus, Periodontal disease

#### АБСТРАКТ

Исследование было посвящено здоровью полости рта у пациентов с сахарным диабетом, в частности профилактике заболеваний пародонта в группе проланис. Используя аналитические описательные методы, в исследовании оценивались патологии полости рта. Результаты обследования в общественных медицинских центрах Сунгай Улин и Южного Банджарбару выявили значительное число респондентов с зубным камнем и неглубокими десневыми карманами, что свидетельствует о значительной потребности в уходе. Большинство из них получили 2 балла по шкале CPITN (61,8 %), что подчеркивает необходимость внимания со стороны медицинских работников, включая работников здравоохранения, стоматологов и стоматологических медсестер. В рекомендациях подчеркивается важная роль поддержания здоровья полости рта у лиц с сахарным диабетом. Эти рекомендации включают регулярный контроль уровня сахара в крови, постоянную гигиену полости рта, удаление зубного камня, уход за зубными протезами и устранение местных факторов, вызывающих инфекции десен. Влияние заболеваний пародонта на повседневную жизнь включает в себя затрудненное пережевывание пищи, затрудненную речь и потерю зубов, что подчеркивает актуальность профилактических мер для пациентов с сахарным диабетом. Таким образом, упреждающие профилактические меры имеют решающее значение для решения проблемы заболеваний пародонта у лиц с сахарным диабетом, направленные на уменьшение их распространенности и улучшение общего самочувствия и качества жизни.

**Ключевые слова:** Профилактика, Сахарный диабет, Пародонтоз

## INTRODUCTION

Oral health issues, such as periodontal disease and dental caries, affect almost everyone. The results of research in European, American and Asian countries, including Indonesia, showed that 90%-100% of children under 18 years were affected by dental caries<sup>31</sup>. Results from a 2018 study conducted in Indonesia revealed that 45.3% of the country's population had cavities or tooth decay, and that the prevalence of dental and oral health issues was 57.6%. Where South Kalimantan is one of the provinces that has a fairly high dental and oral health status, namely 36.1%<sup>12</sup>.

Plaque-induced dental caries and periodontal disease have the highest prevalence of oral and dental diseases. Dental plaque is a biofilm-forming soft deposit that builds up on the teeth's surface and other hard oral cavity surfaces<sup>21</sup>. Inflammation and degeneration of the soft tissue and bone that support teeth are symptoms of periodontal disease. Periodontal disease is an ongoing, compounding, and advancing condition<sup>9</sup>. One of the main causes of tooth loss in adults is periodontal disease. This disorder begins with gingivitis which, if not treated, will become periodontitis. Periodontal disease can have serious impacts on daily life such as difficulty chewing, speaking and tooth loss. Gum (periodontal) disease is the eleventh most common disease in the world<sup>14</sup>.

Periodontal disease has a very complex etiology, consisting of local and systemic factors. Local factors and systemic factors have a very close relationship and act as causes of periodontal tissue damage<sup>15</sup>. Damage to periodontal tissue causes patients with diabetes mellitus to report a higher prevalence of periodontal disease than those without diabetes mellitus<sup>20</sup>.

Blood vessel alterations, decreased neutrophil function, collagen synthesis, microbotic factors, and genetic predisposition are the causes of this<sup>3</sup>.

Diabetes mellitus is a metabolic disease marked by elevated blood sugar levels brought on by anomalies in the action of insulin, the

secretion of insulin by pancreatic  $\beta$  cells, or a combination of the two. There are two types of diabetes mellitus (DM): type 1 and type 2<sup>5</sup>. The tendency to increase blood glucose levels (hyperglycaemia) in DM sufferers also influences the severity of periodontal disease<sup>28</sup>. DM disease with uncontrolled glucose levels is a risk factor in worsening periodontal diseases such as gingivitis and periodontitis<sup>17</sup>. Diabetes mellitus, age, and gender are a few risk factors for periodontal disease. The prevalence and severity of periodontal disease may increase in individuals who are older, male, and suffering from diabetes mellitus<sup>7; 18</sup>.

Patients with poor diabetes control have a higher risk of developing periodontal disease. Patients with diabetes mellitus who also have periodontitis have higher attachment loss and pocket depth.<sup>19; 11</sup> Diabetes Mellitus sufferers are more susceptible to periodontitis and can show an increase in the prevalence of periodontitis and tooth loss. This risk increases due to factors from the systemic disease Diabetes Mellitus<sup>16</sup>.

Considering the findings of Sari et al.'s research,<sup>27</sup> it shows that based on the results of clinical attachment loss (CAL) examinations in Diabetes Mellitus patients. Despite having good oral hygiene status, the prevalence of periodontitis remains high (88.24%) with an average attachment loss of 4.6 mm. This statement was also conveyed by Trentin et al<sup>19</sup> that there were more teeth In comparison to patients without diabetes, those with type 2 diabetes mellitus also experienced more tooth loss due to poorer periodontal health. According to this study, compared to the control group, patients had a higher prevalence of type 2 diabetes mellitus and periodontal disease.

## MATERIAL AND METHODS

This research is an analytical descriptive study to determine the condition of periodontal tissue in the prolanis group. The research will be carried out at PKM Sungai Ulin and PKM Banjarbaru Selatan, Banjarbaru City,

South Kalimantan. The research tools and materials used in diagnostics are disposable tool sets, sonde probes, scaling tools, gloves, masks, disclosing agents, betadine, toothbrushes, cotton wool, alcohol, soap, tissue, aqua glasses, manufacturing manuals, brochures, questionnaire sheets and inspection sheet. The research flow is as follows: The first step is to identify respondents to determine type 1 or type 2 diabetes mellitus, the second step is to examine and assess plaque in respondents using the CPITN index. The third step is to conduct outreach and training involving respondents, health workers in the field and researchers in accordance with the guidebook created. Then after 3 months an evaluation is carried out to determine whether the plaque has decreased.

Primary data collection is the collection of data obtained from respondents who answered, exams and training. Meanwhile, secondary data is obtained from PKM. Sungai Ulin and PKM. South Banjarbaru Banjarbaru City which is included in the prolanis group in the form of general data includes: Name, age, gender and occupation.

The data that has been collected is then recapitulated and obtained using SPSS. Frequency distributions were created and analyzes performed.

## RESULT

The prolanis group was the subject of this investigation within the operational of the Sungai Ulin Community Health Center and the South Banjarbaru Community Health Center, Banjarbaru City, South Kalimantan Province. There are 145 prolanist groups at the Sungai Ulin Community Health Center and only 31 people are active. Meanwhile, there are 50 prolanist groups at the South Banjarbaru Community Health Center and 50 people are active.

This research was conducted on a group of elderly people suffering from diabetes mellitus and the number of respondents obtained was 68 people, aged 30 years - 72 years who were examined. Shown in table.1. Age 30 – 40 years

as many as 7 people (10.3%), age 41 – 50 years as many as 5 people (7.4%), age 51 – 60 years as many as 30 people (44%), age 61 – 70 years as many as 22 people (32.4%), and aged 71 – 80 years there were 4 people (5.9%) with a total of 68 people (100%)

Shown in table.1. Age 30 – 40 years as many as 7 people (10.3%), age 41 – 50 years as many as 5 people (7.4%), age 51 – 60 years as many as 30 people (44%), age 61 – 70 years as many as 22 people (32.4%), and aged 71 – 80 years there were 4 people (5.9%) with a total of 68 people (100%). Based on table.2. Based on gender, there were 13 men (19.1%) and 55 women (80.9%), with a total of 68 respondents (100%). The age group was obtained from 30-72 years old. The results of the examination obtained in the prolanis group were as follows: respondents aged 30 years, there were 2 people who had suffered from diabetes mellitus since the age of 28 years, from the results of interviews with these respondents, they said they liked to buy drinks and food (snacks) that were sweet and During the Covid pandemic, I always consume supplement drinks to increase immunity.

**Table 1.** Based on Age Group

No	Demographic data of respondents	Frequency	Percentage(%)
1	Sex		
	Male	13	19,1
	Female	55	80,9
	Total	68	100
2	Age		
	30 – 40	7	10,3
	41 – 50	5	7,4
	51 – 60	30	44
	61 – 70	22	32,4
	71 – 80	4	5,9
Total	68	100	

The age group of 30-40 years as many as 7 people have the highest score of periodontal disease with a score of 0 as many as 2 people and a score of 2 as many as 5 people, the age group of 41-50 years as many as 5 people have a score of periodontal disease as many as 7

people. the highest score of periodontal disease with a score of 0 by 2 people, a score of 2 by 2 people, and a score of 3 by 1 person, the age group of 51-60 years as many as 30 people have the highest score of periodontal disease with a score of 0 by 2 people, a score of 2 by 22 people and a score of 3 by 6 people, the age group of 61-70 years as many as 22 people

have the highest score of periodontal disease with a score of 0 by 3 people, a score of 2 by 12 people and a score of 3 by 7 people, as well as the age group of 71-80 years by 4 people have the highest score of periodontal disease with a score of 0 by 2 people, Score 2 by 1 person and score 3 by 1 person with a total of 68 respondents

**Table.2** Based on Age Group and Highest Periodontal Disease Score

Shoes CPITN	Periodontal Tissue Conditions	Number of DM Sufferers	percentage (%)	Care Needs	Personnel
0	Healthy	11	16,2%	DHE/No Treatment Required	Frame
1	Bloody	0	0%	AND	drg/prg
2	Tartar	42	61,8%	AND + Scaling	drg/prg
3	Shallow Pockets	15	22%	DHE+ + Scale Root Planning	drg/prg
4	Entry Pocket	0	0%	Complex treatment	drg
Total		68	100%	-	-

Shown in table.3 the relationship between periodontal status in the categories of treatment needs, type of service and personnel shows a score of 0 = healthy tissue condition for 11 people (16.2%), the need for treatment with DHE which provides dental and oral health cadres, a score of 1 = bleeding for 0 people (0%) , score 2 = there is tartar in 42 people (61.8%), the need for DHE treatment and scaling, score 3 = shallow pockets in 15 people (22%) the treatment needs are DHE, Scaling and root planing, while score 4 = pocketing total 68 people (100%). The need for treatment for tartar status is 42 people (62%) where the entire age group 30-40 years to 71-80 years suffer from tartar so the treatment needs provided are, counseling (DHE) and tartar cleaning (tooth scaling)

**DISCUSSION**

The number of tartar sufferers will have an impact on the energy required, according to research conducted, CPITN scores 2 and 3 require treatment in the form of tartar cleaning or scaling. Can be seen in table.5. In accordance with the condition of the periodontal tissue and the highest

maintenance need score according to age group, the higher the periodontal score, the greater the treatment need score, so that personnel are also needed according to the type of service provided. This is in accordance with the opinion of Sabrinadevi, FP, Hendiani, I, Setia Pribadi, IM, <sup>26</sup> .Who said that scaling, root planing, and oral hygiene instructions could effectively remove factors that contribute to plaque retention. Research conducted by Fansurna, A, Utami, NK<sup>4</sup>, who stated that dental health professionals should focus on the significance of keeping diabetics' mouths and teeth healthy, monitoring and regulating their blood sugar levels, and maintaining dental health, including tartar removal, cleaning, and denture wearer care, in order to prevent localized factors that lead to gum infections and subsequent effects that result in loose teeth. Other studies also say that periodontal treatment is effective in diabetes mellitus sufferers, but it should be noted that long-term recurrence can occur if diabetes mellitus sufferers are not well controlled<sup>7</sup>. Gani, A, Adam, M, Tahir, H, et al <sup>18</sup>, claimed that improving knowledge and the state of periodontal health would come from

implementing scaling/SRP treatments and oral health counseling (DHE). The number of tartar sufferers will have an impact on the energy required, according to research conducted, CPITN scores 2 and 3 require treatment in the form of tartar cleaning or scaling. Can be seen in table.5. In accordance with the condition of the periodontal tissue and the highest maintenance need score according to age group, the higher the periodontal score, the greater the treatment need score, so that personnel are also needed according to the type of service provided. This is in accordance with the opinion of Sabrinadevi, FP, Hendiani, I, Setia Pribadi, IM,<sup>26</sup>. Who said that scaling, root planing, and oral hygiene instructions could effectively remove factors that contribute to plaque retention. Research conducted by Fansurna, A, Utami, NK<sup>4</sup>, Who said that using scaling, root planing, and oral hygiene instructions along with professional cleaning and removal of plaque retention factors. Other studies also say that periodontal treatment is effective in diabetes mellitus sufferers, but it should be noted that long-term recurrence can occur if diabetes mellitus sufferers are not well controlled <sup>7</sup> Gani, A, Adam, M, Tahir, H, et al, said<sup>8</sup> that implementing oral health counseling (DHE) and scaling/SRP treatments will improve understanding and status of periodontal health.

## CONCLUSION

The prolanis group of diabetes mellitus sufferers at Sungai Ulin Community Health Center and South Banjarbaru Community Health Center mostly had tartar and shallow dental pockets. The form of training provided is how to prevent periodontal disease as well as through education and examples of proper tooth brushing technique properly and correctly to control plaque as well as distributing periodontal disease prevention pocket books. The advice from this research is to carry out early dental and oral health care to reduce the buildup of plaque that causes periodontal disease, by brushing your teeth twice a day in a good and correct manner and

at the right time of brushing your teeth. Have your teeth and mouth checked every 6 months, either in a hospital, health center, or private clinic.

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## DECLARATIONS

No conflicts of interest are disclosed by the writers.

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