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## HEALTH EDUCATION AND MONITORING IN DIABETIC PATIENTS TO IMPROVE QUALITY OF LIFE

Agnes Lia Renata<sup>1</sup>; Khossy Afrohhatunnisa<sup>1</sup>; Cici Idela<sup>1</sup>; Rahmaisynta Putri Rindharso<sup>1</sup>; Windy Maharani Nirmala<sup>1</sup>; Ajeng Ayu Larasati<sup>1</sup>; Delfina Yolanda Saputri<sup>1</sup>  
*<sup>1</sup>Postgraduate Program Poltekkes Kemenkes Semarang, Indonesia*

Corresponding author: Agnes Lia Renata  
Email: agnesliarenata@gmail.com

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### ABSTRACT

The results of the Basic Health Research (RISKESDAS) in 2018 showed that 67.8% of the Indonesian population aged more than 15 years experienced periodontal disease such as periodontitis. The incidence of periodontitis disease can occur and become more severe in the presence of systemic factors such as diabetes mellitus. People with diabetes mellitus experience several health complications caused by increased blood sugar levels, blood vessels, and nerves, including the gums. This can weaken the bone surrounding the teeth and gums, and increase the risk of other oral diseases, such as tooth loss and dental caries caused by the weakening of tooth attachment to the gums and a decrease in the rate of saliva in the mouth. Efforts to prevent the occurrence of periodontal disease and other oral and dental disease infections in patients with diabetes mellitus are by conducting health education and monitoring programs for patients. The goal is to increase knowledge, willingness, awareness, compliance and community participation in maintaining and maintaining dental health independently. The methods used in this service are interviews, observations and the implementation of training and health monitoring for respondents. Based on the results of the activities that have been carried out in the service, the respondents gave a positive response and there was an increase in knowledge, awareness and motivation in maintaining their health.

Keywords: diabetes mellitus; education; health monitoring; dental health

### Introduction

National health development is organized through an integrated National Health System. This is carried out by all components of the nation in various fields to realize the highest degree of public health. This implementation is carried out

by carrying out health services that include efforts in primary, secondary and tertiary health<sup>1</sup>

The focus on strengthening the health system is aimed at increasing access and quality of health services towards universal health coverage which is formulated in 6 pillars of

health transformation<sup>2</sup>. One of the pillars of health transformation has a focus on strengthening the health system on the realization of comprehensive and quality health services and strengthening empowerment in the community<sup>3</sup>.

One of the health services that needs to be done optimally is dental and oral health efforts. The mouth as a window of entry of food and drink into the body. If there is a disorder in the mouth, then general health can be affected because dental health is part of general health<sup>4</sup>.

The results of Basic Health Research (Risksdas) in 2018 showed that the Indonesian population suffering from periodontal diseases such as periodontitis reached 67.8% in the population aged  $\geq 15$  years<sup>5</sup>. This shows the need for promotive and preventive measures for the occurrence of more severe periodontal disease and the emergence of new cases.

The etiology of periodontal disease can be caused by bacteria in the mouth or supported by systemic factors such as systemic diseases suffered by individuals<sup>6</sup>. One of the systemic diseases that can be a risk factor for periodontal disease is diabetes mellitus<sup>7</sup>.

Prevention and early intervention are the main characteristics of diabetes treatment and prevention of dental and oral diseases<sup>8</sup>. In patients with diabetes mellitus have the possibility to get a higher risk of suffering from dental and oral diseases. This is caused by diabetes mellitus sufferers there is an increase in blood sugar levels that can damage blood vessels and nerves including the gums, so that it can weaken the bones surrounding the teeth and gums. In addition, in patients with diabetes mellitus often found other dental and oral diseases such as loose teeth and dental caries caused by weakening of tooth attachment to the gums and decreased salivary rate in the mouth<sup>9</sup>.

Efforts that can be made to prevent the occurrence of dental and oral disease are by providing dental health education to diabetes mellitus patients and monitoring dental and oral health<sup>10</sup>. In addition, dental health education in diabetes mellitus patients can be an alternative as a promotive and preventive effort for dental and oral health.

Based on this background, the implementation of this service activity is focused on providing education and monitoring of dental

and oral health in people with diabetes mellitus. This service aims to increase knowledge, will, awareness, compliance and community participation in maintaining and maintaining dental health independently in people with diabetes mellitus.

## Methods

The methods used in this community service include interviews, observation and training. The interview was conducted with the aim of obtaining information related to problems that occur in people with diabetes mellitus in Mlonggo District. The results obtained are based on interviews related to the knowledge, problems and attitudes of people with diabetes mellitus and the implementation of dental and oral health examinations in patients with diabetes mellitus. The observation carried out is an examination of the condition of the oral cavity of people with diabetes mellitus. While the training is carried out to be able to improve the ability of people with diabetes mellitus in self-management related to dental and oral health to improve their quality of life.

## Results and Discussion

Community service in Mlonggo District, especially for Prolanis members suffering from diabetes mellitus, aims to increase knowledge, compliance and awareness of people with diabetes mellitus towards maintaining dental and oral health in order to improve their quality of life. This service activity will be carried out on October 13-23, 2023. Service activities are carried out for people with diabetes mellitus who are members of Prolanis activities at the Mlonggo Health Center. The following is a series of activities carried out by the community service team in Mlonggo District, Jepara:

### 1. Exercise

Service activities began by doing exercise together with people with diabetes mellitus who participated in Prolanis activities.



Figure 1. Exercise Activities

The exercise carried out is a light exercise to improve physical fitness and help control the patient's psychological state. In addition, gymnastics can help increase the body's sensitivity to insulin and help control blood sugar.

## 2. Dental Condition Check

After the exercise activity was over, the Prolanis members rested for approximately 30 minutes. Furthermore, a simple examination is carried out related to the condition of the teeth in diabetics. The examination carried out includes looking at cavities, gingivitis, loose teeth and the number of teeth.



Figure 2. Dental and Oral Health Condition Examination

## 3. Health Education

The activity continued with the provision of dental and oral health education for people with diabetes mellitus. The educational materials provided include the relationship between dental and oral health to diabetes mellitus, how to maintain healthy teeth and mouth, good and bad food and drinks for dental health, how to brush teeth properly and correctly, and dental health care management in diabetes mellitus patients.



Figure 3. Dental and Oral Health Counseling Related to Diabetes Mellitus

Before providing education, the service team pretested 20 people with diabetes mellitus related to dental health knowledge. The pretest contains 10 questions to measure the understanding of people with diabetes mellitus on how to maintain proper dental and oral health.

## 4. Health Monitoring Pocketbook Provision

The provision of monitoring pocketbooks is intended so that patients can have their own records related to their health. This book also provides a record of brushing compliance so that patients can have more motivation in maintaining healthy teeth and mouth.



Figure 4. Health Monitoring Pocketbook Provision

## 5. Health Monitoring

After 10 days of educational activities, health monitoring of diabetes mellitus patients related to dental health and compliance in brushing teeth was carried out. Health monitoring is carried out by coming to the patient's home to check the health and adherence to brushing teeth based on the patient's records in the monitoring book and providing additional education to the patient. In addition, a post-test was carried out regarding knowledge of oral and dental health.



Figure 5. Health Monitoring based on Pocket Book

The evaluation was carried out by analyzing the results of pre-test and post-test knowledge and dental health behavior in diabetes mellitus patients and Prolanis activity holders in UKGM activities. Based on these data, an analysis was carried out related to changes before and after the intervention. The results obtained are as follows:

1. Knowledge of dental health of diabetes mellitus patients

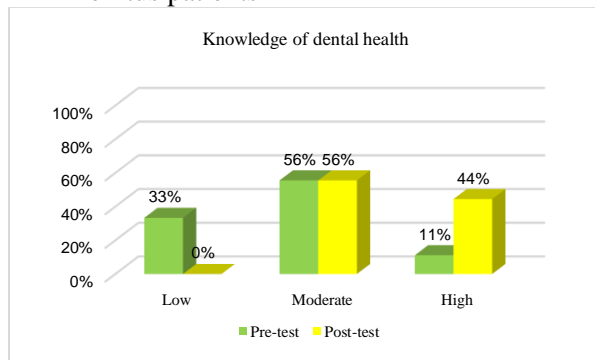


Figure 6 Bar Chart of Diabetes Mellitus Patient Knowledge Score

2. Dental health behavior of diabetes mellitus patients

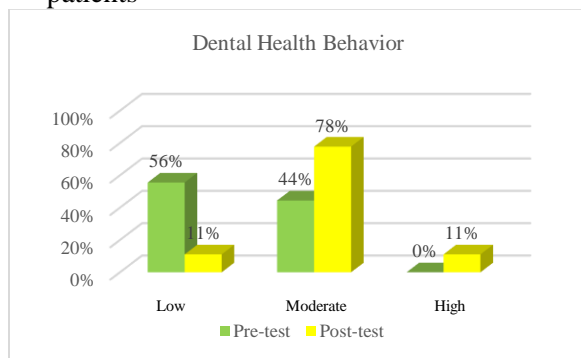


Figure 7. Bar Chart of Diabetes Mellitus Patient Behavior Score

Analysis of changes in behavior and knowledge related to dental health in diabetes

mellitus patients was carried out by comparing the results of pre-test and post-test that had been given to patients. Changes can be seen from the results of the bar chart which shows an increase in knowledge and behavior possessed by patients. The initial knowledge level in diabetes mellitus patients has increased where at the beginning of the pre-test the low knowledge level reached 33%, the medium knowledge level was 56% and the high knowledge level was 11%, but after implementation a low knowledge level of 0%, medium knowledge level of 56% and high knowledge level of 44%. In dental health behavior, based on post-test data, a low behavioral level of 56%, a moderate behavior level of 44% and a high behavior level of 0%, but after implementation, post-test data were obtained, namely a low behavior level of 11%, a moderate behavior level of 78% and a high behavior level of 11%.

Pre-test and post-test results show an increase in both knowledge and behavior of dental and oral health in diabetes mellitus patients. Media "Edu Di-Dent" and "Monitoring Book Di-Dent" are innovations in providing education and monitoring of dental health for diabetes mellitus patients. The existence of education and monitoring is expected to help diabetes mellitus patients in preventing complications in dental and oral health and improving the quality of life of patients.

Monitoring dental health that can be done in the form of monitoring simple dental examinations, namely the condition of the number of teeth, cavities, loose teeth and the incidence of swollen gums (gingivitis) which is included as a complication disease in the oral cavity that can occur in diabetes mellitus patients. Monitoring behavior in maintaining dental health such as brushing teeth can be one of the easiest preventive efforts and can be done by patients independently. Preventive measures by empowering patients through brushing teeth independently can help patients maintain dental and oral hygiene, so that their quality of life will improve.

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