Oral And Dental Health Knowledge Levels Among Diabetes Mellitus Patients Before And After Health Education Using Flipchart Media At Public Health Center II West Denpasar

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ABSCTRACT
Diabetes mellitus is a chronic disease with an increasing prevalence globally, including in Indonesia. Individuals with diabetes mellitus are more susceptible to oral and dental health problems, yet their level of knowledge in this area remains relatively low. This study aimed to assess the level of oral and dental health knowledge among diabetes mellitus patients before and after health education using flipchart media. This research is a descriptive study with a pre-test and post-test approach, involving 38 diabetes mellitus patients at Puskesmas II West Denpasar selected through accidental sampling. Data were collected using a questionnaire and analyzed using univariate statistical methods to determine the percentage and average knowledge level. Prior to the educational intervention, 73.7% of respondents had a moderate level of knowledge, 10.5% had a good level, and 15.8% had a poor level, with an average score of 67.8, categorized as moderate. Following the educational intervention, there was a significant improvement: 76.3% of respondents achieved a good level of knowledge, 23.7% had a moderate level, and none were in the poor category, with an average score of 80.8, categorized as good. Based on these findings, it can be concluded that health education using flipchart media is effective in improving the oral and dental health knowledge of diabetes mellitus patients.

Keywords: Knowledge level of dental and oral health, flipchart, diabetes mellitus.

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INTRODUCTION

Indonesia is undergoing an epidemiological transition, where the prevalence of infectious diseases is decreasing while the prevalence of non-communicable diseases (NCDs) or degenerative diseases is increasing. One of the diseases that fall into this category is diabetes mellitus, which is also known as sugar disease or diabetes. Diabetes mellitus is a chronic disease that patients experience throughout their lives.

The latest data from the International Diabetes Federation (IDF) states that there were 463 million people aged 20-79 years in the world suffering from diabetes mellitus in 2019 with a prevalence of 9.3% in the total population at the same age. The IDF estimates the prevalence of diabetes mellitus, by gender, in 2019, to be 9% in women and 9.65% in men. The prevalence of diabetes mellitus is estimated to increase as the population ages to 19.9% or 111.2 million people aged 65-79 years. This figure is predicted to continue to increase to 578 million in 2030 and 700 million in 2045. The IDF states that people with diabetes mellitus are 20-79 years old, there are 10 countries with the highest number of people in the world, namely: China 116.4 million people, India 77 million people, the United States 31 million people, these three countries ranked in the top 3 in 2019. Indonesia is ranked 7th among 10 countries with a population of 10.7 million people (IDF, 2019). The results of the 2023 Indonesian Health Survey (SKI) show an increase in the prevalence of diabetes mellitus and the potential for undiagnosed diabetes mellitus conditions in the community, namely 1.5% in 2018 and 1.7% in 2023 in all age groups. Bali Province also experienced an increase of 1.7% in 2018 and 2.1% in 2023 in all age groups. As the number of people with diabetes mellitus increases, its impact on overall health is becoming a serious concern. One aspect that is often overlooked is dental and oral health, which is very important for the quality of life of people with diabetes mellitus. The high rate of diabetes mellitus among all age groups affects other health, including dental and oral health.

According to Lestari, Wowor & Tambunan (2016) stated that most (52.31%) have a poor level of knowledge. Increasing knowledge about dental and oral health in people with diabetes mellitus requires providing education that can increase their sense of responsibility for their

dental and oral health. To facilitate the provision of education, educational media in the form of print media is needed, namely flipcharts. Flipchart is one of the educational tools that is very simple and quite effective to use in conveying information including health messages such as diabetes mellitus. According to Susilana and Riyana, the advantages of using flipchart media include being able to present messages in a concise and practical manner, can be used indoors and outdoors, is cheap and easy to make and can be taken anywhere (Bagaray, Wowor and Mintjelungan, 2016). Based on data from the Annual Report of the Denpasar City Health Office (2022), of the 11 Health Centers in Denpasar City, West Denpasar II Health Center is one of the health centers that has the highest number of people with diabetes mellitus reaching 2,177 people. West Denpasar II Health Center ranks first among other health centers in Denpasar City.

METHOD

The type of research is descriptive. The study population was patients who visited with a diagnosis of diabetes mellitus from January to April 2025 at the West Denpasar II Health Center which amounted to 296 people. The sample size was taken with the Slovin formula, so a total of 38 samples were obtained. The data collected for this study are primary data and secondary data. The results of the collected data were analyzed with univariate statistics used to determine the percentage, average.

RESULTS

The characteristics of the study subjects, which amounted to 38 people, were seen from the sex of more women, namely 20 people and 18 men. While characteristics based on age, the most respondents were in the age range of 60-70 years.

a. From the research conducted, the results of the percentage of respondents' knowledge level were obtained as follows:

Table 1

Distribution of the Percentage of Dental and Oral Health Knowledge Level of Diabetics Mellitus

Before and Before Being Given Flipchart Media Counseling at Puskesmas II West Denpasar

Knowledge Level Category	Before		After	
	f	%	f	%
Good	4	10,5	29	76,3
Enough	28	73,7	9	23,7
Less	6	15,8	0	0
Sum	38	100	38	100

Table 1 can be seen that before counseling most respondents (73.7%) had a sufficient level of knowledge while after being given counseling Most had a good level of knowledge (76.3)

b. The average level of knowledge of the respondents is as follows.

The results of the study on 38 respondents obtained a total score before being given counseling of 2575 with an average score of 67.8. The level of knowledge of respondents is generally in the category of adequate. The average level of dental and oral health knowledge in patients with diabetes mellitus after being given counseling for a total of 38 respondents, obtained an overall score of 3070, with an average score of 80.8 included in the good category.

DISCUSSION

The results of the study conducted on patients with diabetes mellitus at Puskesmas II West Denpasar regarding the level of dental and oral health knowledge before being given counseling using flipchart media from 38 respondents obtained results (10.5%) in respondents who were in the good category, in respondents who were in the category of adequate (73.7%), respondents in the low category (15.8%) and the average value of respondents' knowledge before counseling was 67.9 with the category of adequate. In the results of these several criteria, it can be explained that the respondents have a low level of knowledge, this may be due to the lack of information in the form of a level of knowledge about dental and oral health. This is in

accordance with the opinion of Darsini, Fahrurrozi, and Eko Agus Cahyono (2019), with the opinion that knowledge is a predisposing factor for the occurrence of a behavior.

Research and experience prove that behaviors based on knowledge will be more meaningful than behaviors that are not based on knowledge. The results of the analysis of the level of dental and oral health knowledge in the respondents before being given counseling showed that in test questions number five, six, ten, eleven and 14, most of them were answered incorrectly with a percentage above 50%. In question number five as many as 34 people answered the question incorrectly, question number six as many as 33 people answered the question with 58 wrong, question number ten as many as 26 people answered the question incorrectly, in question number eleven as many as 23 people answered the question incorrectly and in question number 14 as many as 25 people answered the question incorrectly. This is because respondents do not know what toothpaste content can prevent cavities, the entire surface of the tooth must be brushed, how to brush teeth facing the ceiling, how to brush teeth facing the tongue and how many months should the toothbrush be replaced. This may be because there has been no dental and oral health counseling on the content of good toothpaste to prevent cavities, the entire surface of the teeth must be brushed, how to brush your teeth facing the ceiling and those facing the tongue and when is the right time to change your toothbrush.

The level of dental and oral health knowledge has changed and has become better than before being given counseling with flipchart media, because respondents obtained good and correct dental and oral health knowledge through flipchart media. This is in line with the opinion of Uliyanti and Anggraini (2022) that flipchart media or flipchart media is a media similar to an album or calendar, each sheet contains an image on the front and contains writing as an explanation of the image. This flipchart media is easy to use and the content is easy for the target to understand. Flipchart as a visual medium is able to provide a learning stimulus through images and text that strengthens respondents' understanding.

CONCLUSION(S)

Health education using flipcharts has been shown to be effective in improving oral health knowledge among diabetes mellitus patients. Prior to education, most patients had limited or adequate knowledge, indicating limited information and understanding of dental care and oral hygiene. Following flipchart education, patients' understanding and awareness of the importance of maintaining oral health increased. This demonstrates that flipcharts can be a simple yet effective educational tool because they present information visually and easily. Therefore, flipcharts are recommended as a health education tool to help improve healthy lifestyles in diabetes mellitus patients.

Conflict of Interest

This research is stingy, and can then be developed using other promotional media.

Acknowledgment

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