

Education on Early Detection of Diabetes Mellitus Prevention Since Adolescence, Harapan Mulia Orphanage, Purwokerto



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DIABETES MELLITUS

Article History

Received: 4 July 2024

Revised: 17 July 2024

Accepted: 1 Agustus 2024

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Abstract

Background: Diabetes mellitus is a chronic disease that occurs when the pancreas cannot produce enough insulin or when the body cannot use the insulin produced effectively. Insulin is a hormone that regulates blood sugar. **Purpose:** To provide health education about diabetes mellitus for adolescents. **Methods:** This community service project includes obtaining permits, distributing materials, and now permits. After the program is completed, the participants' community service projects will be evaluated. Ledug Village Hall, Kembaran, Banyumas will be the venue for this health education program on July 16, 2023. Health education methods can be presented through lectures, conversations, demonstrations, and re-demonstrations using handouts, PowerPoint presentations, notebooks, LCDs, projectors, pointers, and speakers. **Results:** A total of 60 elderly people, consisting of men and women, were involved in various community activities. The mean age of the subjects was $69.2 + 4.23$, with a minimum age of 61 years and a maximum age of 81 years. The proportion of women was 53.3%, while men were 46.7%. The educational background of the respondents consisted of 8.4% elementary school, followed by college at 6.7%, high school at 43.3%, and junior high school at 41.7%. The participants demonstrated the practice of reducing active and passive smoking during the public test. **Conclusion:** By providing health education to the community, their knowledge has increased. This community service activity can have an impact on improving the health status of the community.

Keywords: community service, diabetes mellitus, education, teenager

Introduction

Diabetes mellitus (DM) is a persistent metabolic condition caused by several factors. It is defined by elevated blood sugar levels and metabolic abnormalities in carbohydrates, lipids, and proteins due to decreased insulin activity. Impaired insulin function can result from either insufficient insulin production by the beta Langerhans cells in the pancreas gland or from body cells not responding effectively to insulin (Antar et al., 2023). The World Health Organization (WHO) states that 90% of individuals with diabetes globally have type 2 diabetes. In 2010, this accounted for around 285 million people, which is equivalent to 6.4% of the global population.

It is projected that by 2030, the number of individuals with type 2 diabetes would rise to 439 million, or 7.7% of the global population (Khan et al., 2019)

Based on data from the International Diabetes Federation (IDF) in 2021, there were 463 million people in the world suffering from diabetes mellitus, and 98% of them had type 2 diabetes. It is projected that this number will increase twofold by the year 2030. In 2010, the prevalence of type 2 diabetes mellitus in Indonesia was 8.4 million individuals, and it is projected to rise to 21.3 million by 2030 (IDF, 2021). According to data from the Central Java Provincial Health Office in 2020 there were 652,822 people with diabetes mellitus and around 90- 95% suffered from Type 2 diabetes mellitus. And in Sukoharjo Regency itself, the number of people with diabetes in 2019 was quite high, namely 17,403 cases. According to the Kartasura Health Center, Sukoharjo Regency, 703 cases of diabetes mellitus were detected in 2021, of which 36% were men and 64% were women (Riskasdas, 2018).

The rising prevalence of individuals with diabetes mellitus can indirectly lead to morbidity and mortality as a result of diabetes-related comorbidities. Complications arising from diabetes mellitus can be both acute and chronic. Acute problems arise when an individual experiences a rapid and substantial increase or fall in their blood sugar levels. Chronic problems encompass blood vessel anomalies that ultimately result in heart disease, renal illness, nerve disease, stroke, and other related conditions (Costantini et al., 2021). According to the Indonesian endocrine society, there are 4 pillars in diabetes management, including knowledge / education, a balanced diet, active exercise, and medication compliance. Therefore, knowledge is important in the process of managing diabetes mellitus (Collein, 2023).

Complications and fatalities resulting from diabetes mellitus can be reduced if individuals with this condition had knowledge on disease management and blood sugar level control. As part of this strategy, education is offered on the timely identification and treatment of diabetes to effectively regulate blood glucose levels and reduce complications and fatalities associated with diabetes mellitus (Ahmad & Joshi, 2023).

This Community Service initiative comprises a sequence of health promotion endeavors scheduled for Friday, July 7, 2023, in Mersi, Purwokerto District, Banyumas Regency. The objective of this activity is to offer complimentary health assessment services and administer blood sugar screening, while also raising awareness among the general public about diabetes mellitus, enabling them to acquire knowledge on managing and treating the condition.

Metode

This research on community service utilizes a blend of Community-Based Research (CBR) methodologies and integrated information technology platforms. This community service is conducted with teenagers at Harapan Mulia Orphanage. The intended recipients of this service are female and male students from Harapan Mulia Orphanage who receive education during the meeting. The media utilized by pengabdian are laptops with LCD screens and leaflets. It is necessary to implement proactive initiatives that involve the transmission of accurate information and educational interventions by community anesthetic nurses to address the issue of Diabetes Mellitus disease. This is particularly important for educating adolescents. The

objective of this activity is to modify behavior in order to prevent the occurrence of individuals with diabetes mellitus. An individual's knowledge, attitudes, and skills can be enhanced when they are provided with assistance in engaging in activities that stimulate their consciousness and promote self-stimulation. Thus, it is necessary to implement a nursing intervention in the healthcare setting for individuals with type diabetes, focusing on promoting and preventing measures to manage the condition.

Stages of Implementation

The execution or application of education is as follows: Session 1 focused on educating adolescents about diabetes mellitus through the use of educational videos, discussions, and evaluations. This session took place on July 7, 2023 and utilized intervention media such as educational videos, leaflets, and flip sheets. Additionally, one training session and one supervision session were conducted to train health cadres in implementing the Posbindu PTM 5 table system. Session 2: Health Screening: Health cadres will use the support group technique to screen for risk factors of diabetes mellitus in the community. They will also provide information on filling out Google forms, with demonstrations and re-demonstrations. Session 3: Tuberculosis Education about diabetes mellitus include its description, etiology, pathophysiology, signs and symptoms, as well as prevention strategies.

Results

The results of the application of education on the prevention of diabetes mellitus from an early age at Harapan Mulia Orphanage are presented in Figure 1. While the gender of respondents on diabetes mellitus prevention in men and women is presented in Table 1.

Table. 1 Community service participation

Variable	N	Percentage
Gender		
Male	10	75%
Female	5	25%
Total	15	100%

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Figure 1. Implementation of Community Service for Diabetes Mellitus Prevention

The media employed in PkM include of printed materials in the form of leaflets, as well as digital media utilizing PowerPoint presentations. The necessary equipment includes laptops, LCD screens, projectors, pointers, and loudspeakers. The therapy session typically lasts for approximately 3 hours and involves the coordination of many group members. These include a host and moderator, two presenters, one note-taker and observer, and one individual responsible for documentation and facilitation. The counseling session was divided into specific time intervals as follows: seven minutes for opening and orientation of the activity, thirty minutes for presenting the material, seven minutes for demonstrating hand washing and coughing etiquette, ten minutes for re-demonstration and question and answer discussion, seven minutes for oral participant evaluation, and three minutes for closing.

The assessment phase of PkM activities for participants was conducted after the conclusion of the counseling session on the identification and prevention of diabetes mellitus (DM), as well as strategies for maintaining a healthy lifestyle and managing DM. Participants were requested to demonstrate their understanding of these topics. An assessment was also conducted on the entire PkM activities, encompassing all stages from planning to execution. The assessment conducted during the preparatory phase focused on the coordination with the Anwarus Sholihin orphanage, particularly in terms of communication. Some members of the group faced challenges in working with village officials due to their lack of proficiency in the local language. However, this issue was successfully resolved with the assistance of other group members. The counseling media utilized high-quality visuals and text that had been reviewed for Tuberculosis Education and Cough Ethics at the Harapan Mulia Home in Banyumas, Central Java. As a result, the media was deemed appropriate for the PkM target audience.

The evaluation during the counseling was delayed by about 30 minutes because the teenagers did not arrive on time. This was overcome by visiting and inviting the target directly to the counseling place. During the counseling, the community actively participated in the entire series of activities, demonstrating correctly how to wash hands and cough etiquette. A report on the implementation of PkM activities was compiled with a follow-up plan in accordance with the problems encountered, namely suggesting continuous monitoring and education from health cadres or health workers from Harapan Mulia Orphanage to actively participate in monitoring the discovery of new cases of DM in the orphanage at Harapan Mulia Orphanage.

Discussions

Harapan Mulia Home, Kelurahan Mersi, Purwokerto, Banyumas, the visit provided in the form of health counseling by providing understanding and knowledge to the community about DM is very important in order to increase people's knowledge about DM in controlling their blood sugar levels so that they do not become severe. Because we know that nowadays there are a lot of unhealthy foods and lifestyles such as fast food, fast food, junk food, fatty, coconut milk and bad lifestyles such as smoking and drinking alcohol. In addition, it is also important for people to do physical activity and exercise 3 times a week so that blood flow becomes smooth (Yeh et al., 2023).

Health communication, through advocacy media, mass media, entertainment media, and the internet, has the power to influence attitudes, modify individual behavior, and enhance knowledge by raising awareness and providing information about health issues, problems, and solutions. The ultimate goal is to enhance and sustain overall health status. Counseling activities serve as a means to disseminate health information, particularly in areas that lack access to health information literacy through traditional media channels (Putri et al., 2023).

In order to ascertain the efficacy of implementing this community service program, it is important to conduct monitoring and assessment. Monitoring is conducted from the start to the end of the activity's implementation, and is followed by an evaluation of the activity. The efficacy of counseling efforts is assessed by evaluating the amount of knowledge on DM Disease, which is accomplished through administering a pretest and posttest. Based on the outcomes of the activity's implementation, it is evident that the level of community engagement in this activity is commendable.

This can be seen in the table above which shows an increase in community knowledge after counseling. Efforts to improve public health status are very important to achieve a better standard of living. One strategy to achieve public health status is to provide understanding, knowledge and awareness of the community to implement a healthy lifestyle starting from oneself, family, environment (Kusuma, 2022).

Conclusions

Upon the completion of community service activities, it was determined that the provision of health education to the community resulted in an increase in their understanding. This community service initiative can significantly enhance the level of public health in the Barombong hamlet by augmenting public awareness on Diabetes Mellitus disease among teenagers at the Mersi Noble Hope Orphanage. Adolescents possess the knowledge and skills to manage Diabetes Mellitus in the event that a relative is afflicted with the condition. The community is also knowledgeable about strategies for preventing the occurrence of Diabetes Mellitus in teenagers. Adolescents are anticipated to be capable of executing the information that has been communicated during therapy.

Acknowledgements

The researcher wishes to extend gratitude to all participants who have contributed to the success of this study, as well as to all those who have offered guidance and assistance throughout its duration. Additionally, the researcher wishes to express gratitude to the health science faculty at Bina Bangsa University for their support and direction throughout the course of this investigation.

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