DM DISEASE PREVENTION THROUGH IMPROVED KNOWLEDGE AND SKILLS OF NON-COMMUNICABLE DISEASE SCREENING AMONG HEALTH CADRES

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Abstract

One of the non-communicable diseases (NCDs) is diabetes mellitus (DM), which is characterised by high blood sugar levels and metabolic disorders of carbohydrates, lipids, and proteins due to insufficient insulin function. Early detection is rare due to the absence of complaints. The government, through BPJS Kesehatan, urges JKN participants aged $\geq$ 15 years to conduct health history screening with the aim of identifying potential risks for diabetes mellitus, hypertension, coronary heart disease, and chronic kidney disease. Empowerment and increased community participation through Posbindu PTM activities with its cadres are two of the efforts to control DM disease and its complications. The purpose of this community service (Pengabmas) is to provide education and training on diabetes and its complications to health cadres in Jabungan Village, Semarang City, as partners in this Pengabmas. This community service uses the Active Human Learning Method (CBIA), which consists of two activities: counselling through videos containing material on the introduction of safe carbohydrates as a prevention of diabetes mellitus and its complications, and training in the early detection skills of NCDs through BPJS web screening. This activity was attended by 16 cadres, who were very enthusiastic during the activity. The results of the activity showed an increase in cadre knowledge in the good category by 80% and sufficient knowledge by 20%.

Keywords: Diabetes Mellitus; Health History Screening; Health Cadres

INTRODUCTION

Diabetes mellitus is a group of metabolic diseases with the characteristics of hyperglycemia that occur due to abnormalities in insulin secretion, insulin performance, or both (Perkeni, 2019). According to the WHO, diabetes mellitus (DM) is defined as a disease or chronic metabolic disorder with multiple aetiologies characterised by high blood sugar levels accompanied by impaired carbohydrate, lipid, and protein metabolism as a result of insufficient insulin function. The beta Langerhans cells of the pancreas gland can cause impaired insulin production, or the lack of responsiveness of body cells to insulin can lead to insulin insufficiency (Direktorat p2ptm, 2023).

Based on the International Diabetes Federation (IDF) report, Indonesia ranks top in

ASEAN with the number of people with type 1 diabetes in Indonesia reaching 41,817 people in 2022, with ages between 20 and 59 years as many as 26,781 people, patients aged under 20 years as many as 13,311 people, and patients aged 60 years and over as many as 1,721 people (databoks, 2023). The disturbance in the immune system that results in damage to the pancreas causes Type 1 diabetes mellitus, also known as insulin-dependent diabetes. Genetics (heredity) can cause damage to the pancreas in type I diabetes. Then type 2 diabetes mellitus, often called non-insulin-dependent diabetes mellitus, is diabetes that is resistant to insulin. Insulin is in sufficient amounts but cannot work optimally, causing high blood glucose levels in the body. Insulin deficiency can also occur in cases of type 2 DM and is very likely to become an absolute insulin deficiency. Next, gestational diabetes mellitus usually occurs during pregnancy. This situation occurs due to the formation of several hormones in pregnant women that cause insulin resistance. Healthcare providers can detect gestational diabetes mellitus in pregnant women when the pregnancy is 4 months old and older, and blood glucose levels will return to normal after the mother has given birth (Tandra, 2018).

The main symptoms of diabetes mellitus are known as the 4Ps (polyuria, which is the intensity of frequent urination; polyphagia, which is fast feeling hungry; polydipsia, which is often thirsty; and weight loss without clear cause).

Diabetes mellitus management includes five pillars; these five pillars can control blood glucose levels in diabetes mellitus cases (Perkeni, 2019). The 5 pillars include, first, education on the application of a healthy lifestyle. Second, through nutritional therapy or planning food patterns so as not to increase the glycemic index quickly, namely how to cook, the process of food preparation, the shape of food, and the composition contained in food (carbohydrates, fats, and proteins), which means carbohydrates are sugar, flour, and fibre. Third, physical exercise (physical activity), which is a movement carried out by the body's muscles and other limbs that require energy, is called physical exercise. Physical exercise is done daily and regularly (3–4 times a week for approximately 30-45 minutes, adjusted to age and physical fitness status). Fourthly, through pharmacological therapy, namely drug therapy given simultaneously with recommended nutritional therapy and physical exercise. Pharmacological therapy consists of oral and injectable drugs. Fifth, self-blood glucose monitoring (PGDM) is a periodic blood glucose check that can be done by DM cases who have received education from trained health workers. PGDM can provide information on daily blood glucose variability, such as blood glucose before each meal, one or two hours after a meal, or at any time under certain conditions (Perkeni, 2019).

The management of glucose levels in diabetes mellitus cases can be said to be successful if supported by the active participation of cases, families, and communities. The role of the government through BPJS Kesehatan towards promotive and preventive health services has been mandated by the state through Presidential Regulation Number 82 of 2018 concerning health insurance. These services can be in the form of health history screening. JKN participants aged >= 15 years are encouraged to conduct health history screening with the aim of identifying potential risks for diabetes mellitus, hypertension, coronary heart disease, and chronic kidney disease (Utomo et al., 2011).

Therefore, it is necessary to increase knowledge and skills based on the latest developments for all health cadres in Jabungan Village, Semarang City, to be more effective in conducting early detection of NCD risk factors. To determine the increase in knowledge

and skills of the participants, a pretest and post-test will be conducted with all participants. Evaluation of knowledge results is good if the percentage of correct answers is 76%–100%, sufficient if the percentage is 51%–75%, and less if the percentage <= 50% (Pusat Promosi Kesehatan, 2012).

IMPLEMENTATION METHOD

The method used in this community service is participatory action research (PAR) through training and mentoring cadres during this community service activity, where participants are stimulated to play an active role in counselling activities and skills training by objectively observing and practicing what they will learn (Kusumo et al., 2021). This community service activity is in collaboration with Jabungan Village, Semarang City, to improve the knowledge and skills of health cadres in Posbindu PTM in the Jabungan Village area of Semarang City.

RESULTS AND DISCUSSION

This community service activity (PKM) was carried out in Jabungan Village on October 17, 2023. The participants were 16 Posbindu health cadres in the Jabungan Village area of Semarang City. Those involved in the implementation of this community service are the head of Jabungan Village and its staff, Jabungan Village health cadres, and lecturers of students majoring in medical records and health information at the Poltekkes Kemenkes Semarang. Extension activities in the form of diabetes mellitus disease education with the theme "Introduction to Safe Carbohydrate Sources in Diabetes Prevention Efforts and Their Complications" were carried out through video media at Jabungan Village on October 17, 2023, with resource persons from general practitioners, nutritionists, and Pratama clinic officers from the Poltekkes Kemenkes Semarang (Figure 1). Then followed training activities for early detection of NCDs using BPJS Health web screening carried out in stages (Figure 2).

Figure 1. Counselling activities through video media

Figure 2. Non-communicable disease screening training activity through BPJS web screening

The benefit of health screening in general is to find out whether someone has the potential or risk of a disease. If we look at the BPJS health history screening format, all questions are very complete. This is one of the advantages of health history screening for JKN-KIS participants.

Health cadres undergo training and mentoring to enhance community health services. Health cadres focus on providing prevention and health promotion services to the surrounding community, fostering awareness of a healthy lifestyle through a family approach. Therefore, there is a need to enhance the knowledge and skills of health cadres. The results of training and mentoring on diabetes melittus and its complications and health screening using the BPJS Health web to health cadres in Jabungan Village, Semarang City, can be seen in Table 1.

Table 1. Analysis of cadres' knowledge of diabetes mellitus and health history screening through the BPJS Health web.

Category	Pre test		Post test	
	f	Mean	f	Mean
Baik	2	85,00	13	89,23
Cukup	8	63,75	3	71,67
Kurang	6	43,33	0	-

These results demonstrate that providing training and assistance to cadres increases their knowledge about the definition of DM, the causes of DM, complications that can arise if DM is not properly managed, DM management through the introduction of safe carbohydrates and the 3J approach (Schedule, Type, Amount), promoting healthy lifestyle changes, and early detection to prevent NCDs in the community via BPJS Keseshatan web screening. Activities carried out by S. Indarjo (2019) on Posbindu cadres in managing elderly health problems have proven that providing refresher materials and skills to cadres increases their knowledge and skills.

CONCLUSION

The conclusions of this service activity are: Provision of promotional media for the prevention of diabetes mellitus and its complications through videos that can be distributed to the community. Increased knowledge of health cadres about the prevention and handling of NCDs after attending training and mentoring, which is marked by an increase in post-test scores compared to pretest scores. Increased skills of health cadres to carry out early detection through the BPJS Health screening web. Suggestions in this pengabmas, with the increased knowledge and skills of cadres in carrying out screening and prevention of non-communicable diseases, especially diabetes mellitus, are expected to be socialised to the surrounding community.

Acknowledegements

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