Capacity Building to Support Posbindu Cadre Skills in Early Detection of Non-Communicable Diseases

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Abstract. The number of people with non-communicable diseases is increasing from year to year, including diabetes mellitus (DM) and hypertension. If not detected and handled properly, it can cause complications and even death. It takes the role of many parties in controlling non-communicable diseases, one of which is Posyandu cadres. At Seroja Sendangadi Mlati Sleman Posyandu, posyandu activities have been carried out. Most cases of non-communicable diseases were DM and hypertension. The problem is that Posyandu Seroja cadres have never received training on checking blood sugar, cholesterol, and uric acid and health education. Posyandu Seroja has never carried out the activities to increase residents' awareness of signs and symptoms of disease, examinations, and management for residents who have been diagnosed. Posyandu also does not have its own blood sugar checker. Therefore, it is important to strengthen the capacity of Pobindu Seroja cadres. In this community service, capacity building has been carried out with training on blood pressure checks and training on simple blood tests (blood sugar, uric acid, gout) and provision of medical devices. The training was attended by 15 cadres. Then, it was continued with the second activity, namely early detection and health education on non-communicable diseases which were attended by 46 posbindu participants. The results of community service were processed using descriptive statistics. The existence of training for cadres increases blood pressure checking skills from 2 capable cadres to 15 capable cadres. Results after simple blood test training are from 1 capable to 8 capable. The results of early detection of non-communicable diseases found that most of the nutritional status was overweight, most of the blood pressure and uric acid were normal, most of the blood sugar and cholesterol were high or abnormal.

1 Introduction

The number of sufferers of non-communicable diseases is increasing from year to year. The 2018 Riskesdas data explains that the national DM prevalence is 8.5 percent or around 20.4 million Indonesians are diagnosed with DM. DM patients also often experience serious acute and chronic complications, which can cause death. This also occurs in the prevalence
of hypertension. The prevalence of hypertension in Indonesia is 34.1% with cases of 63,309,620 people. Riskesdas data (Basic Health Research) in 2018 was 13.3%. The prevalence of hypertension increases significantly in patients aged 60 years and over. The Special Region of Yogyakarta (DIY) reaches 11.01% and is higher than the national figure (8.8%). This prevalence places DIY in 4th place with the highest cases (Ministry of Health of the Republic of Indonesia, 2018). Based on the Integrated Disease Surveillance report in 2019, there were 21,270 cases of DM in DIY Yogyakarta Province (DIY Yogyakarta Health Office, 2019). Based on district/city, the prevalence of DM in Sleman Regency is in second place, namely 3.3% after Yogyakarta City, which is 4.9%. The next ranks are Bantul Regency 3.3%, Kulon Progo Regency 2.8%, and Gunung Kidul Regency 2.4% (DIY Health Office, 2019).

The problem of non-communicable disease, is not only diabetes mellitus, but also hypertension. Hypertension is a cardiovascular disease characterized by systolic blood pressure ≥140 mmHg and diastolic blood pressure ≥90 mmHg (Ministry of Health, 2019; WHO, 2021). Hypertension is referred to as a “silent killer” because many people with hypertension are not aware of the signs and symptoms (WHO, 2021). Complaints that arise in hypertensive patients include dizziness, blurred vision, headaches, irregular heart rhythms, and ringing in the ears (Unger et al., 2020; WHO, 2021).

Based on the results of the study (Kartika Sari & Livana PH, 2016), the factors that influence hypertension are: (1) Environmental factors: Most smoking habits are caused by neighbors/coworkers (84%) and the culture of making fried foods (88%) and cooking with coconut milk (53%). (2) Genetic factors: number of families with hypertension (48%); (3) Behavioral factors: smoking habit (65%), not or regularly using antihypertensive drugs, coffee consumption habits (55%), consumption of fatty foods (90%), consumption of coconut milk (55%), and lack of exercise (73.5%). Health facility factor: There is no early detection by medical institutions (62%), and there are still many residents who do not take PROLANIS (98%).

It is very important to manage hypertension to control blood pressure so that people do not experience complications, including stroke, coronary heart disease and kidney failure (WHO, 2021). Efforts to control blood pressure require good self-management.

Self-management is an individual's ability to manage their own health with or without the help of others, which includes medication adherence, blood pressure monitoring, and lifestyle modifications such as diet, exercise, smoking cessation and alcohol consumption (Li et al., 2020). Hypertensive patients who perform self-management well will have a good quality of life. In line with research (Lestari & Saraswati, 2019) that hypertensive patients who have good self-management behavior can improve the patient's quality of life.

Whereas, in the management of diabetes mellitus, there are four pillars of management in DM sufferers, namely education, nutritional therapy or meal planning, physical activity and pharmacology (Yunitasari & Noor Mintarsih, 2019). Management of DM is then divided into two therapies that can be carried out, namely pharmacological therapy and non-pharmacological therapy. Pharmacological therapy is medication therapy that is carried out to reduce the risk of developing DM (Ismawanti et al., 2021). Non-pharmacological therapy can be done with lifestyle changes by adjusting diet (DM Diet), and increasing physical activity related to DM disease (Harreiter & Roden, 2019). Patient adherence to meal planning is one of the obstacles experienced by DM patients. Dietary compliance of DM patients plays an important role in stabilizing blood glucose levels. Patients who are disobedient in carrying out dietary therapy cause uncontrolled sugar levels (Dewi et al., 2018).

The Hypertension Management Program reaches out to people with hypertension through community empowerment, involving health workers, community leaders, and supporting the village government. Hypertension prevention and management programs require the collaboration of health care professionals, including trained health care executives who can...
measure, monitor, and educate the public about health behavior changes to prevent hypertension. Greater knowledge of disease and treatment leads to greater awareness and adherence to blood pressure management and medication adherence. The approach of community leaders and village government support in the village organizational structure. Contribute to the success of community empowerment programs in the form of budgeting village funds to promote prevention promotion activities. Mandiri (Independent) Hypertension is to reach people with high blood pressure who have limited access to medical services. Empowering people to change health behavior and adherence to treatment can be effective in reducing long-term health care costs (Supriati, 2018).

The high incidence of hypertension and diabetes mellitus cases in Indonesia and DIY also occurred in the residents of RW 25. Based on the results of examinations during posbindu, these two diseases were most commonly found in health screening in RW 25. In fact, cases of hypertension were found with very high numbers reaching 200 mm Hg. Therefore, it is important to carry out routine screening in cases of non-communicable diseases, especially DM and hypertension. In addition to screening, routine monitoring of patients who have been diagnosed with DM and hypertension is also important, as well as understanding of residents regarding signs and symptoms, examination, and management. Based on the preliminary study conducted at the Posyandu head, it was found that the cadres had never received training on checking blood glucose, uric acid, and cholesterol levels. In addition, Posyandu also does not have examination tools such as blood pressure and blood sugar, uric acid and cholesterol checks. So far, the tools have been lent by the Public Health Center and are privately owned. In addition, health education regarding non-communicable diseases has never been carried out in a structured manner and there is no educational media at Posyandu Seroja, only checking weight, height, arm circumference, and incidentally checking blood sugar. Whereas, Posbindu cadres as the frontline in screening and encouraging adherence to patient treatment management are very important. Non-communicable diseases have become "disruptors" or health disturbances that have occurred globally. To overcome this, societal transformation is needed so that people can live a healthier lifestyle (Nishtar, 2018). Thus, efforts to overcome NCDs require cooperation from various sectors. Non-Communicable Diseases (NCD) in Indonesia are predicted to experience a significant increase in 2030. Its chronic nature and attacking productive age, causes NCDs to not only be a health problem, but also affect the resilience of the national economy if not controlled properly, correctly and continuously.

2 Methodology

This service activity is carried out using three methods, namely capacity building for cadres through training for posbindu cadres, early detection of non-communicable diseases and health education, and facilitation or provision of tools and media for early detection of non-communicable diseases. This activity was carried out in February and March 2023 at Posyandu Seroja Sleman. Participants in community service activities consist of two targets in accordance with program objectives. The first activity was training for Posbindu PTM cadres, followed by all cadres of Posbindu PTM Seroja, namely fifteen cadres. Whereas, early detection of non-communicable diseases was attended by Posbindu PTM participants, namely fifty-one participants related to screening for signs and symptoms, examinations, and management being important in carrying out the role of Posyandu for Elderly and Posbindu PTM.

The first activity was training for early detection of non-communicable diseases which is taught including checking blood sugar, uric acid, and cholesterol, and the proper way to check blood pressure, as well as explaining the management of non-communicable diseases. In this activity, the instructor taught how to check blood sugar, uric acid and cholesterol properly,
and Posbindu cadres tried it in pairs. Then, the instructor continued teaching how to check blood pressure properly, and all Posbindu cadres tried to pair up. After the activity, the results obtained were discussed and the interpretation of the results of the examination was explained.

The second activity was non-communicable disease screening through Posbindu PTM activities and health education regarding early detection of non-communicable diseases and management of non-communicable diseases. In early detection, weight, height, blood pressure, blood sugar, uric acid and cholesterol checks are carried out. Then, the posbindu participants took part in Health Education which was delivered by two speakers regarding this detection and management of non-communicable diseases as well as proper diet for people with diabetes mellitus and hypertension.

The third activity was the provision of early detection tools for non-communicable diseases for Posbindu PTM, namely a number of tools in the form of blood pressure, blood sugar, uric acid, cholesterol and educational media.

The results of this activity were processed descriptively by displaying cadre skill data before and after training, non-communicable disease screening results data related to weight, height, BMI, blood pressure, blood sugar, uric acid, cholesterol.

3 Results and Discussion

![Figure 1. Ability to Check Blood Pressure Before and After Training](image)

The results of the first community service activity, namely strengthening the capacity of Posbindu PTM cadres in the form of blood pressure check training, resulted in an increase in the skills of cadres from only 2 who were able to carry out blood pressure checks before training to 15 cadres (all cadres) who attended the training were able to check blood pressure. This can be seen in Figure 1.
Figure 2. Ability to Check Blood Glucose, Gout, Cholesterol Before and After Training

The results of the community service continuing the first activity in the form of simple blood check training, namely checking blood sugar, uric acid and cholesterol, showed an increase in the skills of cadres, from only one who was able to do simple blood checks before training to 8 cadres who were able to do simple blood checks. There were seven cadres who did not try because of the age factor of the cadres and the cadre's attitude towards blood. This can be seen in Figure 2.

The results of the second community service regarding early detection of non-communicable diseases in Seroja PTM Posbindu participants obtained the following data from the demographic characteristics of PTM Posbindu participants, namely 45% were elderly and 55% were adults with 40% female and 60% male (Figure 3). The nutritional status of Posbindu PTM participants is that most of them are overweight, normal, obese, and some are thin (Figure 4). The results of blood pressure examinations were mostly normal, then pre-hypertension, grade 1 hypertension, and grade 1 hypertension (graph 4). Most of the blood sugar examination results were high or abnormal (53%), the uric acid examination results were mostly normal (65%), and the cholesterol examination results were mostly high or abnormal (64%).

![Figure 3](image)
Figure 3. Demographic Characteristics of Posbindu PTM Participants

![Figure 4](image)
Figure 4. Nutritional Status of Posbindu PTM Participants
NCD management is a health effort that prioritizes promotive and preventive aspects without neglecting curative and rehabilitative, and palliative aspects aimed at reducing (Ministry of Health RI, 2015): 1. Mortality Rate 2. Disability Rate 3. Mortality Rate. PTM prevention efforts include (Ministry of Health RI, 2015): 1). Health promotion efforts aiming to realize Clean and Healthy Behavior by creating and cultivating SMART behavior in society. CERDIK stands for a. Periodic health checks, b. Getting rid of cigarette smoke, c.
Being diligent in physical activity, d. Having healthy diet and balanced nutrition, e. Getting enough rest, and f. Managing stress. 2). Early Detection is an effort to find risk factors for NCDs as early as possible which is carried out routinely for individuals and/or groups who are at risk and not at risk. Early detection is carried out through: Interviews, Measurements and Examinations at health service facilities and facilities/places where Community-Based Health Efforts (UKBM) such as Posyandu are implemented.

Principally, there are two types of challenges in controlling PTM, namely (Ministry of Health, 2017): 1. Support for non-optimal PTM prevention programs, i.e. a. The commitment of the central and regional governments is still weak. b. Partnership/cooperation across programs and across sectors is not optimal. c. The Health in All Policies (HiAP) approach has not been properly implemented. 2. Behavior of people at high NCD risk, i.e. a. Media and educational methods are limited. b. PTM Posbindu coverage is not optimal. c. The risk factors for PTM are heavily influenced by things outside the health sector. 3. The capacity of health services for PTM is not optimal, i.e. a. Resources to support NCD control programs are still limited. b. Public access to PTM health services is still low. c. The return referral system from the hospital to primary care is not yet operational. 4. Availability of data for program management (Planning and Evaluation) is still weak, i.e. a. The surveillance system is still weak b. There are data limitations and report management

Meanwhile, according to Brownson & Bright (2004), public health practitioners and epidemiologists experience obstacles and challenges in developing and implementing PTM control programs. These challenges include: 1. PTM is often seen as an event that is not a "national crisis", and the results of prevention programs are obtained in the long term. 2. The public prefers to avoid involuntary risks, such as avoiding exposure to chemicals, compared to avoiding non-communicable diseases management, and conscious/voluntary risks such as smoking. Even though it is realized that voluntary risk contributes greatly to the burden of chronic disease; 3. Many communities cannot access and know data about NCDs and their risk factors, which are useful as guidelines in setting goals and evaluating health programs; and 4. The resources allocated (such as funding) are not sufficient to support the PTM control program.

The management of DM begins with adopting a healthy lifestyle (nutritional therapy, medical and physical activity) along with pharmacological interventions with oral anti-hyperglycemic drugs and/or injections. Oral anti-hyperglycemic drugs can be given as single therapy or in combination. In an emergency situation with severe metabolic decompensation, such as ketoacidosis, severe stress, rapid weight loss, or the presence of ketonuria, should be referred immediately to secondary or tertiary health services. Knowledge of self-monitoring, signs and symptoms of hypoglycemia and how to treat it should be imparted to the patient. Knowledge of self-monitoring can be done after receiving special training. Education with the aim of promoting healthy living, needs to always be carried out as part of prevention efforts and is a very important part of the holistic management of DM (Soelistijo et al., 2021).

4 Conclusion

Educational materials at the initial level are carried out in Primary Health Services which include: 1) Materials about the course of DM disease. 2) The meaning and need for continuous control and monitoring of DM. 3) DM complications and risks. 3) Non-pharmacological and pharmacological interventions and treatment targets. 4) Interactions between food intake, physical activity, and oral antihyperglycemic drugs or insulin and other drugs. 5) How to monitor blood glucose and understand the results of blood glucose or urine
independently (only if the blood glucose monitoring device is independent) 6) Recognize the symptoms and early treatment of hypoglycemia 7) The importance of regular physical exercise, 8) The importance of foot care. 9) How to use health care facilities (Soelistijo et al., 2021).

References


