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Enabling the Grass Root: Health Cadres Empowerment Program in Efforts to Prevent and Manage Hypertension in the Tanjung Sub-Village Community

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Abstract Community health cadres are frontline health workers and essential allies in improving hypertension management and promoting health equity. However, the phenomenon in Indonesia shows that the support given to cadres in efforts to promote hypertension still needs to be higher. This article describes the community service program, especially health cadres empowerment in Tanjung Sub-villages, Sewon, Special Region of Yogyakarta, to optimize the capabilities of health cadres in promoting health and preventing disease. The methods to determine the lack in community used observation, interviews, and surveys. Action planning was carried out by including cadres, primary health care services Sewon II, head of sub-village, village youth organization. Implementation of the program was held in May 2023. The descriptive analysis was used for analyzing the preliminary surveys. The Wilcoxon test was carried out to measure cadres' knowledge before and after the program was held as an evaluation. There are two main programs for empowering health cadres in this community: health cadre training and hypertension exercise to increase cadres' innovation in doing exercise for the community. Both of these programs have been proven to increase the knowledge and understanding of cadres about hypertension, as well as improve the ability of cadres to carry out health screening and lead hypertension exercises. Based on the results of the Wilcoxon test, the pre-test, and post-test values yielded a Z value of -2.375 and a sig value of 0.018, indicating that there is an influence of the presentation of hypertension on the knowledge and understanding of the cadres. Community acceptance of this program runs well and the Tanjung Sub-Village's Cadres independently are able to carry out health screening for non-communicable diseases, especially hypertension in their monthly Integrated Healthcare Center (Posyandu) program in the future.

1. INTRODUCTION

Hypertension is a disease whose symptoms are rarely seen in some people. That is because not all people with hypertension can recognize or feel the signs or symptoms of hypertension. Hypertension is only realized when it has caused organ disturbances such as impaired heart function and stroke. Recurrently, hypertension is discovered accidentally during routine health checks or accompanied by other complaints. Therefore, hypertension is often called

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'the silent killer' (Dinas Kesehatan DIY, 2022; P2PTM Kemenkes RI, 2018).

Hypertension is one of the leading causes of premature death worldwide. Globally, it is estimated that 1.28 billion adults between the ages of 30 and 79 have hypertension, most (two-thirds) of whom live in low- and middle-income countries (World Health Organization, 2023). Based on Basic Health Research in 2018, the number of cases of hypertension in Indonesia was 63,309,620 cases (34.1%), while the death rate in Indonesia due to hypertension was 427,218 deaths (Kementerian Kesehatan RI, 2018). Estimated 251,100 cases of hypertension sufferers aged ≥ 15. Meanwhile, the estimated number of hypertension sufferers aged ≥ 15 in Bantul Regency was 53,029 people, and only 58.2% had received health services. Hypertension is the most prominent disease yearly, with 848 deaths in 2021 (Dinas Kesehatan DIY, 2022).

One of the innovative moves that is a potential for reversing the deteriorating trend in hypertension control is through coordinating the community and healthcare services to build mutual trust and effective deployment of the assets of community health workers in a team (Commodore-Mensah et al., 2022). Community health workers, including health cadres, are frontline health workers and critical allies in improving hypertension management and promoting health equity (Ibe et al., 2021). It is mainly because community health workers are often selected from the communities in which they live. As a result, they tend to be culturally sensitive and adept at overcoming socioeconomic and other barriers to implement hypertension management (World Health Organization, 2020).

However, the phenomenon in Indonesia shows the low support given to cadres in efforts to promote hypertension prevention and management (Istifada & Rekawati, 2019). Whereas health cadres have contributed to the Integrated Health Center (Posyandu) for elderly as one of their program that is stated in the regulation of the Indonesian Ministry of Health Number 25/2016 about National Action Plan for Elderly Health 2016-2019. Integrated Health Center (Posyandu) is defined as part of Community Based Health Enterprises (UKBM) that focuses on the elderly in a certain area that has been agreed upon, which is driven by the community where they can get health services. Poorly, in the COVID-19 outbreaks, Integrated Health Center (Posyandu) was not operating according to the local policies for preventing the virus spreading (Antarsih et al., 2021). Additionally, during Ramadan Integrated Health Center (Posyandu) in Tanjung sub-village was not involving the Primary Health Care Services (Puskesmas) Sewon II to provide the expert or health care provider during the program for doing assessment or giving treatment, so the program was held by the Tanjung Sub-Village's cadres independently. Due to the limited abilities and knowledge of the cadres for giving health services that focus on preventing and managing hypertension, the cadres in Integrated Health Center (Posyandu) only give monthly checks and reports about tension using digital tensimeter without any health screening or education even though these activities can be used to disseminate health promotion.

The existence of limited human resources (HR) in health facilities such as Primary Health Care Services (Puskesmas) to empower the community and the workforce challenge that health care providers in Puskesmas endure also raises problems in the community. It can be the reason why the cadres in Tanjung Sub-Village have not gotten any health training in the time prior. In Ghana, the community-based hypertension improvement program (ComHIP) was held to reveal the challenge for hypertension prevention and management. Based on Laar (2019) in their study, it includes limited human resource and loaded task burden in health care facilities, as same as non-adherence to therapeutic plans in the patient's perspective. In Indonesia itself, public awareness regarding preventing and managing hypertension still needs to be increased. The level of non-adherence medication for hypertension patients in Indonesia was 41% (Tania, 2019).

Many factors contribute to a significant effect on medication adherence, such as family role and health care provider's role. In the Apsari et al. (2021) a significant effect on adherence to medical treatments in 73% of respondents showed that after the family giving support in fulfilling emotional needs, instrumental support, and spreading knowledge about medication adherence, it enhanced patient commitment for taking up medication in the long term. In reality, there are cases when an ill elderly lives alone and relies on its neighborhood for help most of the time. Due to the obstacles that health care providers should face, it makes it difficult for health care providers to control a patient's medication plan at home on a daily basis. The community cadres have pivotal roles to collaborate with health care providers in this matter since they are the closest part of the community that is able to make an easy contact with those vulnerable groups, for instance ill elderly who live alone.

A study conducted in 2021, specifically in the Prancak Glondong sub-village within the same district as the Tanjung sub-village, implemented a health cadres empowerment program. This program was focused on conducting screening and educational activities related to hypertension. The study's findings revealed that the community services program plays a vital role in revitalizing community empowerment. This initiative involves health promotion efforts that focus on raising awareness about non-communicable diseases, particularly hypertension. The program imparts crucial information about hypertension symptoms, often overlooked risk factors, and the significance of regular checkups for early hypertension detection. Both short-term and long-term preventive strategies are integral to the program's success, necessitating active participation from the community (Fola, 2023). The collaboration between health care facilities and community cadres are able to increase the succession of preventing and managing hypertension in community settings. It is necessary to increase community empowerment in order to overcome the grass root challenge

by the help of health cadres and community leaders through Community-Based Health Enterprises (UKBM). The community cadres are able to spread awareness, provide health screening, and be the social control. Based on this issue, a recreation program that involves the whole community, especially health cadres in Tanjung Sub-village to improve public health quality and prevent hypertension was brought. The health cadres were expected to gain new skills and knowledge in order to prevent and manage hypertension independently at the grass root.

2. METHOD

Health cadres empowerment program was implemented in Tanjung Sub-village, Bangunharjo Village, Sewon District, Bantul Regency, Special Region of Yogyakarta. The activities began in April to May, 2023 as a part of the nursing profession program under the course of Student Service-Learning Health Program (K3M) held by the School of Nursing UGM. A purposive sampling technique was used to determine the sample with a target of eight cadre's representative from Community Association (RT) 1 to 6.

Health cadres in Tanjung sub-villages have responsibilities to hold an Integrated Healthcare Center (Posyandu) both for toddlers and the elderly every month. Mainly, the activities during those programs were anthropometric and vital sign measurement using a digital sphygmomanometer with no health screening and promotion. The absence of health screening and promotion especially on preventing non-communicable diseases in Tanjung sub-villages happened because health cadres have not gotten any capacity building for doing so in the time prior.

The needs-based approach was used to implement community development in which the program will be led by the members of the community through finding the issues, deciding the solutions, implementing the action, and evaluating the process (Buye, 2021). It is suited to be implemented in a brief program but expects the continuity and beneficial aspects of the program. To fill the gap and provide community needs in Tanjung Sub-village, several stages were carried out; (i) initial assessment, (ii) data analysis, (iii) planning, (iv) implementation, (v) evaluation. The first step was done from 9^{th} to 14^{th} April, 2023 using windshield surveys and community surveys. The windshield survey was held to depict the environment and health program in the Tanjung sub-district through observation and interviews with the head of the sub-village, six health cadres, and twelve residents.

The community surveys were fulfilled by 38 residents in five days using Non-communicable disease screening forms by the Indonesian Ministry of Health and Community assessment questionnaire which contains eight domains such as; environment, health facilities, education facilities, politics, communication, economic, safety and transportation, and recreation that was adopted from Betty Neuman Theory. The survey data were analyzed using descriptive analysis.

In the planning stage, a Plan of Action (PoA) with community involvement was held by the researchers, the head of the sub-village, a representative from primary health care services (Puskesmas) Sewon II, and health cadres in April, 2023. The implementation of main program was implemented in May 2023 using a video, handbook, and flipchart as media. Group WhatsApp was also used as the medium for communicating and coordinating. In the last stage, the cadre's knowledge was valued by a knowledge questionnaire about hypertension that contains 10 items. A Wilcoxon test was carried out to measure the knowledge of the Tanjung sub-villages cadres before and after the program was held as an evaluation.

3. RESULT AND DISCUSSION

The result from initial assessment of non-communicable diseases (NCDs) in Tanjung Sub-village showed that hypertension is the most experienced by 16.1% of 31 residents. Moreover, 35.5% of residents reported that they had a hypertension family history. Based on the results of a community assessment of 14 families with elderly people, 21.4% of them had hypertension. Some of elderly tend not to attend Posyandu to carry out periodic health check ups or ask for anti-hypertensive medicine. After the initial assessment, health cadre training and hypertension exercise were carried out.

3.1 Enhancing cadre capability through health cadre training

The implementation of health cadre training activities took place on Thursday, 11^{th} May, 2023, at the Health Post of Tanjung Sub-village, Bangunharjo Village, Bantul. The Health Cadre Training activities consisted of several sub-activities, including the health promotion about hypertension, a discussion session, an evaluation session using pre-test and post test, and a GCU (Glucose, Cholesterol, and Uric Acid) test practical session. A total of eight cadres participated in those activities as participants, with five nursing students and one field supervisor as facilitators.

The first activity was health promotion about hypertension prevention and management through the handbook presentation delivered by the nursing student supervised by the field supervisor. This activity is followed by pre-test and post-test to assess the improvement on knowledge level and understanding among health cadres. The results of the pre-test and post-test scores can be seen in Table 1.

Table 1 . Analysis of pre and post-test values on the presentation of hypertension

Label	N	Min	Max	Mean	Std. Deviation
Pre Test	8	40	90	73.75	15.980
Post Test	8	40	60	48.75	9.910

The Wilcoxon test was used to determine the influence of the health promotion and the improvement of knowledge level and understanding among health cadres. The criterion

for change was when the sig value ≤ 0.05, while if sig > 0.05, there were no value differences observed after the intervention. Based on the results of the Wilcoxon test, the pre-test, and post-test values yielded a Z value of -2.375 and a sig value of 0.018, indicating that there is a significant improvement after the health education about hypertension prevention and management was given toward health cadres' level of knowledge.

Figure 1 . Handbook Hypertension for community health cadres

Figure 2 . Flipchart Hypertension for community health cadres

The Hypertension Handbook and Flip chart (Figure 1 & 2) were self-designed in order to provide practical media and accessible media education for community health cadre. This media education later will be able to help cadres doing health promotion independently. Both the handbook and flipchart were designed using Canva. The Hypertension Handbook consists of 39 pages that contains comprehensive information about definitions, classification, signs and symptoms, risk factors, hypertension prevention, hypertension management, and its complications. In addition, we also added some materials that could support the cadre on how to do a hypertension screening using GCU tools and how to deliver effective information to the community. The flip chart's content was the resume of the hypertension handbook that mainly focused on hypertension management based on the risk factors. Furthermore, the flipchart was produced as practical media to facilitate the cadre in order to deliver health promotion in the community.

Those media education were evaluated by an expert and two community health cadres' representatives to validate the information and convince the suitability toward communities lacking. The expert was an academia that has a broader experience in the community services, and has an interest in NCDs and media education. The community's health cadres' representative should be a member of the Tanjung sub-village community and able to communicate their concern. After the review process, the normal value of the GCU blood test was added following the suggestion of the community health cadres regarding the result on GCU test to help them remember the normal value when doing health screening.

Figure 3 . Training for health cadres about Glucose, Cholesterol, and Uric Acid (GCU) and disposable medical supplies

Hypertension is one of the leading causes of premature death worldwide. Health education through community based intervention is one of the applicable methods to enhance behavior and knowledge level in order to improve wellness and health (Wahyuni et al., 2019). The similar community health services program was held in Tambalan Sub-Village, Bantul through a lecture method using powerpoint for elderly, teenage, and health cadres. It showed knowledge level improvement after the program was held (Murwani, 2023). The role of community health cadres later have a pivotal role in preventing and managing hypertension in their own community. They need to be well-informed and knowledgeable about particular information

to give a good health literacy for the society. Health literacy is defined as an individual set of skills to use health information and health instruction for making appropriate health decisions (Guo et al., 2023; Sorensen, 2012).

Furthermore, the second main sub activities in training included the practical use of the GCU (Glucose, Cholesterol, and Uric Acid) and Disposable Medical Supplies (BHP) management (Figure 3). Discussion sessions were conducted, followed by a GCU test role-play amongst cadres that was implemented by all the participants, one of the cadres even involved directly on conducting blood sugar tests performed to the patient under the supervision of facilitators.

Role play is a preferable technique for enhancing the outcome of the learning process. This technique is able to provide active learning experiences that are usually used to help in particular disciplines, such as health and social work (Rogers, 2021). Based on Lori (2021), the learner's involvement in the learning process brings many advantages, such as embed concept, reflects upon learner's knowledge, raises the sense of empathy, and gives life the materials that are too descriptive.

3.2 Hypertension exercises program

The Hypertension exercises were conducted on Tuesday, 16th May 2023. This activity was aimed at health cadres and people in productive age as well as the elderly who have been diagnosed with hypertension in Tanjung Sub Village. Hypertension exercise aimed to initiate exercise for those with hypertension. The goal was providing an easy and comfortable exercise for peole with Hypertension. In the Tanjung Sub-Village, there were routine exercises held monthly and coordinated by the community health cadres, but no exercise focused on maintaining hypertension. This new exercise is feasible and applicable to be implemented in Tanjung Sub Villages. Based on Abdurakhman (2022), hypertension exercise proved to have a significant effect (p-value <0.05) on reducing blood pressure in the elderly with hypertension. In addition, these hypertension activities also aim to facilitate and challenge community health cadres in implementing their skill in delivering health promotion about hypertension to the community and conducting GCU tests based on the training provided beforehand (Figure 4).

A total of 22 participants attended the hypertension exercises (shown in Figure 5). The participants registered by providing their names, addresses, and signatures. Afterward, they underwent an initial blood pressure examination (pre-exercise), followed by a blood glucose test, and the data was recorded on a spreadsheet by community health cadres. The instructors of hypertension exercise were the cadres who had received training, monitored by the facilitators. During the data digitization session, a determination was made whether the participants were suitable to join the exercise or needed to postpone it due to high blood pressure results over 150/90 mmHg. The hypertension exercises lasted approximately 30 minutes and followed the exercise guidelines provided by the Community Sports Health Center (BKOM) Bandung. The exercise consists of a 25-minute duration of movements, which includes a 3-minute warm-up, 17 minutes of core movements, and 5 minutes of cooling down.

After the exercise, the participants were given a 30-minute break period followed by the second blood pressure examination (post-exercise). During the break period, health education was conducted by the community health cadres using the provided flipchart with a one-on-one counseling method. The information will be focused and adjusted to individual needs and information lacking.

Figure 4 . Pre-exercise health check by cadres monitored by facilitators

Figure 5 . Hypertension exercises

The weakness of this study is that the exercise was performed only once, and blood pressure evaluation was conducted 30 minutes after the exercise. A study by Tina, (2021), showed the hypertension exercise that was performed twice a week every 30 minutes can be effective in controlling high blood pressure in women. Due to the time limitation, in our study, we were unable to assess the long-term impact of exercise after being regularly performed in the hypertension community. A study by Pescatello, (2015), recommends that exercise be performed for 30-60 minutes every day continuously, with a total duration of 150 minutes per week. Supported by a study by Pratiwi, (2023), which found that hypertensive exercises have been proven to lower blood pressure quickly in hypertensive patients undergoing pharmacological treatment without engaging in exercise. Exercise could effectively control hypertension because the activity stimulates an increase in the strength of the heart's pump and promotes vasodilation of blood vessels, ensuring

smooth blood flow.

4. CONCLUSION

The community services program has successfully been implemented to improve public health standards and services by cadre's capacity building program in Tanjung Sub-Village. This study shows the significant value ($p \leq 0.05$) on improving cadres' knowledge on hypertension prevention and management. There was an increase in knowledge level before and after the training program was held. For the hard skill, the cadres gained novel skills in practicing GCU tests and demonstrating hypertension exercises that have already been implemented directly to their community as well during the program. Community acceptance of this program might allow sustainability of the program in the future by taking a direct role in carrying out examinations and early detection of non-communicable diseases, especially for hypertension.

In order to lower the hypertension prevalence, collaboration between many elements, such as stakeholders, community, and health care services are needed and expected to be carried out more widely. This established program needs to be implemented and evaluated routinely to improve and adapt with the current condition. Additionally, it is necessary to allocate a budget for providing materials, such as GCU tools, and reproduce the media education for each representative cadres in the village. Thus, the benefits of the community services program are able to expand.

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CONFLICT OF INTERESTS

The authors declared that there are no conflicts of interest with regard to the community service programs and manuscript publication process.

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