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Kelas MASK: *Posbindu* (integrated health post) revitalization as preventive action towards non-communicable disease during COVID-19 pandemic

Emy Huriyati[1*], Abdul Wahab[2], Arta Farmawati[3], Ainun Nisa[1], Bira Arumndari Nurahma[3]

[1]Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta Indonesia;
[2]Department of Biostatistics, Epidemiology, and Population Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta Indonesia;
[3]Department of Biochemistry, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta Indonesia.

*Corresponding author:
Emy Huriyati;
Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta Indonesia;
emyhuriyati@ugm.ac.id

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ABSTRACT

Introduction: Non-communicable diseases (NCDs) are not only caused by genetic factors, but it can also be due to behavioral factors, such as low physical activity, unhealthy diet, and lack of knowledge on nutrition and healthy lifestyle. An integrated health post (*"pos pembinaan terpadu,"* abbreviated as posbindu) is a community-based program in Indonesia that aims to reduce the incidence of NCDs by promoting a healthy lifestyle and conducting monthly health screening. However, since the recruitment of the post's cadres is voluntary, most of them do not have formal education on health and may not be familiar with health screening tools. Thus, improving their knowledge and skills on this subject is critical.

Methods: The *Kelas* MASK project aimed to increase the knowledge and skills of *posbindu* cadres, especially on the risk, prevention, and basic screening tools for NCDs. The projects consisted of lectures, demonstrations, and practices. The knowledge and skills in anthropometric measurements, blood pressure, and simple biochemical analysis were evaluated based on the scores obtained from the pre-and post-tests.

Results: The *Kelas* MASK project increased the cadres' knowledge, as shown by the increase of the average post-test score compared to the pre-test score (increased by 4.03, p-value = 0.0000).

Conclusion: All in all, the *Kelas* MASK project significantly increased the knowledge and skills of *posbindu* cadres on the prevention of NCDs.

Keywords: non-communicable disease; skills; *posbindu*; cadre; workshop.
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INTRODUCTION

Non-communicable diseases (NCDs), especially cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes, are major threats to human health and development today. World Health Organization (WHO) reported that 36 million or nearly two-thirds of the total deaths in the world in 2008 were caused by NCDs.[1,2] On the other hand, a pandemic caused by the coronavirus, SARS-CoV-2, which started in 2019, has changed how the world works, including social interactions and physical activities.[3] Moreover, COVID-19, of which the virus mutates over time, shows rapid changes in transmission or spread patterns and results in various effects among people. Specifically, it has been reported that people with comorbid diseases, including people with hypertension, diabetes mellitus, and heart disease, are more susceptible to experiencing the severe effects of the virus.[4] Therefore, it is critical to reduce the prevalence of NCDs by conducting preventive and promotive actions amidst the pandemic.

One of the sub-districts in Yogyakarta that has a high burden of NCDs is Seyegan. Seyegan is one of the sample areas investigated in the HDSS (Health and Demographic Surveillance System) longitudinal study of the Faculty of Medicine, Public Health and Nursing for community service activities.[5] The study reported an increasing prevalence of hypertension, diabetes mellitus, and stroke in Seyegan from 2016 to 2017[5] which makes the preventive and promotive actions should be applied immediately.

COVID-19 has been changing people's lifestyle since it started in 2019. A decrease of physical activities is reported during COVID-19, for example most people tend to do exercise less than 3 times a week. Compared to the exercise recommendation, this exercise frequency is less than the recommendation which recommends exercising at least 3 times a week.[3] People who do less physical activity or exercise show a form of low knowledge about the importance of physical activity and exercise for health. The results of the HDSS study in 2018 show that the activity level in Seyegan was 74.61% high activity, 20.21% moderate activity, and 5.18% low activity.[5]

Changes in diet also accompany changes in lifestyle. People tend to consume foods high in energy (protein, carbohydrates, fat) and low in fiber. As a result, the incidence of overweight and obesity increases.[6] Low consumption of vegetables and fruits, which are the primar y sources of fiber in daily food consumption, also contributes to the incidence of overweight and obesity. According to the data from the HDSS cycle 4 study in 2018, it is known that

only 17.1% of people in Seyegan consume vegetables and fruits adequately, while the other 89.1% still consume them below the recommendations. Lack of physical activity and poor diet will lead to the development of NCDs.[5]

To tackle the emergence of NCDs in Indonesia, the government has been deploying several strategies.[7] One of the strategies is *posbindu*, which is a community-based program focusing on health that works independently and continuously under the guidance of local health centers (*puskesmas*). *Posbindu* targets those who are healthy, at-risk, and people with NCDs aged more than 15 years. *Posbindu, which focuses on NCDs,* is usually known as *posbindu Penyakit Tidak Menular (PTM,* Indonesian translation of NCDs). Focusing on promoting and preventing NCDs, *posbindu* PTM's programs include promoting a healthy lifestyle, conducting monthly health screening, and monitoring the risk factors in the community so that the risk and the progress of NCDs can be detected early and people who suffer from NCDs can be treated immediately. This program is proof that the government is committed to preventing the risk of increasing cases of NCDs in Indonesia.[8] However, since most government programs only focus on the curation and rehabilitation of NCDs, the resources allocated to *Posbindu's* programs are limited.[7] On the other hand, since the recruitment of the *posbindu's* cadres is voluntary, most of the cadres do not have formal education on health and may not be familiar with health screening tools.[9] Therefore, a continuing seminar and workshop related to health is necessary to increase the knowledge and skills of the cadres.

Through observations and brief interviews with *Puskesmas* Seyegan, it is known that *posbindu PTM* has been active since 2017. However, due to the COVID-19 pandemic, the programs by the *posbindu PTM* in Seyegan have been inactive. According to Purdiyani,[10] most respondents had poor knowledge about *posbindu PTM* service facilities and non-communicable diseases (58.5%), where most respondents did not know about *PTM* early detection activities in *posbindu PTM* activities, did not know the risk factors for *PTM* and did not know how to prevent non-communicable diseases.[10] Additionally, seminars and workshops related to basic health screening and NCD prevention involving *posbindu's* cadres have not been done in years due to limited personnel and funding, resulting in a lack of awareness, knowledge, and skills of the cadres. A study by Nugraheni and Hartono shows that intensive training for cadres from the medical staff improves the cadres' motivation to continue conducting *posbindu's* programs in their community.[9] Therefore, revitalization of *posbindu PTM* in Seyegan is essential to lower the incidence of NCDs.

The *Kelas* MASK project aimed to revitalize *posbindu PTM* in Seyegan by empowering posbindu cadres by improving their knowledge, understanding, and skills related to the risk factors, complications, and prevention of NCDs and the role of nutrition. Using lectures, demonstrations, and practices, this project hoped that this could be a preventive effort to prevent the incidence of NCDs in the population.

METHOD

Participants

This activity's participants were *posbindu* cadres in Seyegan Sub-district who were selected using a consecutive sampling technique. The selected number of participants was 31 cadres from six *posbindu*: *Posbindu* Mandungan II, *Posbindu* Mriyan X, *Posbindu* Grogol, *Posbindu* Somokaton, *Posbindu* Pendekan, and *Posbindu* Samorai.

Location, Time, and Duration of The Activity

This activity was carried out for approximately six months, May - October 2022, in Seyegan Sub-district, Sleman, Special Region of Yogyakarta, Indonesia. It consists of a preliminary survey, preparation of materials and instruments, workshop implementation, and data collection and analysis.

Methods

This project was named the *Kelas* MASK project, which was a workshop that consisted of a series of events held for *posbindu* cadres as participants. *Posbindu PTM* workshop was delivered in the format of *Kelas* MASK (*Materi* & Skills), lecture, and skills-based classes. This *Kelas* MASK consisted of lecture classes, which covered topics related to NCDs, nutrition, healthy lifestyles, and preventive measures, while the skills class was a demonstration and practice by *posbindu* cadres, including skills in measuring nutritional status, blood pressure, and simple biochemistry measurement.

The method in this *Kelas* MASK was through counseling/lecture, practice, and demonstration. The primary method used in this activity was the lecture about health. Lecture is a method of health promotion that is often carried out, effective, and easy to implement. Having the dissemination of information at one time with a massive audience will save time, money, and effort. It is hoped that this method can instill and transmit knowledge and easy to understand to participants so that they can improve their behavior. In "Lecture" day, there were four sessions in each of these health lecture meetings: pre-test, lecture, discussion, and post-test (Figure 1). Before (pre) and after (post) each lecture, the participants were given a questionnaire consisting of a list of questions related to the given material, which they then filled. The pre-tests and post-tests were intended to measure knowledge and the level of understanding after being explained the material at the lecture sessions.

In addition to the lecture classes, the skills class contained demonstrations and practices related to skills in nutritional status measurement. Similar to the lecture classes, pre-tests and post-tests were also conducted before and after the skills class to measure the level of understanding after being explained the material at the skills session. Additionally, the facilitators observed and scored participants' performance during the skills class. The skills evaluated in this study included the measurements of body height (using a microtoise, GEA, Indonesia), body weight (using a body-weight scale, GEA, Indonesia), waist and hip circumference (using a metline, MikroMedik, Indonesia), blood pressure (using a digital tensimeter, Omron, Japan) and simple blood biochemical analysis (using skin-prick method, Terumo, Japan) (Figure 2). The simple home blood biochemical test device


Figure 1. Lecture day in Kelas MASK.


Figure 2. Skills day in Kelas MASK.

used in this study has been commonly used in households and it is safe to be operated by a non-medical staff. All instruments used in this session had been adapted to the standard instruments used at the local health center (*puskesmas*).

The practical method is a method carried out by doing direct practice in accordance with the material presented to *posbindu PTM* cadres. Direct practice is an educational experience that actively involves participants to increase knowledge or experience. The purpose of this method was to have higher skills than what had been learned, apply the theory that had been given, and the participants could practice the material provided so that they could do it correctly. All research protocols were approved by the Medical and Health Research Ethics Committee, Universitas Gadjah Mada (approval no. KE/FK/0783/EC/2022) and were carried out in accordance with Indonesian code of practice for clinical studies.

Data Collection and Analysis

Data was collected by filling out the participant characteristics questionnaire and the pre- and post-test questions. The obtained data are demographic data and pre and post-test results. The pre- and post-tests consisted of 25 questions, each test which covered the given material. Each correct answer scored 1 point, and the maximum total correct answers for pre- and post-test was 25 points in every session. The data is then analyzed and displayed in tables and described in narrative. The data demographics are presented in the frequency table. To evaluate the level of participants' understanding of the given lecture, the pre and post-test data were analyzed using the paired T-test.

RESULT

The *Kelas* MASK project was a promotional activity in the health sector that aimed to introduce the risk of NCDs and explain how to prevent them. This program was initiated in Dusun Denokan, Maguwoharjo, Depok, Sleman, under the name of Kader Hidup Sehat, who empowered *posyandu* cadres to focus on NCDs.11 The current study focused on the population in Seyegan, Sleman.

Out of the initial number of participants, which was 31 people, 2 people exited the project halfway and were thus excluded from the analysis. Therefore, the total number of participants who joined the complete program was 29 people. The characteristics of the participants, including names, *posbindu* name, gender, cellphone number, age, occupation, education level, and length of time as a cadre, were investigated using a questionnaire. The characteristics of the participants is presented in Table 1. We identified that the participants were dominated by age 41-50 years (34.48%) and were housewives (79.31%) with senior high school degrees (68.97%).

From the results of the pre-and post-test data analysis, this study revealed that the short workshop activity resulted in a significant improvement of knowledge and understanding of NCDs in every *posbindu* (Figure 3). Between the pre-and post-tests, there were significantly higher scores in the post-test than the pre-test for both lecture (10.29±1.92 vs. 9.36±1.85, p = 0.0112) and skills sessions (9.03±1.27 vs. 5.73±1.41, *p* = 0.0000) (Table 2). This indicates that the *Kelas* MASK project could improve the understanding related to NCDs and the nutrition of *posbindu's* cadres. In addition, the skills day successfully increased the understanding of the cadres by 3.3 points, higher than that observed on lecture day (0.93 points).

DISCUSSION

Training programs have been widely recognized as effective in improving the knowledge and skills of health cadres. These activities include structured training programs, workshops, seminars, on-the-job training, and continuing education initiatives.[12-16] Cadre training is beneficial in improving cadres' understanding of various health issues and will have a good impact on the implementation of *posbindu*.[17,18] Setiawan and Dermawan19 state that the health education that runs successfully in the community depends on the learning component. Audiovisual media plays a vital role in the delivery of knowledge to be conveyed. The use of health education media is an essential component of the learning process.[19] An attractive media will provide confidence so that affective and psychomotor cognitive changes can be accelerated. Audiovisual is a medium that presents information or messages in an audio and visual manner. This is because the senses that work in

Table 1. Participants' Characteristic

No.	Characteristics (n=29)	Total (n)	Percentage (%)
1	**Age**		
	< 20 y.o.	2	6.90
	21-30 y.o.	4	13.79
	31-40 y.o.	7	24.14
	41-50 y.o.	10	34.48
	>50 y.o.	6	20.69
2	**Sex**		
	Male	0	0.00
	Female	29	100.00
3	**Education Level**		
	Junior High	5	17.24
	Senior High	20	68.97
	Bachelor	4	13.79
4	**Occupation**		
	Student	5	17.24
	Retired	1	3.45
	Unemployed/Housewives	23	79.31
5	**Length of time as a cadre**		
	<5 years	19	65.52
	6-10 years	6	20.69
	>10 years	4	13.79

Table 2. Result of *Kelas* MASK

	Pre-test (mean±SD)	Post-test (mean±SD)	p-value
Total	14±4.07	18.03±4.22	0.0000*
Lecture day	9.36±1.85	10.29±1.92	0.0112*
Skills day	5.73±1.41	9.03±1.27	0.0000*

**significant (P<0.05)*

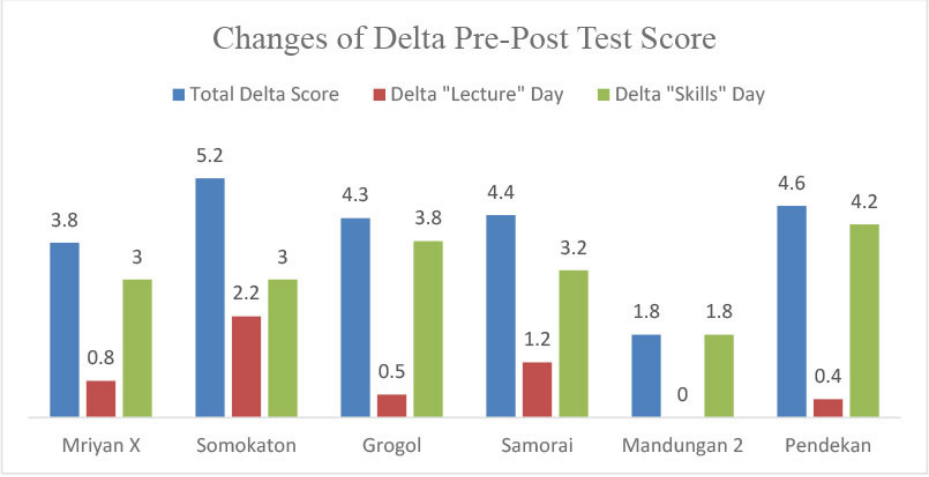

Figure 3. Changes of pre- and post-test scores based on each *posbindu*.

processing the information provided work synergistically, in this case, sight and hearing.[19]

Furthermore, Kapti[20] reported that an increase in knowledge and attitudes after an extension education intervention is the result of providing health education with audiovisual media. Thus, the audiovisual media as a medium for health education is effectively used to improve knowledge and change attitudes for better results.[20] In addition, Kusuma and Puspitaningsih[21] stated that training methods using simulations can teach cadres to become more aware and accustomed to the application of protocols when carrying out the duties in *posbindu PTM* programs. This is in line with the current study which revealed that demonstrations and practices improve the cadres' understanding better than lectures.

The process of understanding and behavioral changes starts with improving knowledge. Knowledge can be obtained from the educational process, such as formal education, seminars, workshops, and training. The level of formal education is the basis of someone's intellectual knowledge. This is closely related to knowledge; the higher the ability to absorb and receive information, the more knowledge and insight are broader; besides that, the level of education is one of the factors behind expertise, which in turn affects behavior.[22]

Community empowerment projects to improve the skills and knowledge of cadres using the workshop method have been done and have shown several benefits. For instance, this method is relatively easy to conduct and low-cost and also has positive outcomes and responses.[23,24] One possible disadvantage is the cadres become too dependent on what else they would receive in the future. This dependency usually expects aid on health equipment or further similar activities from experts (health workers) or other parties because most cadres do not have health educational knowledge.

The *Kelas* MASK project has a bigger goal. By providing sustained and larger-scope education to the population, it is hoped that better behavior toward health practice will change. Later, the promotional process will continue with the presence of other *Posbindu* cadres who will provide good examples for the community so that a population that is aware of nutrition and health is created.

The results observed in this study should be taken with caution as it was conducted in a relatively short duration. Thus, it may not represent the long-term effect of the intervention. Future studies conducted over a longer period are needed to evaluate the *Kelas* MASK project's effect on posbindu cadres' comprehension skills and knowledge retention over a certain time.

CONCLUSION

Kelas MASK activity for cadre has succeeded in increasing participants' understanding of degenerative diseases. Supported by health services, it can provide

an overview of the participants' health while providing benefits in the form of new knowledge updates related to health. Monitoring and evaluation of *posbindu PTM* activities are needed to ensure the quality and sustainability of the program. In addition, scheduled and continuous refreshment of materials related to *posbindu* and NCDs is also needed for cadres. Moreover, further community empowerment programs adopting more comprehensive curriculum that focuses on improving teaching and training methods are needed to increase the engagement or knowledge of the cadres.

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CONFLICT OF INTERESTS

None.

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Contribution Details (to be ticked marked as applicable):

	Contributor 1	Contributor 2	Contributor 3	Contributor 4	Contributor 5
Concepts	√	√	√	√	
Design	√		√	√	√
Definition of intellectual content	√	√	√	√	√
Literature search	√	√		√	√
Clinical studies					
Experimental studies	√	√	√	√	√
Data acquisition	√	√	√	√	√
Data analysis	√	√		√	
Statistical analysis	√	√		√	
Manuscript preparation	√	√	√	√	√
Manuscript editing	√	√	√	√	√
Manuscript review	√	√	√	√	√
Guarantor	√	√	√		