Improving Hypertension Prevention and Knowledge Level in Jatisari Village, Pakisaji District

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Abstract. *Riset Kesehatan Dasar* (Riskesdas) 2018 shows that hypertension is one of the highest risk factors for noncommunicable diseases at productive age. It is refferred to as silent killer as it signs are not obvious, yet its effect can be fatal. The monthly health report of Pakisaji District Public Health Center shows hypertension as the most common disease in the district (2696 cases), with one village, Jatisari, has the lowest hypertension healthcare services (4.96%). This two-phase study aimed to improve the knowledge of productive age villagers in Jatisari. We performed the pre-intervention phase using a pre-experimental design and a quantitative approach. Data collection determined the target demographic, knowledge, attitude, and behavior. Samples were chosen consecutively. The intervention phase used a one-group pretest-posttest design. Findings showed that the villagers had the lowest knowledge level on hypertension and lacked exercise. The socialization and exercise improved the knowledge level and community behavior.

Keywords: Hypertension; socialization; exercise; pakisaji; noncommunicable disease; productive age

1 Introduction

World Health Organization (WHO) stated that 71% of the global cause of death in 2016 was Noncommunicable Disease which claimed 36 million lives annually. About 80% of death occurred in low-middle-income countries. In 2019, non-communicable diseases caused 74% of deaths (35% heart and blood vessel disease, 12% cancer, 6% chronic respiratory diseases, 6% diabetes, and 15% other noncommunicable diseases). Sustainable Development Goals (SDGs) 2030 established a global strategy to combat the high rate of noncommunicable disease mortality. Each country, especially developing countries, needs to prioritize SDGs development. Risk factors such as unhealthy diet, excess body mass index or obesity, lack of physical activity, high blood pressure, blood sugar, smoking, and alcohol consumption increased the mortality rate of noncommunicable diseases [1].

Based on [2], there is increasing risk factor prevalence in the productive age: (1) high blood pressure (8.3% to 34.1%), (2) obesity (7% to 21.8%), and smoking (1.9% to 9.1%). SDGs 2030 aimed to reduce early death due to noncommunicable disease by 25%, tobacco consumption by 30%, lack of physical activity by 10%, salt intake by 30%, alcohol consumption by 10%, and deter diabetes/obesity (0%). Furthermore, SDGs 2030 aim to increase coverage of essential

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medicines and noncommunicable disease treatment technology by 80%, and coverage of pharmacological therapy and counseling to prevent heart attacks and strokes by 50%.

Hypertension refers to a condition of systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg measured at clinics or health care facilities [3]. Hypertension increased the rate of illness, mortality, and health cost burden at the global level. Hypertension may damage vital organs such as the heart, brain, kidney, retina, arteries, and peripheral. [2] stated that Indonesian hypertension prevalence increased to 34.1% (88 million people). The symptoms of hypertension are not usually obvious and therefore often called the silent killer. Hypertension symptoms are headache, anxiety, increasing heartbeat, dizziness, blurry eyesight, pain in the chest, and tire easily.

The high rate of hypertension requires special attention. The government established Government Regulation No. 2 of the Year 2018 on Minimum Service Standard (*Standar Pelayanan Minimal*) 2 and Ministry of Health Regulation No.43 the Year 2016 on SPM. Furthermore, the government started priority programs aimed to reduce the rate of noncommunicable diseases such as hypertension. The priority program referred to National Medium Term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional* - RPJMN) 2015 - 2019 and Strategic Plan (*Rencana Strategis* - RENSTRA) 2015 - 2019. RENSTRA targets 50% of Public Health Centers to perform Noncommunicable Disease Control Services Training (*Pelatihan Pelayanan Terpadu Penyakit Tidak Menular* - PANDU PTM[1]), 50% of villages or urban villages to perform Integrated Development Post (*Pos Pembinaan Terpadu* - Posbindu[2]) on noncommunicable disease, and 50% of Regencies/Cities to implement Non-Smoking Areas in 50% of the schools. Health promotion efforts can be carried out from the primordial, primary, secondary, to tertiary prevention stages. Health promotion may change community behavior, increase public knowledge and awareness regarding hypertension prevention and treatment [4].

Pakisaji Public Health Center is located at Jalan Raya Pakisaji No.19, Pakisaji District, Malang Regency, East Java, Indonesia. The aforementioned Public Health Center is to move to Jalan Raya Karangduren No.1, Pakisaji District, Malang Regency, East Java, Indonesia. Pakisaji Public Health Center established Community Health Effort (*Upaya Kesehatan Masyarakat*[3]) 2022 health program that for Women, Children, and Elders at 12 villages in Pakisaji District. The health program was conducted in Integrated Health Centers (*Pos Pelayanan Terpadu* - Posyandu). Furthermore, the public health center established School Health Effort (*Upaya Kesehatan Sekolah*[4]) program in elementary schools to high schools, Student Immunization Month (*Bulan Imunisasi Anak Sekolah* - BIAS[5]). In addition, the public health center conducted health promotion and COVID vaccination.

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[1] Prevention and management of Noncommunicable Diseasess through increasing the capacity of officers in early detection services, monitoring and management of Noncommunicable Diseases through a risk factor approach using hypertension and diabetes management entry points

[2] Monitoring activities and early detection of risk factors for integrated non-communicable diseases as well as disturbances due to accidents and acts of domestic violence managed by the community through integrated coaching

[3] Every activity to maintain and improve health as well as prevent and overcome health problems that targets families, groups and communities

[4] Efforts to develop healthy living habits through education programs and health services. Aims to reduce morbidity and improve the mental, physical and social health of students

[5] National Health Program covering the provision of immunization to primary school children once a year

[5] showed that the Indonesian hypertension prevalence level is 17.8%. Furthermore, [2] showed that the hypertension prevalence level is 34.1% (260 million people). Hypertension prevention covers controlling risk factor behavior such as smoking, unhealthy diet (lack of vegetable and fruit consumption; excessive salt, sugar, and fat consumption), obesity, lack of physical activity, alcohol consumption, and stress. [2] showed that community members > 15 years old has the following risk factor: lack of vegetable and fruit consumption (95.5%), lack of physical activity (35.5%), smoking (29.3%), central obesity (31%), and general obesity (21.8%). The aforementioned data showed increased risk factor value compared to Riskesdas 2013 [2].

Based on the Monthly Report of Morbidity Data (*Laporan Bulanan Data Kesakitan* - LB1) and Public Health Center Report (*Pelaporan Puskesmas* - SP3) of Pakisaji Public Health Center, Malang Regency, January 2022 - October 2022, the five most common illnesses are primary hypertension (2696 cases), acute nasopharyngitis or common cold (2170 cases), upper respiratory infection (1069 cases), non-insulin dependent Diabetes Mellitus (1003 cases), and Myalgia (558 cases). The annual Report of Pakisaji Public Health Center showed that the following villages have the lowest hypertension healthcare service: Jatisari Village (4.96%), Permanu Village (5.89%), Pakisaji Village (8.31%), Karang Pandan Village (9.55%), and Kebonagung Village (10.48%). Malang Regency SPM Report August 2022 stated that SPM on productive age covered 37.35% of the population (626,298 people), and hypertension health care service covered 26.05% of the population (214,634 people). Based on the aforementioned data, Malang Regency has a low rate of SPM (under 100%). The lack of hypertension data collection, noncommunicable disease screening, and the large distance between sub-districts and health facilities reduced the health care quality in Jatisari Village. In addition, the lack of socialization and the community's ability to understand health information (which relies on the level of education and individual understanding) influenced the knowledge level on hypertension in Jatisari Village. Furthermore, the lack of management program, inaccurate data collection, cross-program reports and networks, slow ePuskesmas data input, and hypertension management reduced the hypertension SPM value in Jatisari Village.

This research aimed to determine the knowledge level of community members and improve hypertension prevention in Jatisari Village, Pakisaji District, Malang Regency, East Java Province, Indonesia. Jatisari Village is a village located in Pakisaji District, Malang Regency. Jatisari Village has 7 Community Units and 25 Neighborhood Units. Jatisari Village has 37.8 hectares of land consisting of 3 hamlets: Jatisari Hamlet, Tambaksari Hamlet, and Pendem Hamlet.

2 Method

We conducted two-phase research: pre-intervention and intervention. Pre-intervention used a pre-experimental design and quantitative approach. The data collection used a questionnaire to determine the target behavior, attitude, and action on hypertension. We collected samples using consecutive sampling. We analyzed data by counting questionnaire results using the percentage method on each aspect.

The intervention phase used the pre-experimental method and one group pretest-postest design to determine the respondent's knowledge of the same group before and after the intervention. The intervention referred to anti-hypertension exercise and general hypertension socialization (*Senam dan Penyuluhan Hadapi Hipertensi* - SEHATI) using PowerPoint media..

2.1 Pre-intervention Phase

During the pre-intervention phase, we distributed questionnaires to the research population. The pre-intervention phase was conducted on 6th December 2022 in Jatisari Village, Pakisaji District, Malang Regency. We distributed questionnaires to 35 community members of productive age (15 - 59 years old) during the Mawar Merah Integrated Health Center program at Jatisari Village Health Center and Distribution of Village Fund Cash Assistance (*Penyaluran Bantuan Tunai Dana Desa* - BLTDD) 2022 for Beneficiary Family in Jatisari Village Hall.

Furthermore, we collected respondent data to determine community demographic, knowledge, attitude, and behavior toward hypertension. The questionnaire consisted of: 9 questions on demographic, 11 questions on hypertension knowledge, 5 questions on attitude, and 9 questions on behavior. We analyzed the questionnaire result descriptively to determine the risk factor that increased the hypertension value in Jatisari Village. We determined the priority list using the Modified Hanlon Pan American Health Organization (PAHO). In addition, we used fishbone analysis to determine risk factors and contributing risk factors.

2.2 Intervention Phase

We conducted the intervention phase on December 17, 2022, during the "Mama Mia" event. The "Mama Mia" event is a coloring contest of TK (kindergarten) Bahrul Ulum that involved the students' mothers and/or parents to commemorate Mother's Day at Jatisari Village Hall. The 55 respondents were present during the intervention phase; however, we took 30 respondents as the sample. We conducted socialization and anti-hypertension exercise. The intervention phase covered SEHATI program. We used pretest and posttest to determine respondents' knowledge level on hypertension. The dependent variable was the knowledge level of hypertension. The independent variable was intervention (socialization in the treatment group).

3 Findings and Discussion

3.1 Respondents

The research respondents are the parents of TK Bahrul Ulum students that participated in the "Mama Mia" event. We collected 55 respondents with the following characteristics: aged between 15 - 59 years old and female gender. About 38 respondents were married, 21 respondents' highest education level was Junior High School, 21 respondents' highest education level was Senior High School or Vocational High School or its equal, 10 respondents' highest education level was Elementary School, 2 respondents highest education level was Bachelor/Masters/Doctorate, and 1 respondent did not attend school.

3.2 Process Evaluation

Based on LB1 and SP3 of Pakisaji Public Health Center January 2022 to October 2022, primary hypertension is one of the most common illnesses in Pakisaji District (2696 cases). The annual Report of Pakisaji Public Health Center showed the that the following villages have lowest hypertension healthcare service: Jatisari Village (4.96%), Permanu Village (5.89%),

Pakisaji Village (8.31%), Karang Pandan Village (9.55%), and Kebonagung Village (10.48%). We and Pakisaji Public Health Center chose Jatisari Village due to the low level of hypertension care coverage. We screened noncommunicable diseases, and conducted SEHATI to analyze Jatisari village residents as much as possible, allowing the public health center to diagnose, implement, and monitor hypertension care quickly and equally. Therefore, residents suffering from hypertension may receive immediate care and prevent future complications. The obstacle during the intervention phase was children flocking to their parents after finishing the coloring contest. Furthermore, socialization and exercise did not fully represent the entirety of Jatisari Village and its hamlets. However, the community easily accessed the intervention. More village residents attended the intervention than the initial target due to the "Mama Mia" event.

3.3 Impact Evaluation

Table 1. Pretest and Posttest Result Frequency

	Category	Frequency (n)	Percentage (%)
Pre-Test	0 - 20 Low)	0	0%
	40 - 60 (Medium)	38	69.09%
	80 - 100 (High)	17	30.90%
Post-Test	0 - 20 (Low)	2	3.63%
	40 - 60 (Medium)	2	3.63%
	80 - 100 (High)	51	92.72%

Table 2 Kolmogorov-Smirnov Normality Test Results

Parameter	P-value	Interpretation
Pre-Test	0.000	Obtained p-value <0.05, therefore data is not normally distributed
Post-Test	0.000	

We analyzed intervention result using the Kolmogorov-Smirnov normality test. The normality test result showed a p-value of 0.000 ($p < 0.005$) which indicates that the data is not normally distributed.

Ranks

		N	Mean Rank	Sum of Ranks
Post-test - Pretest	Negative Ranks	2[a]	7.75	15.50
	Positive Ranks	50[b]	27.25	1362.50
	Ties	3[c]		
	Total	55		

a. Post-test < Pretest

b. Post-test > Pretest

c. Post-test = Pretest

Test Statistics[a]

	Post-test - Pretest
Z	-6.177[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Figure 3 and 4. Comparative Test of Respondent Pretest and Posttest

The Wilcoxon Test method compared the knowledge level of the respondents before and after the intervention. The comparative test obtained a comparative value of 0.000. As the comparative value is smaller than 0.05, the intervention showed a significant result. The average test score increased significantly. The pretest score was 52.27 and the posttest score was 85.09. Therefore, SEHATI intervention increased the level of community knowledge on hypertension.

Jatisari Village has the lowest coverage of hypertension health care in the Pakisaji District. One of the causes was the low rate of screening in Jatisari Village. In addition, the community lacked information on hypertension. Therefore, the majority of the intervention program had average pretest results of 40-60 (69.09%).

Based on screening results during the pre-intervention phase, the majority of the respondent's education level was Elementary School. The screening result supported [6] who stated that low education level reduces health literacy level (in this case, hypertension). Health literacy refers to the cognitive and social ability that determines individual motivation and ability to obtain access to health services, and understand and utilize health information well [6]. The low literacy level affected community behavior to illness and increased hypertension prevalence [7]. During the pre-intervention phase, 77.14% of the respondents stated that they checked their blood pressure when they were ill. Jatisari Village residents do not understand the importance of measuring blood pressure and therefore tend to forgo it. The research result supported [8] who stated that the majority of patients perform health tests when they can recognize symptoms such as headache, nausea, and blurry eyesight [8].

Based on the research result, it is necessary to educate the community on hypertension and its prevention. The Jatisari Village community showed a significantly increased post-test score after the intervention process (socialization and exercise).

5 Conclusions and Recommendations

5.1 Conclusions

The research aimed to improve hypertension knowledge levels and prevention. We performed an intervention on communities at productive age. The pre-intervention questionnaire covered demographic data, knowledge, attitude, and behavior of 35 respondents from Jatisari Village present in the Integrated Health Center, Integrated Development Post, and BLT-DD events at Jatisari Village Hall. We determined intervention material using the questionnaire result.

During the pre-intervention phase, we found that the highest risk factor of hypertension is: lack of hypertension knowledge (80.00%) and lack of physical exercise (77.14%). Therefore, we performed a SEHATI health promotion program for 55 respondents on 17th December 2022 at Jatisari Village Hall, Pakisaji District, Malang Regency, East Java Province, Indonesia.

Hypertension is the most common noncommunicable disease and increases mortality rate. Furthermore, hypertension symptom is often hard to detect, and therefore called the silent killer. In addition, hypertension increased health care costs and burdens. It is necessary to perform health promotion to encourage primary and secondary prevention. The SEHATI program obtained an average pretest score of 52.27 and posttest of 85.09. Therefore, the SEHATI program may encourage community behavior shifts, and improve community knowledge and awareness of hypertension prevention and management. Performing health promotion may improve hypertension healthcare coverage in Jatisari Village.

5.2 Recommendations

To decrease the hypertension rate in Jatisari Village, it is necessary to increase the coverage of hypertension screening on community members at productive age, perform anti-hypertension exercises routinely (using prepared videos and led by local volunteers), conduct socialization in the wider community, increases Public Health Center training on local volunteer, refresh volunteers' knowledge on noncommunicable diseases such as hypertension, and improve volunteers' ability to educate the community on the dangers of hypertension and the importance of attending hypertension screening at Integrated Development Posts.

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