

# Factors Associated with Community Visits to Integrated Non-Communicable Diseases Development Posts (Posbindu PTM)

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## ABSTRACT

**Background:** Non-communicable diseases are encountered quite often in productive age. Early detection efforts through Posbindu-PTM must be optimized, considering many people still need to gain awareness. What factors play a role in POSBINDU PTM visits in the Tambakharjo is unknown.

**Method:** This research is an observational study with a cross-sectional approach. Systematic sampling was used for 158 people from Tambakharjo aged  $\geq 15$  years. Sociodemographic data, history of non-communicable diseases, hypertension knowledge, and POSBINDU PTM visits were collected by interview during November 2023.

**Result:** The research results showed that 22.2% of respondents visited Posbindu-PTM. The multiple logistic regression test showed that the factors that contributed to 99% of POSBINDU PTM visits in Tambakharjo District were ownership of medical equipment (OR=0.332; 95%CI. 0.130-0.845), lack of knowledge about hypertension (OR= 2.300; 95%CI. 0.948-5.579), age  $\leq 45$  years (OR=2.53; 95%CI. 1.087-5.393), male gender (OR=6.042; 95%CI=1.677-21.778). The results of this study only describe individual factors. Further studies on psychological factors and the social environment are necessary.

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## INTRODUCTION

Non-communicable diseases (NCDs) are diseases that cannot be transmitted from person to person and whose development is slow over a long period (chronic). WHO estimates that NCDs kill 41 million people every year (74% of all deaths globally), and cardiovascular disease is the most common cause of death.(1) Morbidity rates for non-communicable diseases at both global and national levels show an increasing trend. The prevalence of NCDs tends to increase and consumes the most significant portion of funding in the National Health Insurance (JKN). Currently, PTM is quite common in young people (productive age). One type of NCD that usually initiates a non-communicable disease is hypertension.(2) Hypertension rates in Indonesia continue to increase every year. As many as 1 in 3 Indonesians suffer from hypertension.(3) Based on the results of primary health research (RISKESDAS), there was an increase in the prevalence of hypertension between 2013 and 2018, increasing from 31.7% to 34.1%.(4)

NCD recapitulation data in Central Java in 2019 shows that the most significant proportion of hypertension is 68.6%, with the highest hypertension in Karanganyar Regency, and the city of Semarang is in fourth place with a prevalence of 37% of the population aged over 15 years.(5)(6) One form of government effort in prevention

and control is a comprehensive approach, focusing on early detection and monitoring of risk factors for non-communicable diseases, especially cardiovascular diseases. Early detection provides an opportunity for health service providers to treat PTM optimally, hoping to reduce negative impacts that arise in the future.

In 2022 and 2023, based on the Village Mufakat Deliberation (MMK) in Tambakharjo sub-district, Hypertension will be the main priority health problem. One of the efforts to control and prevent hypertension in this sub-district is to carry out early detection and risk factor monitoring activities, which are carried out in an integrated, routine manner every month through POSBINDU-PTM. Initial survey results show that in the Tambakharjo sub-district, there is 1 Posbindu-PTM, which is held once a month at the sub-district hall, with the level of community participation still less than the number of productive-age residents in the sub-district. Previous research results show that Posbindu-PTM visits in the Bandarharjo Community Health Center working area in 2022 will only be 14.5%, with the factors contributing to Posbindu-PTM visits being the level of education, knowledge, attitudes, and perceptions.(7) Meanwhile, other research results show that the factors related to Posbindu-PTM visits in the Mulyoharjo Health Center working area in Pemalang are gender, marital

status, knowledge, attitudes, and cadre support.(8) Other research shows that factors related to Postbindu-PTM visits are age and occupation.(9) Based on previous research, different factors play a role in Posbindu-PTM visits. It is not yet known what factors influence Posbindu-PTM's visit to Tambakharjo. Therefore, this study aims to determine what factors influence Posbindu-PTM's visit to Tambakharjo Semarang.

## **METHOD**

This research uses analytical observation methods with a cross-sectional approach. The target population in this study is people aged  $\geq 15$  years, and the target population is people who live in the Tambakharjo sub-district. Of the 7 areas (RWs) selected, 3 RWs were RW 01, RW 02, and RW 07. The selection of these 3 RWs was based on the village head's recommendation because the other 4 RWs are elite housing areas. The number of samples in this study was 158 people taken using probability sampling techniques using the systematic sampling method. The inclusion criteria in this study were that residents who lived in the Tambakharjo sub-district could communicate well, and only 1 sample was taken from 1 house. The exclusion criteria in this study were residents who refused to be part of this study. The number of samples for each RW is calculated based on the proportion of the number of houses in that RW. Systematic sampling was carried out by mapping the location. Sampling started from the row of homes on the left at the very end of the entrance alley, and the following sample was taken by jumping two houses from the previous sample. The dependent variable in this study is Posbindu-PTM visits. In contrast, the independent variables in this study are age, gender, employment status, marital status, family income, knowledge about hypertension, ownership of health equipment (tension meter, GDS measuring device, and other blood examination tools), ownership of insurance, Personal NCD history, family NCD history, and NCD risk factors. The questionnaire used has gone through validity and reliability tests. Improvements to the questionnaire were made once. The questions will be corrected or deleted for validity and reliability tests that show invalid and unreliable results. Data collection was carried out within 1 month in November 2023. Bivariate analysis uses the chi-square test. The bivariate analysis results with a p-value  $\leq 0.25$  will be analyzed further using multiple logistic regression with a significance level of 95% using the backward (LR) method. This research procedure was reviewed and approved by the research ethics committee (KEP) at Dian Nuswantoro University, following WHO 2011 standards and guidelines and the CIOMS 2016 guidelines.

## **RESULT AND DISCUSSION**

One type of NCD that usually initiates a non-communicable disease condition is hypertension.(2) Hypertension is called a silent killer, which is usually diagnosed by chance. The consensus deliberations in the Tambakharjo sub-district prioritize hypertension as a health problem in 2023 and 2024. One of the efforts to overcome the problem is holding monthly Posbindu-PTM activities.

The integrated development post for non-communicable diseases (POSBINDU-PTM) is one of the Public Health Efforts oriented towards promotive and preventive efforts in controlling non-communicable diseases (PTM) by involving the community according to their abilities and needs, starting from planning, implementation, and monitoring as well as assessment.(10)

The research results showed that 22.2% of respondents had visited POSBINDU PTM. As many as 55.1% of respondents had never heard of Posbindu PTM. The results of the univariate analysis show the characteristics of the respondents, which can be seen in Table 1. Most of the respondents were female (69.6%), with an average age of 42.8 years; 87.3% of respondents were married, 59.5% were working, 43.7% had completed high school education, 55.1 % of respondents had simple health measurement tools, and the highest monthly family income is in the income group of 2-4 million rupiah. For complete results, see Table 1.

Based on Table 2, the results of the chi-square test show that five factors have a role in Posbindu-PTM visits in the Tambakharjo sub-district, namely age  $\leq 45$  years ( $P = 0.023$ ; OR = 2.44 95%CI. 1.12-5.36), Type Male gender ( $P = 0.001$ ; OR =6.15 95%CI.1.78-21.24), Lack of knowledge about hypertension ( $P = 0.034$ ; OR= 2.38 95%CI. 1.05- 5.38), working status ( $P = 0.002$ ; OR = 3.26 95%CI. 1.49-7.12), and having health equipment ( $P = 0.027$ ; OR = 0.39; 95% CI. 0, 17-0.91).

The cross-tabulation results in Table 2 show that marital status is unrelated to the Posbindu-PTM visits. The study's results showed that respondents with married status did not visit the Posbindu-PTM as much as 81.3% more than those who were not/not married (18.7%). According to Lubis's research, citing Ronald Anderson's opinion, marital status is a predisposing factor in determining the use of health services. Driving factors refer to an individual's tendency to use health services, determined by various variables such as demographics, social conditions, and attitudes or beliefs.(11) This study is not in line with previous research, which stated that there is a relationship between the marital status of respondents and visits to the Puri Praja Posbindu. People with married marital status tend to visit health services because of support from their partners.(8) Education level, in general, is one of the

predictors of non-communicable diseases and utilization of health services.(12) Fundamental Cause Theory (FCT) states that social factors such as education are fundamental causes of health and illness because these factors determine access to many resources.(13) Education will increase knowledge, skills, reasoning, effectiveness, and other individual abilities that benefit health. With higher education, a person gets a better job and a more stable income, which can be used to improve health.(14) Research results In Table 2, it can be seen that the level of education is not related to visits to the Posbindu-PTM. Respondents with higher education were more likely not to visit the Posbindu-PTM, which was 60.2% compared to respondents with lower education (39.8%). This may be because people with higher education have a perception of the Posbindu services and the Posbindu-PTM facilities they already have. Not much different from the level of education, the income factor is also not related to visits to the Posbindu-PTM, where based on table 2 shows that respondents with an income of more than 1,999,000 were more likely not to visit, which was 59.3%, compared to those with incomes below that, which was 40.7%. This is possible because of the respondents' ability to access screening services at the advanced health service level. Respondents with a history of non-communicable diseases who did not visit the Posbindu-PTM were fewer, namely 46.3%, compared to those who did not have a history of non-communicable diseases (53.7%). In comparison, respondents with a family history of non-communicable diseases who did not visit the Posbindu-PTM were 42.3%, fewer than those who did not have a family history of non-communicable diseases.

Table 2 shows eight candidates in the multivariate analysis, namely variables with a P value <0.25. Based on Table 3, the results of analysis using multiple logistic regression tests show that the factors that play a role in 99% of PTM Posbindu visits in the Tambakharjo sub-district area are ownership of medical equipment (OR=0.62; 95% CI. 0.352-1.095), insufficient knowledge of hypertension. (OR=1.862; 95% CI. 1.058-3.276), age ≤45 years (OR= 2.53; 95% CI. 0.226-0.912), and male gender (OR=6.042; 95% CI. 1.677 -21.778).

**Table 1.** Characteristics of respondents

Category	f	%
<b>Gender</b>		
Male	48	30.4
Female	110	69.6
<b>Age</b>		
≤45 Years	81	54
>45 Years	77	46
<b>Marital status</b>		
Single	20	12.7
Married	138	87.3
<b>Employment status</b>		
Unemployment	64	40.5
Employment	94	59.5
<b>Level of education</b>		
No Education	8	5.1
Not finished elementary school	12	7.6
Elementary School	21	13.3
Junior High School	28	17.7
Senior High School	69	43.7
Bachelor/Magister	20	12.4
<b>Family income</b>		
< Rp. 1.000.000	29	18.4
Rp. 1.000.000-Rp.1.999.000	41	25.9
Rp.2.000.000 -Rp.3.999.000	63	39.9
Rp. Rp.4.000.000-Rp.6.000.000	21	13.3
>Rp. 6.000.000	4	2.5
<b>Health measuring tool</b>		
No	70	44.3
Yes	88	55.7
<b>Hypertension knowledge</b>		
Poor	70	44.3
Moderate	88	55.7
<b>Ever heard Posbindu PTM</b>		
No	87	55.1
Yes	71	44.9
<b>Posbindu visit</b>		
Yes	35	22.2
No	123	77.8

**Table 2.** Bivariate analysis with chi-square test

Category	Visit		OR	95% CI	P-value
	No	Yes			
<b>Age</b>					
≤45 Years	69 (56.1)	12 (34.3)	2.44	1.12-5.36	0.023
>45 Years	54 (43.9)	23 (65.7)			
<b>Gender</b>					
Male	45 (36.6)	3 (8.6)	6.15	1.78-21.24	0.001
Female	78 (63.4)	32 (91.4)			
<b>Marital status</b>					
Single	23 (18.7)	4 (5.7)	1.78	0.57-5.55	0.313
Married	100 (81.3)	31 (88.6)			
<b>Level of education</b>					
Low	49 (39.8)	20 (57.1)	0.49	0.23-1.07	0.069
High	74 (60.2)	15 (42.9)			
<b>Knowledge</b>					
Poor	60 (48.8)	10 (28.6)	2.38	1.05-5.37	0.034
Moderate	63 (51.2)	25 (71.40)			
<b>Family income</b>					
≤ Rp.1.999.000	50 (40.7)	20 (57.1)	0.51	0.24-1.09	0.083
> Rp.1.999.000	73 (59.3)	15 (42.9)			
<b>Employment status</b>					
Employment	81 (65.9)	13 (37.1)	3.26	1.49-7.12	0.002
Unemployment	42 (34.1)	22 (62.9)			
<b>Personal history of NCD</b>					
No	66 (53.7)	22 (62.9)	0.68	0.37-1.48	0.335
Yes	57 (46.3)	13 (37.1)			
<b>Family history of NCD</b>					
No	71 (57.7)	20 (57.1)	1.02	0.47-2.19	0.910
Yes	52 (42.3)	13 (42.9)			
<b>Health measuring tool</b>					
Yes	21 (17.1)	12 (34.3)	0.39	0.17-0.91	0.027
No	102 (82.9)	23 (65.7)			
<b>Risk factors for NCD</b>					
≤ 3 Risk factors	81 (65.9)	27 (77.1)	0.57	0.23-1.36	0.205
>3 Risk factors	42 (34.1)	8 (22.9)			

Current technology supports people to monitor a person's condition or health condition at home. The medical devices in this research are tools used to monitor health indicators related to non-communicable diseases, enabling someone to manage their health services comfortably and independently (and cheaply), such as blood pressure devices and blood test equipment. There has been no publication regarding ownership of the equipment at home and previous Posbindu-PTM visits. The challenge for medical device users who do not use or use the device is that the owner often differs from the person who chose or purchased the device. The device owner may need more knowledge or have received more training in using the device. Another issue in the use of

medical devices is that it depends on individual characteristics such as physical condition, sensory condition, cognitive, literacy, mental health, emotional, educational level, training, motivation to use the device, perceived ease of use, and anything else.(15) Some people may know about specific self-care interventions and feel comfortable using them independently. In contrast, others may need more support and guidance before accepting and using them independently. Self-care interventions that require initiation by health and care workers or additional health and care worker support (e.g., to follow up on positive test results) must be linked to the health system and supported by it to be safe and effective.(16)

**Table 3.** Multivariate analysis

Variable	B	P	Exp(B)	95% CI
Have a health measuring tool	-1.103	0.021	0.332	0.130-0.845
Poor hypertension knowledge	0.833	0.065	2.300	0.948-5.579
Age ≤ 45 years	0.932	0.031	2.539	1.087-5.393
Male	1.799	0.006	6.043	1.677-21.778

Good knowledge of the benefits of early detection of hypertension, such as prevention, avoidance of complications, or earlier treatment, can encourage proactive behavior. Knowledge is crucial in motivating individuals to undergo early detection for various health conditions. It raises awareness of the risks associated with certain diseases, thereby encouraging preventive actions, such as early detection.(17)(18) The multiple logistic regression analysis results show that knowledge about hypertension is included in the model with an OR of 2.3, meaning that people with less knowledge have a 2.3 chance/chance that respondents will not visit the Posbindu-PTM. The 95% CI range for knowledge includes the number 1, providing uncertainty about whether a lack of knowledge about hypertension will increase or decrease the likelihood that someone will visit the Posbindu-PTM. Knowledge is one of the foundations for being aware of one's condition. Individuals with good knowledge will also know the importance of early detection.(19) The results of previous research conducted in Kediri showed a relationship between knowledge and awareness of early detection of non-communicable diseases. People with good knowledge are aware of early detection of NCD.(20) This research aligns with previous research showing a relationship between knowledge and Posbindu-PTM visits.(21)

Based on Lawrence Green's theory, age is an important predisposition factor in shaping individual health behavior. Age differences are often associated with variations in knowledge, experience, and risk perception, which in turn influence individual decisions and actions related to health. For example, older individuals may be more aware of certain health risks than younger individuals, making them more likely to engage in preventive behavior. Conversely, younger individuals may feel less vulnerable to disease and, therefore, less motivated to take preventive action.(22)

This research is in line with previous studies, which stated that there was a relationship between age and Posbindu-PTM visits.(9) Previous research shows that older age plays a role in routine screening behavior.(23) Age is considered a significant risk factor for cardiovascular disease. Physical changes, such as stiffness in the arteries, often accompany the aging process. Blood

vessel stiffness can increase blood pressure.(24) Previous research shows differences between age

This study focused only on individual risk factors. It is necessary to pay attention to other risk factors, such as groups aware of increased cardiovascular risk factors, where adults are more aware than young people.(25) Other research found that older respondents tend to be more aware of their hypertension status compared to younger respondents.(26) Age is not the only factor that influences behavior. According to Lawrence Green's theory, other factors, such as motivating factors and support from the surrounding environment, can strengthen or weaken a person's behavior.(22)

Gender is a demographic factor influencing health behavior, including visits to Posbindu PTM. Women tend to be more concerned about health risks than men, which makes them more likely to utilize health services, including Posbindu PTM, for early detection of risk factors for non-communicable diseases.(27) The study results showed that women are more likely to undergo routine health checks as prevention than men. In many communities, women are often more responsible for family health, which can encourage them to be more proactive in utilizing Posbindu PTM services for themselves and their family members. This study's results align with previous research, which stated that there was a relationship between gender and routine NCD screening.(23) Other research on early cancer detection shows that women have opportunities and regularly carry out routine checks such as menstruation, pregnancy, et cetera.(28) Previous research found that women are 35% more aware of their health status than men.(29)

### CONCLUSION

The factors contributing to 99% of Posbidu-PTM visits were Having a health measuring tool, Poor Hypertension Knowledge, age ≤ 45 years, and male gender. There is a need to increase public knowledge, promote more massive socialization, and increase the number of places and frequency of early detection of non-communicable diseases in Tambakharjo. This study focused only on individual risk factors. It is necessary to pay attention to other risk factors, such as environmental, psychological, and social factors.



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