



# Description of non-communicable diseases and risk factors related to lifestyle among POSBINDU (Integrated Guidance Posts) participants in Yogyakarta in 2022

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## ABSTRACT

Non-communicable diseases are a public health problem and are a significant cause of death both in Indonesia and worldwide. These diseases cause complications if not appropriately managed. There is found an increase in cases of non-communicable diseases compared to the previous study. One of the strategies used to control non-communicable diseases is by early detection of risk factors for non-communicable diseases through Posbindu activities. This research aims to describe the health status of participants of one Posbindu in 2022. This descriptive research uses secondary data from the results of examinations in 2022. The number of participants was 1,090 people consisting of 42.11% men and 57.89% women. The age range of the participants was 26-35 years with as many as 33.67%. Participants' highest education was undergraduate with as many as 50.09% and those with married status were 73.58%. Based on the Posbindu examination results, 578 people (53.03%) had central obesity, with 332 cases among female participants (57.44%). Posbindu participants with hypertension were 182 people where 119 of them were male (65.38%). Posbindu participants with diabetes mellitus were 30 people (2.75%), with the most cases in men, 21 (70%). Non-communicable diseases can affect anyone; the older you are, the more at risk you will get. One way to prevent non-communicable diseases is to control risk factors such as smoking, lack of physical activity, excessive consumption of sugar and salt, and less consumption of vegetables and fruit. In the coming years, it is anticipated that further exploration will be undertaken, utilizing firsthand data collection methods, presenting findings descriptively, and employing inferential analysis techniques to draw meaningful conclusions.

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## 1. Introduction

Non-Communicable Diseases (NCDs) constitute the leading cause of death in the world and contribute to more than 73% of death annually. Daily, there are more than 100,000 deaths caused by NCDs, with 80% of them happening in low also middle-income countries. According to the World Health Organization (WHO), obesity has increased three-fold since 1975. The International Diabetes Federation estimated that global diabetic prevalence amounted to 8.8% in 2017 and would increase to 48% in 2045, with the addition of 204 million people living with diabetes [1].



In the last 30 years, Indonesia has experienced the transition of epidemiology and increase in NCD prevalence so that both early prevention and control measures for NCDs risk factors are required. According to the Basic Health Research (RISKESDAS), NCDs prevalence has increased with the prevalence of hypertension rising from 25.8% (2013) [2] to 34.1% (2018) [3] such an increase also occurs with other non-communicable diseases.

Yogyakarta City suffers from two NCDs whose prevalence is higher than the national perce. The national prevalence of Diabetes Mellitus (DM) is 2%, while that of Yogyakarta Special Region (DIY) Province is 2.8% and that of Yogyakarta City is 4.9%. Regarding obesity, the national prevalence is 21.8%, DIY Province 21.3%, and Yogyakarta City 26.9%. The prevalence of central obesity in DIY Province is 31.98%, higher than the national figure of 31%. In contrast, the figure for Yogyakarta City is even higher than national and provincial ones, i.e, 36.57% [4].

The data from RISKESDAS show that in 2013, the prevalence of obesity among the population above 18 years old was 19.60% for males and 32.90% for females. Compared to these 2013 RISKESDAS figures, the prevalence of 2018 showed an increase of 26.6% for males and 44.4% for females [5]. Non-communicable diseases can be put under control if people with NCDs take medication regularly as per doctors' recommendations. An NCDs is a *Silent Killer* with no symptoms at all in its early stage, but the patients would be aware of the disease when it has reached its chronic stage or when it ends in sudden death. Therefore, individuals should practice a healthy lifestyle and proceed with early detection or periodic medical checks [2].

One of the NCDs prevention measures is done through the Integrated Guidance Post (Posbindu), which is one of the Public Health Initiative (UKM) services with promotive and preventive purposes by involving the people, starting from planning, execution, monitoring, and evaluation [6]. With these backgrounds, the researchers were interested in finding out the health condition of the people, especially about the non-communicable diseases and risk factors among the participants of Posbindu Krishna Husada in 2022.

## 2. Method

This study employed a descriptive method with secondary data. The secondary data were obtained from the inspection results of the Posbindu Krishna Husada activities during 2022. The population of the study was all the participants who were present and registered in the activities of the Posbindu under the supervision of the Yogyakarta City Health Office (Dinas Kesehatan Kota Yogyakarta) during January-December 2022. The inclusion criterion covered the employees of the Yogyakarta City Government (Pemerintah Kota Yogyakarta) who were registered in the JJS (Jogja Smart Service) system. In contrast, the criteria for exclusion were data duplication and incomplete inspection results. There were 1,090 people as the study's sample. The variables consisted of sociodemographic and anthropometric figures, random blood sugar figures, and lifestyles (smoking habits, physical activities, excessive sugar consumption, excessive salt consumption, and fruit and vegetable consumption). The data analysis was executed using Microsoft Office and presented in narratives and tables.

## 3. Results and Discussion

### 3.1. Results

The data used were secondary data from the activities of Posbindu Krishna Husada during 2022. There were 1.090 participants in the Posbindu. The distribution of respondents based on individual characteristics is presented in Table 1.

**Table 1.** Frequency Distribution of Respondent Characteristics (n=1.090)

	<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Gender</b>	Male	459	42.11%
	Female	631	57.89%
<b>Age (Years)</b>	20-25	112	10.28%
	26-35	367	33.67%
	36-45	302	27.71%
	46-55	222	20.37%
	> 55	87	7.98%
<b>Latest Education</b>	Elementary/Junior High	8	0.73%
	Senior High	172	15.78%
	Non Degree	227	20.83%
	Bachelor	546	50.09%
<b>Marital Status</b>	Post-Graduate	137	12.57%
	Not Married	256	23.49%
	Married	802	73.58%
	No spouse/Divorced	32	2.94%

Table 1 shows that there were more female respondents (57.89%). The most age range was 26-35 with as many as 33.67%. The highest education was Bachelor (50.09%) while the lowest was Elementary/Junior High School (0.73%). As many as 73.58% of the respondents were married.

**Table 2.** Frequency Distribution of Respondent Characteristics Related to Lifestyle

	<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Smoking</b>	Yes	121	11.10%
	No	969	88.90%
<b>Lack of Physical Activities</b>	Yes	572	52.48%
	No	518	47.52%
<b>Excessive Sugar</b>	Yes	103	9.45%
	No	987	90.55%
<b>Excessive Salt</b>	Yes	91	8.35%
	No	999	91.65%
<b>Insufficient Vegetable &amp; Fruit</b>	Yes	471	43.21%
	No	619	56.79%

The lifestyle characteristics of the respondents are presented in Table 2. Most of the respondents did not have smoking habits/were exposed to cigarette smoke (88.90%). As many as 52.48% of the respondents had insufficient physical activities. The percentages of respondents who did not consume excessive sugar and salt were 90.55% and 91.65%, respectively. Most of the respondents consumed sufficient vegetables and fruits (56.79%).

**Table 3.** Frequency Distribution of Respondent Characteristics Based on Inspection

	<b>Measurement Results</b>	<b>Total</b>	<b>%</b>
<b>Central Obesity</b>	Yes	578	53.03
	No	512	46.97
<b>Hypertension</b>	Yes	182	16.70
	No	908	83.30
<b>Diabetes Mellitus</b>	Yes	30	2.75
	No	1060	97.25

Table 3 shows the results of the inspection of non-communicable diseases among the respondents. As many as 53.03% experienced central obesity. As many as 16.70% of respondents suffered from hypertension, while those with DM were as few as 2.75%.

**Table 4.** Frequency Distribution of Non-Communicable Disease Characteristics Based on Gender

Total	Non-Communicable Diseases					
	Central Obesity		Hypertension		Diabetes Mellitus	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Male	246	42.56	119	65.38	21	70
Female	332	57.44	63	34.62	9	30
Total	578	100	182	100	30	100

The condition of non-communicable diseases based on gender is shown in Table 4. The respondents with central obesity were mostly females, with as many as 57.44%. Meanwhile, the respondents with hypertension and DM were mainly males, with as many as 65.38% and 70%, respectively.

### 3.2. Discussion

The workplace plays an important role in preventing and controlling NCDs since some people's time is spent in it. A study by Kuruvilla reveals that work procedure, gender, marital status, non-communicable disease history in a family, age, blood pressure, and nutritional status are related to the prevalence of non-communicable diseases [7]. The prevalence of non-communicable diseases would increase along with the age. This is consistent with the study by Khademi stating that overweight and diabetes increase significantly along with age [8]. Similar findings are found in a study by Kassawar that the prevalence of obesity increases along with the increase in age [9].

The data from RISKESDAS (2018) showed that the prevalence of NCDs had increased compared to the previous research data. One of the policies to be implemented is by controlling the risk factors of NCDs such as practicing healthy lifestyles, avoiding smoking, applying a balanced diet, and regularly exercising physical activities. Cigarettes are products made from tobacco leaves, with or without additives. They contain chemical substances such as tar, nicotine, and carbon monoxide, which may cause health problems, damage the lungs, and degrade stamina. Smoking cigarettes is one of the risk factors of non-communicable diseases so that it should be avoided [10]. A study by Arifani reveals that smoking habits are correlated with the prevalence of obesity [11]. Meanwhile, a study by Wijaya shows that smoking habits are correlated with the prevalence of hypertension [12].

Physical activities play a role in naturally improving human health. They can minimize risk factors of NCDs and improve welfare [13]. Most of the respondents in this study lacked physical activities. This was due to the fact that most of them did their work in seated positions, so their physical activities were irregular and unmeasured. This finding is consistent with the result from a previous study that lack of physical activity is related to the prevalence of overweightness and obesity. Exercising regular physical activities can help control overweightness and obesity [14]. A study by Hermawan states that physical activities are related to DM [15]. Meanwhile, a study by Zulkarnaen mentions that exercise habits are related with the prevalence of central obesity [16]. Other studies by Samuel and Syifa et al. show a correlation between physical activities and obesity prevalence [11, 17].

Physical activities can be done for 150 minutes per week or 30 minutes per day [10]. Lack of physical activities may result in insufficient release of energy so the risk of overweightness and obesity increases. Ririn et al. also mentions a significant correlation between physical activities and the prevalence of central obesity [19]. Another study finds that adult people who do not exercise walking for 10 minutes per day would tend to experience overweightness and obesity, and people who do not exercise in physical activities (sports) would have 2.42 times more probability of experiencing overweightness and obesity than those who exercise physical activities [9].

Referring to the Minister of Health Regulation No. 30 of 2013, the recommended sugar consumption is 50 grams or 4 tablespoons per person daily. When the consumption is higher, then there would be a risk of NCDs such as hypertension, stroke, diabetes, and heart attack [20]. As many as 9.45% of the respondents in this study were found to consume excessive sugar. A study by Arifani shows that consuming sweet foods and drinks, soft drinks, and instant foods is correlated to obesity [11]. Another study reveals that there is a correlation between hypertension and consumption of salt [12].

Consumption of 400g per day or equivalent to 5 portions of vegetables and fruits per day may prevent non-communicable diseases as recommended by WHO. A study by Yeshalem reveals that respondents who did not consume vegetables and fruits tended to suffer from non-communicable diseases [12]. Central obesity or abdominal obesity is defined as excessive fat in the stomach area, with the limit of stomach circles of > 90 cm for males and >80 cm for females. There were more female respondents with central obesity than males. This is consistent with the data from RISKESDAS that, for Indonesian people over 15 years of age, the prevalence of obesity occurs more in women than men [3].

Hypertension is a condition of systolic blood pressure of  $\geq 140$  mmHg and/or diastolic blood pressure of  $\geq 90$  mmHg [10]. Khademi states that the prevalence of hypertension among men is higher than the one among women [8]. DM is a disease characterized by the presence of blood sugar above normal value and is chronic in nature [10].

#### **4. Conclusion**

The risk factors to be paid attention to are related to central obesity and hypertension, which occur more often among men. Therefore, intervention to control NCDs risk factors which occur frequently among the participants who came to Posbindu in 2022 was among others the respondents with central obesity who were mostly women. Hypertension is different from central obesity, where hypertension and DM are found more common among men. One of the ways to prevent the occurrence of non-communicable diseases is by implementing control measures.

Among men, the risk factor that requires control measures is the smoking habit. However, the risk factors requiring control measures are smoking, lack of physical activities, and insufficient consumption of vegetables and fruits. Therefore, research and intervention are expected to focus on the risk factors and high prevalence of NCD, as mentioned in this study. Future research will use primary data, descriptive presentation, and inferential analysis.

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#### **Conflict of Interest**

The authors hereby confirm that no conflict of interest exists to influence the execution of the research.

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