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Risk Factor of Hypertension among Urban Community Living in Kartini Sub district, Central Jakarta

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Abstract

Hypertension is a chronic condition of high blood pressure, which, over a long period, can cause organ damage and lead to increased morbidity and mortality. Central Jakarta, as an urban city in Indonesia, has a high rate of hypertension, about 39,05%, and Kartini subdistrict is one of the areas in Central Jakarta with relatively high cases of hypertension. This study aims to identify the risk factors for hypertension in the urban community with hypertension. This research was conducted in May 2023 in the Kartini sub-district, using a qualitative method. Data was collected through in-depth interviews with six respondents of productive age (18-60 years old). Supporting participants are also involved in this research for the triangulation process. Collected data will be analyzed using content analysis techniques. The results showed that the risk factors of hypertension among communities with hypertension consist of family history of hypertension, smoking behavior, sleep quality, less physical activity, and less fruit and vegetable consumption. From the study, we can conclude that modifiable and non-modifiable factors influence the incidence of hypertension in urban communities in Kartini Subdistrict. Support from local health workers is crucial to ensuring communities maintain and adopt healthier lifestyles, thereby eliminating risk factors for hypertension.

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Introduction

Hypertension, also known as high blood pressure, is a condition in which the pressure in the blood vessels increases (140/90 mmHg or higher). High blood pressure typically shows no signs or symptoms, but it can cause various problems for the heart, brain, kidneys, and eyes. Most people only discover they have high blood pressure when their blood pressure is checked. The higher the blood pressure, the greater the risk of health problems such as heart disease, heart attack, and stroke (Centers for Disease Control and Prevention, 2025; World Health Organization, 2025). WHO data indicate that approximately 1.3 billion adults aged 30-79 years suffer from hypertension. Of this data, the majority live in low- and middle-income countries, where two-thirds of cases are found mainly due to this population's increased risk factors in recent decades (World Health Organization, 2025).

In Indonesia, hypertension is one of the non-communicable diseases that is receiving attention. The 2023 Indonesian Health Profile data show that hypertension is the leading cause of maternal death during pregnancy, with 412 cases (*Profil Kesehatan Indonesia 2023*, n.d.). The 2023 Indonesian Health Survey data show that DKI Jakarta Province is the province in Indonesia with the highest number of hypertension cases, with a prevalence of hypertension among residents aged 18 years and over, based on doctors' diagnosis, of 13.4% (exceeding the national prevalence of 8.6%). Grouped by residence, hypertension cases in Indonesia are higher in urban areas than in rural areas, at 9.7% (Kemenkes-BKPK, 2024).

The highest region of hypertension prevalence in the Special Capital Region of Jakarta is Central Jakarta, with 12,16% based on doctor diagnosis and 39,05% based on direct measurement, according to the survey. The data also shows that the majority of hypertension sufferers live in urban areas in Central Jakarta, amounting to 10.17% (Kemenkes RI, 2018). Based on hypertension case report which comes from Central Jakarta health division, Kartini sub-district is one of the regions in Central Jakarta that has the highest cases of hypertension. The Kartini Community Health Centre screening results showed a decrease in hypertension screening achievement from 38.9% in 2021 to 13.7% in 2020. This means that the accomplishment of hypertension screening at the Kartini Community Health Centre is not optimal.

There are several causes and risk factors for high blood pressure, and this condition can increase over time due to an unhealthy lifestyle. Health conditions such as diabetes and obesity can also increase the risk of developing high blood pressure (Centers for Disease Control and Prevention, 2025). Modifiable risk factors for hypertension include unhealthy diets (excessive salt intake, foods high in saturated and trans fats, and not eating vegetables and fruit), lack of physical activity, smoking and alcohol consumption, and being overweight or obese. Environmental factors like air pollution can also be a risk factor (World Health Organization, 2025). Non-modifiable risk factors for hypertension include family history, age over 65, and comorbidities such as diabetes or kidney disease (World Health Organization, 2025). Environmental factors, air pollution could impact the occurrence of hypertension, which previous research informing there are connection between short term exposure and long-term exposure of air pollution to the occurrence of hypertension (Curto et al., 2019). Close family history that been suffering hypertension, potentially increasing the risk of essential hypertension (Kemenkes.RI, 2014).

Various studies have proven that lifestyle factors increase the risk of hypertension. Someone who has less activity has a risk of escalating high blood pressure or hypertension because of the intensified risk of becoming fat (Ahmad Aswal Liambo, 2018; Nuraini, 2015). Many of the previous studies regarding the risk of hypertension include age, education level, professions, family hypertension history, noncommunicable disease history, smoking behaviour, consuming alcohol, consumption of vegetables and fruits, and sleeping quality (Babisch et al., 2014; Li & Shang, 2021; Maulidina et al., 2019; Salean & Djaja, 2021; Utami, 2020). This study aims to identify the risk factors for hypertension in the urban community with hypertension living in Kartini sub-district, Central Jakarta along with hypertension countermeasures that being held on that region.

Methods

It is a descriptive study using qualitative methods with a phenomenological approach. This study explored information related to risk factors that trigger hypertension in hypertensive patients living in urban areas in Kartini Village, Central Jakarta. The inclusion criteria included hypertensive patients (data was recorded from Posbindu activities obtained from the community health center) in the productive age category (aged 18–60 years) who resided in Kartini Village, Sawah Besar District, Central Jakarta; residents who had lived at the research location for at least one year, were able to communicate well, and were willing to be research respondents. Data collection was conducted using purposive sampling technique in May 2023 through in-depth interviews with six participants. This included information on the initial diagnosis of hypertension, symptoms experienced, daily physical activity, daily fruit and vegetable consumption, smoking behaviour, alcohol consumption, and family history of hypertension. Supporting participants were also involved in this research for the triangulation process. They were supervisors of the counter-measurement program regarding noncommunicable diseases (NCDs) who had a duty to provide public health services regarding NCDs, particularly hypertension, in the Kartini sub-district public health centre.

Collected verbal description data of participants by a voice recorder tool, which was later listened to and transcribed verbatim, as similar as the informant said, without adding, changing, and refining interview results (Martha & Kresno, 2017). The transcript result will later be read and understood repeatedly and thoroughly, and later be converted into a matrix and carried out grouping based on data corresponding with many sub-topics or themes that have already been determined. The result of the matrix and grouping was later analysed using the content analysis technique. Data analysis is performed based on a theme arranged and guided in the research purpose for later display systematically in the form of information that can be easily read and understood (Martha & Kresno, 2017). This research has been reviewed and passed the ethical clearance from Faculty of Public Health Universitas Indonesia with the reference number of Ket- 36/UN2.F10. D11/PPM.00.02/2023.

Results

Participant Characteristic

About six productive communities suffering from hypertension were consolidated as participants in the interview, as seen in Table 1. Participants involved in this research were 32-57 years old and had lived for over ten years in Kartini sub-district, Central Jakarta. Most participants were housewives who did

not work with around five people of different ethnic groups. The majority of participants' last education was finishing junior high school. Regarding hypertension disease, most of the participants had been diagnosed with hypertension for years, and several blood pressure measurements showed that most of the systolic blood pressure was more than 120 mmHg.

Table 1. Characteristic of hypertension participant in Kartini sub-district, Central Jakarta

Characteristic	Participant					
	P1	P2	P3	P4	P5	P6
Age (year)	50	32	54	47	48	57
Sex	Female	Female	Female	Female	Male	Male
Last Education	SD	SMP	SMP	SMP	SD	SMP
Occupation	Not working	Not working	Not working	Not working	Entrepreneur	Not working
Ethnic Group	Sunda	Jawa	Betawi	Jawa	Sunda	Chinese
Duration of Stay (year)	15	32	32	19	34	57
Duration of Suffering (year)	28	2	5	12	1	3
Last measurement result (mmHg)	150/70	200/103	141/80	117	140	-

Then, we carried out triangulation with a health worker in Kartini public health centre, i.e., an Individual Health Unit supervisor responsible for implementing NCD programs to the public, particularly hypertension, with a working period of NCDs within one year.

Initial Overview of Diagnosed Hypertension

Interview results showed that most participants had long-standing hypertension and were initially unaware they had it, so they went to the community health centre for a checkup. Common symptoms include dizziness and headaches, as described by the following participant:

"I've had it for a while... I went to the community health center... I was constantly dizzy in the village... I was dizzy all the time, and then I was here... my blood pressure was high" (P1, 50 years old)

"I don't know, I don't know, I just went to the community health center again... I had a headache, and then they said, 'Sir, I have high blood pressure'" (P5, 48 years old)

One participant only learned she was diagnosed with hypertension when she was pregnant with her second child in 2021 and had a cesarean delivery.

"When I was pregnant with my third child... in... the second year. Oh, that was in 2021, right? The first Pbsdb (Public Health Agency) had coronavirus. I was born and delivered at Pelni. So, when I checked, I was from... from... Tamansari, you know. I'd never been to Tamansari, but they said... Uh... I had... preeclampsia..." (P2, 32 years old)

Besides recognising the symptoms, participants also learned they were diagnosed with hypertension during a check-up at a health facility.

"Heeh heeh, what year was it? It wasn't long ago... It wasn't long since... We had high blood pressure. "This mother has high blood pressure," she said, "I need to take medication, so we prescribed... The doctor, so we followed the medication" (P3, 54 years old)

"...Just go to the health centre again. It hurts. It's a headache, and then they said, "Sir, you have high blood pressure" (P5, 48 years old)

Risk Factor of Hypertension

Information regarding hypertension risk factors in participants with hypertension was gathered by asking about various activities and activities they had done in the past. Participants' hypertension risk factors were divided into non-modifiable risk factors and modifiable risk factors. Non-modifiable risk factors found in this study included a family history of hypertension and comorbidities, then for modifiable risk factors included smoking behavior, vegetable and fruit consumption, sleep quality, and physical activity. The following table summarises the results of in-depth interviews regarding the risk factors for hypertension in the community of hypertension sufferers in Kartini Subdistrict, Central Jakarta.

Table 2. Summary of Hypertension Risk Factors Based on the Findings of In-Depth Interviews with Participants in Kartini Village, Sawah Besar District, Central Jakarta City

Risk Factor Category	Finding	Finding Analysis
Family History of Hypertension	*"Yes, my mother has high blood pressure" (P1, 58 years old)*	Results showed that two participants had a family history of hypertension from their mother
	"Yes, Mom. My mother also has high blood pressure" (P3, 32 years old)	
Comorbidities	*"Here, miss (pointing to the nape of the neck) ... When I was sick yesterday, I was in Java, and it hurt here. When I had my cholesterol checked, oh my, it hurts here. I beg for mercy." "I also had high blood pressure and high cholesterol, so I was given cholesterol medication. They gave me better cholesterol medication in Java." (P1, 48 years old).*	Results show that several respondents had underlying conditions such as high cholesterol, stroke and heart disease which affects increasing blood pressure
	"No, the doctor in Tarakan said the thickening of the heart was due to my high blood pressure. The thickening of the heart muscle..." (P2, 32 years old)	
	"No, if you're dizzy, it's because your cholesterol is high here." "When I was about to have surgery, he said, there are three possibilities. I could have a stroke, a heart attack, and I could die." (P3, 54 years old)	
Smoking Behavior	*"I used to" (P5, 48 years old)*	Describes that the respondent smokes
	"No, I used to when I was a girl, hehehehee"... "Yeah... Not every day, really, when I'm feeling dizzy, stressed, or tired from work... That's all, hehehee" (P4, 47 years old)	Describes that the respondent smoked when he was single and currently suffers from hypertension
	"I'm older now"... "No, no, no, that's why I can't quit... I don't need cigarettes" (P5, 48 years old).	Describes that the respondent smoked when he was young, as part of an unhealthy lifestyle, although he has now quit smoking
Vegetable and fruit consumption	*"I don't, um, I'm just regular" (P5, 48 years old)*	Describes that the respondent only occasionally consumes fruits and vegetables
	"For vegetables... Uh, almost regularly, but fruit is rarely eaten, heheheheh. I don't have any money, hehehehe, so I have to share it..." (P4, 47 years old)	Describes how economic conditions influence the respondent's fruit and vegetable consumption, resulting in infrequent consumption, which contributes to increased blood pressure
	"Well, if I have money, I'll buy fruit, haha, just papaya."... "Vegetables, clear soup..." (P1, 48 years old)	
Sleep Quality	*"Sleeping... Well, having a baby seems like I sleep less... Every three hours..." "Yeah, every three hours, because I'm breastfeeding" (P2, 32 years old)*	Results show that respondent admitted to having a baby and frequently waking up every night. This condition influence the increasing of blood pressure
	"As for sleeping... I can't sleep quickly, I've been sleeping ever since before marriage... "... the earliest I can is 10:30. Sometimes the longest I can sleep is 12, 1..." (P4, 47 years old)	Shows that respondent having trouble falling asleep at night, that influence the occurance of hypertension later in life
Physical Activity	*"Going to the market... Cooking... Cleaning the house... Ironing... That's all there is to it, household chores, hehe" (P1, 50 years old)*	This illustrates that participants' daily activities are limited to light to moderate physical activity and tend to be carried out only indoors.
	"Just staying at home..."...Cooking, washing, that's it every day, hehe" (P3, 54 years old)	

Triangulation process was conducted with the health center staff responsible for the NCD program at the Kartini Village Health Center. The results of the interviews stated that the NCD activities that had

been carried out by the public health center such as Prolanis (Program Pengelolaan Penyakit Kronis) and Posbindu (Pos Binaan Terpadu). For the hypertension program, patients will be given medication and advised to have check-ups at the community health centre every two weeks, and to identify people at risk of non-communicable diseases, health workers have a Prolanis club.

> *"That's it, Posbindu... Posyandu... but if all patients and one of them has hypertension and diabetes, they're usually immediately placed in the Prolanis category... Chronic Disease Management. Usually, we give them medication for check-ups at the community health center every two weeks, so every two weeks is just for check-ups, usually once a month, that's usually it." (Public Health Center officer)*

> *"The point is, the Prolanis hyperclub is a non-communicable disease (NCD) club, but it's not age-specific. NCDs are for those under 60, 50, and older, so they fall into the elderly category." For example, Prolanis isn't based on age, but on diagnosing hypertension and diabetes. Prolanis cover all patients with hypertension and diabetes in the Kartini area. It just depends on the patient's willingness to accept it or not." (Public Health Center officer)*

When asked about the common risk factors for hypertension in Kartini Village, the health worker replied that it's mostly lifestyle.

> *"Actually, the most common factor now is probably lifestyle. Lifestyles are very different from the past. Nowadays, there's too much salt in foods... even if their parents don't have a history of hypertension, most of them are young people." Nowadays, there are a lot of people aged 20-30, many of them have hypertension, and they are caught when they want to get the COVID-19 vaccine.. We are also screening. Do you have high blood pressure? Is there a family history of high blood pressure?.. That's probably what has a bigger influence, lifestyle"..." heredity too, if we live a healthy life, no, it's possible" (Public Health Center officer).*

Discussion

This study was conducted among productive-age hypertension sufferers living in an urban area in the Kartini sub-district of Central Jakarta. The average age of participants varied considerably, ranging from 30 to 40 and 50 years. Most participants were female and had only attained junior high school education. The risk of developing hypertension is generally higher in female participants than in male participants, a condition related, among other things, to menopause in women (Irianti et al., 2021; Kusumawaty et al., 2016).

This study explored how participants were diagnosed with hypertension, the symptoms they experienced, and the healthcare facilities they chose for their health check-ups. Most participants experienced dizziness and headaches, and only sought medical attention after experiencing these symptoms. In line with other studies, participants were diagnosed by chance in a hospital or primary health care ((Boitchi et al., 2021). Researchers found that participants with hypertension were asymptomatic in the early stages or had temporary symptoms, and most participants did not consider high blood pressure a disease and did not pay attention to it. These findings are in line with previous studies that high blood pressure was a silent disease, with almost no apparent symptoms and severe complications in its early stages (Shamsi et al., 2017; World Health Organization, 2025). One participant was also found to suffer from hypertension during pregnancy. Condition refers to pregnancy-induced hypertension (PIH) that occurred in a pregnant woman attending delivery service with high blood pressure (140/90 mmHg) after 28 weeks of gestation. A physician diagnoses pregnancy-induced hypertension and includes gestational hypertension, pre-eclampsia and eclampsia (Abera Gudeta & Mekonnen Regassa, 2018).

Risk factors for hypertension identified in hypertensive patients in this study included non-modifiable factors such as a family history of hypertension and comorbidities. Several participants with hypertension indicated that their parents had hypertension. These findings are in line with a previous study that respondents with a family history of hypertension also suffer from the disease (Sinuraya et al., 2017; Wahyuningsih & Arsi, 2021). Individuals with parents who suffer from hypertension have twice the risk of suffering from hypertension than individuals who do not have a family history of hypertension (Setiandari et al., 2020).

Medical condition also related to the increasing of blood pressure leading to hypertension. Several participants suffering of the other disease beside hypertension such as high cholesterol, heart disease, and stroke. Previous research showed a relationship between cholesterol levels and blood pressure in hypertension sufferers in Sidomulyo Hamlet, Rejoagung Village (MARYATI, 2017). High cholesterol levels are a significant risk factor for hypertension and heart disease. Excess cholesterol reacts with other substances and builds up in the arteries, causing plaque or blockages called atherosclerosis. This

narrowing of the blood vessels forces the heart to work harder to supply blood to all tissues, leading to hypertension (Permatasari et al., 2022).

Almost all participants with hypertension had several lifestyle-related risk factors, including smoking habits, low consumption of vegetables and fruit, poor sleep quality, and lack of physical activity. Previous research has shown a link between smoking and hypertension. Nicotine in tobacco causes blood pressure to rise immediately after the first puff (Sartik et al., 2017). Smoking was a trigger of hypertension because it could reduce vascular tolerance to the damage that increase the blood pressure (Leone, 2015).

Daily consumption of vegetables and fruit is essential for a person's health. In-depth interviews revealed that participants consumed them only occasionally due to economic reasons. A 2022 meta-analysis showed that high fruit and vegetable intake is associated with a reduced risk of hypertension. Fruit and vegetable consumption is essential as a source of phytochemicals and antioxidants that can reduce oxidative stress, contributing to the pathogenesis of hypertension and other diseases (Madsen et al., 2023). Consuming food and vegetable high fiber such as greens, banana, tomato, carrot melon and orange could help to prevent and lowering high blood pressure (Irianti et al., 2021; WHO, 2023).

Regarding sleep quality, some participants with hypertension experienced difficulty falling asleep at night, and one respondent experienced sleep disturbances due to having a baby. Previous studies in Denpasar, Bali, showed that the majority of people with hypertension experience poor sleep quality. Individuals with sleep disturbances, short sleep, and poor sleep quality have a 1.84 times higher risk of developing hypertension than those without these conditions (Bansil et al., 2011; Eswarya et al., 2023).

The activity of participants was still categorized as light until moderate because most were homemakers (not working). They never do any physical exercise besides daily activities as a housewife. Being physically active, such as increasing aerobic physical activity, could help lower high blood pressure (Irianti et al., 2021; WHO, 2023). Previous studies have shown a link between low physical activity and the incidence of hypertension. Increased physical activity, with adequate duration, intensity, and appropriate type, can significantly lower blood pressure. Good, regular physical activity trains the heart muscle and peripheral resistance, which can prevent high blood pressure (Setiandari et al., 2020). In hypertensive patients, exercise is one of the non-pharmacological treatments. Sports are different from homework activities because they must include the type, procedure, and duration. Hypertensive patients are recommended to exercise lightly and regularly, at least three to five times a week, with an intensity of approximately 30 minutes. It could provide any benefits and also balance with sufficient activity (World Health Organization, 2017).

However, all of the modifiable risk factors of hypertensive participants could be reduced by changing their lifestyle. Lifestyle changes could effectively lower blood pressure to the equivalent of one dose of antihypertensive drugs (Beevers et al., 2001). The government has formulated a policy and strategy for managing non-communicable diseases (NCDs) in Minister of Health Regulation No. 71 of 2015 to prevent and control hypertension. The primary focus of the hypertension prevention and control program in this regulation includes modifiable risk factors through health promotion, early detection of risk factors, special protection, early case detection, and early management. NCD management is implemented in an integrated, comprehensive, and hierarchical manner, emphasizing equity, comprehensiveness, and other approaches, and in a hierarchical manner at all levels of government (Kemenkes, 2020).

One effort to involve the community in managing NCDs, particularly hypertension, is through the Integrated Non-Communicable Diseases Development Post (Posbindu NCDs). Interviews with local figures, including health center officers who manage the NCD program, revealed that Posbindu NCDs is routinely held monthly in the Kartini sub-district. This activity is carried out to manage the risk factor independently and continuous that being held integrated, routine, and periodic. The implementation of Posbindu NCDs is being held by health cadres in each region that being trained specifically (Kemenkes RI, 2012).

Conclussion

From the study we can conclude that modifiable and non-modifiable factors influence the incidence of hypertension in urban communities in Kartini Subdistrict there are smoking behavior, vegetable along fruit consumption, sleep quality, physical activity, family history of hypertension, and comorbidities. Support from local health workers is crucial to ensuring communities maintain and adopt healthier lifestyles, thereby eliminating risk factors for hypertension.

Author Contributions

All of the authors contribute to this research. Conceptualization, N.A and H.K.; methodology, B.W and L.F.; formal analysis, N.A and B.W.; investigation, N.A.; resources, H.K.; writing—original draft preparation, N.A.; writing—review and editing, B.W and L.F.; supervision, H.K.; project administration, N.A.; funding acquisition, N.A. All authors have read and agreed to the published version of the manuscript.

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This research has been reviewed and passed the ethical clearance from Faculty of Public Health Universitas Indonesia with the reference number of Ket- 36/UN2.F10. D11/PPM.00.02/2023

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Conflicts of Interest:
The authors declared no conflict of interest in this study. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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