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Modeling of Local Cultural and Social Interventions in Solving Public Health Problems, Preventing Hypertension in Malang City

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ABSTRACT

Hypertension can cause complications if not treated properly and result in the deaths of around 8 million people every year and WHO predicts that by 2025, 29% of adults worldwide will suffer from hypertension. Therefore, it is necessary to consider implementing preventive measures as part of your daily lifestyle. Adherence to a healthy lifestyle in the community is measured by diet, demographic factors, history of disease and smoking habits, family history of disease, blood pressure, knowledge, blood sugar levels. The aim of this research was to explain the modeling of local cultural and social interventions in solving the public health problem of preventing hypertension in Malang City. This research implemented a cross-sectional design involving 100 respondents. Data was collected by filling out a questionnaire, then analyzed using Partial Least Square. The results showed that the p value was less than 0.05 for the factors demographic status, blood pressure, history of disease and smoking habits; blood sugar, family history of disease, knowledge and total 24 hour recall energy was more than 0.05. It was concluded that the classification of hypertension was determined by demographic status, blood pressure, disease history and smoking habits.

Keywords: hypertension; demographic status; history of illness; smoking habit

INTRODUCTION

Hypertension is a disease with disorders of the blood vessels, which can result in the supply of oxygen and nutrients in the blood being hampered from reaching the body tissues that need it. Complications of hypertension include infarction, stroke, kidney failure and death if not detected early and treated appropriately. This disease affects a person's quality of life and productivity. People who do not adhere to a healthy lifestyle will have an impact on the condition of hypertension getting worse.[1-3]

The prevalence of hypertension may vary based on population and demographic factors. WHO has noted that there are one billion people in the world who suffer from hypertension, and two-thirds of them are in developing countries with low-moderate income. The prevalence of hypertension will continue to increase, and it is predicted that by 2025, around 29% of adults worldwide will suffer from hypertension. Hypertension causes the deaths of around 8 million people every year, and 1.5 million of them occur in Southeast Asia, where a third of the population suffers from hypertension. In East Java, Indonesia, the percentage of hypertension is 22.71% or around 2,360,592 people, with the proportion of men being 18.99% (808,009 people) and women being 18.76% (1,146,412 people).[4] In general, the prevalence of hypertension tends to increase with age. Risk factors such as unhealthy diet, lack of physical activity, obesity, and genetics also play a role in hypertension morbidity rates.[5-7]

Prevention, early detection and management of hypertension are the keys to overcoming this health problem. It is also important to understand that hypertension is a serious condition and can increase the risk of heart disease, stroke, and other health problems, so prevention and management efforts are essential. Local cultural and social intervention modeling refers to the process of designing and implementing prevention or community health behavior change strategies by considering the cultural values and social factors that exist in a particular community or location. This modeling is based on a deep understanding of local culture, social norms, and practices that may influence community health.[8]

Social Cognitive Theory (SCT) was developed by Bandura, a cognitive psychologist, as an attempt to understand how individuals learn through interaction with their social environment. SCT is a suitable theory to explain the process of changing unhealthy lifestyle behavior in hypertensive patients which is related to social problems. According to this theory, behavior is influenced by 3 components, namely personal factors, environmental factors and behavior itself.[9]

Hypertension is a disease that can be experienced by anyone from various age and socio-economic groups. Hypertension can be influenced by various factors, such as diet, demographic factors, history of disease, smoking habits, family history of disease, blood pressure, knowledge, and checking blood sugar levels.[10]

Based on an interview with one of the nurses who works at the Malang City Health Center, city residents who suffer from hypertension have a bad lifestyle because when someone finds out that a family member has hypertension, they still provide food that is prohibited for hypertension sufferers, such as salted fish, chili sauce. and vegetables with unmeasured amounts of salt. This happens because of the eating habits of family members who like salty tastes and are used to consuming salted fish. Activity habits are always treated the same as other illnesses, such as traveling, whether short distances are always taken by motorbike and rest is always recommended. When hypertension sufferers attend a party, their neighbors or friends always invite them to eat together where the menu provided is not entirely suitable for hypertension sufferers, and when they see their friends eating this food, the sufferer is tempted to follow suit.

Interventions carried out by community health centers are still limited to administering medication and measuring blood pressure. Providing health education is not yet optimal because the number of patients is large and the number of health workers is limited, so examinations must be carried out as quickly as possible.

The aim of this research was to explain the modeling of local cultural and social interventions in solving the public health problem of preventing hypertension in Malang City.

METHODS

This research was a non-experimental quantitative study, namely survey research. The design used was a cross-sectional approach. This research involved a population of hypertension sufferers in Malang City, East Java, Indonesia. The sample size was 100 hypertension sufferers who were selected using a simple random sampling technique.

The dependent variable measured was the hypertension category; while the independent variables consist of: demographic status, blood pressure, history of disease and smoking habits; blood sugar, family history of disease, knowledge and total 24 hour recall energy. Data about all variables was collected through filling out a questionnaire. Once collected, the data is processed and then analyzed using the Partial Least Square (PLS) test.

This research has paid attention to ethical principles of health research such as respecting autonomy, providing benefits, not causing harm and being fair to respondents.

RESULTS

The output of the structural model (inner model) results from bootstrapping 500 subsamples, which can be seen in Table 1. The R-square for the dependent construct is 0.806. This shows that variations in hypertension classification can be explained by demographic factors, instantaneous blood sugar, knowledge, family history of disease, history of disease and smoking habits, blood pressure, and total 24-hour recall energy of 80.6 percent; while the remainder, namely 19.4%, can be explained by other factors not investigated in this study.

It appears that of the seven factors, there are 3 factors with a p value of less than 0.05, namely demographic factors, blood sugar and history of disease and smoking habits. Thus, these three factors are statistically significant determinants for the classification of hypertension in hypertensive sufferers in Malang City.

Table 1. The results of PLS analysis

Factors	p-value	Interpretation
Demographic status	0.046	Significant
Blood pressure	0.000	Significant
History of disease and smoking habits	0.031	Significant
Blood sugar	0.169	Not significant
Family history of disease	0.832	Not significant
Knowledge	0.755	Not significant
Total 24 hour recall energy	0.265	Not significant

DISCUSSION

The relationship between age and hypertension has long been identified in various studies. In general, the risk of hypertension increases as a person ages. Blood vessels tend to undergo structural and functional changes.

This can cause blood vessel stiffness and increased blood pressure. The elasticity of blood vessels can decrease with age. Blood vessels that are less elastic are more difficult to respond to changes in blood pressure, which can cause an increase in blood pressure. Increasing age can also cause a buildup of fat and calcium in blood vessels, which can reduce blood vessel diameter and increase vascular resistance. As people get older, they may have a tendency to develop a lifestyle that can increase their risk of hypertension, such as lack of physical activity, unhealthy eating patterns, and stress.(11)

The relationship between gender and hypertension is the focus of research in the health sector. In general, men have a tendency to experience hypertension more often than women at a younger age. However, after menopause, women tend to have a higher risk than men of the same age. Sex hormones, such as estrogen in women, may have a protective effect against hypertension. Therefore, hormonal changes during the menstrual cycle, pregnancy, and menopause may influence the risk of hypertension in women. Lifestyle factors, such as eating habits, physical activity, and stress levels, may play a role in the relationship between gender and hypertension. These differences in behavioral patterns may contribute to differences in risk levels between men and women.(12)

Higher levels of education tend to have a lower risk of hypertension. Higher education is often associated with better knowledge about health and a tendency to adopt a healthier lifestyle. Individuals with higher levels of education may be better able to understand health information and have better access to health information sources. This can enable them to adopt healthy behaviors and manage risk factors that contribute to hypertension. Education is also related to social and economic status. These factors can play a role in access to health services, living environment, and stress, all of which can influence hypertension risk.(13)

The type of work may be related to the risk of hypertension. Jobs that have high levels of stress or constant work pressure can increase the risk of hypertension. Several studies show that excessive work stress can contribute to increased blood pressure. Irregular work schedules, night shift work, and poor work-life balance can affect sleep quality and overall health, which may contribute to the risk of hypertension. The level of control a person has over their work can also play a role. Jobs that provide a low level of control and limited decisions may contribute to the risk of hypertension.(12)

Excess body weight, especially obesity, can increase the risk of hypertension. Obesity is often associated with increased blood volume. As the amount of blood the heart has to pump increases, blood pressure can increase. Obesity can increase sympathetic nervous system activity, which can lead to increased blood pressure. The sympathetic nervous system plays a role in the "fight or flight" response and can increase heart activity and constrict blood vessels. Obese people tend to have less healthy lifestyles, including poor eating habits and lack of physical activity, which can directly or indirectly contribute to hypertension.(14)

A history of previous illnesses or certain chronic diseases can be related to the risk of developing hypertension (high blood pressure). Impaired kidney function can affect fluid and salt balance in the body, which can contribute to hypertension. Apart from disease history, other factors such as eating habits, physical activity level, and family history of hypertension can also influence a person's risk. Each individual is unique, and the relationship between past medical history and hypertension can vary. Maintaining general health, by managing chronic diseases and adopting a healthy lifestyle, can help reduce the risk of hypertension.(15)

A family history of hypertension may increase a person's risk of developing this condition. Genetic factors can play a role in a person's blood pressure range, and when there is a family history of hypertension, this can indicate a genetic predisposition. Individuals with one or more family members who have hypertension tend to have a higher risk of developing hypertension compared to individuals without such a family history. Although there is a link between family history and the risk of hypertension, not everyone with a family history of hypertension will develop this condition. Healthy living habits, such as a balanced diet, regular physical activity, and stress management, can play an important role in reducing the risk of hypertension even in individuals with a genetic predisposition.(16-17)

The relationship between drug consumption and the incidence of hypertension can be influenced by various factors, including the type of drug consumed, the dose, and the individual's health condition. Certain medications can have side effects related to blood pressure. For example, corticosteroids, nonsteroidal anti-inflammatory drugs (NSAIDs), certain hormonal contraceptives, and some types of antidepressants can affect blood pressure. Interactions between several drugs can affect blood pressure. Concomitant administration of drugs or certain combinations can cause. Drug interactions can affect how drugs are absorbed, distributed, metabolized, and excreted in the body. One of the effects of drug interactions that may occur is changes in blood pressure.(18)

Moderate coffee consumption may not be associated with an increased risk of hypertension, while other studies have yielded conflicting results. The caffeine in coffee can have a temporary effect on increasing blood pressure. However, these effects are often short-term and can vary between individuals. Apart from caffeine, coffee contains various bioactive compounds that can have positive or negative effects on blood vessel health and blood pressure. The type of coffee and brewing method can also have an influence. Coffee processed using certain methods or coffee containing other extracts may have different effects. Although there is research supporting the

view that coffee consumption does not significantly increase the risk of hypertension, the best approach is to consider these factors as a whole and adjust coffee consumption according to individual tolerance.(18)

The relationship between blood sugar levels and hypertension (high blood pressure) can be complex and can be influenced by several factors. Insulin resistance and impaired glucose metabolism, as occurs in type 2 diabetes, may contribute to an increased risk of hypertension. Insulin resistance can affect blood vessel function and lead to increased blood pressure. Insulin resistance is a condition in which the body's cells do not respond to insulin as efficiently as they should. Insulin resistance is often associated with increased blood sugar levels and can also contribute to the development of hypertension. High blood sugar levels can stimulate the sympathetic nervous system, which can increase blood pressure. This is related to the release of stress hormones which can cause blood vessel constriction and increased heart rate.(19)

The relationship between knowledge and hypertension involves the extent of a person's understanding of the disease and whether that knowledge can influence prevention, management, or healthy lifestyle changes. Knowledge of the importance of early detection, regular blood pressure checks, and preventive measures can help a person reduce the risk or manage hypertension more effectively. Knowing the long-term impact of hypertension on health, such as the risk of heart disease, stroke and other organ damage, can be an encouragement to adopt a healthy lifestyle and good blood pressure management. knowledge alone is not always enough. Behavior change and management of hypertension require real action. Therefore, health education programs and support from health professionals can help people to apply their knowledge in daily practice to support good heart health.(20)

CONCLUSION

Based on the results of data analysis in this study, it was concluded that the classification of hypertension in Malang City, was determined by demographic status, blood pressure, disease history and smoking habits.

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