



Original Research

Determinant Analysis of Trigger Risk of Death of Father Because of Non-Communicable Diseases in the Family

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ABSTRACT

Introduction: The tendency of non-communicable diseases is chronic, with the impact of disability including permanent disability. The purpose of this study is to analyze the determinants of the risk of father's death due to non-communicable diseases in families in Semanding District, Tuban Regency.

Methods: This type of research is observational analytic with case control design. Using cluster sampling, 437 samples were taken. In the second stage, the sample was taken by determining the highest non-communicable diseases in the family, 0.82%, then the sample size was 182 with a case group of 82 (the highest non-communicable diseases) and a control of 100 (the father's non-communicable diseases risk).

Results: Data collection was done by interview. OR = 5,863 95% CI 3,087-11,136) with, consumption of foods high in excess salt (OR = 7,653 CI 95 % 3,951-14,821), consumption of food and drink high in excess sugar (OR 5, 582 CI 95% 2.9478-10.57) smoking (OR = 4.849 CI 95% 2.545-9.238).

Conclusion: The health classification of respondents, namely the father as the head of the family suffering from non-communicable diseases, as the highest cause of death in the group of fathers at risk is smoking. The highest sufferers of non-communicable diseases is as the head of the family in the district. The highest in Kab.Tuban in 2018 is primary hypertension. This triggers the risk of death of the father because of the highest non-communicable diseases in families in the district. Notable in Kab. Tuban in 2018 is the lack of consumption of fruits and vegetables, consumption of foods high in excess salt, consumption of foods / drinks high in excess sugar and smoking.

ARTICLE HISTORY

Received: August 26, 2020

Accepted: November 9, 2020

KEYWORDS

risk factors for death; non-communicable diseases

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Cite this as: Munir, M. (2020). Determinant Analysis of Trigger Risk of Death of Father Because of Non-Communicable Diseases in the Family. *Jurnal Ners*, 15(2), 228-231. doi:<http://dx.doi.org/10.20473/jn.v15i2.21614>

INTRODUCTION

Indonesia is facing a major challenge, namely the triple burden health problems, such as the presence of infectious diseases, the rise of non-communicable diseases and several diseases that should have been overcome but have reappeared (Riskesdas, 2018). Non-communicable diseases are not diseases caused by germ infections, but are included in chronic degenerative diseases, such as heart and blood vessels (coronary heart disease, stroke and hypertension), cancer, diabetes mellitus (DM) and metabolic disorders, lung disease chronic, impaired sense of sight and hearing, and functional disorders (Kemenkes RI, 2017)

Deaths due to non-communicable diseases are increasing, this trend is likely to continue along with

changes in life behavior (eating patterns with unbalanced nutrition, lack of physical activity, smoking, etc.) (Raksanagara & Raksanagara, 2016). The proportion of deaths due to non-communicable diseases increased from 41.7% to 59.5%, this is because non-communicable diseases are often asymptomatic and do not show clinical signs specifically (Udjianti, 2013). Based on data provided by the Semanding Puskesmas, hypertension is one of the highest non-communicable diseases in the Semanding Puskesmas Work Area with the prevalence of hypertension occurrence at Semanding Puskesmas in 2017, which is 0.82%.

Some of these risk factors include factors that cannot be changed, including age, gender and genetics (Hussein & Musiana, 2014). Factors that can be changed are behavioral risk factors (smoking, lack of

fruit and vegetable consumption, lack of physical activity, drinking alcohol and stress), environmental risk factors (air pollution, road and vehicle improper roads and social stress) and physiological risk factors (obesity, hyperglycemia and hyperlipidemia) (Sunarti, 2018). The factors that are the focus of this research are behavioral risk factors (Kresnawan, 2014).

The phenomenon of non-communicable diseases (a disease that tends to be chronic, has an impact on the occurrence of disabilities including permanent disability so that it takes a long time for treatment and requires high costs (Meilyana, Djais, & Garna, 2016). High costs in handling non-communicable diseases will affect the patient's economy and cause family conditions disrupted. If you, as the head of the family, suffer from non-communicable diseases, it is possible that there is an imbalance of roles and functions in the family and the worst possibility is the risk of an increase in orphans (Beaglehole et al., 2011).

Efforts made by the government in order to reduce the number of non-communicable diseases occurrences are through an Integrated Health Post through the Healthy Life Society Movement with behavior (routine health check, eliminating cigarette smoke, exercise diligently, healthy diet of balanced calories, adequate rest and stress control) (Setyanda, Sulastri, & Lestari, 2015). The healthy living community movement includes physical activity, consumption of fruits and vegetables, routine health checks, cleaning the environment, maintaining healthy toilets, not smoking and not consuming alcohol (Ska et al., 2016).

MATERIALS AND METHODS

The research is observational analytic with case control design. This research consists of two stages; the first stage is identifying the trigger of father's death risk due to non-communicable diseases and the type of non-communicable disease. The second stage is identifying and analyzing the trigger (risk behavior) to the highest non-communicable diseases on the father. The population in stage I is all households in Keb. Tuban, which was 39,983 households, with 437 participants taken by cluster sampling. In the second stage, the sample was taken by determining the highest non-communicable diseases in the family, namely primary hypertension, then, based on the prevalence of primary hypertension in Semanding Health Center in 2017, it is 0.82%. Based on the prevalence, the sample size was 182 with 82 cases (highest non-communicable diseases) and 100 controls (fathers at risk of non-communicable diseases). Data collection was done by questionnaire. Questionnaire was distributed for later tabulation, data were analyzed by univariate, bivariate with Odds Ratio (OR) and multivariate analysis using logistic regression tests with significance $\alpha = 0.05$. Ethical clearance of this study was taken from Ethical Committee of Nahdlatul Ulama Institute Health Science Tuban Indonesia.

RESULTS

Most of the respondents, 66% (286), suffer from non-communicable diseases. In the fathers who had primary hypertension 69.5% had a high risk of death due to consumption of fruits and vegetables <5 servings per day, while of all the fathers at risk of non-communicable diseases 28% consumed fruits and vegetables <5 servings per day. There is a significant relationship between primary hypertension and consumption of fruits and vegetables <5 servings per day with p value = 0.000. Relationship strength parameter (Odds Ratio) of fathers with hypertension is 5.8 times (95% CI 3.087-11.136) at risk of death due to less consumption of fruits and vegetables compared to fathers at risk of non-communicable diseases.

For those who have primary hypertension, 70.7% have a high risk of death because they often consume foods high in salt (> 2000 mg / day, equivalent to > 1 teaspoon / day), which is 3-6 times / week, whereas of all fathers at risk of non-communicable diseases 24% consume foods high in salt. There is a significant relationship between hypertension and high salt food consumption with p value = 0.000. Odds Ratio (OR) for a father who has hypertension at 7.6 times (95% CI 3,951-14,821), he has a high risk of death because he often consumes high-salt foods compared to fathers who are at risk of developing non-communicable diseases.

For those who suffer from hypertension, 69.5% are at risk of death because they often consume foods / drinks high in sugar > 50 gr / day (equivalent to > 4 tablespoons of sugar / day), which is 3-6 times / week, whereas of all fathers with non-communicable diseases 29% are consuming foods / drinks high in sugar. There is a significant relationship between hypertension and consumption of high sugar foods / drinks with p value = 0.000. Odds Ratio (OR) For those who experience hypertension at 5.5 times (95% CI 2.948-10.57) they have a high risk of death because they often eat / drink high sugar compared to those who are at risk of developing non-communicable diseases.

Of those with hypertension, 75.6% are at risk of dying from smoking as active or passive smokers, while of all the fathers who are at risk of developing non-communicable diseases 39% are active or passive smokers. There was a meaningful relationship between hypertension and smoking with p value = 0.000. Odds Ratio (OR) for fathers who experience hypertension 4.8 times (95% CI 2.545-9.238), they have a higher risk of death from smoking compared to fathers who are at risk of developing non-communicable diseases.

The results of multivariate analysis showed that the most influential risk factor for father's death due to hypertension was the consumption of excess high salt foods (> 2000 mg / day), which is 3-6 times / week with an OR value = 1.288 (95% CI 1.699-7.747), Exp (B) = 3,628. The equation is the highest non-communicable diseases logit (hypertension) = -2.277

Table 1. Variables Triggering Factors of Risk of Death of Fathers due to the Highest Non-Communicable Diseases (Primary Hypertension) the Most Influential

Variable	B	S.E	Wald	df	Sig.	Exp (B)	CI 95%	
							Lower	Upper
Consumption of fruit and vegetables	1,035	0,385	7,228	1	0,007	2,815	1,324	5,988
High salt food consumption	1,289	0,387	11,087	1	0,001	3,628	1,699	7,747
High sugar food / beverage consumption	0,989	0,383	6,662	1	0,010	2,688	1,269	5,696
Smoke	0,862	0,389	4,899	1	0,027	2,368	1,104	5,080
Constant	-2,277	0,364	39,086	1	0,000	0,103		

+ 1.035 (consumption of vegetable fruit) +1.289 (consumption of foods high in salt) +0.989 (consumption of food / drink high in sugar) +0.862 (smoking). The probability of suffering from hypertension with a high risk of death trigger is 86.8%.

DISCUSSION

Chronic and generative diseases can be prevented by consuming fruits and vegetables every day as recommended by the World Health Organization (WHO) as many as 400 grams per day with details of 250 grams of vegetables which is equivalent to 2.5 servings or 2.5 cups of vegetables after cooking and drained while the fruit is 150 grams (WHO, 2018).

The recommended consumption of fruits and vegetables by the Indonesian Ministry of Health is > 5 servings per day for fruit and three servings per day for vegetables. One serving of vegetables is equivalent to 100 grams while one serving of fruit is equivalent to 50 grams, so that, when converted in weight, the consumption of vegetables is 300 grams per day while consumption of fruits is 250 grams per day. High potassium fruit is found in tomatoes, carrots, beans and bananas. Long-term consumption of fruits and vegetables can inhibit the incidence of hypertension. For data in the case group (i.e. those with a history of hypertension), 69.5% had a high risk (less consumption of fruits and vegetables), while in the control group 28% had less consumption of fruits and vegetable (Division, 2010).

According to the WHO, fruit consumption is categorized as less if <150 grams per day and vegetable consumption <250 grams per day. Based on the Balanced Nutrition Guidelines of the Ministry of Health of the Republic of Indonesia, it is said that the consumption of fruits and vegetables is less if fruit consumption <250 grams and vegetable consumption <300 grams per day. Fresh foods, especially fruits and vegetables, are the main source of potassium (Fitri, Rasmikawati, Zulfah, & Nurbaiti, 2018; Mahmudah, Maryusman, Arini, & Malkan, 2015); . Potassium is a mineral that maintains fluid and electrolyte balance so that the effect of removing sodium and fluids from the body can prevent hypertension. Lack of fruit and vegetables also triggers atherosclerosis and increases the risk of hypertension (World Health Organization, 2016).

The effect of high sodium intake on the incidence of hypertension is that it can increase plasma volume due to the nature of sodium which binds water so that cardiac output (Cardiac Output) increases and the impact on blood pressure increases (Kemenkes RI, 2015). The AHA (American Heart Association) recommends consumption of sodium for adults <2400 mg per day, which is equivalent to 1 teaspoon of salt daily (Lee et al., 2012).

Increased sugar consumption can increase sodium reabsorption in Jejenum (small intestine). Increased sodium will increase preload and cardiac output causing hypertension (Brookes, 2014). The sugar consumption recommended by the Indonesian Ministry of Health is 50 gr / day or equivalent to four (4) tablespoons of sugar / day (Kemenkes RI, 2017).

The influence of smoking on the incidence of hypertension can occur when nicotine contained in cigarettes has an effect on the release of the hormones epinephrine and norepinephrine, which will affect the heart rate so that it affects the increase in Cardiac Output, which is directly proportional to the increase in blood pressure (Kemenkes.RI, 2014).

The weakness of this research that it did not carry out the identification of the number of deaths associated with risk factors of non-communicable diseases. An excess of this research get data on risk factors of the family that is concerned the non-communicable diseases.

CONCLUSION

The health classification of respondents, namely the father as the head of the family suffering from non-communicable diseases , as the highest cause of death in the group of fathers at risk is smoking. The highest non-communicable diseases is as the head of the family in the district. Notable to Kab., Tuban in 2018 is primary hypertension, which triggers the risk of death of the father because it is the highest of non-communicable diseases in families in the district. Kab. Tuban in 2018 has lack of consumption of fruits and vegetables, consumption of foods high in excess salt, consumption of foods / drinks high in excess sugar and smoking. The most influential trigger for the risk of father's death due to non-communicable diseases is the consumption of excess high salt foods. Further investigation can identify the father of the death risk factors of non-communicable diseases.

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