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HEALTH BELIEF AND MENTAL HEALTH STATUS OF PATIENTS WITH HYPERTENSION IN MELONGUANE, TALAUD ISLAND

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Abstract: According to the Central Bureau of Statistics of Talaud Island Regency, in 2018, the number of hypertension sufferers in Talaud was 3.124. Uncontrolled stress became the main factor of hypertension. It needed prevention by studying and understanding the proper behavior using the health belief model (HBM) theory. This study aimed to describe hypertension patients' health beliefs and mental health status in the Talaud Islands Regency and to identify both of its relations. This study used a quantitative method with cross-sectional closure. This study was conducted in Melonguane City. The number of samples was 50 people who met the inclusion criteria. We used questionnaires of the health belief model, questionnaires of mental health inventory, and digital tensimeters. Data analyzed used The Pearson Product moment correlation to determine the correlation between the two variables. This study showed no relation between health belief and mental health status (p-value > 0.05). There is no relationship between these variables because health belief was the variable that represents the individual perception related to the disease that was suffered. In contrast, mental health status was the variable representing personal feelings in general, such as anxiety, depression, emotional loss of control, and some of the indicators.

Keywords: Health Belief, Hypertension, Mental Health Status

INTRODUCTION

Hypertension is a cardiovascular disease that might cause the world's health problems because it is the main factor that might trigger heart disease, stroke, and kidney disease. In general, the cardiovascular disease affected 17 million deaths annually, and in parts of those, as many as 9.4 million deaths are occurred due to the complication of hypertensive

disease (WHO, 2013). Badan Penelitian dan Pengembangan Kesehatan Kementrian Kesehatan Republik Indonesia (2018), showed that hypertension in Indonesia is a health problem that still in a high prevalence was 34.1%, and most sufferers are between 55-64 years old. According to the report from Badan Pusat Statistik Kabupaten Kepulauan Talaud (2018), hypertension in Talaud Regency become the second-highest suffered-disease after Upper Respiratory Tract Infection (URTI), which was 3.124 cases.

According to WHO (2013), many factors cause hypertension, such as consuming foods with a high levels of fat and salt, fewer vegetables, fewer sports activities, and worse stress management. According to Hu *et al*. (2015), the level of stress contributes 9.1% to the risk of hypertension occurrences. Stress that somebody encounters will affect the sympathetic nerve, increasing cardiac muscle contractility and causing an increase in cardiac output, which is a precipitating factor of hypertension. There was a similarity between the risk factor of hypertension causal and the risk factor related to emotional and mental disorders, which was higher in people with a lower education level, unemployed, divorced, marital status, the elderly, and women (Idaiani & Wahyuni, 2017). Stress might also occur in people who were diagnosed as suffering from chronic disease. The study by M.M. Vanhoof *et al*. (2014) stated that the more severe the suffered disease impacted, the increased the stress level. On the other hand, such as weak physical conditions, pharmacological therapy and any medical treatments that have been done will impact the mental health of the sufferers such as became stress, anxiety, depression, and other things that will affect the decreased quality of life M.M. Vanhoof *et al* (2014).

Besides the stress, unhealthy lifestyles such as consuming foods with high levels of salt and fat will also cause hypertension. In Talaud Islands Regency, North Sulawesi Province, the majority are Christians, are ethnic those who have similar behavior as Minahasan ethnicity, which is party culture, which means a celebration by consuming tasty foods, which contain a higher level of salt and saturated fat. Kandou (2009) mentions that typical Minahasan foods are “pork garo rica", seafood, *wokublanga, tinorangsak,* braised pork in soy sauce, roast pig, RW (dog meat), and typical Manadonese food made from vegetables, which is *bubur* Manado (porridge). The behavior of consuming unhealthy food and the condition of their living place of Talaud societies are at the coast might cause the

risk of hypertension. It was analogous to the research conducted by Rampengan dan Sukarno (2018), who stated that the societies who are living in the coastal area are riskier to be encountered hypertension than the people who are living in the plateau area due to the higher consumption of salt, and alcohol drink, meat, smoking, and rarely doing sports activities. Unhealthy dietary habits and uncontrolled stress are the factors that cause hypertension. If ignored, it causes hypertension and risks complications or even death.

Hypertension is known as a silent killer because it might be able to kill somebody without any symptoms, so it is necessary to prevent hypertension by increasing public awareness about the dangers of hypertension so that people can change their healthy lifestyle. People need to learn and understand proper behavior to practice a healthy lifestyle. The Health Belief Model (HBM) is a theory that has been widely used in studying health behavior and can encourage a person to change their health behavior. Backer developed the health belief model in 1974, emphasizing that individual perceptions of the effectiveness and susceptibility of treatment may affect individual health behavior choices (Setiyaningsih et al., 2016). The health belief model has a model that focuses on two individual aspects, namely, based on health and health behavior. Health belief has six variables studied, namely perceived susceptibility, perceived severity, perceived barriers, perceived benefits, cues to action, and self-efficacy (Abraham & Sheeran, 2001).

Health belief models have been widely used in various studies, one of which is hypertension research. Setiyaningsih *et al*. (2016), in their research, explained that self-ability, perceived benefits, and perceived barriers are directly related to hypertension prevention behavior, while perceptions of susceptibility, perceived severity, and cues to action are indirectly related to hypertensive prevention behavior. In similar research conducted by Puspita *et al.* (2017), in adolescents in Surakarta, there are positive results of the perceived threat to preventive behavior, perceived benefits, self-efficacy, and cues to action, and there are perceived barriers in carrying out hypertensive prevention behavior. Soesanto *et al*. (2018) also found that perceived benefits are the most influential factor for the elderly in controlling hypertension. The elderly with a good perception of benefits will have 3,689 times the possibility of controlling hypertension. Perceptions of susceptibility, severity, and self-efficacy positively

correlate with hypertension control practices in the elderly. The three existing research journals show that the use of the theory of health belief models on behavior change in hypertensive patients obtained positive results and the six variables of the health belief model are very influential on behavior change.

Research Objective

According to the obtained data related to the high number of hypertensive occurrences in Talaud Islands Regency and the inability to control the stress, this research aimed to describe the health belief and mental health status of the hypertension patients in Talaud Islands Regency and to identify both of its relations.

METHODOLOGY

This research used a quantitative method with a cross-sectional. According to the Public Health Office data, the number of hypertension population in Melonguane City was 100 people. There were 50 respondents that met the criteria of being participants. They were from Talaud tribes, older than 18 years old, had hypertension records that the doctor diagnosed in Public Healthcare in Melonguane, and had suffered hypertension for a minimum of three years.

The instruments consist of questionnaire of the Health Belief Model with six indicators with Linkert scale. It was perceived susceptibility (five items), perceived severity (five items), perceived benefits (five items), perceived barrier (nine items), self-efficacy (seven items), and cues to action (six item). This questionnaire from Rayanti, Nugroho & Marwa (2021), Health Belief Model questionnaire among hypertension patients.

Next, a questionnaire of Mental Health Inventory adapted from the questionnaire from Desi, Lantang & Rayanti (2019). This questionnaire has 38 items with Linkert scale. There are two indicators of Mental Health Inventory. First, negative indicator such as anxiety, depression, and loss of behavior/ emotional control. Second, positive indicator including generally positive effect, emotional attachment, and life satisfaction). Its validity (0.33 -0.713) and reliability (0.90) among the Indonesian patients with non-communicable disease.

Other than that, there was a self-data sheet and blood pressure measurement with a digital tensimeter. Blood pressure measurement was done in three repetitions and then averaged as the result. The process of data collection was conducted for three months, from June 2020 to August 2020. All of the respondents involved in this research had signed the Informed Consent. This study passed Ethical Clearance No. 358/Kep./Rek./10/2017. The data were analyzed by the Pearson Product Moment correlation test to look at the relationship between health belief and mental health status.

RESULTS

Respondents' Demographical Characteristic

The demographical characteristic of respondents been listed to look up the background of each respondent, encompassing age, gender, latest educational level, occupation, blood pressure (systole and diastole), the long periods of illness, and the hypertensive medicines that have ever consumed could be seen on table 1.

Table 1: Respondents' Demographical Profile

Respondent's Characteristic	n	%
Age		
Productive age (25 – 44 years old)	5	10
Pre-elderly (45 – 59 years old)	19	38
Elderly (≥ 60 years old)	26	52
Gender		
Male	19	38
Female	31	62
Latest Educational Level		
Elementary School	9	18
Junior High School	12	24
Senior/ Vocational High School	20	40
Bachelor Degree	6	12
Master Degree	3	6
Occupation		
Retired	5	10
Farmer	8	16
Fisherman	5	10
Housewife	18	36
Civil Servant	6	12
Entrepreneur	8	16

Blood Pressure Systole (mmHg)		
Normal (< 120)	3	6
Pre-hypertension (120 - 139)	8	16
Hypertension stage 1 (140 - 159)	19	38
Hypertension stage 2 (> 160)	14	28
Hypertension stage 3 (≥ 180)	6	12
Blood Pressure Diastole (mmHg)		
Normal (< 80)	5	10
Pre-hypertension (80 - 89)	20	40
Hypertension stage 1 (90 - 99)	12	24
Hypertension stage 2 (100 - 109)	8	16
Hypertension stage 3 (≥ 110)	5	10
Medicines that Consumed/ Ever Consumed		
Amlodipine	48	96
Captopril	2	4
Religion		
Islam	4	8
Christian	46	92

Table 1 shows that most respondents are older women as housewives, had the latest educational background in Senior High School, and were Christian. On the measurement of blood pressure, there was occurred a difference in the results, which were the majority of respondents' systole are at type 1 hypertensive level, while the diastole is at the prehypertensive level with long periods of illness for more than five years and still or ever been consuming amlodipine.

Health Belief

Health belief had six measurement indicators, as seen in the table below.

Table 2: Health Belief Indicator

Health Belief Indicators	n	%
Perceived Susceptibility	0	0
Not risky to the susceptibility (1 - 7)	36	72
Risky to the susceptibility (8 - 15)	14	28
Highly risky to the susceptibility (16 - 22)		
Perceived Severity		
Did not understand disease severity (1 - 7)	1	2
Understand disease severity (8 - 15)	43	86
Very understand the disease severity (16 - 22)	6	12

Perceived Benefits		
Did not understand the benefits of hypertension prevention (1 - 7)	0 5	0 10
Understand the benefits of hypertension prevention (8 - 15)	45	90
Very understand the benefits of hypertension prevention (16 - 22)		
Perceived Barriers		
Did not encounter the barriers (1 - 12)	1	2
Possible to encounter the barriers (13 - 24)	33	66
Encountering the barriers (25 - 36)	16	32
Cues to Action		
Did not understand hypertension disease (1 - 7)	0	0
Understand hypertension disease (8 - 15)	6	12
Very understand hypertension disease (16 - 28)	44	88
Self-efficacy		
Did not have self-efficacy (1 - 7)	0	0
Have sufficient self-efficacy (8 - 15)	9	18
Have self-efficacy (16 - 22)	41	82

Table 2 shows that most respondents have a risk of disease susceptibility, respondents understand the disease's severity, respondents understand the benefits of prevention the hypertensive disease, respondents could encounter resistance, respondents understand the hypertensive disease, and the majority have good efficacy.

Mental Health Status

The mental health inventory was used to determine the respondents' mental health status. This questionnaire used five categories to interpret its levels, such as mental health (very low, low, moderate, high, very high), as seen in Figure 1.

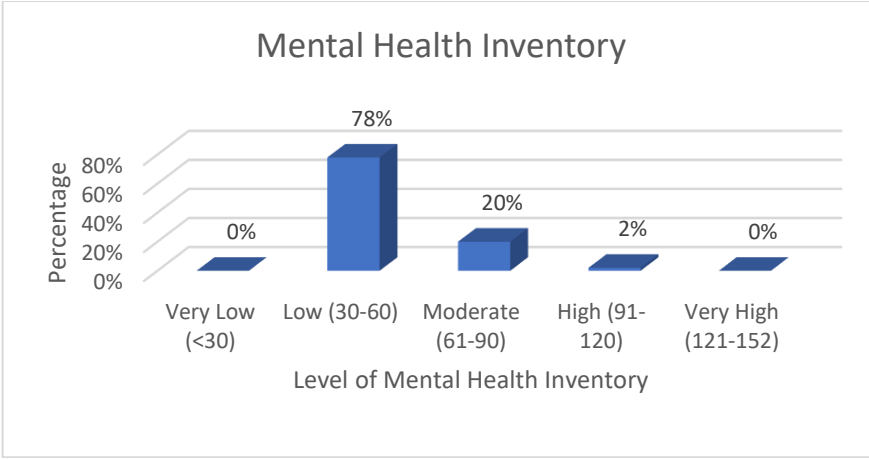

Figure 1: Mental Health Inventory

The data analysis of diagram 1 showed that 78% of respondents had enough mental health status, 20% had a high level of mental health status, and the rest had a low level of mental health status.

Mental health was divided into two indicators, those are negative indicators and positive indicators, and then it was divided into a few sub-indicators that can be seen in table 3.

Table 3: Mental Health Status Indicators

Negative Health Indicators		**n**	**%**
Anxiety	Low anxiety level (1 - 8)	17	34
	Moderate anxiety level (9 - 18)	29	58
	High anxiety level (19 - 32)	4	8
Depression	Low level of depression (1 - 3)	18	36
	Moderate level of depression (4 - 8)	20	40
	High level of depression (9 - 16)	12	24
Loss of behavioral/ emotional control	Low loss of control (1 - 8)	5	10
	Moderate loss of control (9 - 18)	37	74
	High loss of control (19 - 32)	8	16
Positive Health Indicators		**n**	**%**

A positive influence in general	Low positive influence (1 - 9) Moderate positive influence (10 - 20) High positive influence (21 - 40)	0 0 50	0 0 100
Emotional Bonding	Low emotional bonding (1) Moderate emotional bonding (2 - 3) High emotional bonding (4 - 8)	0 0 50	0 0 100
Life Satisfaction	Low level of life satisfaction (1) Moderate level of life satisfaction (2 - 3) High level of life satisfaction (4)	0 19 31	0 38 62

Table 3 shows the negative indicator in the moderate category but the positive indicator in the high category.

Correlation Test of Health Belief and Mental Health Status

Table 4 was the result of a bivariate correlation test to examine the relationship between health belief and mental health status. According to the result that was written in the table above, could be seen that there was no relationship between health belief and mental health inventory or the mental health status where the r count is not equal to the r table and the p-value of MHI and 6 HBM indicators are above the significance level (0.05).

Table 4. Correlation test result between Health Belief and Mental Health Status

Variable	Correlation Analysis of Pearson product Moment		Significance
	r	*p-value*	
HBM (perceived susceptibility) and MHI	-0,239	0,095	Insignificant
HBM (perceived severity) and MHI	-0,234	0,089	Insignificant
HBM (perceived benefits) and MHI	-0,003	0,98	Insignificant
HBM (perceived barriers) and MHI	-0,261	0,06	Insignificant
HBM (cues to action) and MHI	-0,073	0,617	Insignificant
HBM (self-efficacy) and MHI	0,043	0,769	Insignificant

DISCUSSION

Respondents' Demographical Characteristic

According to the characteristics of age, gender, and occupation, most respondents are older women as housewives. The elderly and women are two indicators related to hypertension due to the decrease of estrogen hormones when entering menopause ages, which will impact the damage to endothelial cells and triggers the plaque in the blood vessel, causing hypertension. The latest educational level of respondents was analogous to the data from Badan Pusat Statistik Kabupaten Kepulauan Talaud (2018), in which the Talaud societies are the Senior High School graduates were in second place after the Elementary School graduates.

The blood pressure test results show a higher systolic, which can occur because the heart contracts to pump blood throughout the body. At the same time, diastolic blood pressure, which has a lower number, occurs when the heart is resting and decreases blood pressure. Kowalski (2007), in his research, explained that systolic blood pressure was tough to be lowered compared to diastolic blood pressure. The blood pressure test results were also directly related to the antihypertensive medicines that the respondents had consumed. Most of the respondents who regularly consume antihypertensive medicines can control their blood pressure, and even some of their blood pressure is in the normal category. Regular usage of antihypertensive medicines such as captopril, amlodipine, and hydrochlorothiazide (HCT) will have a clinical impact on hypertensive patients, which can significantly reduce blood pressure in both systolic and diastolic blood pressure (Kristanti, 2015).

Health Belief

Perceived susceptibility indicators showed that respondents have a risk of susceptibility. A susceptibility that could occur in elderly respondents refers to complications that will be resulted from hypertension, such as stroke, coronary heart disease, and several other cardiovascular diseases that arise from complications of hypertension. The risk of susceptibility may occur because respondents, primarily elderly due to the decreasing of their immunity, are susceptible to various diseases. Respondent's awareness of their susceptibility to their disease led respondents to take antihypertensive medicines to control their blood pressure. Setiyaningsih et al. (2016) explained that there is an indirect influence between perceived vulnerability and hypertension prevention behavior.

Most respondents understand the perceived severity. This result was related to the long period of suffering from the disease. The length of the suffered disease will make the respondents understand the disease severity that might be occurred to themselves. People with the perceived severity can prevent or lessen the severity level according to the received information from the medical officers and the other media of information (Contento, 2008).

The result of the perceived benefits indicator shows that most respondents understand the benefits of disease prevention, and the rest understand the benefit of the hypertension prevention category. The respondent's demographical characteristics data proved that all respondents have been consuming antihypertensive medicine to prevent the increase of blood pressure for their hypertension not to become more severe. Respondents who felt the benefits of consuming antihypertensive medicine will struggle to regularly consume the medicine despite meeting the resistance (Barros et al., 2014).

Perceived barriers showed that most of the respondents, or as many as 33 respondents in this research, have a possibility to the barriers. The antihypertensive medicine that must be consumed every day drags them bored, so they choose not to consume the medicine afterward. Most respondents are elderly also, and the possible barrier to not consuming the medicine is due to senility, which could affect uncontrollable blood pressure. Setiyaningsih *et al*. (2016), in their study, stated that a direct relationship exists between the barriers to hypertensive prevention behavior. Those barriers refer to the measurement of disease prevention, such as unpleasant, inconvenient, expensive, or painful.

On the indicator of 'cues to action', the result showed that the respondents understand the cues to act to cope with their illness. It is related to the long periods of suffering hypertension, giving them a better understanding of their disease and goodly impacts the cues to act felicitously. In her research, Setiyaningsih *et al*. (2016) showed that the cues to action ($b = 0.33$; $p < 0.001$) were positively and indirectly related to the prevention of hypertension.

The respondent's self-efficacy in this research shows that most respondents had good efficacy. The efficacy of the respondents arose due to the

existence of support from their relatives or even their self-willingness to be cured, which might cause good efficacy. This research was analogous to the research conducted by Setiyaningsih *et al*. (2016), in which there is a positive impact from self-efficacy and preventive behavior (b = 0.11; p = < 0.001).

Mental Health Status

This study shows that respondents' mental health status was good or stable. It can occur due to the control-able of the respondent's anxiety or depression when encountering problems because the respondents are familiar with life's problems that had often occurred. The existence of good acceptance and self-appreciation, support from their relatives, a good environment, and regularly participating in religious activities influence respondents in controlling their feelings. Hamid (2017), in his research, explained that a mentally healthy person could control himself to feel safe, calm, and happy in any condition.

Anxiety, depression, and loss of emotional/behavioral control

Most respondents experience anxiety, depression, and loss of behavioral or emotional control at a moderate level. This result is supported by the answers given by respondents to negative indicators, in which most of them had answered the questions with 'occasional or never' so that the mental health status results on negative indicators were at a moderate level. The existence of good social support and coping from the respondent makes the respondent feel controlled. Hendry (2013), in his research, explains that family support, friends, and the support of the closest people might affect individuals psychologically, and the ability to socialize well with the community can increase enthusiasm for life and reduce levels of anxiety, depression, and can control themselves well.

Positive impact in general, emotional bonding, and life satisfaction

The result of positive impact in general, emotional bonding, and life satisfaction was at a high category level. It occurred because the respondents enjoyed their daily life, doing positive things, and having good efficacy and self-control. It also corresponded to the respondent's answers to the positive indicator questions, in which most respondents answered the question with an 'often and always' statement. In general, the positive impact and emotional bonding obtained from themselves, relatives, and their closest people will make them always think positively

and optimistically so that the respondents might adapt to their encountered disease and make themselves more worthy (Desi, Lantang & Rayanti (2019). Besides that, good quality of life will also affect the respondent's satisfaction. Life satisfaction was a positive emotion from the past and the measurement of happiness (Seligman, 2013).

The Relationship Between Health Belief and Mental Health Status

The results showed no relationship between health belief and mental health status. It might have occurred because health belief is a variable that examines individual perceptions related to illness. In contrast, mental health status is a variable that examines feelings that individuals feel in general, such as anxiety, depression, loss of emotional control, and several indicators. It is not related to an illness suffered by respondents. Health belief refers to an individual's knowledge that will affect their perception of health. The respondent's knowledge of the long periods the respondent had suffered from illness would affect the level of the respondent's health beliefs. In this study, all respondents had suffered from hypertension for over three years. Respondents who are aware of their illness will seek treatment so that respondents will receive information provided by doctors or from other information media, and this will indirectly increase their knowledge about the disease. Roifah (2017) explains that when a person suffers from a chronic disease for a long time, it will affect the experience and knowledge of the individual in treating the disease.

Unlike health belief, mental health status was the variable related to general personal feelings. Saputra *et al* (2018), in their research, explained that mental health is a condition related to somebody's psychological, affecting the mental and behaviors among societies. Aziz *et al*. (2017), in their research, also stated that mental health was an equilibration between the role of responsibility and somebody's adjustment to themselves and the environment.

CONCLUSION

On the aspect of health belief, it can be concluded that most of the respondents have a risk of disease susceptibility, understand the disease's severity and prevention, are likely to encounter resistance, and have the cues to act and have good self-efficacy. While on the indicator of mental health status, most respondents had enough of mental health status. It

means that the respondents encounter a situation/ condition that might trigger anxiety, depression, and loss of emotional control in their daily lives. However, it can be resolved immediately because the respondents are already accustomed to the condition. Then, the correlation test between the variable of health belief and the variable of mental health status showed no relationship between both variables. It shows that the current respondent's mental health status is not related to the belief in their condition of the disease.

Conflict of Interest

The authors declare that there is no conflict of interest.

Author Contribution

For research conceptualization, methodology, formal analysis, data curation, R.E.R and D. Writing original draft preparation, R.A.T; supervision, Writing-Review and Editing, R.E.R. Data curation, D., R.A.T. All authors read and approved the final version to be submitted for publication. All authors have read and agreed to the published version of the manuscript.

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