



A cross sectional study

The Relationship of Sleep Quality with Stress Level among Hypertension Patients

Andika Abdul Malik¹, Diar Wiarsih¹, Anggi Rosmawati¹, Deana Sulistiani¹, Annisa Fithriani¹, Beti Rostantia¹, Alisa Fikri Aulia NHA¹

¹STIKes Muhammadiyah Ciamis, West Java, Indonesia

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CORRESPONDENCE

Andika Abdul Malik
Phone: 089608733665
E-mail: andika@inspira.or.id

A B S T R A C T

Introduction: As many as 9.4 million people in the world suffer from hypertension, many people with hypertension ignore their disease, even though if left unchecked it will lead to more serious diseases.

Objective: This research aims to is study was to find out whether there is a relationship between sleep quality and stress levels in patients with hypertension.

Method: The type of research used is quantitative analysis using a cross sectional design. The sampling technique used is simple random sampling. The research population was 100 people and the total sample was 50 people. The research instrument was carried out by measuring blood pressure and distributing questionnaires.

Result: The results showed that the majority of respondents had better sleep quality than the average of 5 people (10%). While the stress level of respondents in the mild stress category was 23 people (46%).

Conclusion: From the results of the analysis carried out, it can be concluded that the relationship between sleep quality and stress levels in patients with hypertension is not significant or has no relationship with p value = 0.340.

INTRODUCTION

Hypertension or high blood pressure is one of the highest morbidity cases that can cause death. Hypertension is often referred to as hidden killer because it indirectly kills the sufferer, and even triggers the occurrence of other deadly diseases (Sholikhah, et al., 2021). Hypertension can be caused by genetic factors, where the blood pressure of children with parents who have hypertension is higher than children with

parents who have normal blood pressure (Fitriany, 2015). The impact that will arise if not addressed immediately can result in abnormalities of blood vessels, heart (cardiovascular) and kidney disorders, stroke and eventually death (Firmansyah, Setiawan, & Ariyanto, 2021; Suhanda, et al., 2021).

The impact that will arise if not treated immediately can cause blood vessel abnormalities, so that the heart works harder and the process of destroying blood

vessel walls takes place more quickly (Ina, Selly, & Feoh, 2020). Hypertension increases the risk of heart disease, the risk of stroke, even the long-term effects of sudden death (Musfirah M, 2019). A person is said to be hypertensive if the systolic blood pressure is at 140 mmHg while the diastolic blood pressure is at 90 mmHg (Ariyanto, et al., 2020). Hypertension cannot be cured but can only be controlled. Therefore, controlling hypertension must always be done in ways that can control blood pressure (Burhan, Mahmud, & Sumiaty, 2020).

Based on data from the World Health Organization (WHO) there are 9.4 million 1 billion people in the world die from cardiovascular disease. The prevalence of hypertension in developed countries is 35.0%, and in developing countries it is 40.0% of the adult population. In 2016 the prevalence of hypertension in America was 18.0% and worldwide data in 2015, around 972 million people or 26.4% of the world's population suffer from hypertension. This figure is predicted to increase to 29.2% in 2025 (Ina et al., 2020).

Meanwhile, according to the National Health Indicators Survey (Sirkesnas) in 2016, the prevalence of hypertension reached 32.4%. The city of Surabaya has the third highest number of cases in East Java Province, with a total of 102,599 cases of hypertension (45.3%) in 2017 (Risksedas, 2018). WHO says that stress will become a primary threat to human health in 2020. Stress contributes 50.0-70.0% against the emergence of hypertension (Musradinur, 2016).

Stress can arise through the activity of the sympathetic nervous system which causes an intermittent increase in blood pressure (Firmansyah, et al., 2021; Setiawan, et al., 2017). Individuals who experience stress, the hormone adrenaline will be released,

then blood pressure will increase through narrowing of the arteries and an increase in heart rate (Andria, 2013). Another factor that causes hypertension is sleep quality, this condition can be characterized by the amount, quality, and timing of sleep is not good. Irregular sleep quality makes the nervous system hyperactive and can affect the entire body system including the heart and blood vessels. Short sleep can cause metabolic and endocrine disorders that can cause cardiovascular disorders, resulting in hypertension (Elisabet Marques, Vendi Eko K, 2021).

Therefore, research are interested in conducting this study with the aim of knowing whether there is a relationship between sleep quality and stress levels in patients with hypertension.

METHOD

This study uses quantitative analysis, with a cross sectional approach. This study uses two variables, namely the independent variable (independent) in the form of sleep quality and stress levels, while the dependent variable (dependent) is hypertension sufferers.

The population that will be used in this study are adults aged 30-50 years at the Ciamis Health Center as many as 100 people. The sample was obtained by 50 people using simple random sampling technique. This study has inclusion criteria and exclusion criteria in order to get the appropriate population. Inclusion criteria included being able to write and read, aged 30-50 years and willing to fill out informed consent. As for the exclusion criteria in this study patients with hypotension, and high economic status. The instrument used in this study was a blood pressure measuring device and a questionnaire in the form of a google form.

The research instrument used was a

sphygmomanometer to measure blood pressure, the Pittsburgh Sleep Quality Index (PSQI) questionnaire consisted of 9 questions about sleep quality with a score range of 0-3, namely 0 = very good, 1 = quite good, 2 = bad and 3 = very bad. , the results of a score of 1-7 where good = 5 and bad = 5, for the Preceived Stress Scale 10 (PSS-10) questionnaire there are 10 questions about stress levels, the score range is 0-4, namely 0 = never, 1 = almost never never, 2 = sometimes, 3 = often and 4 = very often, where a score of 0-7 = normal, 8-11 = mild stress, 12-15 = moderate stress, 16-20 = severe stress and 21 moderately stressed which had previously been tested for validity and reliability. This research was conducted on October 10, 2021 at the Ciamis Health Center. The data that has been obtained will be analyzed using a statistical analysis application, namely SPSS version 20 for windows with Chi Square test (formula 50 people).

RESULTS

Characteristics of respondents seen in this study include age, gender, education, occupation and income.

Table 1. Distribution of Respondents Characteristics

| Variable | N | Percentage (%) |
|------------------|----|----------------|
| Age | | |
| <Mean | 25 | 50.0 |
| >Mean | 25 | 50,0 |
| Gender | | |
| Male | 10 | 20.0 |
| Female | 40 | 80.0 |
| Education | | |
| SD | 25 | 50.0 |
| SMP | 12 | 24.0 |
| SMA | 7 | 14.0 |
| S1 | 6 | 12.0 |

| Profession | | |
|----------------------|----|------|
| Labour | 9 | 18.0 |
| Housewife | 25 | 70.0 |
| Trader | 1 | 2.0 |
| Government Employees | 3 | 6.0 |
| Farmer | 1 | 2.0 |
| Entrepreneur | 1 | 2.0 |
| Income | | |
| <=500000 | 35 | 70.0 |
| >=500000 | 15 | 30.0 |

The results showed that the majority of respondents were aged 41-40 years (49.0%), the majority of respondents were female (80.0%), the average respondent's last education was Elementary School (50.0%), the majority of respondents' occupations Housewives (70.0%), and respondents' income is <= Rp 500000 (70.0%) from 50 respondents.

Table 2. Frequency distribution of sleep quality in hypertension patients

| Sleep Quality | N | % |
|---------------|----|------|
| Good | 5 | 10.0 |
| Bad | 45 | 90.0 |
| Total | 50 | 100 |

Based on the table above, the average frequency of respondents having poor sleep quality is 45 people (90.0%).

Table 3. Frequency Distribution of Stress Levels in Hypertensive Patients

| Stress Level | N | % |
|-----------------------|----|-------|
| Normal | 8 | 16.0 |
| Light Stress | 23 | 46.0 |
| Moderate Stress | 6 | 12.0 |
| Heavy Stress | 9 | 18.0 |
| Quite a lot of Stress | 4 | 8.0 |
| Total | 50 | 100.0 |

Based on the table above, the majority of respondents experienced mild stress as many as 23 people (46.0%) out of 50 respondents.

Table 4. Relationship between sleep quality and stress level in hypertension patients

| Stress Level | Sleep Quality | | | | Total | p-Value | X ² Hitung |
|--------------|---------------|-----|----|----|-------|---------|-----------------------|
| | Good | Bad | | | | | |
| | N | % | N | % | N | % | |
| Normal | 1 | 2 | 7 | 14 | 8 | 16 | |
| Light | 2 | 4 | 7 | 14 | 9 | 18 | |
| Moderate | 0 | 0 | 6 | 12 | 6 | 12 | 0.340 |
| Heavy | 2 | 4 | 21 | 42 | 23 | 46 | |
| Severe | 0 | 0 | 4 | 8 | 4 | 8 | |

Based on the table above, normal stress levels are 8 people (16%), low stress levels are 9 people (18%), moderate stress levels are 6 people (12%), severe stress levels are 23 people (46%), and moderate stress levels are high. weight as much as 4 people (8%). Meanwhile, the quality of sleep categorized as good was 5 people (10%) while those categorized as bad were 45 people (90%).

DISCUSSION

Based on the results of the chi-square statistical test conducted to determine the relationship between sleep quality and stress levels in hypertensive patients, the p value <0.05 ($p=0.340$) was obtained. However, previous studies have stated that there is a significant relationship, such as research conducted by Khotimah in 2013 regarding Stress as a Factor for Increased Blood Pressure in 2013 which stated that there was a relationship between stress and increased blood pressure (Khotimah, 2013). Meanwhile, according to Gunawan in 2020, the results of the study stated that statistical analysis had a positive relationship between ($r = 0.577$; $p < 0.001$) and stress levels ($r = 0.370$; $p = 0.001$) with the incidence of hypertension. According to Sumarna in 2020, it states that there is a positive and significant relationship between sleep quality and systolic blood pressure in respondents in the Pusk-

emas working area with p value = 0.040 which shows it is smaller than the alpha value (0.05), but there is no significant relationship between sleep quality with diastolic blood pressure where the value ($p=0.623 > \alpha 0.05$) (Sumarna, Rosidin, & Suhendar, 2019).

According to research conducted by Dy-an, 2021 says that stress can affect the quality of sleep. Pregnant women who have sleep disorders too little or too much will trigger blood pressure. This is caused by a hemostatic process that plays a role in regulating blood pressure balance. If a person gets enough rest it will avoid stress, because when experiencing stress the production of adrenaline hormones will increase, causing constriction of blood vessels and increased inflammation of the body (Pusparini & Kurniawati, 2021; Nurhidayat, et al., 2021). Based on Sitohang et al in 2016 said that an increase in blood pressure tends to occur in people who are sleep deprived because pregnant women who lack sleep will trigger an increase in homeostasis. The results of this study showed that the majority of pregnant women using preeclampsia had an average of less than 6 hours of sleep per day which could increase the risk of developing hypertension by 37% (Sitohang PC, 2016).

CONCLUSION

Based on the above analysis, it can be concluded that sleep quality with stress levels is not significant or not related to hypertensive with p value = 0.340 and chi square value = 79.280.

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