Volume 3 Issue 1, January 2026

Journal of Nursing Periodic
http://journal.uds.ac.id/index.php/JNP
e-ISSN 3032-6761

ORIGINAL ARTICLE **Open Access**

The Relationship Between Emotional Regulation and Sleep Quality in Elderly with Hypertension

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Abstract

Introduction: Elderly hypertensive individuals with emotional instability can experience reduced effective sleep time, thus disrupting adequate sleep quality and leading to various sleep complaints. The purpose of this study was to determine the relationship between emotional regulation and sleep quality in elderly hypertensive individuals at the Bendo Community Health Center, Pare District.
Methods: The researchers used a cross-sectional study design. The population was elderly hypertensive patients who came for check-ups at the Bendo Community Health Center in Pare District. A sample of 35 elderly hypertensive patients was selected using an accidental sampling technique. The research instruments used were the Emotional Regulation Questionnaire (ERQ) and the Pittsburgh Sleep Quality Index (PSQI). The Spearman Rho statistical test was used for analysis with a 0,05 error rate..
Results: Almost half of the respondents had emotional regulation in the very low category, namely 17 respondents (48.6%), and most of the respondents had sleep quality in the poor category, as many as 19 respondents (54,3%). Spearman correlation test analysis obtained a 2-tailed Sig. value of 0.002 which indicates a relationship between emotional regulation and sleep quality in elderly with hypertension, while the correlation coefficient value is 0.504 with the strength of the relationship being in the moderate category and positive, which means that if emotional regulation in elderly with hypertension is very low, they will have poor sleep quality.
Conclusions: Elderly people with hypertension who are able to regulate their emotions with good emotional control in facing daily problems can accept the condition of the disease they are experiencing, and maintain sleep patterns by always relaxing their minds and improving their spirituality.

Keywords: Elderly, Emotional Regulation, Hypertension, Sleep Quality

Introduction

Elderly individuals experience various comorbidities, one of which is hypertension (Hesti, Linda, & Nurliah, 2020). Hypertension is a risk factor for various cardiovascular diseases characterized by persistent high blood pressure in the systemic arteries. Blood pressure is expressed as the ratio of systolic blood pressure (the pressure exerted by blood on the artery walls when the heart contracts) to diastolic blood pressure (the pressure when the heart relaxes) (Mills et al., 2020). Emotional instability in the elderly can trigger high blood pressure or

hypertension (M. Nurmansyah & Rina, 2019). Elderly hypertensive individuals with emotional instability can reduce effective sleep time, thus preventing adequate sleep quality and resulting in various sleep complaints (Sambeka, Kalesaran, & Asrifuddin, 2018). The serious impacts of sleep disorders in the elderly include excessive daytime sleepiness, impaired attention and memory, depression, frequent falls, and decreased quality of life (Amirrudin, Darmasta & Rahmah, 2018).

The World Health Organization (WHO) indicates that hypertension remains a significant public health problem. In 2020, data showed that approximately 1.13 billion people suffered from hypertension. Globally, the prevalence of hypertension in 2021 was estimated to reach 1.28 billion adults aged 30 to 79 years (World Health Organization, 2022). Cases of hypertension continue to increase annually, with an estimated 1.5 billion people suffering from hypertension by 2025, and 9.4 million people die annually from hypertension and its complications. Data from Southeast Asia shows the incidence of hypertension reaches 36% (Hamzah B et al., 2021).

According to the Ministry of Health of the Republic of Indonesia (2021), the prevalence of non-communicable diseases such as hypertension in Indonesia increased in 2020 compared to the previous year. The prevalence of hypertension rose from 25.8% to 34.1% in 2020. The prevalence of high blood pressure in women (36.85%) was higher than in men (31.34%). The estimated number of hypertension cases in Indonesia is 63,309,620, while the death rate in Indonesia due to hypertension is 427,218 deaths, with the average age being elderly, namely over 60 years (Ministry of Health of the Republic of Indonesia, 2021). Based on research results, the sleep quality of people with hypertension shows several variations. Most of the hypertension sufferers at the Rancaekek Community Health Center were reported to have poor sleep quality, amounting to 75 people or 94.9%. However, the sleep quality of elderly with hypertension in the Talang Jawa Inpatient Community Health Center Work Area was reported to be in the good category at 61.9%, which is superior to poor sleep quality at 38% (Djamaludin, 2019).

The results of a preliminary study conducted by researchers at the Bendo Community Health Center in Pare District showed that there were 48 patients suffering from hypertension, almost all of whom were over 60 years old, including 39 elderly people. These elderly people had an average systolic blood pressure above 150 mmHg and a diastolic blood pressure of 90 mmHg. When these elderly people experienced increased blood pressure, they had signs and symptoms such as dizziness, stiff neck, and difficulty sleeping or waking up easily due to discomfort.

Factors that can increase blood pressure in the elderly are caused by various problems, including physical, psychological, social, and family support. Hypertension can lead to health problems that impact the human body and quality of life. The problem in hypertensive patients is sleep quality, one of the most common internal problems and a frequent complaint among elderly people with hypertension (Kurniadi, 2022). This can occur due to short sleep duration, which can lead to poor sleep quality. Prolonged sleep deprivation in elderly people with hypertension can disrupt physical and psychological health, leading to increased complications of the disease (Purwati, 2018).

Good sleep quality is a crucial component of a person's health and well-being. Sleep quality is considered a self-assessment of the satisfaction of the sleep experience and the feeling of being refreshed upon awakening. Poor sleep quality is common in heart failure patients. One study found that heart failure patients have poor sleep quality. This is due to difficulty in getting enough sleep, the time between sleep preparation and onset, disruption to normal sleep, and a reduced ability to sleep. Most elderly people are at high risk of experiencing sleep disorders caused by age and other contributing factors such as hypertension (Azizah, Lilis & Nila, 2020).

People with hypertension tend to experience a decreased ability to recognize negative emotions such as anger, fear, sadness, and facial expressions. This demonstrates how psychological factors play a significant role in the development of the disease. Abnormal or excessive psychological states can trigger hypertension. Negative emotions have a significant impact on the immune system. Emotions are part of the affective aspect, significantly influencing personality and behavior. Emotions are fluctuating and dynamic, meaning that emotional changes are highly dependent on a person's ability to self-regulate (Robby, 2020).

Methods

This study employed a cross-sectional study design, a type of analytical research design that falls under the observational research category. This study examines the relationship between the independent variable, emotional regulation, and the dependent variable, sleep quality. The sample consisted of 35 elderly individuals with high blood pressure who underwent check-ups at the Bendo Community Health Center in Pare District. The following inclusion criteria were observed during sampling:

1. Hypertension sufferers aged 60 years and over
2. Elderly people visiting the Bendo Community Health Center with a history of hypertension
3. Elderly people whose examinations reveal elevated blood pressure
4. Conscious elderly people

The Emotion Regulation Questionnaire (ERQ) was used to measure emotion regulation in elderly with hypertension. The Pittsburgh Sleep Quality Index (PSQI) was used to measure sleep quality in elderly with hypertension. This study was conducted from June to July 2024. The study involved visits to community health centers (Puskesmas) over a one-month period to identify elderly respondents with hypertension and obtain their consent to participate in the study. The researchers then administered questionnaires to the respondents, who were guided through their completion by the researcher and assisted by their families. After data collection, the researchers reviewed the data obtained, including respondent characteristics and questionnaire results for each study variable.

The researchers maintained the data integrity of the respondents in accordance with ethical principles in this study, including anonymity, informed consent, confidentiality, justice, beneficence, and non-maleficence. Univariate and Spearman rank tests were used for analysis, while bivariate tests were used.

Results

Results of General Data

The results of the study on the characteristics of the demographic data of respondents (elderly with hypertension), namely; age, gender, education and work history, residential environment, and family economic status are in the table below.

Table 1 Respondent Characteristics (Elderly Hypertensives)

Respondent Characteristics	Results		Total
	Frequency (N)	Percentage (%)	
Elderly age			35 (100%)
60-74 Year	25	71,4	
75-90 Year	8	22,9	
>90 Year	2	5,7	
Gender of the Elderly			35 (100%)
Man	17	48,6	
Women	18	51,4	
Elderly education			35 (100%)
School dropout	4	11,4	
Primary School	17	48,6	
Middle School	9	25,7	
Senior High School	5	14,3	
Higher Education	0	0	
Elderly work			35 (100%)
Laborer	5	14,3	
Farmaer	6	17,1	
Trader	13	37,1	
Private employees	3	8,6	
Government employees	2	5,7	
Housewife	6	17,1	
Elderly Living Environment			35 (100%)
Densely populated	11	31,4	

Respondent Characteristics	Results		Total
	Frequency (N)	Percentage (%)	
Noisy	9	25,7	
Seedy	10	28,6	
Lack of lighting	5	14,3	
Status Ekonomi Keluarga			35 (100%)
Low	14	40,0	
Medium	17	48,6	
High	4	11,4	

Based on table 1 above, it is known that from 35 elderly people with hypertension at Bendo Health Center, the results showed that most were aged between 60-74 years, as many as 25 respondents (71.4%), most were female, as many as 18 respondents (51.4%), almost half had elementary school education, as many as 17 respondents (48.6%), almost half worked as traders, as many as 13 respondents (37.1%), almost half lived in densely populated conditions, as many as 11 respondents (31.4%), and almost half had moderate economic status, as many as 15 respondents (57.7%).

Resut of Custom Data

The results of the identification of emotional regulation and sleep quality in elderly hypertensives can be seen in table 2 below:

Table 2 Results of Identification of Emotional Regulation and Sleep Quality in Elderly with Hypertension

No	Variable	Category	Frequency (N)	Percentage (%)
1	Emotional Regulation	Very low	17	48,6
		Low	13	37,1
		High	4	11,4
		Very high	1	2,9
		Jumlah	35	100
2	Sleep Quality	Bad	19	54,3
		Good	16	45,7
		Jumlah		

Based on Table 2, it is known that from 35 respondents, the results obtained on the emotional regulation variable for elderly hypertensive patients show data that almost half of the respondents have emotional regulation in the very low category, as many as 17 respondents (48.6%). Meanwhile, the sleep quality variable for elderly hypertensive patients shows data that the majority of respondents have sleep quality in the poor category, as many as 19 respondents (54.3%).

Results of Bivariate Analysis

R Researchers analyzed the relationship between emotional regulation and sleep quality in elderly hypertensive patients using cross-tabulation. The results of the Spearman test analysis of the relationship between the two variables are shown in the following table:

Table 3. Results of Spearman Test Analysis Between the Relationship between Emotional Regulation and Sleep Quality in Elderly with Hypertension

Variable	p-value	*Coefficien Correlation*
Emotional regulation and sleep quality in hypertensive elderly	0,002	0,504

Based on table 3, it shows that the results of the Spearman rho analysis of emotional regulation with sleep quality in hypertensive elderly using the Spearman test have a sig value (2-tailed) or ρ = 0.002 and α = 0.05 which shows $\rho < \alpha$, so that H0 is rejected and H1 is accepted, meaning there is a relationship between emotional regulation and sleep quality in hypertensive elderly, while the correlation coefficient value is 0.504 with the strength of the relationship including the moderate category and is positive, which means that if emotional regulation in hypertensive elderly is very low, they will have poor sleep quality.

Discussion

Identification of Emotional Regulation in Elderly with Hypertension

The results of identifying emotional regulation in elderly hypertensives show data that almost half of the respondents have emotional regulation in the very low category, as many as 17 respondents (48,6%).

The positive impact of someone with good emotional control is that they tend to be adaptable to all situations, happy, helpful, respectful, cooperative, empathetic, responsible, and have character. The ability to manage emotions so that they can be expressed appropriately is a skill that depends on self-awareness. Someone who is able to control their emotions will have the characteristics of being able to calm themselves, regulate their emotions, overcome emotional impulses by channeling emotions through activities, and be able to maintain a realistic, positive attitude (Akhmad, 2022).

Researchers argue that elderly hypertensive patients who have very poor emotional regulation are unable to cope with their emotional feelings, will tend to be individuals who find it difficult to escape from the problems they are facing and tend to be trapped in their problems and have no desire to motivate themselves to get out of their problems. Elderly people with hypertension when experiencing problems with their illness have emotional thoughts that

dominate their rational thoughts, so most elderly hypertensive patients will prefer to vent their negative emotions such as anger, arrogant behavior and other bad behaviors rather than thinking clearly to face and get out of the problems they are experiencing. As a result of the inability of elderly hypertensive patients to process their emotional thoughts, they will be aggressive, easily angered and other negative actions. This is certainly very dangerous both for the elderly themselves who are experiencing emotional instability and will worsen the condition of their illness.

Researchers also argue that the prevalence of hypertensive elderly with very poor emotional regulation is influenced by their early age, which is between 60 and 74 years of age. As the elderly age, they will experience adjustment to the decline in organ function, especially the heart, which causes weakness in activities that require tolerance. Furthermore, female gender factors are more emotional than male elderly, because female elderly are less able to cope with problems within themselves and their surroundings, and are easily provoked by inaccurate information. Another factor is the low level of education of the elderly, which makes them have poor ways of adapting to overcome the problems they experience. Furthermore, based on occupational factors, hypertensive elderly work as traders who often have less stable emotions due to frequent interactions with buyers who demand low prices and competition in the market. These elderly are also in densely populated areas with moderate economic status, which makes them live a life of simple fulfillment of needs.

Identification of Sleep Quality in Elderly with Hypertension

The results of identifying sleep quality in elderly people with hypertension indicate that the majority of respondents (19 respondents) had good sleep quality.

Sleep quality is a state of sleep experienced by an individual that can produce freshness and well-being upon awakening (Janah et al., 2020). Sleep quality is a person's ability to sleep, not only achieving the amount or duration of sleep but also demonstrating a person's ability to sleep to obtain the amount of rest they need (Hesty et al., 2020). The degenerative process in the elderly causes ineffective sleep time to decrease, resulting in inadequate sleep quality and various sleep complaints (Khasanah & Hidayati, 2012). Based on research obtained, of the seven components in the questionnaire, consisting of subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping medication, and daily dysfunction (Sukmawati & Putra, 2019).

Researchers believe that poor sleep quality in elderly hypertensive patients, due to frequent complaints of discomfort due to their illness, particularly headaches and stiff necks, can lead

to restlessness during sleep. Elderly hypertensive patients who experience poor sleep quality can increase their blood pressure, leading to hypertension. Good sleep quality is crucial for blood pressure regulation, and disruptions can increase the risk of cardiovascular disorders, particularly hypertension. This is because slow-wave sleep plays a crucial role in suppressing catecholamine levels and physiologically increasing hormone levels at night.

Researchers also believe that elderly people with hypertension have poor sleep quality because they experience decreased sleep duration as they age due to decreased organ function. The percentage of elderly hypertensives with poor sleep quality is higher among women, as women have lower activity levels than men, leading to frequent rest and sufficient energy for activities. Furthermore, elderly people with poor sleep quality work as traders, requiring them to prepare their merchandise early in the morning and have a more sophisticated mindset than men. This is in line with research by Maulana (2021), which showed a relationship between hypertension levels and sleep quality in elderly people at the Melati Elderly Integrated Health Post (Posyandu Lansia Melati) in Karet Hamlet, Plret District, Bantul Regency, Yogyakarta. The Spearman rank correlation coefficient was 0.528 and a significance value of 0.001, indicating that high levels of hypertension contribute to poor sleep quality. Poorer sleep quality increases the risk of high blood pressure.

Analysis of the Relationship between Emotional Regulation and Sleep Quality in Elderly with Hypertension

The results of the Spearman test which has a sig value (2-tailed) or ρ = 0.002 and α = 0.05 which shows $\rho < \alpha$, so that H0 is rejected and H1 is accepted, meaning there is a relationship between emotional regulation and sleep quality in elderly hypertensives, while the correlation coefficient value is 0.504 with the strength of the relationship including the moderate category and is positive which means that emotional regulation in elderly hypertensives who are very low will have good sleep quality. The results of the analysis are supported by the results of cross tabulation that emotional regulation in elderly hypertensives who are very low will show poor sleep quality in elderly hypertensives as many as 4 respondents (15.4%).

Factors that cause sleep disorders include stress, depression, chronic disorders (hypertension), environmental factors, side effects, medications, poor diet, and lack of exercise. Elderly individuals who experience stress experience sleep disorders. Elderly individuals with high levels of stress experience even less sleep. Psychological stress experienced by the elderly

leads to sleep and concentration disorders, increases health risks, and can damage the immune system. Sleep deprivation in the elderly due to high emotional states can impact physical, cognitive, and quality of life (Apriani and Sudyasih 2019).

Researchers believe there is a link between emotional regulation and sleep quality in elderly hypertensives. Unstable emotional changes and short sleep durations can make it difficult for them to maintain healthy sleep patterns and increase the risk of hypertension. Poor emotional regulation in the elderly results in high levels of stress and anxiety, preventing them from achieving a normal sleep duration. Therefore, they need calm thinking and reduced anxiety to address life's challenges. Poor sleep quality in elderly hypertensives, coupled with densely populated environments, can lead to high blood pressure, which can lead to insufficient energy for sleepless nights.

Researchers also believe that elderly hypertensives with poor emotional regulation and high stress levels experience poor sleep quality, with depression and anxiety often disrupting sleep. A person overwhelmed by problems may find it difficult to relax and fall asleep. This suggests that the higher the stress levels experienced by the elderly, the greater the risk of sleep disturbances, potentially worsening their condition and leading to drastic increases in blood pressure.

Conclusion

1. Almost half of the respondents had emotional regulation in the very low category, namely 17 respondents (48.6%).
2. Majority of respondents have sleep quality in the poor category, as many as 19 respondents (54.3%).
3. A relationship between emotional regulation and sleep quality in elderly hypertensives, while the correlation coefficient value is 0.504 with the strength of the relationship including the moderate category and is positive which means that emotional regulation in elderly hypertensives who are very low will have good sleep quality.

Author Contributions

The first author designed the overall research concept, analyzed the questionnaire data, developed a discussion based on facts, theories, and opinions, and drafted the manuscript.

The second author provided guidance to respondents for approval and provided assistance during the questionnaire completion, summarized the research data (respondent

characteristics and questionnaires for each variable), ensured the completeness of the questionnaire, and assisted the first author in compiling the research results.

Acknowledgment

We would like to express our deepest gratitude to the respondents, namely elderly people with hypertension who were willing to take the time and provide information about the results of filling out the emotional control and sleep quality questionnaires that are in accordance with the events experienced by the elderly, as well as support and permission for the research location at the Bendo Community Health Center, Pare District, Kediri Regency.

Conflict of Interest

Researchers faced limitations in guiding respondents to complete the questionnaire with elderly people who had difficulty understanding the context of the questions, with the language used in the regional language that respondents understood. Researchers also faced obstacles in collecting respondents by accident, because they had to wait for respondents to visit the Community Health Center for routine examinations and treatment, and there were several elderly people who were recorded as having hypertension who were not present during the study.

Data Availability Statement

The findings of the data from filling out the emotional control and sleep quality questionnaire in elderly hypertensive patients are based on the respondents' visit time to the Community Health Center and adjusted to the needs of the research objectives.

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