JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

# THE RELATIONSHIP BETWEEN THE INTENSITY OF TAHAJJUD PRAYER AND BLOOD PRESSURE IN THE ELDERLY AT THE KARANG WERDA COMMUNICATION FORUM IN JEMBER REGENCY

Dinda Syahva Salshabilla[1], Zahreni Hamzah[2], Pipiet Wulandari[3], Jauhar Firdaus[4], Kristianningrum Dian Sofiana[5], Moh.Sholeh[6]
[1]Medical Education Study Program, Faculty of Medicine, University of Jember, Jember, Indonesia
[2]. Department of Biomedicine, Faculty of Dentistry, University of Jember, Jember, Indonesia
[3,4,5]Physiology laboratory, Faculty of Medicine, University of Jember, Jember, Indonesia
[6] Faculty of Psychology and Health, Sunan Ampel State Islamic University, Surabaya, Indonesia
*Email: kdsofiana.fk@unej.ac.id

*Article Info:*
Submitted: November 13, 2025
Accepted: December 3, 2025
Published: December 12, 2025

*Handling Editor:*

*Keywords:*
*Blood Pressure; Elderly; Hypertension; Tahajjud Prayer.*

*ABSTRACT*

*The aging process is a phase in which the body's ability to repair and regenerate itself gradually declines, which can lead to increased stiffness of blood vessels and higher blood pressure. Hypertension is a condition where blood pressure exceeds 140 mmHg systolic and more than 90 mmHg diastolic. This condition can be caused by mental conditions that influence people's stress levels. Managing blood pressure issues in the elderly can be achieved through meditation, such as performing the Tahajjud prayer. The Tahajjud prayer is thought to aid in stress reduction and contribute to lowering blood pressure. The purpose of this study is to investigate the relationship between the intensity of Tahajjud prayer and blood pressure in elderly individuals at the elderly forum in Jember Regency. This is a cross-sectional study that included a total sample of 189 elderly individuals. The prevalence of hypertension is 59.3%, 55% of them have already performed the Tahajjud prayer, and 45% do not perform the Tahajjud prayer. A significant relationship exists between the intensity of Tahajjud prayer and blood pressure in the elderly population of Jember Regency.*

## 1. INTRODUCTION

The aging process causes a decline in the body's ability to repair and replace itself. This decline increases the risk of health problems, including decreased mobility, cognitive impairment, and increased stiffness of blood vessels. These factors can contribute to the development of hypertension (Rose, 2012). In Indonesia, the elderly population continues to increase. In 2020, the number of elderly people in Jember Regency accounted for 14.30% of the population (BPS, 2023). Decreased blood vessel elasticity in the elderly can lead to increased blood pressure. Stress and a lack of physical activity can also contribute to this rise (Makawekes et al., 2020; Lewa, 2010).

Physical activity, such as exercise, can help lower blood pressure. However, many older adults turn to religious activities, including

* Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

prayer, to fill their time. Prayer is not only an act of worship but also serves as a light physical activity that benefits health (Rofiqoh, 2020). Prayer has therapeutic aspects that include exercise, meditation, auto-suggestion, and togetherness (Zulkarnain, 2020). Research also indicates that religious activities, such as Tahajud prayer, can impact blood pressure and cardiovascular health (Yusni et al., 2023).

Tahajud prayer, especially when performed at night, is believed to influence the body's circadian rhythm, which can increase ACTH (Adrenocorticotropic Hormone—a hormone produced by the pituitary gland) and cortisol levels abnormally, potentially reducing stress and improving overall health (Sholeh, 2017). Several studies also suggest that prayer can have a relaxing effect, lowering blood pressure through a vasodilation mechanism that reduces peripheral vascular resistance (Fikri & Boy, 2019). Tahajud prayer, as a form of sunnah (optional) prayer, has the potential to lower blood pressure in the elderly (Nabila Bilqist et al., 2022).

Based on this phenomenon, this study aims to examine the relationship between the intensity of Tahajud prayer and blood pressure in the elderly. This research will be conducted at the Karang Werda Communication Forum in Jember Regency, which encompasses various areas, including urban, rural, mountainous, and coastal regions, to provide a representative picture of the elderly's condition in the area.

The primary objective of this study was to investigate the relationship between the intensity of Tahajud prayer and blood pressure in elderly individuals at the Karang Werda Communication Forum in Jember Regency. Specifically, this study aimed to determine the intensity of Tahajud prayer and its relationship with blood pressure in elderly people from the Kebonsari, Patrang, Mangli, Sumberjambe, Silo, and Puger areas.

The benefits of this research include enabling researchers to apply the knowledge they have learned and providing the public with information on the effects of Tahajud prayer on blood pressure in the elderly. Furthermore, the results are expected to provide additional insights to relevant healthcare facilities, enabling them to incorporate Tahajud prayer into promotional programs to improve the health of the elderly.

## 2. METHODE

This study employed an analytical observational design with a cross-sectional approach. Data on exposure (intensity of Tahajjud prayer) and outcome (blood pressure) were collected simultaneously. The study aimed to examine the relationship between the intensity of Tahajjud prayer and blood pressure among elderly individuals in the Karang Werda Communication Forum of Jember Regency.

The study was conducted across six Karang Werda areas—Kebonsari, Patrang, Mangli, Silo, Sumberjambe, and Puger—from August to November 2023. The study population consisted of 212 elderly individuals, of whom 189 met the inclusion and exclusion criteria. The inclusion criteria were elderly individuals aged 60 years or older, Muslim, and cooperative during the study. Exclusion criteria included withdrawal from participation and being on bed rest. The sampling technique used was total sampling, in which all eligible individuals in the population were included as study participants (Putri et al., 2018).

The data used in this study were primary data obtained through questionnaires and blood pressure measurements using a sphygmomanometer. Primary data were

* Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

collected to obtain direct information regarding the respondents' conditions (Saifuddin, 2017).

1. Collection of Tahajjud Prayer Intensity Data

The intensity of Tahajjud prayer was measured using a structured questionnaire previously validated in an earlier study (Zahreni Hamzah, 2023). The questionnaire assessed the frequency of Tahajjud prayer performed within one week, using an ordinal scale. Respondents completed the questionnaire independently or with assistance from enumerators when needed, especially for those with reading or comprehension difficulties.

2. Blood Pressure Measurement

Blood pressure was measured using a calibrated digital or aneroid sphygmomanometer. Measurements were conducted by trained health workers or enumerators after the respondents had rested for 5–10 minutes in a seated position with the arm supported at heart level. Blood pressure classifications followed the standard definition of hypertension: systolic ≥140 mmHg or diastolic ≥90 mmHg.

3. Data Collection Procedures

Before data collection, the researchers obtained ethical approval from the Ethics Committee of the Faculty of Medicine, University of Jember, with approval number 1831/H25.1.11/KE/2023. All respondents received a thorough explanation of the study's objectives and procedures and were required to sign an informed consent form. Data collection was carried out directly in each Karang Werda area, and respondents were assigned unique codes to ensure confidentiality. All collected data were verified, compiled, and entered into a statistical database for further analysis.

Research Independent variable intensity of Tahajjud prayer, measured based on the frequency of practice per week (ordinal scale). Dependent variable: blood pressure, measured using a sphygmomanometer and categorized as hypertensive or non-hypertensive (nominal scale).

Data analysis was performed using IBM SPSS Statistics 27. Univariate analysis was conducted to describe the frequency distribution and percentage of each variable, including the intensity of Tahajjud prayer and blood pressure categories. Bivariate analysis was performed to examine the relationship between the intensity of Tahajjud prayer and blood pressure using the Chi-Square ($\chi^2$) test. A p-value < 0.05 was considered statistically significant.

## 3. RESULTS AND DISCUSSION

This research was conducted on Saturday, September 9, 2023 in the elderly of Karang Werda, Sumbersari District, Sunday, September 10, 2023 in the elderly of Karang Werda, Patrang District, Saturday, September 16, 2023 in the elderly of Karang Werda, Kaliwates District, Sunday, September 17, 2023 in the elderly of Karang Werda, Silo District, Saturday, September 23, 2023 in the elderly of Karang Werda, Sumberjambe District, and Sunday, September 24, 2023 in the elderly of Karang Werda, Puger District.

Primary data collection was conducted on 212 members of Karang Werda, resulting in 189 participants meeting the inclusion and exclusion criteria, while 23 others were excluded due to incomplete data. Data collected included the intensity of Tahajud prayer and blood pressure from the population. Tahajud prayer intensity was assessed through direct interviews with the population, and blood pressure data were

* Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

collected via blood pressure checks using a sphygmomanometer.

The data on Tahajud prayer as a research variable was collected using a questionnaire and then tabulated in one document. This data was classified into three groups based on its intensity: the first group consisted of those who did not perform Tahajud prayer regularly, the second group performed Tahajud prayer 1-3 times per week, and the third group performed Tahajud prayer more than 3 times per week.

The tabulated data were then summarized to obtain the number of individuals per classification group. Twenty-one percent of respondents did not perform Tahajud prayer, 15 percent performed Tahajud prayer 1-3 times per week, and 64 percent performed Tahajud prayer more than three times per week. Data on respondents' results based on Tahajud prayer intensity can be seen in Tables 1 and 2. Table 2 presents the distribution of Tahajud prayer intensity by region, as shown in Table 3.

Table 1: Data on the intensity of Tahajud prayers

| Tahajud prayer | Frequency (n) | Percentage (%) |
|---|---|---|
| Do not do | 43 | 23% |
| 1x per week | 7 | 4% |
| 2x per week | 5 | 3% |
| 3x per week | 16 | 8% |
| 4x per week | 13 | 7% |
| 5x per week | 8 | 4% |
| 6x per week | 3 | 2% |
| 7x per week | 94 | 50% |
| Total | 189 | 100% |

Based on Table 1, it is known that the majority of respondents perform Tahajud prayers regularly (77%), with the highest percentage being respondents who pray Tahajud prayers seven times per week. Meanwhile, approximately 23% of respondents do not perform Tahajud prayers regularly every week.

Table 2 Distribution of the elderly based on the frequency of Tahajud prayer (n=189)

| Characteristics | Mean±SD | Median | Mode |
|---|---|---|---|
| Frequency of Tahajud prayer | 4.41±2.93 | 6 | 7 |

Based on Table 2, it is known that the average Tahajud prayer performed by the elderly in Karang Werda is around four times a week, with the most frequent frequency of Tahajud prayer being seven times a week.

Table 3: Distribution of data on the intensity of Tahajud prayers based on region

| Characteristics | Number (n) | Mean±SD | Median | Mode |
|---|---|---|---|---|
| Urban Areas | | | | |
| Sumbersari | 26 | 5.03±2.84 | 7 | 7 |
| Patrang | 21 | 4.14±2.95 | 5 | 7 |
| Kaliwates | 44 | 5.32±2.53 | 7 | 7 |
| Mountainous Region | | | | |
| Silo | 27 | 3.77±2.76 | 4 | 7 |
| Sumberjambe | 29 | 4.86±2.65 | 7 | 7 |
| Coastal Area | | | | |
| Puger | 42 | 3.24±3.32 | 2 | 0 |

Based on Table 3, it is known that the majority of respondents came from urban areas (91 respondents), with the most frequent frequency of Tahajud prayer being seven times, with an average frequency of four to five times a week in each area, namely Sumbersari District (5.03±2.84), Patrang (4.14±2.95), and Kaliwates (5.32±2.53). The same findings were also found in the mountainous areas in two districts, Silo (3.77±2.76) and Sumberjambe (4.86±2.65). Meanwhile, the coastal area in Puger District had the lowest average frequency (3.24±3.32), with the majority of respondents not performing Tahajud prayers regularly in a week.

High blood pressure was determined through a sphygmomanometer examination

* Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

of the elderly population of Karang Werda. The results were then categorized into two groups: those with high blood pressure and those without high blood pressure. The collected data revealed that 28% of the Karang Werda population had normal blood pressure, and 72% of Karang Werda respondents had high blood pressure. Respondent blood pressure data are presented in Table 4, with data distribution based on central tendency in Tables 5 and 7, and by region in Tables 6 and 8.

Table 4: Blood pressure data of the elderly in Karang Werda

| Blood pressure | Frequency (n) | Percentage (%) |
|---|---|---|
| Normal | 30 | 16% |
| Normal High | 22 | 12% |
| Hypertension Grade 1 | 66 | 35% |
| Hypertension Grade 2 | 71 | 38% |
| Total | 189 | 100% |

Based on Table 4, it is known that the majority of respondents had hypertension, either stage one or stage two (73%), with stage two hypertension occupying the top position (38%). Meanwhile, respondents with normal blood pressure measurements made up 28%.

Table 5 Distribution of the elderly based on systolic blood pressure (n=189)

| Characteristics | Mean±SD | Median | Mode | Minimum-Maximum |
|---|---|---|---|---|
| Blood pressure systole | 152.41±24.90 | 149 | 137 | 100-231 |

Table 5 shows that the average systolic blood pressure of 189 elderly people in Karang Werda was approximately 152.41 mmHg, with the most frequent reading being 137 mmHg. Of all the measurements, the smallest systolic blood pressure reading was 100 mmHg, and the largest was 231 mmHg.

Table 6 Distribution of systolic blood pressure by region (n=189)

| Characteristics | Amount (n) | Mean±SD | Median | Mode | Minimum-Maximum |
|---|---|---|---|---|---|
| Urban Areas | | | | | |
| Sumbersari | 26 | 139.77±17.69 | 139 | 156 | 112-173 |
| Patrang | 21 | 150.14±19.23 | 144 | 137 | 125-193 |
| Kaliwates | 44 | 147.98±21.38 | 146 | 146 | 113-214 |
| Mountainous Region | | | | | |
| Silo | 27 | 161.78±26.17 | 157 | 154 | 124-221 |
| Sumberjambe | 29 | 158.28±25.69 | 151 | 193 | 111-210 |
| Coastal Area | | | | | |
| Puger | 42 | 155.95±29.79 | 154.5 | 137 | 100-231 |

Based on Table 6, it is known that respondents from mountainous areas have the highest average systolic blood pressure, both Silo (161.78±26.17) and Sumberjambe (158.28±25.69), compared to other areas, with Sumberjambe having 193 mmHg as the most frequently obtained systolic value. Meanwhile, the area with the lowest average is Sumbersari District (139.77±17.69), with the smallest value of 112 mmHg and the largest of 173 mmHg.

Table 7 Distribution of the elderly based on diastolic blood pressure (n=189)

| Characteristics | Mean±SD | Median | Mode | Minimum-Maximum |
|---|---|---|---|---|
| Blood pressure diastol | 86.62±14.03 | 86 | 85 | 51-140 |

Table 7 shows that the average diastolic blood pressure of 189 elderly people in Karang Werda was approximately 86.62 mmHg, with the most frequent reading being 85 mmHg. Of all the measurements, the lowest diastolic blood pressure reading was 51 mmHg, and the highest was 140 mmHg.

* **Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia,**
**kdsofiana.fk@unej.ac.id, +62 822-3042-4749**

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

Table 8 Distribution of the elderly based on diastolic blood pressure (n=189)

| Characteristics | Amount (n) | Mean±SD | Median | Mode | Minimum-Maximum |
|---|---|---|---|---|---|
| Urban Areas | | | | | |
| Sumbersari | 26 | 26 | 77.42±11.31 | 77 | 85 |
| Patrang | 21 | 21 | 87±10.36 | 91 | 92 |
| Kaliwates | 44 | 44 | 87.25±13.89 | 86 | 80 |
| Mountainous Region | | | | | |
| Silo | 27 | 27 | 88.29±14.44 | 86 | 89 |
| Sumberjambe | 29 | 29 | 88.76±14.98 | 88 | 97 |
| Coastal Area | | | | | |
| Puger | 42 | 42 | 88.93±16.14 | 89.5 | 90 |

Based on Table 8, it is known that respondents from urban areas had the lowest average diastolic blood pressure, both in Sumbersari District (77.42±11.31), Patrang (87±10.36), and Kaliwates (87.25±13.89). However, the highest average diastolic blood pressure was found in coastal areas (88.93 ± 16.14).

## DISCUSSION

The Effect of Tahajud Prayer on Blood Pressure

Both data regarding the intensity of Tahajud prayer and blood pressure have been processed using IBM SPSS Statistics 27. Data processing was carried out to determine the relationship between them using the chi-square proportion difference test. In the study, a significant relationship was found between these two variables, as indicated by the Asymptotic Significance value (two-sided) of 0.026. A relationship is considered significant if the p-value is below 0.05. The results of the test can be seen from the characteristics of the research respondents in Table 6, the test results in Table 7, and Table 8.

Table 9 Respondent Characteristics

| Characteristics | Number (n) | Percentage (%) |
|---|---|---|
| Gender | | |
| Man | 25 | 13.2% |
| Woman | 164 | 86.8% |
| Tahajud Prayer Behavior | | |
| Do not do | 43 | 22.8% |
| 1-3x | 28 | 14.8% |
| >3x | 118 | 62.4% |
| Blood pressure | | |
| Systolic BP ≥ 140 mmHg and or Diastolic BP ≥ 90 mmHg | 137 | 72.5% |
| Systolic BP < 140 mmHg and/or Diastolic BP <90 mmHg | 52 | 27.5% |
| Work | | |
| Doesn't work | 167 | 88.3% |
| Farm workers | 11 | 5.82% |
| Private employees | 5 | 2.65% |
| Retired | 6 | 3.17% |
| Comorbidities | | |
| There isn't any | 173 | 91.5% |
| DM comorbidities | 16 | 8.47% |
| Urban Areas | | |
| Sumbersari | 26 | 14% |
| Patrang | 21 | 11% |
| Kaliwates | 44 | 23% |
| Mountainous Region | | |
| Silo | 27 | 14% |
| Sumberjambe | 29 | 15% |
| Coastal Area | | |
| Puger | 42 | 22% |

According to Table 9, it is evident that the number of female respondents (86.8%) exceeds the number of male respondents (13.2%). The majority of respondents were unemployed (88.3%) and had no comorbidities (91.5%).

In this study, the Pearson Chi-Square Test was used to determine whether a relationship existed between two categorical variables. With an Asymptotic Significance value (2-sided) of 0.026, where the value is below α = 0.05. This result indicates a

* Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

significant relationship between the variables tested at a 95% confidence level. In other words, there is sufficient evidence to reject the null hypothesis (H0), which states that there is no relationship between these variables. In addition, the Pearson Chi-Square value shows that there is a difference in blood pressure results between Karang Werda elderly who do not perform, 1-3 times, and more than three times Tahajud prayers regularly in a week.

Thus, there is a relationship between the frequency of Tahajud prayers and the blood pressure of the elderly in Karang Werda. Based on the results of the relationship strength test, a relationship exists between the tested variables, although it tends to be weak to moderate in strength. A contingency coefficient value of 0.256 is obtained, indicating a moderate relationship between the nominal variables. Furthermore, Pearson's R value of 0.229 indicates a weak linear relationship between the interval variables tested. Similarly, the Spearman correlation test yielded a value of 0.272, indicating a positive yet weak-to-moderate relationship for ordinal variables. With a sample size of 189, this analysis provides a strong basis for identifying relationships between variables. To obtain more accurate conclusions, further analysis is necessary, taking into account the obtained significance levels.

The univariate analysis revealed that high blood pressure was a common condition among respondents, affecting 72.5% of them. Some respondents also had sufficient knowledge about the Tahajjud prayer. A total of 77.2% of respondents had practiced the Tahajud prayer. The bivariate analysis conducted in this study found that Tahajud prayer had a significant (p-value = 0.026) but not a very strong (0.256) relationship with a person's blood pressure. The low strength of the relationship between these variables may be influenced by other factors, such as genetics, biology (age and age), psychological stress, nutrition, comorbidities, and lifestyle, which were not analyzed in this study.

Seniors who participate in Karang Werda generally share similar hopes: to fulfill their physical needs and achieve a quality life, extend their life expectancy, and draw closer to God Almighty (Kristianingrum et al., 2023). Despite participating in these activities, seniors remain at risk of developing high blood pressure due to physiological changes in the circulatory and cardiovascular systems. One method widely cited as helpful in lowering blood pressure is autogenic training, a relaxation technique (Lestari et al., 2024).

Autogenic training is based on the intrinsic ability to induce feelings of warmth and heaviness, as well as relaxation, following verbal suggestions and emotional calm (Darmawan and Nugroho, 2015; Hanggit Lestari et al., 2025). This method is a form of hypnosis that involves placing oneself in a mild hypnotic state, enabling the body to relax, stabilize the heart rate and breathing rate, relax the stomach, and feel the forehead clean and cool. Autogenic training involves repeating a series of visualizations accompanied by vocal suggestions and verbal phrases that promote relaxation, based on passive concentration on bodily perception.

The suggestions provided include at least six standard exercises: muscle relaxation through repetition of verbal formulas; passive concentration focused on feelings of warmth; initiation of cardiac activity with the suggestion that the heartbeat is calm and regular; passive concentration on the breathing mechanism; concentration on warmth in the abdominal area; and passive concentration on a cool feeling in the head area (Imamah, 2020;

* Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

Sutrisno and Nursalam, 2022). Autogenic training is performed, either individually or in groups, for 15-20 minutes, at least three consecutive days, in a sitting or lying position. This training can create feelings of calm, relaxation, and comfort, as well as a warm sensation that causes vasodilation and, ultimately, lowers blood pressure (Sucipto, Qorahman, 2022). However, to achieve these effects, autogenic training must be performed regularly under the guidance of an experienced trainer or instructor (Hanggit Lestari et al., 2025). The same effect can be achieved through prayer and its movements.

Several previous studies have demonstrated the effects of autogenic training on blood pressure. A study conducted on 33 elderly individuals aged 60 to 70 years with hypertension showed a decrease in systolic blood pressure (p = 0.000) and diastolic blood pressure (p = 0.007) (Hanggit Lestari et al., 2025). Furthermore, Sumarliyah et al. stated in their study that autogenic training affects lowering blood pressure, with an average decrease of 14 mmHg (p = 0.046). However, in their study, the significance of the effect of autogenic training was lower compared to guided imagery relaxation (p = 0.025) (Sumarliyah et al., 2018). The current study's existing data indicate that Tahajud prayer has a significant positive effect on lowering blood pressure in the elderly (p=0.26). This provides evidence that the effects of relaxation and devotion between autogenic training and Tahajud prayer are not significantly different, especially in this study, where the data collected was more extensive (n=189) compared to the research data by Hanggit et al., which had a higher significance.

In line with the principles of creating a relaxed state and managing stress in autogenic training, Tahajud prayer is said to have a similar effect in lowering blood pressure. As a country with a majority Muslim population, Tahajjud prayer is one of the Sunnah prayers commonly performed by the community. Furthermore, previous research has shown a significant relationship, as determined by the Spearman rank test with α = 0.05, between systolic and diastolic blood pressure in hypertensive patients and Tahajud prayer. Regarding stress management, individuals who perform Tahajud prayer are also reported to have lower stress levels, along with stronger self-control, calmness, and patience. This also contributes to lower blood pressure (Awaluddin and Yuldeni, 2017; Khotimah Musnidawati, 2018).

During prayer, a person moves their body to allow certain parts of it time to relax. During the takbiratul ihram and i'tidal movements, the body is also positioned in a way that allows the chest cavity to expand. This creates negative pressure in the lungs, increasing oxygen intake (Ismail, 2016). This way, the comfort and warmth sought in relaxation techniques can be achieved through prayer movements, and vasodilation can occur, especially if this activity is performed regularly. Furthermore, in addition to its relaxing movements, Tahajud prayer can help reduce cortisol levels (Orgianus et al., 2021). Cortisol is a glucocorticoid hormone that plays a role in blood pressure regulation; in excess, it can lead to high blood pressure (Erin et al., 2021). By performing the Tahajud prayer, cortisol levels can be reduced, and high blood pressure can be prevented.

The best time to perform the Tahajud prayer is during sleep, and it is recommended to do it before bed. When someone awakens in the middle of their sleep, it is found that this is the time when they can achieve a high level of focus and concentration, accompanied by a calm environment suitable for meditation (Utami

* **Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia,** kdsofiana.fk@unej.ac.id, +62 822-3042-4749

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

and Usiono, 2020). This will certainly help one achieve a state of "khushu," where the mind and heart are completely surrendered to Allah SWT. This will provide a feeling of "fullness" and psychological well-being (Chodijah, 2017). This feeling will then result in a decrease in sympathetic tone and neurohormonal activity, which plays a role in stress on vascular tissue, along with a reduced heart load (Yusni et al., 2023).

Performing this activity in the middle of the night will enhance brain concentration, facilitate deep thinking, and provide complete control over bodily functions. This stage is what distinguishes Tahajud prayer from conventional meditation methods (Boy et al., 2020). During this third of the night, the human brain also releases several hormones, including serotonin, beta-endorphin, and melatonin, which will make a person feel calmer and allow for proper homeostasis. Good homeostasis plays a vital role in maintaining body stability, including the regulation of blood pressure (Orgianus et al., 2021). By performing the Tahajud prayer at the designated time, it is hoped that it will promote concentration, control of bodily functions, and maintain homeostasis, thus maintaining proper blood pressure.

The most common concern among those wishing to perform the Tahajjud prayer is daytime sleepiness, which can disrupt one's function and productivity. However, previous research has examined the effect of Tahajjud prayer on daytime sleepiness. Performing the Tahajjud prayer has been shown not to reduce sleep quality and to increase rapid eye movement (REM) time, a marker of deep sleep, in individuals compared to a group that does not perform the Tahajjud prayer (Bahammam et al., 2012). With undisturbed sleep quality, daytime sleepiness will naturally be reduced, and productivity can be maintained. Therefore, performing the Tahajjud prayer has numerous positive impacts with no significant side effects or risks.

The results of the study on the relationship between Tahajud prayer and blood pressure were significant, but testing using a control and standardized approach to Tahajud prayer itself is not yet feasible. In theory, the Tahajud prayer has a mechanism of action similar to that of other forms of meditation and is expected to produce long-term results (Kencanasari et al., 2016). This is related to the good control of sympathetic function, allowing sympathetic hyperreactivity, especially in the cardiovascular system, to be well controlled and enabling optimal homeostatic control of blood pressure, thereby making hypertension prevention possible.

This study is not without limitations. Data analysis that focuses solely on two primary variables —independent and dependent —carries the risk of bias due to the influence of external variables. One variable that needs to be considered in future research is the presence of control variables, such as the use of antihypertensive medication. Routine and adherence to antihypertensive medication consumption are also likely to have an impact, and therefore need to be neutralized to avoid confounding the relationship between the intensity of Tahajud prayer and blood pressure.

Additionally, other variables or factors can be analyzed using multivariate analysis methods to determine their significance on the study results. Furthermore, a cross-sectional study design does not provide certainty regarding the causal relationship between the intensity of Tahajud prayer and blood pressure. Therefore, another research design is needed that can demonstrate a causal relationship. A retrospective cohort

* **Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749**

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

study with strict control of control variables is considered more appropriate.

## 4. CONCLUSION

Based on research on the relationship between the intensity of Tahajud prayer and blood pressure in the elderly at the Karang Werda Communication Forum in Jember Regency, it can be concluded that 23% of the elderly do not perform Tahajud prayer, 14.8% of respondents perform Tahajud prayer 1-3 times a week, and 62.4% of respondents perform Tahajud prayer more than 3 times a week. In addition, 72.5% of the elderly at the Karang Werda Communication Forum experience high blood pressure. A significant relationship exists with sufficient correlation strength between the intensity of Tahajud prayer and blood pressure in the elderly population of the region.

## 5. ACKNOWLEDGMENTS

The researcher would like to thank the Faculty of Medicine, University of Jember, for its support in implementing this research.

## 6. REFERENCES

Achyar, ZF, Azizah, I., 2023. The Benefits Of Tahajud Prayer For Improving Physical Health In Muslim Communities. Jurnal Religion: Jurnal Agama, Sosial, Dan Budaya 1, 924–933.

Awaluddin, A., Yuldeni, Y., 2017. The Relationship Between Knowledge And Prayer, And Blood Pressure In The Elderly. Journal

Endurance 1, 144. Https://Doi.Org/10.22216/Jen.V1i3.1533

Bahammam, A., Sharif, M., Spence, D., Pandi-Perumal, S., 2012. Sleep Architecture Of Consolidated And Split Sleep Due To The Dawn (Fajr) Prayer Among Muslims And Its Impact On Daytime Sleepiness. Ann Thorac Med 7, 36–41. Https://Doi.Org/10.4103/1817-1737.91560

Boy, E., Mfh, H., Jolanda, Y., Nr, S., Maulida, R., Sr, S., Hardita, A., Ka, N., Aqmalia, Y., 2020. The Relationship Between Tahajjud Prayer And The Prevalence Of Hypertension In The Elderly In The Work Area Of Kedai Durian Health Center. Proceedings Of The International Conference On Culture, Language And Literature IC2LC 9, 385–390.

BPS, 2023. Elderly Population Statistics 2023.

Chodijah, S., 2017. The Concept Of Tahajud Prayer Through, In: Proceedings Of The 1st International Conference On Innovative Pedagogy (ICIP). Pp. 324–330.

Darmawan, R., Nugroho, B., 2015. The Effect Of Autogenic Relaxation Therapy On Changes In Blood Pressure In Hypertension In Posyandu For The Elderly In Jabon Village, Sub-District Jombang, Jombang Regency. Journal Of STIKES Jombang Regency Government. Elzaky, J., Riyadi, SD, 2011. The Master Book Of Miracles Of Worship Health, 2nd Ed. Times, Jakarta.

Erin, A., Rotar, O., Kolesova, E., Boyarinova, M., Alieva, A., Moguchaia, E., Baranova, E., Konradi, A., Shlyakhto, E., 2021. The Relationship Of Cortisol Levels With High Blood Pressure In Residents Of St. Petersburg. J Hypertens 39.

Fishbein, AB, Knutson, KL, Zee, PC, 2021. Circadian Disruption And Human Health. J Clin Invest 131, 1–12.

Hamzah, Z., 2023. Comprehensive Dental Geriatric Assessment (CDGA) For The

* **Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749**

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

Elderly In The Pandalungan Community, Jember Regency.

Hanggit Lestari, P., Syafdewiyani, Mulyanti, Y., 2025. The Effect Of Autogenic Training On Reducing Blood Pressure In The Elderly. Nursing Journal 17.

Hashim, GB, Said, MHBM, 2021. Prayer Quality Standards That Catalyze Academic Excellence: A Study At The As-Sultan Abu Bakar College, Pekan, Pahang Darul Makmur. International Journal Of Humanities Technology And Civilization 6, 64–76.

Imamah, IN, 2020. The Effect Of Autogenic Relaxation On Blood Pressure Changes In Patients With Hypertension: Literature Review. STRADA Health Scientific Journal 9, 1627–1634. Https://Doi.Org/10.30994/Sjik.V9i2.507

Ismail, IH, 2016. Islamic Guidance And Counseling (Application Of Prayer Movement Therapy In The Form Of Relaxation Movements To Reduce Anxiety).

Mimbar Journal: Muslim Intellectual Media And Spiritual Guidance 2, 90–104. Https://Doi.Org/10.47435/Mimbar.V2i1.268

Kencanasari, HP, Yahya, AF, Setiawan, 2016. Effect Of Midnight Prayer On Sympathetic Tone. Althea Medical Journal 3, 59–63. Https://Doi.Org/10.15850/Amj.V3n1.692

Khotimah Musnidawati, S., 2018. Relationship Between Tahajud Prayer Intensity And Blood Pressure, Kosala" JIK.

Kristianingrum, ND, Hayati, YS, Merdikawati, A., Kartika, AW, 2023. Strengthening Elderly Communities To Support An Elderly-Friendly City. Caring: Jurnal Pengabdian Masyarakat 3, 33–40. Https://Doi.Org/10.21776/Ub.Caringjpm.2023.003.02.5

Kurniasih, D., 2022. Religious Coping Stress In Tahajud Prayer Practitioners (Case Study Of Nurses At Hasan Sadikin General Hospital, Bandung, During The Covid-19 Pandemic)

19) Walisongo State University, Semarang.

Lestari, PH, Syafdewiyani, Mulyanti, Y., 2024. The Effect Of Autogenic Training On Reducing Blood Pressure In The Elderly

With Hypertension, Puspita. Nursing Journal 16, 383–396.

Makawekes, E., Suling, L., Kallo, V., 2020. The Effect Of Physical Activity On Blood Pressure In Elderly Aged 60-74 Years. Journal Of Nursing 8, 83. Https://Doi.Org/10.35790/Jkp.V8i1.28415

Malik, A., Mustafiyanti, 2024. Physical And Spiritual Benefits Of A Prayer Routine.

Mutiara: Journal Of Research And Scientific Work 2, 70–81.

Ma'sum, MA, 2021. Islamic Psychotherapy Of Tahajjud Prayer In Improving The Mental Health Of Male Students At The Darussalam Islamic Boarding School, Blokagung, Banyuwangi. Darussalam Islamic Institute, Blokagung, Banyuwangi.

Mulyad, E., NK, N., 2021. Hypnocaring Textbook. Guepedia, Bogor.

Nabila Bilqist, S., Nurhalim Shahib, M., Rachmawati, M., 2022. The Relationship Between The Frequency Of Tahajud Prayer And The Reduction In Blood Pressure Of Hypertension Patients At The Al-Islam Beber Islamic Boarding School In Cirebon. Med Sci 2, 874–879. Orgianus, Y., Oemar, H., Nu'man, AH, AM, MD, 2021. Healthy Living Behavior Models In Islam And The COVID-19 Pandemic Using AHP. MIMBAR:

* **Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749**

JURNAL PENELITIAN SEKOLAH TINGGI ILMU KESEHATAN NAHDLATUL ULAMA TUBAN
https://ejournal.iiknutuban.ac.id/index.php/jp
E-ISSN: 2686-4959
P-ISSN: 2338-5898
VOL 7 NO 2 December. Page 104-116

Jurnalsocialanddevelopment37,464–474. https://Doi.Org/10.29313/Mimbar.V37i2.8601

Pemaca, AAPB, 2020. The Relationship Between Tahajud Prayer Habits In Preclinical Students Of The Medical Study Program With Stress, Anxiety, And Depression Levels. UIN Syarif Hidayatullah Jakarta.

Putra, MRR, Mujiburrohman, Abdullah, M., 2023. The Influence Of Tahajud Prayer On The Discipline Of Male Students At The Baitul Quran Wonogiri Islamic Boarding School. Jurnal Tarbiyah Islamiyah 8, 639–646.

Raudhoh, S., Pramudiani, D., 2021. Fun, Elderly, Active Elderly, Productive Elderly.

Journal Of Community Service, Faculty Of Medicine, University Of Jakarta 4, 126–130.

Rofiqoh, A., 2020. Prayer And Physical Health. Spirituality 4, 65–76. Https://Doi.Org/10.30762/Spr.V4i1.2324

Saputra, PJ, Sihabuddin, MA, Noviza, N., 2023. Tahajud Therapy In Healing Various Diseases. CONS-IEDU: Journal Of Islamic Guidance And Counseling 3, 35–44.

Sholeh, Moh., 2017. Tahajud Prayer Therapy. Noura Publisher, South Jakarta. Siregar, RR, 2023. Education On The Aging Process And Changes In The Elderly. Health Community Service 1, 18–21. Https://Doi.Org/10.47709/Hcs.V1i1.3137

Stuart, GW, 2023. Stuart's Principles And Practice Of Mental Health Nursing. Elsevier Ltd, Singapore.

Sucipto, Qorahman, A., 2022. The Effect Of Autogenic Relaxation On Systolic And Diastolic Blood Pressure In The Elderly With Hypertension. Borneo Cendekia Journal 6, 1–12.

Sumarliyah, E., Nasrullah, D., Lailatul B., F., Afifah, Z., 2018. Blood Pressure Reduction With Autogenic Relaxation And Guided Imagery In Hypertension Patients. Journal Of Health Management Of Dr. Soetomo Hospital Foundation 4.

Sutrisno, S., Nursalam, 2022. The Effect Of Benson And Autogenic Relaxation Therapy On Sleep Quality, Blood Pressure, And Anxiety Of Hypertension Patients. Journal Of Nursing Practice 6, 214–220. Https://Doi.Org/10.30994/Jnp.V6i2.379

Utami, TN, Usiono, 2020. Meta-Analysis Study Of Tahajud Prayer To Reduce Stress Response. International Journal Of Advances In Medical Sciences 3, 1–11.

Yusni, Y., Yusuf, H., Yahya, M., 2023. Exploring The Influence Of A Single Bout Of Tahajjud Prayer On Acute Blood Pressure Response In Normotensive Young Adult Males With Varied Regularity Of Tahajjud Practice. Islamic Guidance And Counseling Journal 6, 1–16. Https://Doi.Org/10.25217/0020236387400

* **Author Correspondence: Kristianningrum Dian Sofiana, University of Jember, Indonesia, kdsofiana.fk@unej.ac.id, +62 822-3042-4749**