

The Relationship Between Stress Management Techniques with Sleep Quality Disorders in the Elderly

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ABSTRACT

Sleep quality disturbances are one of the problems frequently experienced by the elderly and triggered by stress. This often neglected sleep quality impacts physiological and psychological fulfillment disorders and increases the risk of health problems. The purpose of this study was to find out the relationship between stress management techniques on sleep quality disturbances frequently experienced by the elderly in Nusasari Village. The method used was a pre-experimental study with a one-group pre-test and post-test design. A total of 47 elderly were selected as samples using quota sampling techniques with the criteria of elderly experiencing sleep quality disturbances. The measurement instrument used was the Pittsburgh Sleep Quality Index (PSQI). The research was conducted by providing education on stress management techniques to elderly. Where the right stress management education techniques can help the elderly improve their sleep quality. The tools used by researcher in conducting interventions are PowerPoint and leaflets. Respondents received 30 to 45 minutes of education on the first day and returned on day 3 for a post-test. The results of the study found changes in sleep quality before (PSQI Score Poor=95,7%; Good=4,3%) and after (PSQI Score Poor=6,4%; Good=93,6%) the implementation of stress management technique education. There was a significant improvement in sleep quality (mean 21.50), $Z = -6.481$ and data were analyzed using Wilcoxon Signed Rank Test $p < 0.001$ ($p < 0.005$). Providing alternative non-pharmacological interventions by using stress management techniques related to the elderly can improve their sleep quality.

Keywords: elderly, sleep quality, stress, stress management techniques, PSQI

INTRODUCTION

Elderly refer to individuals who are 60 years old or older and are entitled to receive attention related to their health. The increasing number of elderly people affects various aspects of life, including social, economic, and health aspects. Although the growing elderly population can support development if they remain healthy, active, and productive, declining health and high disability rates have the potential to become a major challenge. The issue of an aging population requires serious attention because, without proper management, it can burden the country in the future. Therefore, efforts to create prosperous and productive elderly people must be planned early through data-based strategies and policies. Accurate mapping will support the implementation of effective programs and promote the long-term well-being of the elderly (World Health Organization, 2021). Aging in the elderly generally causes various changes.

Some of these changes include the sensory system, integumentary system, musculoskeletal system, neurological system, cardiovascular system, pulmonary system, endocrine system, kidneys, urinary tract, and psychological aspects. These changes can lead to a number of problems in physical, psychological, and socioeconomic terms. The elderly often experience psychological decline, which includes disorders such as insomnia, stress, depression, anxiety, dementia, and delirium (Deviantony et al., 2025).

Sleep quality disorders that occur in the elderly can be caused by various factors, including mental disorders, dangerous diseases, environmental conditions, lifestyle, and excessive napping habits (Biahimo et al., 2021). Sleep problems tend to get worse with age. In the elderly, poor sleep quality is often associated with various issues, both physical, mental, and their social well-being (Murida et al., 2025). Poor sleep quality can also negatively impact physiological and psychological balance. From a physiological perspective, the effects can include a decrease in daily activities, feelings of fatigue, poor nerve and muscle coordination, slower wound healing, reduced body capabilities, instability of vital signs, red eyes, dizziness, and frequent yawning. Meanwhile, psychological effects include depression, anxiety, difficulty concentrating, and irritability (Li et al., 2023). Elderly people have a longer rest time to be able to fall asleep directly, and the duration of deep sleep also tends to be shorter. This transition in the elderly's sleep pattern is part of the normal process of aging. However, very often these sleep disturbance problems are related to pathological conditions that are not a natural part of this stage of aging (Irianti & Pramono, 2022).

Elderly people tend to need more time to fall asleep, and it becomes a challenge to achieve sufficient sleep to rest well. This is caused by the decline in the quality of bodily functions, which affects sleep physiology, making it difficult for the elderly to meet their sleep needs. Individuals who are older require fewer hours of sleep to be obtained (Primaningati et al., 2024). According to the National Sleep Foundation, as many as 67% of elderly people aged 65 and over in countries like the United States experience sleep difficulties, where this study involved 1,508 elderly individuals. In addition, 73% of them reported difficulties both in falling asleep and maintaining sleep, resulting in poor sleep quality. Another study conducted in China showed that the prevalence of elderly individuals with poor sleep quality ranges from 40-70%, and this number continues to increase every year, raising the risk of physical and psychological disorders (Wang et al., 2020). A similar study from the University of California also found that 40 to 50% of elderly people aged 60 and above experience sleep problems. In Indonesia, nearly half of the elderly aged 60 and above (around 50%) experience problems related to sleep quality

disorders (Chasanah & Supratman, 2018). The World Health Organization reported findings in 2020 that the elderly population in the Southeast Asian region reached about 8%, or around 142 million people. It is estimated that by 2050, this number will increase to three times that amount. (World Health Organization, 2025). According to the Indonesian Ministry of Health, the prediction is that the number of elderly people in 2025 will increase to 33.69 million elderly people and in 2035 will reach 48.29 million people (Kementrian Kesehatan Republik Indonesia, 2022). Based on data from the Jembrana District Health Office, the number of elderly people in 2024 was 35,025, representing 72.2%. In Nusasari Village, the number of elderly people in 2024-2025 was 913 (Pemerintah Kabupaten Jembrana, 2025).

The Stress and Coping theory by Aldwin et al. (2021) states that bad events in life can trigger stress. When someone faces an unpleasant event, the first thing they do is assess whether the event is seen as a challenge to deal with, a threat, danger, or a loss. If a person can't handle it on their own and lacks support from others, they will experience stress that has a negative impact and affects their mood, like depression (Schulz et al., 2020). Stress itself is a physiological and psychological reaction that arises when someone feels there is an imbalance between the demands they face and their ability to meet those demands (Sun, 2022). Stress is a problem that everyone experiences. Stress in the elderly can affect their activities by causing a loss of appetite, reduced communication or withdrawal, and symptoms such as flushing or shivering. Negative effects of stress include headaches, high blood pressure, irritability, difficulty concentrating, changes in appetite, and disturbed rest. In addition, stress can stimulate the activity of the hypothalamic-pituitary-adrenal (HPA) axis and the central nervous system, which can trigger a significant increase in cortisol levels. This increase can cause a cortisol awakening response (CAR), which affects the feeling of being constantly awake. This condition can reduce sleep quality in the elderly and negatively impact their health. (Ahmad et al., 2022). This shows that the higher the level of stress experienced by the elderly, the greater the risk of disrupting their sleep quality (Hindriyastuti & Zuliana, 2018).

Previous studies generally only reported that relaxation techniques, meditation, or sleep education can improve the sleep quality of older adults. However, research evaluating the relationship of stress management education as an educational package that integrates the introduction of stress sources, relaxation techniques, breath control, daily activity management, and coping strategies that can be applied independently by older adults in the community is still limited. Stress management encompasses approaches with techniques and programs designed to help older adults change the way they perceive stressful situations or improve their

ability to manage stress symptoms more effectively (Garry et al., 2023). These techniques involve processes and strategies that are essential for older adults to cope with stress and maintain ongoing management, as well as recognizing the causes of stress by maintaining relationships with others, staying active, avoiding unnecessary stress, getting enough rest, scheduling enjoyable activities, and maintaining a healthy lifestyle (Sella et al., 2023). Adjustments to the physical needs and lifestyle of the elderly are key in the implementation of this technique. Examples of activities include light physical exercise, relaxation activities such as meditation, and massage therapy. In addition, programs such as cognitive-behavioral training, guided meditation, relaxation training, and physical fitness become part of commonly used interventions (Choowanthanapakorn et al., 2021). Although various studies have shown that stress management is a non-pharmacological intervention that can effectively improve sleep quality in the elderly, most previous research was conducted in hospitals, nursing homes, or healthcare facilities with respondents who had different characteristics. Meanwhile, elderly people living in villages have different social and cultural conditions, as well as access to healthcare services, so the effect of stress management education interventions may not necessarily yield the same results. The researchers conducted this study to find out the relationship between giving stress management techniques and sleep quality problems in older adults.

METHODS

This type of research is quantitative using a pre-experimental design with a one group pre-post test method. The implementation of this research involves one group of subjects who will receive the material. Observations were made on the group before education was given (pre-test) and the researcher observed again after the education was conducted (post-test). The population in this study was the elderly in Nusasari village, Melaya District, Jembrana Regency, Bali, with a total of 71 elderly people. The sample selection was determined by the researcher using quota sampling, which is the number determined by the researcher was 47 elderly people. The researcher will calculate the minimum sample size using power analysis, with the statistical test set using the Wilcoxon test (one group), Effect size (0.5), Power (0.95), and α 0.05. As a result, the sample size obtained is 47 people in 1 group. In this study, the researcher determined several characteristics of respondents that fit the research needs, including: elderly people who experience sleep disturbances, who willing to participate as respondents, and are able to communicate verbally and cooperatively. Elderly people who do

not have sleep disturbances and those who use medication to manage sleep quality issues were not included as research respondents. This research was carried out in Nusasari Village, and the research was conducted from December 2024 to May 2025. With this method, it is hoped that the selected sample can represent the desired population characteristics (Yam & Taufik, 2021).

The research was conducted by providing education on stress management techniques to elderly people experiencing sleep quality disturbances. Where the right stress management education techniques can help the elderly improve their sleep quality. This is supported by previous research which states that could also serve as a prevention tool for sleep and mental health disorders in older adults, and as one possible solution to reduce the use of psychopharmaceuticals and their subsequent dependence in older age (Urbanová et al., 2024). The tools and media used by the researcher to provide education are PowerPoint and leaflets as materials that the elderly can reread at home. Respondents received 30 to 45 minutes of education on the first day and returned on day 3 for a post-test. The education was conducted with monitoring to ensure that if respondents experienced sleep disturbances, education could be provided in a timely and appropriate manner. Data collected using the Pittsburgh Sleep Quality Index (PSQI) questionnaire, which has been widely used to measure sleep quality levels. The PSQI consists of 19 items that cover factors like trouble sleeping, sleep disturbances, use of sleeping pills, and feeling refreshed after waking up. Higher PSQI scores indicate poorer sleep quality, while lower scores indicate better sleep quality. This tool is often used in clinical research, especially to assess sleep disorders in patients with various medical conditions. The measurement tool has been standardized, so researchers don't need to test its validity and reliability. Assessments were conducted before the intervention (pre-test) and after the intervention (post-test) in the form of stress management technique education for the elderly who were the study respondents.

RESULTS

Univariate Analysis

Univariate analysis was used to describe the data findings for each variable from the research results. The collected data were then presented in the form of a frequency distribution table:

Table 1. Frequency Distribution of Respondents Based on Age in the Elderly

Age	Frequency (f)	Percentage (%)
Middle age	12	25,5
Elderly	35	74,5
Old	0	0
Very Old	0	0
Total	47	100,0

Based on Table 1 a total of 47 elderly respondents were found, most of whom are in the elderly category (ages 60–74) numbering 35 people (74.5%).

Table 2. Frequency Distribution of Respondents Based on Gender in the Elderly
in Nusasari Village

Gender	Frequency (f)	Percentage (%)
Man	44	93,6
Woman	3	6,4
Total	47	100,0

Based on the results of the gender frequency analysis in Table 2, this study involved 47 elderly people as respondents who met the inclusion criteria, namely being over 60 years old, residing in Nusasari Village, and experiencing complaints of sleep quality disturbances triggered by stress. Based on the gender distribution, it is known that 44 people (93.6%) were female.

Table 3. Frequency Distribution of Respondents Based on Occupation Among the Elderly
in Nusasari Village

Respondent's occupation	Frequency (f)	Percentage (%)
Housewife	17	36,2
Farm workers	16	34,0
Trader	14	29,8
Total	47	100,0

Based on the results of the frequency analysis of respondents based on their occupation, data was obtained showing that the largest group of respondents in this study had the profession of housewife (IRT) as many as 17 people (36.2%).

Table 4. Frequency Distribution of Respondents Before Intervention Using PSQI
Scores Among the Elderly in Nusasari Village

PSQI Category Distribution	Frequency (f)	Percentage (%)
PSQI $\leq$ 5 (Good Sleep Quality)	2	4,3
PSQI $>$ 5 (Poor Sleep Quality)	45	95,7
Total	47	100,0

Based on the results of the frequency analysis of respondents according to the findings on sleep quality before the intervention using the PSQI score, the data shows that the largest group of respondents in this study had poor sleep quality, totaling 45 people (95,7%).

Table 5. Frequency Distribution of Respondents' Responses After Receiving Intervention Using PSQI Scores Among the Elderly in Nusasari Village

PSQI Category Distribution	Frequency (f)	Percentage (%)
PSQI $\leq$ 5 (Good Sleep Quality)	44	93,6
PSQI $>$ 5 (Poor Sleep Quality)	3	6,4
Total	47	100,0

Based on the frequency analysis of respondents according to the findings of sleep quality after the intervention using the PSQI score, the data showed that the group of respondents experienced a change in sleep quality, with 44 respondents (93.6%) having an improvement in sleep quality.

Bivariate Analysis

The following is a table presenting the results of the Cross Tabulation of the Sleep Quality Level of the Elderly Before and After Being Provided with Stress Management Technique Education.

Table 4 Cross Tabulation of Elderly Sleep Quality Levels Before and After Being Given Technique Education

Sleep Quality Level	Before Education		After Education		Wilcoxon Signed Rank Test	
	f	(%)	f	(%)	Z	p-Value
Good Sleep Quality	2	4,3	44	93,6	-6,481	0,001
Poor Sleep Quality	45	95,7	3	6,4		
Total	47	100	47	100	-6,481	0,001

Based on the data in Table 4, it can be seen that the level of sleep quality in the elderly experienced changes before and after being given education. Before the education was given, 45 respondents (95.7%) experienced poor sleep quality, while 2 respondents (4.3%) had good sleep quality. After the education on stress management techniques, a striking change occurred. 44 respondents (93.6%) experienced good sleep quality, while 3 respondents (6.4%) still experienced poor sleep quality. The Wilcoxon Signed Rank test showed a Z value of -6.481 and a $p < 0.001$. Since the $p < 0.005$, it can be concluded that there was a significant difference between before and after the education on sleep quality in the elderly.

DISCUSSION

Sleep Quality Scale Before the Implementation of Stress Management Technique Education

This discussion is intended to answer the first specific objective in the study, which is to identify sleep quality disturbances in the elderly before the implementation of stress management techniques. Measurement was carried out using the Pittsburgh Sleep Quality Index (PSQI) instrument, which assesses seven components of sleep quality, including sleep duration, sleep latency, sleep efficiency, and disturbances experienced during sleep. Based on the results of the pre-test conducted on 47 elderly respondents in Nusasari Village, it was found that the majority of the elderly had a PSQI score > 5 . This indicates that they experienced sleep disturbances. These results show that before the intervention, the sleep quality of the elderly fell into the poor category. Complaints included difficulty wanting to sleep, waking up occasionally at night, and feeling unrefreshed upon waking in the morning. This research is in line with the findings (Mohsen & Hassan, 2024) states that stress experienced by the elderly affects the nervous and hormonal systems, causing various complaints such as insomnia, fatigue, and mood disorders which ultimately worsen the quality of their sleep.

These findings are supported by research (Utami et al., 2021) which states that many elderly people consider sleep disturbances as a normal part of aging, so they do not seek special treatment. This causes sleep quality to continue to decline over time, which affects the physical and mental condition of the elderly. Based on the research that was conducted (Praningsih et al., 2023) stated that almost half of the elderly population experience sleep quality disorders caused by unmanaged stress. In their findings, prolonged stress can trigger dysfunction in the sleep-regulating system, such as melatonin hormone disorders and increased sympathetic activity.

Based on the researcher's assumption that the respondents had poor sleep quality before being given education, there is a need for appropriate intervention, particularly in the form of stress management technique education. This education is expected to be able to reduce psychological stress burden so that it can improve the overall sleep quality of the elderly.

Sleep Quality Scale After Being Given Stress Management Technique Education

After receiving education on stress management techniques, the elderly respondents in this study experienced positive changes in their sleep quality. The educational intervention included teaching various stress management techniques such as relaxation exercises, breathing control, modifying sleep habits, and psychological support through group discussions.

This is in line with research Yunita et al. (2023) found that relaxation techniques and sleep education can improve sleep latency and duration in older adults in less than two weeks. The relaxation techniques used included deep breathing and progressive muscle relaxation, taught in a structured and consistent manner to the elderly. The sleep education provided included setting a consistent bedtime, avoiding excessive napping, and creating a comfortable sleep environment in accordance with sleep hygiene principles. Elderly individuals who participated in this intervention program demonstrated improved ability to fall asleep quickly (improved latency) and maintain sleep for longer periods (increased sleep duration) compared to before the intervention. These results indicate that simple yet targeted interventions can have a significant impact on the sleep quality of the elderly in a relatively short time. Therefore, relaxation techniques and sleep education are recommended as one of the non-drug interventions to improve sleep quality in the elderly, because they are related and have an impact.

According to Huang et al. (2023) research, light physical activity and daily relaxation techniques can improve deep sleep (non-REM) in the elderly. Light physical activities such as walking, morning exercises, and simple muscle stretching are performed regularly by the elderly at least three times a week. Daily relaxation techniques include deep breathing, light meditation, and progressive muscle relaxation carried out before bedtime. This intervention functions to reduce muscle tension and stabilize the autonomic nervous system so that the body is more prepared to enter deep sleep. The observation results show that elderly individuals who engage in physical activities and relaxation consistently experience a longer and deeper non-REM sleep phase compared to before the intervention was carried out. This condition causes the body to recover more physiologically and increases the feeling of being refreshed upon waking up. Therefore, light physical activity and daily relaxation techniques can be recommended as non-pharmacological interventions to improve sleep quality in the elderly naturally and safely.

Based on the researchers' assumptions, stress management technique education is related and can be recommended as a practical and applicable non-pharmacological intervention to improve sleep quality in older adults in the community. This education not only provides knowledge but also teaches practical skills that can be directly applied in daily life, which then directly impacts the physical and psychological comfort of older adults during sleep.

Results of the Wilcoxon Signed Rank Test on the Sleep Quality Scale Before and After Stress Management Technique Education

The research results show a difference between the sleep quality levels of the elderly before and after being given education on stress management techniques. Before the intervention was given, most of the respondents showed poor sleep quality. However, after the education was carried out, the majority of respondents experienced an improvement in sleep quality to a better state. This improvement shows that education on stress management techniques is positively related to the sleep conditions of the elderly. The stress management techniques taught likely help the elderly in reducing mental tension and anxious feelings that have been disturbing their rest time. Based on the results of the Wilcoxon Signed Rank statistical test, significant findings were obtained, indicating that there is a difference between the situation before and after the intervention. The results of this study support the theory that stress management can affect the body's relaxation system and improve an individual's ability to achieve quality sleep.

These results are in line with previous research (Haryati et al., 2025) which states that psychological or educational interventions related to stress can improve the sleep patterns of the elderly. The education provided plays an important role in increasing the awareness and skills of the elderly in managing stress independently, thereby having a positive effect on their sleep quality. Based on research by Artini and Handayani (2021) showed that stress management interventions, such as relaxation training and guided meditation, related to reducing sleep disturbances in the elderly population. The intervention affected nervous system balance and reduced excessive sympathetic activity caused by stress. These results align with research. (Ring, 2025) which explains that increased stress can activate the HPA axis, leading to increased cortisol levels and directly disrupting sleep rhythms. Stress management interventions can suppress HPA activity, resulting in improved sleep quality for older adults. This aligns with the results of current research, which found that after education on stress management techniques, stress decreased and sleep improved. Based on research (Makhfudli et al., 2024) concluded that physical activity and relaxation breathing techniques as part of stress management can reduce insomnia symptoms and improve sleep efficiency in older adults. The education provided in this study also included similar techniques, thus supporting the conclusions of the previous study.

Based on the researcher's assumption, stress management techniques provided through education have an impact and relevant in helping the elderly overcome the sleep disturbances they experience. The improvement in sleep quality after the intervention is tangible evidence that this approach is not only statistically feasible but also has a direct impact on the well-being

of the elderly. This further strengthens the recommendation that stress management should be part of gerontological nursing practices that are preventive and promotive in nature.

CONCLUSION

Based on the results of research on the relationship between stress management techniques on sleep quality disorders in the elderly in Nusasari Village, it can be concluded that: Before being given education on stress management techniques, the elderly in Nusasari Village showed a condition of sleep quality categorized as poor. This finding is marked by various complaints such as difficulty falling asleep, waking up during the night, and feeling unfit upon waking in the morning, which indicates the presence of sleep quality disorders. After education on stress management techniques was provided, there was an observed improvement in sleep quality among most elderly individuals. This positive change is evident from the reduction in sleep-related complaints and the increased comfort during night-time sleep. Stress management techniques taught through education can help older adults manage stress and improve their sleep quality. These results reflect a positive change following the intervention, indicating that stress management can be used as a beneficial non-pharmacological strategy for the elderly.

LIMITATION

During the data collection process, the researchers faced several obstacles that became limitations in this study. Some respondents were absent during the posttest data collection, requiring rescheduling and extending the implementation time. In addition, there were respondents who could not participate in the pretest session, which caused the initial data to not be fully collected as planned. Another limitation encountered was the difficulty of some elderly participants in reading and understanding the informed consent independently. Therefore, assistance from family members or enumerators was required during the explanation and completion of the consent form, so that all procedures remained in accordance with research ethical principles. The author also realizes there are some limitations in the methodology, like using a pre-test and post-test design for just one group, no control group, a small sample size, and the possibility of response bias due to help from family members or enumerators. These limitations could affect the internal validity, reliability, and how much the research findings can be generalized.

REFERENCES

- Ahmad, S. R., Anissa, M., & Triana, R. (2022). Hubungan tingkat stres dengan kejadian insomnia pada mahasiswa angkatan 2017 Fakultas Kedokteran Universitas Baiturrahmah. *Indonesian Journal for Health Sciences*, 6(1), 1–7.
- Aldwin, C. M., Yancura, L., & Lee, H. (2021). Stress, coping, and aging. In K. W. Schaie & S. L. Willis (Eds.), *Handbook of the Psychology of Aging* (pp. 275–286). Elsevier. <https://linkinghub.elsevier.com/retrieve/pii/B9780128160947000167>
- Artini, B., & Handayani, D. (2021). Penerapan intervensi terapi akupresur untuk mengatasi gangguan pola tidur pada lansia dengan hipertensi. *Jurnal Keperawatan*, 10(2), 54–60.
- Biahimo, N. U. I., Gobel, I. A., & Pulogu, S. N. (2021). Faktor yang mempengaruhi gangguan tidur (insomnia) pada lansia di Desa Kaidundu Kecamatan Bulawa Kabupaten Bone Bolango. *Zaitun (Jurnal Ilmu Kesehatan)*, 9(1), 916–924.
- Chasanah, N., & Supratman, S. (2020). Hubungan kualitas tidur dengan kualitas hidup pada lansia di Surakarta. *Jurnal Berita Ilmu Keperawatan*, 11(1), 10–18.
- Choowanthanapakorn, M., Seangpraw, K., & Ong-artborirak, P. (2021). Effect of Stress Management Training for the Elderly in Rural Northern Thailand. *The Open Public Health Journal*, 14(1), 62–70. <https://doi.org/10.2174/1874944502114010062>
- Deviantony, F., Suwarningsih, D., Sinaga, M. R. E., Susilawati, N. E. F., & Hidayah, N. N. (2025). *Buku referensi manajemen kesehatan mental pada lansia*. Optimal Untuk Negeri.
- Garry, S., Brown, A., Gardner, M., Plowright, C., Skou, R., & Thompson, C. (2023). Immersive virtual reality: An effective strategy for reducing stress in young adults. *British Journal of Occupational Therapy*, 86(8), 560–567.
- Haryati, A., Anggraini, N., Ningsih, E. P., Putri, A. E., Putri, D. H., Sari, D., Siska, B. A., Krisna, D., Prayoga, P. R., & Pebriyanti, L. (2025). Intervensi Edukasi Stres pada Lansia: Upaya Peningkatan Kesejahteraan Psikologis melalui Kegiatan Pengabdian Masyarakat. *Archive: Jurnal Pengabdian Kepada Masyarakat*, 5(1), 10–22.
- Hindriyastuti, S., & Zuliana, I. (2020). Hubungan tingkat stres dengan kualitas tidur lansia di RW 1 Desa Sambung Kabupaten Kudus. *JKM (Jurnal Kesehatan Masyarakat) Cendekia Utama*, 6(1), 91–102.
- Huang, J., Antonsdottir, I. M., Wang, R., Li, M., & Li, J. (2023). Insomnia and Its Non-Pharmacological Management in Older Adults. *Current Geriatrics Reports*, 12(4), 167–175. <https://doi.org/10.1007/s13670-023-00397-1>
- Irianti, T. T., & Pramono, S. (2022). *Penuaan dan pencegahannya: proses faali biokimiawi dan molekuler*. Ugm Press.
- Kementrian Kesehatan Republik Indonesia. (2022). *Lansia Berdaya, Bangsa Sejahtera*. (Infodatin: Lansia Berdaya, Bangsa Sejahtera). <https://kemkes.go.id/id/empowered-elderly-prosperous-nation>
- Li, L., Ren, L., Zhan, X., Wang, L., Liu, C., Zhao, M., Luo, X., Feng, Z., & Li, K. (2023). The relationship between irritability, depression and anxiety among Chinese college students during the COVID-19 pandemic: A network analysis. *Frontiers in Child and Adolescent Psychiatry*, 2, 1045161. <https://doi.org/10.3389/frcha.2023.1045161>
- Makhfudli, M., Tonapa, S. I., Has, E. M. M., Chong, M.-C., & Efendi, F. (2024). Efficacy of Mind-body Exercise to Reduce Sleep Disturbance and Depression Among Older Adults: A Systematic Review and Meta-analysis. *Asian Nursing Research*, 18(4), 408–419. <https://doi.org/10.1016/j.anr.2024.08.002>
- Mohsen, M. M., & Hassan, S. S. (2024). Effect of Stress Self-Management Intervention on Enhancing Stress level, Self-Efficacy, and Outcomes of Older Adults with Varying Chronic Diseases. *Menoufia Nursing Journal*, 9(2), 89–104.

- Murida, S., Rahmawati, R., & Yanti, S. V. (2025). Gambaran kualitas tidur dan kualitas hidup lansia dengan penyakit kronis di kota Banda Aceh. *Journal of Healthcare Technology and Medicine*, 11(1), 231–238.
- Pemerintah Kabupaten Jembrana. (2025). *Laporan Kinerja Instansi Pemerintah Kabupaten Jembrana Tahun 2024*. <https://brida.jembranakab.go.id/file/Laporan+Kinerja+Pemerintah+Kabupaten+Jembrana+Tahun+2024.pdf>
- Praningsih, S., Siswati, Maryati, H., & Khoiri, A. N. (2023). Peningkatan Pemahaman Tentang Pengendalian Tekanan Darah Melalui Kualitas Tidur dan Manajemen Stres di Desa Puton Kecamatan Diwek Kabupaten Jombang. *Dedikasi Saintek Jurnal Pengabdian Masyarakat*, 2(2), 108–114. <https://doi.org/10.58545/djpm.v2i2.121>
- Primaningati, W., Baruna, A. H., & Tarmiah, T. (2024). Penyuluhan Edukasi Menjaga Kebugaran pada Kelompok Lansia Prolanis di Puskesmas Pembantu Banjarejo. *Jurnal Masyarakat Mengabdi Nusantara*, 3(4), 51–56.
- Ring, M. (2025). An Integrative Approach to HPA Axis Dysfunction: From Recognition to Recovery. *The American Journal of Medicine*, 138(10), 1451–1463. <https://doi.org/10.1016/j.amjmed.2025.05.044>
- Schulz, R., Beach, S. R., Czaja, S. J., Martire, L. M., & Monin, J. K. (2020). Family caregiving for older adults. *Annual Review of Psychology*, 71(1), 635–659.
- Sella, E., Toffalini, E., Canini, L., & Borella, E. (2023). Non-pharmacological interventions targeting sleep quality in older adults: a systematic review and meta-analysis. *Aging & Mental Health*, 27(5), 847–861.
- Sun, S. (2022). Stress and Coping Among Older Adults. In *Encyclopedia of Gerontology and Population Aging* (pp. 4773–4775). Springer. https://doi.org/https://doi.org/10.1007/978-3-030-22009-9_835
- Urbanová, L., Vaníček, O., Červená, K., Bartoš, A., & Evansová, K. (2024). The impact of sleep education, light intervention and relaxation on sleep and mood in the elderly. *Chronobiology International*, 41(4), 567–576. <https://doi.org/10.1080/07420528.2024.2337007>
- Utami, R. J., Indarwati, R., & Pradanie, R. (2021). Analisa faktor yang mempengaruhi kualitas tidur lansia di panti. *Jurnal Health Sains*, 2(3), 362–380.
- Wang, P., Song, L., Wang, K., Han, X., Cong, L., Wang, Y., Zhang, L., Yan, Z., Tang, S., & Du, Y. (2020). Prevalence and associated factors of poor sleep quality among Chinese older adults living in a rural area: a population-based study. *Aging Clinical and Experimental Research*, 32(1), 125–131. <https://doi.org/10.1007/s40520-019-01171-0>
- World Health Organization. (2025). *Ageing and health*. <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>
- World Health Organization. (2021). *Decade of healthy ageing: baseline report*. World Health Organization. <https://iris.who.int/bitstream/handle/10665/338677/9789240017900-eng.pdf>
- Yam, J. H., & Taufik, R. (2021). Hipotesis Penelitian Kuantitatif. *Perspektif: Jurnal Ilmu Administrasi*, 3(2), 96–102. <https://doi.org/10.33592/perspektif.v3i2.1540>
- Yunita, R., Wardhani, U. C., & Agusthia, M. (2023). Hubungan Tingkat Stres Dengan Kualitas Tidur Pada Lansia Di Wilayah Kerja Uptd Puskesmas Sei Lekop Kab. Bintan. *Nursing Update: Jurnal Ilmiah Ilmu Keperawatan*, 14(2), 77–85.