INTEREST: Jurnal Ilmu Kesehatan
Vol. 11, No. 2, November 2022
https://doi.org/10.37341/interest.v0i0.538

Original Research

Music Therapy Affects Elderly Sleep Quality

Retna Febri Arifiati[1]*, Endang Sri Wahyuni[2]

[1,2] Department of Occupational Therapy, Poltekkes Kemenkes Surakarta, Indonesia

ABSTRACT

Background: *Music therapy will stimulate the release of the hormones melatonin, endorphins, and encephalin, which are able to make the body relax, calm, reduce pain, and cause feelings of pleasure. The purpose of this study was to determine the effect of giving uyon-uyon Javanese-style music therapy to improve the sleep quality of the elderly in Makamhaji Village, Kartasura, Sukoharjo.*

Methods: *A pre-experimental research design with one group pre- and post-design. The study population of elderly people in PWRI Makamhaji Village, Kartasura, and Sukoharjo consisted of 80 respondents. The sampling technique used was the purposive sampling technique. There were 62 respondents in the sample. Uyon-Uyon Javanese Style Music Therapy is variable, independent, and dependent on sleep quality. Pittsburgh Sleep Quality Index (PSQI) instrument. Apply the statistics paired sample T-test to the hypothesis.*

Results: *Statistical tests showed that there was a mean difference before and after treatment of 5.27, with a large difference in the quality of sleep before and after treatment of -6.762 and a p-value = 0.000.*

Conclusions: *There is an influence of Uyon-Uyon Javanese Style Music Therapy to Improve the Quality of Sleep for the Elderly in Makamhaji Village, Kartasura, Sukoharjo. Future researchers can examine more deeply other factors that might become a bias in this study in order to refine and clarify the information from this research.*

ARTICLE HISTORY
Received: December 15th, 2022
Accepted: December 22th, 2022

KEYWORDS
elderly, music therapy, pittsburgh sleep quality index (PSQI), sleep quality;

CONTACT
Retna Febri Arifiati
✉
retnafebriarifiati2646@gmail.com
Department of Occupational Therapy, Poltekkes Kemenkes Surakarta. Jl. Adi Sumarmo, Merten, Tohudan, Kec. Colomadu, Karanganyar Regency, Central Java, Indonesia 57173.

Cite this as: Arifiati, R. F., & Sri Wahyuni, E. (2022). Music Therapy Affects Elderly Sleep Quality. *Interest : Jurnal Ilmu Kesehatan*, 270–278. https://doi.org/10.37341/interest.v0i0.538

INTRODUCTION

Sleep is one of the activities that humans need to perform. The average person spends almost a quarter to a third of their time sleeping and resting. Sleep is a beneficial activity as it is used by the human body to create new body cells, repair damaged cells, and give organs a rest. A regular sleep rhythm has positive health effects (Guyton & Hall, 1997). The need for adequate sleep depends on many factors, such as how long you sleep (how much you sleep) and how deep you sleep (the quality of your sleep) (Lanywati, 2001).

Sleep quality is a person's satisfaction with sleep so that the person does not feel tired, restless, lethargic, dark around the eyes, swollen eyelids, headaches, frequent

yawning, sleepiness, or sore eyes (Hidayat, 2006). Sleep quality includes the quantity or duration of sleep and the quality of sleep itself, which includes the frequency of awakening, other subjective aspects, and the depth of sleep. A person's sleep quality is said to be good if he does not show signs of sleep deprivation and does not experience problems in his sleep. Everyone needs quality sleep, from infants to the elderly (Hidayat, 2006).

The prevalence of sleep disturbance complaints in various countries reaches 20%–41% Ohayon, (2011) while in Indonesia it is estimated that 28 million people, or about 10% of the total population of Indonesia, experience sleep disorders. When compared to those of a younger age, the elderly experience a 70%–80% decrease in the effectiveness of their sleep at night. The elderly have a higher percentage of insomniacs, with one in every four elderly people aged 60 or older suffering from severe insomnia.

About 50% of elderly people who experience sleep disorders have an average age of 65 years or more. Increasing age does not change the total amount of sleep, but in the elderly, the quality of sleep changes. Adults and seniors spend an average of 6.5 to 7.5 hours sleeping over a 24-hour period. However, the prevalence of sleep disorders rises with age and the aging process with each passing year. Reported that approximately 40–50% of the elderly population suffer from sleep disorders (CUTLER, 2016).

A mini-study conducted in Makhamhaji, Republic of Pagyupan-Wedatama, Indonesia, found that up to 10 elderly people had trouble falling asleep, and up to 10 elderly people woke up in the middle of the night unable to urinate and had trouble urinating at night. I was complaining that I couldn't sleep. Fall asleep again, up to 5 seniors suddenly woke up in the middle of their sleep for no reason, up to 3 seniors have frequent crazy dreams, and up to 13 seniors woke up as dawn approached I became sleepy.

Sleep disturbances seen in older adults are related to dissatisfaction with sleep quality and/or quantity and may also be related to difficulty falling asleep, staying asleep, or getting up early (Cherukuri et al., 2018) (Suwardianto & Sari, 2019). Sleep disorders can occur at any age but are more common in older people. Sleep disorders in the elderly are caused by a lack of exercise during the day.

Intermittent daytime sleep, anxiety and depression disorders, an unpleasant room atmosphere, frequent nocturnal urination and urinary tract infections Insomnia in older people is caused by changes in the hormone melatonin, which regulates sleep and rest patterns. Every year, the prevalence of sleep disorders increases with age and the aging process. The effects of sleep disturbance are physical health hazards such as heart disease, diabetes, low antibodies, and chronic fatigue. Psychological loss and economic loss.

Physiologically, poor sleep quality is associated with poor memory and concentration. Disorientation, forgetfulness, confusion, and poor performance on psychomotor tests Sleep disturbances are also associated with an increased risk of falls, cognitive decline, and increased mortality. Sleep disturbances in the elderly, if neglected as a physical debilitation, can lead to health problems and affect the quality of life of the elderly.

Treatment for insomnia depends on the cause. If the cause is a bad habit pattern or an environment that is not conducive to sleep, treatment is to change habits and the environment. For psychological causes, counseling and relaxation therapy can be used to reduce insomnia. This therapy is a type of psychotherapy based on behaviorist theory. One of the author's relaxation therapies of choice is music therapy.

This is because the majority of senior citizens in the Wedatama Society of Makhamhaji, Republic of Indonesia, like Javanese-style music. Listening to Javanese Wooyoung-style music produces the sleep neurotransmitters endorphins and enkephalins. Endorphins and enkephalins relax the body, relieve pain, and induce pleasure, making it easier for the elderly to fall asleep. Can achieve very high levels of rest and sleep in a relaxed state, increasing the comfort the elderly.

The purpose of this study was to determine the effect of uyon-uyon Javanese style music therapy on improving the sleep quality of the elderly in Makamhaji Village, Kartasura, Sukoharjo.

MATERIALS AND METHOD

This is a quantitative study using a pre-experimental design method and a one-group pretest-posttest design in which researchers measure the same group of study samples before and after treatment. A researcher's patented areas of objects and subjects to be studied and conclusions drawn. The population used for this study is the elderly population of the Republic of Pagyupan Wedatama, Indonesia (PWRI). Makhamhazi District, Kartasra District, and Sukoharjo District will have a total of 100 in 2022.

The sampling technique used in this study is targeted sampling or sampling based on specific criteria (Notoadmojo, 2021). Therefore, the expected sampling criteria are samples that meet the inclusion and exclusion requirements. The entry criteria for this study were: elderly (age 50 to 75), willingness to be a respondent, ability to listen to music, willingness to follow the intervention until it is completed, and no participation in other research interventions was the people. On the other hand, exclusion or rejection criteria are conditions under which participants who are uncooperative older adults cannot be included in the study.

This study was conducted at PWRI Makamhaji, Kartasura District, Sukoharjo Regency for two weeks in April 2022. It aimed to determine the effect of Uyon-Uyon Javanese Music Therapy on improving sleep quality for the elderly in Makamhaji Village, Kartasura, Sukoharjo. At the beginning of the study, the researcher gave an explanation in advance about the research objectives, the stages of carrying out the research, and the informed consent form as a form of the patient's ability to become the research sample.

Next, the researchers filled out the Pittsburgh Sleep Quality Index (PSQI) initial questionnaire as an inclusion requirement to determine the condition of the sample. During the intervention period, mentoring, monitoring, and observation were carried out through the sleep diary. The implementation of the Uyon-Uyon Javanese Music Therapy intervention was carried out in 15 sessions with a duration of 30 minutes. The total sample size of those who took part in the activity was 80 people.

It was carried out every day starting on April 1st, 2022. The procedure for implementing the written intervention in the module included research sites in their respective homes, media used by cellphones that contained Javanese style music, samples in good health and able to follow the exercise, the intervention could be done independently but was coordinated by the researcher every 20.00 to 20.30 hours (Izin Uji Kelayakan Etik Penelitian No. B2.4505.2022, as developed by the Department of Psychology at the University of M).

RESULTS

The Association of Wedhatama of the Republic of Indonesia (PWRI) in Kalurahan Makamhaji, Kartasura District, and Sukoharjo Regency has 100 members, but since the pandemic, there are only 80 members who are actively participating in activities. The PWRI working group in Makamhaji Village was divided into 10 groups, one for each hamlet. PWRI activities are routinely carried out every Friday from 6:00–09:00 at the Makamhaji Village Hall. PWRI activities that were often carried out before the pandemic, such as gymnastics, cycling, and recreation, have not been held since the pandemic.

Table 1. Characteristics of Research Subjects

Characteristics	n	%
Age		
45-59	2	3.2
60-74	46	74.2
75-90	14	22.6
Sex		
Female	39	62.9
Man	23	37.1
Marital status		
Widow	23	37.1
Widower	6	9.7
Marry	33	53.2
Education		
SD	5	8.1
Junior High School	4	6.5
	20	32.3
Bachelor	33	53.2
Work		
Retired	43	69.6
Government employees	2	3.2
Housewife	12	19.4
Employee	2	3.2
Self-employed	3	4.8
Illness		
Eye	2	3.2
Heart	5	8.1
Rheumatics	3	4.8
Hypertension	5	8.1
DM	6	9.7
Maag	2	3.2
Cholesterol	1	1.6
Healthy	38	61.3
Daily Medication Consumption		
Yes	24	38.7

Characteristics	n	%
No	38	61.3

As many as 46 research subjects (74.2%), gender showed that the majority of the gender of research subjects were women, as many as 33 research subjects (53.2%), educational status showed that the majority of the research subjects' educational history was undergraduate, as many as 33 research subjects (53.2%), a disease suffered showed that the majority of the diseases suffered by the research subjects were DM, as many as 6 research subjects (9.7%), and the majority of res showed that the majority of res were male. As many as 38 research subjects (61.3%) are interviewed on a regular basis.

Table 2. Dimensions of Older Sleep Quality After Intervention

	Description	Pre Intervention		Post Intervention	
Sleep Quality	**Sleep Quality Subjectively**				
	0 = Very good	44	71	55	88,7
	1 = Fairly good	12	19,4	3	4,8
	2 = Pretty bad	6	9,7	4	6,5
	3 = Very bad	0	0	0	0
	Sleep Latency				
	0 = Never	15	24,2	11	17,7
	1 = Less than 1x week	24	38,7	7	11,3
	2 = 1-2 times per week	14	22,6	14	22,6
	3 = > 3 times or a week	9	14,5	30	48,4
	Sleep Duration				
	0 = >7 hours	11	17,7	3	4,8
	1 = 6-7 hours	13	21	6	9,7
	2 = 5-6 hours	25	40,3	38	61,3
	3 = <5 hours	13	21	15	24,2
	Sleep Efficiency				
	0 = >85%	0	0	0	0
	1 = 75-84%	0	0	0	0
	2 = 65-74%	1	1,6	1	1,6
	3 = <65%	61	98,4	61	98,4
	Sleep Disorders How Often Do You Have Sleep Disorders Because of:				
	0 = Never	4	6,5	2	3,2
	1 = Less than 1x mg	46	74,2	55	88,7
	2 = 1/2 times per week	11	17,7	5	8,1
	3 = > 3 times or more per week	1	1,6	0	0
	Use of Drugs Associated with Sleep				
	0 = Never	62	100	62	100
	1 = Less than 1x per week	0	0	0	0

Description	Pre Intervention		Post Intervention	
2 = 1-2 times per week	0	0	0	0
3 = > 3 times or more per week	0	0	0	0
Dysfunction Experienced During the Day				
0 = Never	20	32,3	42	67,7
1 = Less than 1x per week	40	64,5	19	30,6
2 = 1/2 times per week	2	3,2	1	1,6
3 = > 3 times or more per week	0	0	0	0

The results before the intervention on the subjective sleep quality dimension showed that the elderly felt very good about their sleep. On the sleep latency dimension, 44 of 62 respondents, or 71%, showed a score of 1, as did as many as 24 of 62 respondents, or 38.7%, while the question could not be answered by 9 out of 62 respondents, or 14.5%, of the 30 minutes felt 3 times a week. In the sleep duration dimension, 25 out of 62 respondents, or 40.3%, had the efficiency of sleeping habits at 65%, as many as 61 out of 62 respondents, or 98.4%, while the dimension of sleep disorders, with a score of 1, had as many as 46 out of 62 respondents, or 74.2%, while the question of sleep disturbances wakes up in the middle of the night or early in the morning. Ali experienced 3 times per week as many as 1 of 62 respondents, or 1.6%, on the dimension of using sleeping pills as much as 100% never taking drugs in the previous month, and as many as 40 out of 62 respondents, or 64.5%, on the dimension of daytime activity disorders, with a score of 1.

In the results after the intervention, the subjective sleep quality dimension of the elderly who felt very good about their sleep was reported by 55 of 62 respondents or 88.7%. On the sleep latency dimension, they could not fall asleep within 30 minutes, which was felt 3 times a week by as many as 30 of 62 respondents, or 48.4%. On the efficiency dimension of sleep habits, 61 of 62 respondents, or 98.4%, have efficient sleep habits (65%, or 98.4%).

On the dimension of sleep disorders, with a score of 1, as many as 55 of 62 respondents, or 88.7%, on the dimension of using sleeping pills as much as 100% never taking drugs in the last month, and on the dimension of disrupting activities during the day, as many as 42 of 67.7%, with a score of 0.

Table 3. The results of the elderly's sleep quality before and after intervention

Variabel	Skor	N	%
Pretest sleep quality	good<5	14	22,6
	poor>5	48	77.4
Post sleep qualityr	good<5	25	40.3
	poor>5	37	59.7

The results of sleep quality in the elderly before the intervention showed that the majority of respondents had poor sleep quality, as many as 48 of 62 respondents, or 77.4%, while the results of sleep quality in the elderly experienced a decrease in quantity after the intervention, as 37 of 62 respondents, or 59.7%, showed poor sleep quality. The normality of the data in this study was tested using the Kolmogorov-Smirnov test on the grounds that the research subjects were > 50. The results of the

normality test with the Kolmogorov-Smirnov test concluded that the two variables had abnormal data distributions.

Tabel 4. Normality Data

Variabel	p value	α	Kesimpulan
Pre sleep quality	0,000	0,05	Tidak normal
Post sleep quality	0,000	0,05	Tidak normal

Tabel 5. *Wilcoxon Test*

Variabel	Mean	z	p value
Pre sleep quality	8,34	-6,762	0,000
Post sleep quality	13,61		

The data from the table above shows that there is a meaningful difference between before and after treatment of 5.27, with a difference in sleep quality before and after treatment of -6.762, with a p-value = 0.000, so it can be concluded that there is a statistically significant difference between sleep quality before and after treatment.

DISCUSSION

Sleep quality is the state in which individual lives to produce freshness and fitness after waking up. Sleep quality includes quantitative aspects, such as sleep duration and sleep latency, and subjective aspects, such as deep sleep and rest. Sleep disturbances are one of the most common health issues among the elderly. Older people need adequate sleep to improve their health and recover from illness.

Sleep deprivation in older people can lead to symptoms such as fatigue, irritability, restlessness, lethargy, and headaches. In addition, the independence of older people is also reduced. It is characterized by older people's reduced participation in daily activities. Gender has a greater impact on the poorer quality of respondents, as women tend to experience a decrease in estrogen and progesterone, hormones that have receptors in the hypothalamus.

This affects circadian rhythms and sleep patterns. Mental states such as anxiety, depression, and heightened emotions often spiral out of control because low estrogen causes sleep disturbances (Khasanah & Hidayati, 2012). Results showed that post-intervention sleep quality in older adults quantitatively reduced poor sleep quality in 37 of them (59.7%). Poor sleep quality among the elderly has resulted in up to a 67.3% decrease in sleep quality as they suffer from hypertension.

Hanus et al., (2015) found up to 156 out of 280 individuals. Higher anxiety levels in older people with hypertension lead to mood disturbances and sleep disturbances, affecting sleep quality (Hanus et al., 2015) (Surya Direja et al., 2021). Symptoms of anxiety that interfere with sleep include palpitations, tremors, and restlessness (Harfiantoko & Kurnia, 2013).

Treatment of sleep disorders can also take the form of pharmacological and non-pharmacologic treatments. Non-pharmacologic therapy is the norm because it is less expensive and more effective than drug therapy. This relaxed posture reduces the stimulation of the reticular activation system (RAS), located in the middle of the brainstem, so it can be expected to improve the quality of sleep. Sleep quality is the degree of satisfaction with sleep such that a person does not feel tired or sleepy.

Age affects sleep quality in people with an average age of 70–74, who tend to have poor sleep quality due to decreased physiological function. The sleep-wake cycle disorder shortens with age. Getting up early and feeling sleepy at night is normal for older people. Depressive patients complain of poor sleep and are easily awakened by early morning temperature changes, light, and animal sounds. Because REM sleep comes early, you are more likely to have unpleasant dreams.

Older people often have trouble sleeping in beds. Lack of sleep affects one in three of her older women and one in five of her older men. Older people with NREM stage 1 are easily awakened by noise, touch, or light. Sleep can be hampered in the elderly by frequent awakenings, which are usually caused by pain and nocturia. Some older adults report being unable to sleep during the day or even having increased daytime sleep.

This occurs at night when older people have difficulty falling asleep, leading to daytime sleepiness. A slight increase in sleep needs has been observed among the elderly population, especially those over the age of 80. Changes in sleep patterns in older adults are due to changes in the peripheral nervous system (CNS), which affect sleep regulation. Age-related sensory impairment may reduce sensitivity to time-maintaining circadian rhythms.

Age-related pathological processes can lead to changes in sleep patterns. Other factors contributing to changes in sleep in the elderly population include intense autonomic activity and greater vulnerability to distraction.

CONCLUSION

Based on the hypothesis testing and discussion in the previous chapter, we can draw the following conclusions: Conclusions regarding sleep quality in older adults in these 10 studies indicate that more than 50% of older adults do not sleep well at night is that there is a problem with Sleep duration measures the length of time spent asleep. Older people generally sleep less, and some may not achieve deep sleep (Stage IV sleep and REM sleep). A good night's sleep is very helpful in restoring physical function and maintaining fitness. Sleep efficiency is measured by comparing how long you sleep with how long you go to bed.

Difficulty falling asleep, not being able to stay asleep, and waking up frequently all contribute to poor sleep efficiency. The sleep efficiency of the elderly is less than 50%. Elderly people lose sleep efficiency and sleep quality as they age. As long as you're getting quality sleep, it's okay to sleep less. However, the literature also explains that gender affects sleep quality in older adults. The majority of the female gender is strongly associated with poor respondent quality.

This is because women tend to experience a decrease in estrogen and progesterone. sleep. This affects circadian rhythms and sleeps patterns. Mental conditions such as anxiety, depression, and heightened emotions often spiral out of control as low estrogen causes sleep disturbances.

REFERENCES

Cherukuri, S., Bajo, M., Colussi, G., Corciulo, R., Fessi, H., Ficheux, M., Slon, M., Weinhandl, E., & Borman, N. (2018). Home hemodialysis treatment and outcomes: Retrospective analysis of the Knowledge to Improve Home Dialysis Network in Europe (KIHDNEy) cohort 11 Medical and Health Sciences 1103 Clinical Sciences. *BMC Nephrology*, *19*(1), 1–10. https://doi.org/10.1186/s12882-

018-1059-2

Curcio, G., Tempesta, D., Scarlata, S., Marzano, C., Moroni, F., Rossini, P. M., Ferrara, M., & De Gennaro, L. (2013). Validity of the Italian Version of the Pittsburgh Sleep Quality Index (PSQI). *Neurological Sciences*, *34*(4), 511–519. https://doi.org/10.1007/s10072-012-1085-y

CUTLER, J. L. (2016). Kaplan and Sadock's Synopsis of Psychiatry, Eleventh Edition. *Journal of Psychiatric Practice*, *22*(1), 68–69. https://doi.org/10.1097/pra.0000000000000126

Hanus, J., Anderson, C., & Wang, S. (2015). RPE necroptosis in response to oxidative stress and in AMD. *Ageing Research Reviews*, *24*(2015), 286–298. https://doi.org/10.1016/j.arr.2015.09.002

Harfiantoko, M. N., & Kurnia, E. (2013). Derajat Hipertensi (Menurut WHO) Mempengaruhi Kualitas Tidur dan Stress Psikososial. *Jurnal Stikes*, *6*(2), 1–12.

Guyton, A. C., & Hall, J. E., (2014). *Buku Ajar Fisiologi Kedokteran*. Edisi 12.Jakarta : EGC, 1022

Hidayah, Nur & Alif. (2016). Hubungan Tingkat Kecemasan dengan Terjadinya Insomnia Pada Wanita Perimenopouse di Dusun Ngeblak Desa Kendungrukem Kecamatan Benjeng Kabupaten Gresik. *Jurnal Ilmiah Kesehatan*, Vol 9 No. 1

Khasanah, K., & Hidayati, W. (2012). Kualitas Tidur Lansia Balai Rehabilitasi Sosial " MANDIRI " Semarang. *Jurnal Nursing Studies*, *1*(1), 189–196.

Larasati, (2017). Pengaruh Terapi Musik Terhadap Tingkat Kecemasan Sebelum Bertanding Pada Atlet Futsal Putri Tim Muara Enim Unyted. *Skripsi*.Yogyakarta : FIK UNY

Notoadmojo, S. (2021). *Dlscrib.Com-Pdf-Metodologi-Penelitian-Kesehatan-Notoatmodjo-Dl_2077F9Dd585E1Ffab26765D4a74180D7.Pdf* (p. Notoadmojo,).

Ohayon, M. M. (2011). Epidemiological Overview of sleep Disorders in the General Population. *Sleep Medicine Research*, *2*(1), 1–9. https://doi.org/10.17241/smr.2011.2.1.1

Surya Direja, A. H., Juksen, L., & Sunarsih, S. (2021). The Effect Of Classical Music Therapy On The Level Of Depression Among Schizophrenia Patients In Soeprapto Mental Hospital, Bengkulu Province. *Journal of Applied Nursing and Health*, *3*(2 SE-Articles), 104–110. https://doi.org/10.55018/janh.v3i2.16

Suwardianto, H., & Sari, D. A. K. W. (2019). Pain Level in Critical Patients With Sleep Hygiene Care In Intensive Care Unit. *Journal Of Nursing Practice*, *3*(1 SE-Articles). https://doi.org/10.30994/jnp.v3i1.61