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The Effect of Sleep Hygiene on Sleep Disorders in the Elderly in Long-Term Care

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Abstract

Background:
Sleep hygiene is the most effective non-pharmacological therapy as wrong one simple behavior from a number of factor environment individual and as wrong one tool help healthy sleep. *Sleep hygiene* is wrong one great therapy easy, cheap and comprehensive that can used for repair disturbance sleep elderly

Purpose:
Research this aim for knowing Influence *Sleep Hygiene* To Disturbance Sleep Elderly, Analyze disorders sleep elderly before given intervention *Sleep Hygiene* in Orphanage , Analyzing disturbance sleep after given intervention *Sleep Hygiene* Elderly in the orphanage

Methods:
Design study this use method quantitative descriptive *Quasy Experiment Pre test - Post test with control group* .

Results:
The results showed that on group intervention mean value before conducted intervention *sleep hygiene* is 3.88 and average value after conducted intervention *sleep hygiene* is 8.48 which means there is enhancement mean value before and after given intervention *sleep hygiene.* Group mean _ control before i.e. 3,42 and average value after ie 3.76. so that no there is significant difference Among score disturbance sleep before and after on group control, can concluded that on group control that doesn't accept intervention and only conducted care standard just no there is change on score disturbance sleep .

Conclusion:
Application sleep hygiene by regular effective in increase good sleep and could resolve disturbance sleep on various population group age elderly.

Background

Population aging is a phenomenon, with increasing life expectancy and declining fertility rates continuing to change the age structure of the world's population. The number of elderly in the general population is increasing rapidly. In 2020, there will be 727 million people aged 65 and over worldwide. The number of elderly people in the world is expected to more than double by 2050, reaching more than 1.5 billion. In 2020 and 2050, all regions will have aging populations. The proportion of the world's population aged 65 and over is projected to increase from 9.3% in 2020 to 16.0% in 2050. (United Nations, 2020). Indonesia is one of the developing countries with the largest elderly population. In 2021, data on the elderly population in West Java was recorded at 10.18% (Central Statistics Agency, 2021). Health problems that occur in the elderly include degenerative problems of non-communicable diseases such as diabetes, hypertension,

and dyslipidemia, as well as other disorders such as depression, dementia, anxiety, and what often occurs in the elderly is sleep disorders (Ningtyas et al., 2021). Sleep disorders in the elderly have physiological impacts such as increased incidence of falls, depression, anxiety, cognitive impairment, restlessness, excessive daytime sleepiness, can interfere with attention and memory, and decrease quality of life. The above sleep disorders in the elderly require appropriate treatment or attitude to overcome sleep disorders in the elderly (Berkley A, et al., 2020). Non-invasive interventions to overcome sleep disorders in the elderly are urgently needed, one of the interventions that is cost-effective and easy to do, namely Sleep hygiene (Montazeri et al., 2019) This instrument is used to measure sleep disorders using the Sleep Quality Scale (SQS) is a measure of sleep disorders that can be developed to provide a more pragmatic approach to assessing sleep quality in clinical settings, compared to the commonly used sleep quality evaluation standards Sleep Quality Scale (SQS) is a self-assessment global sleep quality assessment tool that can be developed based on a literature review of key aspects of sleep quality (Ellen et al., 2018).

Method

This research is a type of quantitative research. The design of this research uses the Quasy Experiment Pre test- Post test with control group design, this study reveals the causal relationship by involving 2 groups of subjects, namely, the intervention group and the control group. The 2 groups of subjects were observed again after the intervention (Nursalam, 2013).

Researchers use consecutive sampling. The consecutive sampling technique is a sample selected by determining subjects who meet the research criteria and are included in the study until a certain period of time, so that the number of respondents can be met. The selection of samples in this study is in accordance with the inclusion and exclusion criteria set by the researcher. Inclusion criteria Elderly aged 55-65 years, Can see and hear well, Can communicate well and clearly, Willing to be respondents. The exclusion criteria in the study are as follows, Elderly with dementia, Respondents cannot read and write, Taking antidepressant drugs. The sample size in this study was 66 elderly. The data collection tool in this study used a demographic questionnaire and a single-item Sleep Quality Scale (SQS) questionnaire:

The scale uses a horizontal line consisting of a choice of numbers including:

1. 0 = very bad
2. 1–3 = bad
3. 4–6 = sufficient
4. 7–9 = good
5. and 10 = very good

Respondents gave a checklist on one of the answers 0-10 with the conditions experienced by the respondent. The score levels are between 0 and 10, with lower scores indicating lower sleep quality.

Results

Univariate Analysis

Table 1 Frequency Distribution of Respondent Characteristics of the Elderly in Nursing Homes in 2024 (n=66)

Demographic Characteristics	Treatment		Control	
	F	%	F	%
Respondent Age Category				
Elderly (55-65 years)	12	36.4	16	48.5
Young Elderly (65 – 74 years)	7	21.2	8	24.2
Elderly (75-90 Years)	14	42.4	9	27.3
	33	100.0	33	100.0
Gender				
Man	14	42.4	24	72.7
Woman	19	57.6	9	27.3
	33	100.0	33	100.0
Education				
No school	12	36.4	15	45.5
Sd	6	18.2	5	15.2
Junior High School	4	12.1	3	9.1
Senior High School	7	21.2	7	21.2
College	4	12.1	3	9.1
	33	100.0	33	100.0
Medical History				
There is	25	75.8	23	69.7
There isn't any	8	24.2	10	30.3
	33	100.0	33	100.0
Smoking History				
Smoking ≥ 1 Month	7	21.2	6	18.2
Do not smoke	26	78.8	27	81.8
	33	100.0	33	100.0
Coffee Consumption				
Yes	16	48.5	7	21.2
No	17	51.5	26	78.8
	33	100.0	33	100.0
Consumption of Sleeping Pills				
Yes	0	0	0	0
No	33	100	33	100
Total	33	100	33	100

Table 1 presents the demographic characteristics of the elderly respondents in both the intervention and control groups. The majority of participants in the intervention group were aged 75–90 years (42.4%), predominantly female (57.6%), and had no formal education (36.4%). Most had a history of medical illness (75.8%), were non-smokers (78.8%), and did not consume sleeping pills. Coffee consumption was reported by 48.5% of the intervention group. In the control group, most participants were aged 55–65 years (48.5%), male (72.7%),

and similarly had no formal education (45.5%). A majority had a history of medical illness (69.7%), did not smoke (81.8%), and did not consume coffee (78.8%). Both groups reported no use of sleeping pills, indicating that pharmacological interventions were not confounding factors.

Table 2 Frequency Distribution of Sleep Disorders in the Intervention Group in the Elderly in Nursing Homes in 2024 (n=33)

Characteristics	**Frequency Distribution (n=33)**	
Sleep Disorders Before	**F**	**%**
Bad	22	66.7
Enough	9	27.3
Good	2	6
Post-sleep disorders		
Enough	7	21.2
Good	14	42.4
Very Good	12	36.4

Table 2 illustrates the distribution of sleep disorders in the intervention group before and after the implementation of sleep hygiene. Prior to the intervention, 66.7% of participants reported poor sleep quality, while 27.3% rated their sleep as adequate, and only 6.0% as good. After receiving sleep hygiene intervention, there was a significant improvement in sleep quality: 42.4% rated their sleep as good and 36.4% as very good, while only 21.2% remained in the adequate category. These findings suggest that sleep hygiene education had a substantial positive impact on sleep quality among elderly individuals.

Table 3 Frequency Distribution of Sleep Disorders in the Control Group in the Elderly in Nursing Homes in 2024 (n=33)

Characteristics	**Frequency Distribution (n=33)**	
Sleep Disorders Before	**F**	**%**
Bad	23	69.7
Enough	10	30.3
Post-sleep disorders		
Bad	18	54.5
Enough	15	45.5

Table 3 shows the sleep disorder profile of the control group before and after standard care without sleep hygiene intervention. Initially, 69.7% of participants experienced poor sleep, and 30.3% reported adequate sleep quality. Post-intervention, the proportion of respondents with poor sleep quality slightly decreased to 54.5%, while those with adequate sleep increased to 45.5%. However, no participants reported good or very good sleep quality. These results indicate that standard care alone did not lead to a meaningful improvement in sleep quality, highlighting the limited effect of non-interventional approaches.

Table 4 Results of the Normality Test of Data for the Intervention Group and Control Group Before and After (n=33)

	Variables	Statistics	P Value
Intervention Group	Before	0.826	0,000
	After	0.780	0,000
Control Group	Before	0.809	0,000
	After	0.837	0,000

Based on table 4 the results of the data normality test using the *Shapiro-Wilk test are shown. The results of the p- value* in the intervention group before and after were obtained , namely *p-value* = 0.000, so *p* <0.05, which means that the data in the intervention group was not normally distributed, as well as the control group which had the same *p-value , so the statistical test* that can be used to determine the effect of *sleep hygiene* on sleep disorders in the elderly is a *non-parametric test. Wilcoxon Signed Rank Test.*

Bivariate Analysis

Table 5 The Effect of Sleep Hygiene on Sleep Disorders in Elderly Care Homes in 2024

Group		Mean	Min-Max	Z_Wilcoxon	P Value
Intervention	Before	3.88	(1-9)	-4,963	0,000
	After	8.48	(6-10)		
Control	Before	3.42	(1-6)	-1,050	0.294
	After	3.76	(1-6)		

Note: p value < 0.05, ** *Wilcoxon signed rank test*

Based on table 5 shows the results that in the intervention group the average value before the *sleep hygiene intervention* was 3.88 and the average value after the *sleep hygiene intervention* was 8.48 which means there was an increase in the average value before and after the *sleep hygiene intervention was given. The results of the Wilcoxon sign rank* test statistical test that in the intervention group had *a p value* = 0.000, p value <α (0.05) which means H0 is rejected (hypothesis is accepted), so there is a significant difference between the sleep disturbance scores before and after in the intervention group, it can be concluded that there is an effect of *sleep hygiene* on sleep disturbances in the elderly at the Panti. The average value of the control group before was 3.42 and the average value after was 3.76. The results of *the Wilcoxon signed rank test* in the control group obtained *a p-value* = 0.294, p value > α (0.05) which means that H0 is accepted (hypothesis is rejected) so that there is no significant difference between the sleep disturbance scores before and after in the control group, it can be concluded that in the control group that did not receive intervention and only received standard care, there was no change in the sleep disturbance score.

Discussion

This study was conducted at the Pangudi Luhur Integrated Center for the City of Bekasi and at the Bekasi City Love Home. The population taken was the elderly who lived at the Pangudi Luhur Integrated Center for the City of Bekasi. The tool used during data collection was the SQS *Single Item questionnaire* . The number of respondents in this study was 66 respondents.

The results of the study on 66 respondents were male, it was found that 39 people (59.1%). In line with research (Sumirta & Laraswati, 2017) Poor sleep in this study was dominated by elderly men even though the respondents were dominated by women around 57.5%. This shows that gender has a relationship with sleep disorders in the elderly (Khasanah et al., 2012) . However, this is different from the results of the study conducted (Wittert et al., 2014) . Poor sleep disorders are indicated in the elderly male group due to changes in *testosterone hormone levels* . The aging process can affect the production of *testosterone hormone* at night, where elderly men will produce less *testosterone* compared to young adult men (Wittert et al., 2014)

Stated that sleep disorders in the elderly are caused by smoking habits 64.36%, experiencing moderate anxiety 57.1%, being uncomfortable with environmental conditions 78.6%, and decreasing health status 78.6%. Based on female gender 27 people (40.9%) all fall into the category of moderately poor sleep disorders, poor sleep disorders that occur in elderly women are caused by the reproductive cycle and menopause. A menopausal woman experiences a decrease in *estrogen hormone production* by *the ovaries* which can affect her psychological condition, causing mood swings to become more emotional in line with research (Dariah & Okatiranti, 2015) stating that sleep disorders are influenced by depression factors. So the researchers saw that elderly men were caused by changes in *testosterone levels* and the more severe the level of depression experienced by the elderly, the more the elderly would have sleep disorders which then made the elderly's sleep restless.

Factors that affect the sleep of the elderly such as an uncomfortable environment, noise, exposure to light that is too bright and too dim, room temperature that is too cold and too hot so that the elderly experience poor sleep disorders. The results of the study on 66 respondents The majority of respondents were dominated by those with no education level with a total of 25 respondents (54.2%) . Although this study did not analyze the relationship between education level and elderly knowledge related to sleep disorders, the results of previous studies reported that education level has a correlation with intelligence level. The intelligence in question is not only intellectual intelligence, but also intelligence in managing emotions. This is supported by research conducted (Gusmao et al., 2018) .

Which reported that the elderly (84.4%) with moderate emotional intelligence have good sleep quality. Therefore, researchers conclude that low education can experience sleep disorders due to the inability to monitor oneself or others which involves self-control, enthusiasm and the ability to distinguish and respond appropriately to the mood, temperament, motivation, and desires of others which results in sleep disorders. The results of the study on 66 respondents with a history of disease showed that 25 respondents (37.9%) had a history of physical hypertension. This is in line with (Khusnul & Hidayati, 2018) A body that feels unhealthy due to a disease makes a person's sleep restless and causes sleep disorders. This is what causes the elderly to be susceptible to disease. In addition, as age increases, organ function changes, so that organ function is not as optimal as in youth. Therefore, researchers conclude that if the elderly have a history of disease, they often wake up at night because the elderly experience discomfort while sleeping and result in continuous sleep disorders and worsen the quality of sleep for the elderly and the health of the elderly. The results of a study on 66 respondents showed that the frequency of sleep disorders at the age of (55-65 years) was 27 people (Ni Luh

Nopi Andayani, 2020) revealed that elderly aged 50-75 years have worse sleep disorders compared to elderly aged 80-90 years due to living in PSTW, it is related to the body's ability to adapt to environmental stress and according to (Faizi et al., 2017) states that elderly aged 60-74 years and over have mostly experienced a period of degeneration where their ability to do activities is reduced.

Therefore, researchers can conclude that with increasing age, the elderly are no longer productive, physical and mental abilities begin to decline, are no longer able to do heavier jobs, enter retirement, are left by a partner, stress facing death and depression, so that it can cause various diseases.

Sleep Disorders Before and After Intervention Group

Based on the data in table 4.2, if viewed from the characteristics of the group before being given the *Sleep Hygiene intervention* , 22 people (66.7%) experienced poor sleep disorders and experienced an increase after being given the *Sleep Hygiene intervention* , 15 people (45.5%) experienced good sleep disorders. This is in line with research (Luthfa & Aspihan, 2017) regarding sleep disorders which stated that sleep disorders were not met by 20 elderly people (71.4%) regarding poor sleep disorders before therapy. Research (Hidayati, 2015) said that 68 respondents (70.1%) had poor sleep disorders caused by the elderly often waking up at night, feeling hot, each individual's activities, activities in the orphanage. In addition, as age increases, organ function changes, so that organ function is not optimal in old age. Based on the theory and research conducted by researchers, it can be concluded that *Sleep Hygiene* is a behavior that is appropriate for creating good sleep patterns and does not require the use of drugs. Drugs are one of the factors that influence sleep disorders. Therefore, *sleep hygiene therapy* can minimize the use of drugs in elderly people in nursing homes.

Sleep Disorders Before and After Control Group

Based on table 4.3, if viewed from the characteristics of the group before being given *Sleep Hygiene control* , 25 people (75.8%) experienced poor sleep disorders and after that, the majority after being given *Sleep Hygiene control* experienced poor sleep disorders as many as 18 people (54.5%) it can be said that it means that the control group did not experience an increase in their sleep disorders. The results of this study are in accordance with Nadyatama (2018) regarding sleep disorders that were given control, there was no increase or change, namely 21 people (70.1%) and 15 people (20%). Based on the theory and research conducted by the researcher, it can be concluded that sleep disorders in the elderly before being given *sleep hygiene control* tend to be bad, even overall, sleep disorders after being given control did not improve in the majority. This condition is influenced by increasing age, changes in the patterns and quality of the elderly.

The Effect of Sleep Hygiene on Sleep Disorders in the Elderly Intervention Group

Based on statistical calculations using the Wilcoxon test, a P-value of 0.000 <0.05 was obtained. These results mean that there is an effect of *Sleep Hygiene intervention* before and after on sleep disorders in the elderly in the shelter. These results are in line with (Chasanah, 2017) showing a relationship between *sleep hygiene* and sleep disorders using the *Paired T-test* , statistical data with a p-value of 0.000 (p-value <0.005) was obtained. The alternative

hypothesis (Ha) is accepted, meaning that there is an effect of *sleep hygiene activity therapy* on sleep disorders in the elderly at the Budi Luhur Yogyakarta BPSTW Unit, according to research (S. Rahmah, 2014) showed that Rahmah's research (2014) showed a relationship between *sleep hygiene* and sleep disorders with the results of the *chi-square test* p = 0.000 < (p <0.005). The lower *the sleep hygiene* , the worse the sleep disorders in the elderly, this is caused by the aging process which causes changes that can affect sleep patterns.

Based on the data obtained, it can be concluded that there are good and positive effects, after the *Sleep Hygiene intervention is carried out* on the elderly because if the elderly's sleep disorders are met properly, it will have an impact on good health too. There are several things that need attention in order to create sustainable *Sleep Hygiene,* namely changing lifestyle and environment so that it can improve sleep disorders.

The Effect of Sleep Hygiene on Sleep Disorders in the Elderly Control Group

Based on statistical calculations using the *Wilcoxon test* , a P-value of 0.217> 0.05 was obtained. These results mean that there is no effect of *Sleep Hygiene control* before and after on sleep disorders in the elderly in nursing homes. These results are in line with (Bunga et al., 2022) showing that there is no relationship between sleep hygiene and sleep disorders using the *Paired T-test.* Statistical data was obtained with a p-value of 0.201 (p-value> 0.005) so that there is no difference between before or after the control group. There was no change in sleep disorders. According to research (Patarru et al., 2021) Data analysis used the *Pearson chi-square statistical test but there were 7 cells (77.8%) with an expected count* value <5, so the alternative *Kolmogorov Smirnov test was used* . The results of the data analysis test using *Kolmogorov Smirnov* obtained a p value = 0.132 with an α value = 0.05. That the value of p> α, meaning there is no relationship between *sleep hygiene behavior* and sleep quality in the elderly at Panti Tresna Werdha. Based on the data obtained, it can be concluded that there is no good and positive effect, after the control group of *sleep hygiene was carried out* on the elderly because the control group did not receive intervention and only carried out standard care which resulted in no changes that could provide changes in sleep disorders in the elderly.

Conclusion

This conclusion shows that implementing sleep hygiene regularly is effective in improving good sleep and can overcome sleep disorders in various elderly age groups. Therefore, it can be considered as a therapeutic source, a non-pharmacological treatment that is easy to apply and safe to improve better sleep.

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References

Badan Pusat Statistik.(2021).Statistik penduduk lanjut usia 2021, xxvi + 288 hlm.

Berkley, Amy S, Carter, Patricia A, Yoder, Linda H, Acton, Gay Berkley, A. S., Carter, P. A., Yoder, L. H., Acton, G., & Holahan, C. K. (2020). The effects of insomnia on older adults' quality of life and daily functioning: A mixed-methods study. Geriatri, 832–838. https://doi.org/10.1016/j.gerinurse.2020.05.008. (2020). The effects of insomnia on older adults' quality of life and daily functioning: A mixed-methods study. Geriatric Nursing, 41(6), 4. https://doi.org/10.1016/j.gerinurse.2020.05.008.

Chasanah, N. (2017). Pengaruh Terapi Aktivitas Sleep Hygiene Terhadap Kualitas Tidur Pada Lansia Di Balai Pelayanan Sosial Tresna Werdha Unit Budi Luhur Yogyakarta. Hubungan Kualitas Tidur Dengan Kualitas Hidup Pada Lansia Di Kelurahan Karangasem Kecamatan Laweyan Surakarta., 62(7), 276–283. http://eprints.ums.ac.id/55437/1 1/Naskah Publikasi.pdf

Dariah, E. D., & Okatiranti. (2015). Hubungan Kecemasan Dengan Kualitas Tidur Lansia Di Posbindu Anyelir Kecamatan Cisarua Kabupaten Bandung Barat. Jurnal Ilmu Keperawatan, III(2), 87–104. https://ejournal.bsi.ac.id/ejurnal/index.php/jk/article/viewFile/156/149.

Ellen, S., Bing, C., Carla, D., MS, M. F., Morrison, M., & William Ball, P. (2018b). A New Single-Item Sleep Quality Scale: Results of Psychometric Evaluation in Patients With Chronic Primary Insomnia and Depression. Journal Clinical Sleep Medicine. https://doi.org/10.5664/jcsm.7478

Faizi, M. F., DIRSECIU, P., Robinson, J. R., DIRSECIU, P., Freund, H., Bergbau-, V. B. B., DIRSECIU, P., Aqüicultura, P. D. E. P. E. M., Donalek, J. G., Soldwisch, S., Coesão, E. D. E., Moreira, M. A., Fernandes, R. F., Federal, U., Catarina, D. S. E. S., Gerais, D., Silva, S. da, Learning, B. T., Baxto, W., … Jose Perona, J. (2017). https://doi.org/10.1017/CBO9781107415324.004

Khasanah, K., & Hidayati, W. (2012). Kualitas Tidur Lansia Balai Rehabilitasi Sosial " MANDIRI " Semarang. Jurnal Nursing Studies, 1(1), 189–196. http://ejournal-s1.undip.ac.id/index.php/jnursing.

Luthfa, I., & Aspihan, M. (2017). Terapi Musik Rebana Mampu Meningkatkan Kualitas Tidur Lansia. Jurnal Kesehatan, 8(3), 345. https://doi.org/10.26630/jk.v8i3.563

Montazeri Lemrasky, M., Shamsalinia, A., Nasiri, M., & Hajiahmadi, M. (2019). The Effect of Sleep Hygiene Education on the Quality of Sleep of Elderly Women. Aging Medicine and Healthcare, 10(1), 32–38. https://doi.org/10.33879/amh.2019.1830

Nursalam.(2017).Metodologi Penelitian Ilmu Keperawatan (4th ed). Jakarta: Salemba Medika

Patarru', F., Situngkir, R., Bate, I., & Akollo, J. E. (2021). Hubungan Perilaku Sleep Hygiene dengan Kualitas Tidur Pada Kelompok Lansia di Panti Tresna Werdha Ambon. Jurnal Keperawatan Florence Nightingale, 4(2), 46–51. https://doi.org/10.52774/jkfn.v4i2.67

Rahmah, Ifana Z. Retnaningsih.,& D.Apriana, Rista. (2018). Hubungan Sleep hygiene dengan kualitas tidur pada lanjut usia : Jurnal Ilmu dan Teknologi Kesehatan, Vol,9 No. 1. https://doi.org/10.33666/jitk.v9i1.58

United Nations. (2020). World Population Ageing 2020 highlights: Ten key messages. United Nations, October 2020, 1–2.