



**THE INFLUENCE OF SPIRITUAL SUPPORT BASED ON VISUAL AUDIO ON STRESS AND SLEEP QUALITY OF PRE-TKR (TOTAL KNEE REPLACEMENT) PATIENTS**

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**ABSTRACT**

Total Knee Replacement (TKR) is a treatment for end-stage knee OA (Osteoarthritis) that does not show improvement after non-operative treatment. The psychological impact on patients who will undergo TKR surgery is stress and sleep quality disturbances. Spiritual Support Based On Visual Audio is a form of distraction for pre-TKR surgery patients to adapt to stress and sleep disturbances. The purpose of this study was to analyze the effect of Spiritual Support Based On Visual Audio on stress and sleep quality in pre-TKR surgery patients. The method used was a quasi-experimental with a pretest-posttest with a control group design. A population of 20 patients used total sampling. The research instrument used a module, audio visuals containing prayers and hymns, the DASS (Depression Anxiety Stress Scale) Questionnaire with a validity of 0.862 and a reliability of a special stress questionnaire = 0.954 and the RCSQ (Richards Champbell Sleep Questionnaire) obtained a validity of 0.822 and a reliability of 0.891. Data analysis used the Wilcoxon Rank Test. The results of the study obtained a p value <0.05, meaning that there is an effect of Spiritual Support Based on Visual Audio on stress and sleep quality in pre-TKR patients. The conclusion is that there is an effect of Spiritual Support Based on Visual Audio on stress and sleep quality in pre-TKR patients at Gotong Royong Hospital Surabaya.

Keywords: preoperative total knee replacement (TKR); stress; sleep quality; spiritual support; audio visual

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**INTRODUCTION**

Total knee replacement (TKR) is a surgical procedure to replace or reconstruct the knee joint. TKR is the most common treatment for end-stage knee OA that does not respond well to non-operative management, and has been practiced and developed for more than 50 years. TKR is a frequently performed procedure, with more than 100,000 operations performed annually in the UK and 700,000 operations in the US. Currently, with the increasing number of cases of knee OA, the need for TKR procedures is also increasing and is expected to increase by around 85% by 2030.(Harini et al., 2024). The results of a preliminary study at Gotong Royong Hospital Surabaya showed that there was an increase in the number of patients undergoing TKR surgery in 2021 by 30 patients. In 2022 to 2024 there were 150 people, with an average of 10 people undergoing TKR surgery per month.

Stress is a disturbance in the natural feelings characterized by feelings of fear or deep and ongoing worry, no disturbance in assessing reality, personality remains intact, behavior can be disturbed but still within normal limits. Stress that is not handled properly during pre-operation will cause hypertension to the point of canceling the operation.(Istiarini et al., 2021). Surgical procedures rank 11th out of the first 50 treatments for disease patterns in hospitals throughout Indonesia. Fulfillment of the need for sleep rest in surgical patients in the pre-operative period aims to prepare the physical and mental or psychological aspects of patients who will undergo surgery, this is because physical and psychological conditions can affect the level of intra-operative risk, accelerate recovery, and

reduce post-operative complications (Febriaty & Anita, 2021). One of the conditions that causes sleep disorders in pre-operative patients is physical and emotional changes during the pre-operative process. Physical changes that occur such as pain in muscles and bones, and heart palpitations while emotional changes include anxiety, fear and depression (Anita et al., 2023);(Mukhlasin, 2023). One of the non-pharmacological interventions that can be done to reduce the psychological impact of pre-operative patients is with audio-visual distraction. Audio-visual distraction is more effective in diverting stress because it involves 2 senses, namely hearing and sight.(Setyawan et al., 2020). From the problems above, the researcher wants to research the Influence of Spiritual Support Based on Visual Audio on Stress and Sleep Quality in Pre-Operative Patients at Gotong Royong Hospital, Surabaya.

## METHOD

The method used is quasi-experimental with pretest-posttest with control group design, The sample size in this study was all pre-operative Total Knee Replacement (TKR) patients in January - February as many as 20 patients, using total sampling technique. The independent variable in this study is Spiritual Support Based On Audio Visual, while the dependent variable in this study is stress and sleep quality . Data collection of spiritual support using modules and audio visuals, stress and sleep quality using the DASS ( Depression Anxiety Stress Scale ) and RCSQ ( Richards Champbell Sleep Questionnaire ) questionnaires , which have been declared valid and reliable based on statistical tests. The DASS (Depression Anxiety Stress Scale) Questionnaire with a validity of 0.862 and a reliability of a special stress questionnaire = 0.954 and the RCSQ (Richards Champbell Sleep Questionnaire) obtained a validity of 0.822 and a reliability of 0.891. Data analysis using the Wilcoxon rank test.

## RESULT

Table 1.  
Distribution of Demographic Characteristics

Respondent Characteristics	K1 (Intervention)		K2 (Control)	
	f	%	f	%
Age				
Less than 60 years	2	20	3	30
Over 60 years old	8	80	7	70
Gender				
Man	2	20	3	30
Woman	8	80	7	70
Last education				
JUNIOR HIGH SCHOOL	5	50	6	60
SENIOR HIGH SCHOOL	2	20	2	20
Bachelor degree	3	30	2	20
Work				
Doesn't work	6	60	5	50
Retired	2	20	1	10
Trader	2	20	4	40
Religion				
Islam	2	20	1	10
Christian	2	20	2	20
Catholic	6	60	7	70

Based on table 1 shows that the characteristics of respondents based on age are more than half are over 60 years old, 80% in the intervention group, 70% in the control group. Respondents with female gender are more than male patients, 80% in the intervention group, 70% in the control group. The last education of respondents was junior high school level 50% in the intervention group, 60% in the control group. The characteristics of respondents based on occupation are more than half are unemployed, 60% in the intervention group, 50% in the control group. Respondents

with Catholic religion are more than Muslims and Christians, 60% in the intervention group, 70% in the control group.

Table 2.  
Homogeneity Test of Stress and Sleep Quality in Intervention and Control Groups

Pre Test Score	K1 (Intervention)		K2 (Control)	
	f	%	f	%
Stress				
Normal	0	0	0	0
Light	2	20	2	20
Currently	8	80	6	60
Critical	0	0	2	20
Kualitas Tidur				
Sangat Buruk	0	0	0	0
Buruk	20	100	20	100
Baik	0	0	0	0
Sangat Baik	0	0	0	0

Table 3.  
Pre-operative Patient Stress Before and After Being Given Spiritual Support Intervention Based on Visual Audio

Pre-operative stress	Pre Test				Post Test			
	Min	Max	Mean	SD	Min	Max	Mean	SD
Intervention Group	15	22	18.85	1.35	10	18	15.24	1.20
Control Group	15	32	21.2	3.08	15	32	21.2	3.08

Based on table 3 comparison of preoperative patient stress before and after being given intervention in the intervention group, a mean value of 18.85 was obtained, meaning that the average preoperative patient before being given spiritual support intervention based on visual audio experienced moderate stress. After being given spiritual support intervention based on visual audio, the mean value was 15.24, meaning that the average preoperative patient experienced mild stress. Comparison of the level of anxiety of pre-operative patients before and after being given intervention in the control group, obtained the same mean value, namely 20.8, meaning that on average, pre-operative patients before and after being given spiritual support intervention according to the procedure at Gotong Royong Hospital Surabaya experienced severe anxiety.

Table 4.  
Results of the Wilcoxon Rank Test Analysis of the Influence of Spiritual Support Based on Visual Audio on Stress in Pre-TKR Operation Patients

Stress Intervention Group – Control Group	N	Mean Rank	Sum of Ranks
Posttest DASS Intervention - Control	Negative Ranks	10	561.00
	Positive Ranks	0	.00
	Ties	10	
	Total	20	
Z			-5,087
Asymp. Sig. (2-tailed)			.000

Based on table 4 Stress after the spiritual support intervention based on animation education between the intervention group and the control group, a p- value of  $0.000 < 0.05$  was obtained, meaning that there was an influence of spiritual support based on visual audio education. on stress in pre- TKR surgery patients.

Table 5.  
Preoperative Sleep Quality Before and After Spiritual Support Intervention Based on Visual Audio

Preoperative Sleep Quality	Pre Test				Post Test			
	Min	Max	Mean	SD	Min	Max	Mean	SD
Intervention Group	32	50	44.60	7.04	54	70	62.67	5.89
Control Group	28	50	44.72	28	28	60	45.03	8.79

Based on table 5 in the intervention group, there was a difference in the level of pre-operative anxiety before and after being given spiritual support intervention based on visual audio. All 10

patients (100%) experienced a decrease in anxiety levels. While in the control group, 1 patient experienced increased stress (severe to panic), 9 patients experienced the same stress before being given intervention according to hospital procedures (independent prayer according to their respective religions and beliefs).

Taable 6.

Results of the Wilcoxon Rank Test Analysis of the Influence of Spiritual Support Based on Visual Audio on the Sleep Quality of Pre-TKR Operation Patients

Sleep Quality Intervention Group – Control Group		N	Mean Rank	Sum of Ranks
Posttest DASS	Intervention -	Negative Ranks	0	.00
Control		Positive Ranks	10	595.00
		Ties	10	
		Total	20	
Z				-5.120
Asymp. Sig. (2-tailed)				.000

Based on table 6, sleep quality after spiritual support intervention based on visual audio Between the intervention group and the control group, a p value of  $0.000 < 0.05$  was obtained, meaning that there is an influence of spiritual support based on animation education on sleep quality in pre-operative patients.

## DISCUSSION

This study found that the level of anxiety of pre-operative TKR patients in the intervention group, the pretest value of 2 patients ( 20 %) experienced mild stress, 8 patients ( 80 %) experienced moderate stress. After the Spiritual Support Based On Visual Audio intervention , the post-test value decreased. 2 patients ( 20 %) were normal or had no stress, 8 patients ( 80 %) experienced mild stress. While in the control group, the pretest value of 2 patients ( 20 %) experienced mild stress, 6 patients ( 60 %) experienced moderate stress and 2 patients ( 20 %) experienced severe stress. After the spiritual support intervention was carried out in accordance with the hospital's standard operating procedure (SOP), the post-test value was the same as the pre-test value.

Research conducted by (Purwaningsih, 2020); (Sukmawan, 2020)patients who will undergo TKR surgery, with symptoms of stress, depression and somatization disorder have significantly higher levels of pain both at rest and while walking compared to patients without these symptoms at five years post-surgery. Based on the results of this review, stress and even depression are predictors that can have a major impact on complications, outcomes and costs incurred in TKR surgery.

The stress response before surgery also results in a paradigm shift, such as a long preoperative fasting period (nil by mouth from midnight), cleansing of the digestive tract, and re-feeding after 3-5 days after surgery, which has started to be abandoned.(Abdullah & Kurnia, 2022). Spiritual Support Based On Visual Audio with several short prayers that are easy to read for Muslims and prayers of surrender accompanied by spiritual songs for Christians and Catholics are able to divert the stress of pre-TKR surgery patients. In line with research conducted by (Maliga et al., 2019); (Adji & Utami, 2024)that pleasant sensory stimuli from videos or audio visuals will cause the release of endorphin hormones that inhibit anxious stimuli that are transmitted to the brain. When receiving stimulation to see and hear the hippocampus, amygdala, and septum are involved in providing input to the hypothalamus, so that the hypothalamus makes an adjustment response by changing the release of stable neurohormones that will affect the body's resistance and reduce psychological stress

Psychological stress that is well managed will improve the quality of sleep of pre-operative TKR patients. This study obtained the results of sleep quality in pre-operative patients in the intervention group, the pretest value of 10 patients (100%) experienced poor sleep quality. After the Spiritual Support Based On Visual Audio intervention , the post-test value increased, 1 patient ( 10 %) experienced poor sleep quality, 9 patients (90 % ) experienced good sleep quality. While in the control group, the pretest and post-test values were the same, namely all 10 patients (100%) experienced poor sleep quality. Stress can cause sleep disturbances in preoperative patients, because

they spend more time in bed than sleeping. This condition affects sleep efficiency, which is one of the factors in assessing sleep quality (Saepudin et al., 2023). Poor sleep quality contributes to increased blood pressure, interventions aimed at improving sleep quality in preoperative patients can help reduce the risk of increased blood pressure that could potentially affect surgical outcomes. (Riyadi & Apriyani, 2024)

Fulfillment of the need for sleep rest in surgical patients in the pre-operative period aims to prepare the physical and mental or psychological aspects of patients who will undergo surgery, this is because physical and psychological conditions can affect the level of intra-operative risk, accelerate recovery, and reduce post-operative complications (Widiastuti et al., 2023). Researchers conducted a spiritual support intervention based on visual audio Before the patient goes to sleep, it is to instill a positive way of thinking so that the patient can get good quality sleep.

## **CONCLUSION**

There is an influence of spiritual support based on visual audio on stress in pre-operative patients i Total Knee Replacement (TKR). There is an influence of spiritual support based on visual audio on sleep quality in pre-operative patients with Total Knee Replacement (TKR).

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