

# EFFECT OF EXERCISE BEFORE BED TIME WITH MUSIC THERAPY FOR SLEEP DISTURBANCES AMONG YOUNG ADULTS

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## *Abstract-*

**BACKGROUND:** In today's world, concerns about the risks of lack of sleep are growing. The idea that many adult populations suffer from chronic sleep deprivation seems to be supported by recent epidemiological research. The rest of our sleep, on the other hand, can be easily reduced because it is not necessary to meet any sleep needs. Experimental evidence on the consequences of both acute and chronic partial insomnia (PSD) demonstrates that sleep restriction significantly impairs mood, motor and cognitive function, and metabolism, hormonal, and immunological factors. From ancient to modern times, parts of music's application and use as a therapeutic tool have been documented as a potent stimulant or sedative in achieving optimal activation or sleep potential. The main aim of this study is to determine the effectiveness of exercise before bed time with music therapy for sleep disturbances among young adults.

**AIM:** To determine the effectiveness of exercise before bed time with music therapy for sleep disturbances among young adults.

**Objective:** To analyze the influence of exercise before bed time with music therapy on sleep quality among young adults.

**MATERIALS AND METHODS:** A convenient sample of 30 subjects aged from 18 to 25 years were participated in a Quasi Experimental study. According to inclusion and exclusion standards, subjects were chosen. The subjects were given a thorough explanation of the study method. and they were given Pittsburgh Sleep Quality Index (PSQI) questionnaire. This was used to determine the quality of sleep among young adults for sleep disturbance. Pre-test and Post-test was obtained through Pittsburgh Sleep Quality Index.

**RESULT:** The result revealed that the exercise with music therapy before going to bed improve the quality of sleep among the individuals participated in the study. The mean pre-test value was 7.90, the mean post-test value was 3.33. The participants' overall Pittsburgh Sleep Quality Index (PSQI) score accordingly significantly declines.

**CONCLUSION:** From the above results, it was identified that exercise with music therapy is more effective in improving the sleep disturbance among the young adults.

**Keywords:** Sleep disturbances, Music therapy, Exercises, PSQI.

## **INTRODUCTION:**

In today's world, there is growing worry about the dangers of insomnia. Recent epidemiological data appear to support the notion that many adult populations are chronically sleep deprived. Some experts, on the other hand, believe that our core, basic amount of sleep is around 6 hours per night, and that the rest of our sleep can be easily reduced, as it is not required to meet any sleep needs. Experimental evidence on the consequences of acute and cumulative partial sleep deprivation (PSD) reveals that sleep restriction

significantly impairs motor and cognitive function, as well as drowsiness. Performance, attitude, and a few metabolic, hormonal, and immune factors <sup>[1]</sup>.

Consciousness of quality of sleep have been shown to be effective at separating different clinical populations from normal ones. Therefore, variations in sleep patterns have been linked to a variety of diseases, including depression, post-traumatic stress disorder, history of birth stress or pregnancy problems, myocardial infarction, anxiety, and ageing <sup>[2]</sup>.

Promoting good health requires adequate sleep and proper circadian rhythms. Although it is advised that young and middle-aged adults receive 7-9 hours of sleep each night, 40% of American adults say they get less than 7 hours on weekday nights (National sleep foundation, 2005). Additionally, 21% struggle to sleep at least a few nights per week, and 38% wake up feeling exhausted. 67 percent of adolescents and young adults (ages 19 to 29) say they don't get enough sleep to be productive <sup>[3]</sup>.

Daytime sleepiness and a number of detrimental health effects are linked to sleep disruption and insufficient sleep duration. For instance, poor sleep quality has a detrimental impact on metabolism, weight, immune system, mood, and cognitive function. An extensive multiethnic sample of American adults also revealed that those with sleep durations shorter or greater than 7 hours were more likely to report fair or poor inner health <sup>[4]</sup>.

Adult sleep disturbances are linked to poor health outcomes such as decreased quality of life and increased mortality. However, little is known about sleep disturbances in young adults. To describe the prevalence of common sleep problems, a cross-sectional observational study was conducted and young adults were participated. In young people, sleep disturbances are fairly common <sup>[5]</sup>. This high prevalence should be known by health professionals, as early detection and treatment can improve quality of life and minimize morbidity and mortality later on: A sleepy person is also more likely to have an accident on the road, at work, or at home. The high prevalence rates of insomnia and excessive drowsiness clearly imply that this is a major public health issue that necessitates education and prevention efforts as well as increased funding <sup>[6]</sup>.

When it comes to adolescents and young adults, a variety of biological, psycho - social, and environmental factors play a role in inadequate sleep and sleep disturbance. Biological changes in the buildup of homeostasis sleep pressure, rising academic and occupational demands, and use of drugs like alcohol and caffeine are some examples of this <sup>[7]</sup>. Since SM (social media) usage has been significantly increasing in recent years, there is concern that this trend could have a negative impact on sleep quality and quantity overall. Adult OSA typically results in inactivity and sleepiness. Concerns, anxiety, and despair are frequently cited causes of inability to go asleep at this age. Additional potential factors include the use of illicit drugs, nicotine, alcohol, and coffee beverages <sup>[8]</sup>.

From ancient to modern times, parts of music's application and use as a therapeutic tool have been documented as a potent stimulant or sedative in achieving optimal activation or sleep potential. Activating rhythms and strong beats are commonly used to infuse an energized state. If the impact of music as a sleep aid is to be studied, assessments of the music used should be prioritized, and it may be preferable to include a contingency analysis at the pre institution stage. There was no analytic categorization for the optimum practise of picking music in a recent Cochrane review<sup>15</sup> on sleep. The ostensibly participant selected music was frequently identified as a choice among pre-selected music by researchers, which is arguably still music affected by researchers' biases <sup>[9]</sup>.

In patients with persistent insomnia, moderate resistance training and stretching improved both objective and subjective sleep. Chronic insomnia has been associated with a range of effects of aerobic exercise, including improvements in sleep efficiency (SE), length, and quality as well as reductions in sleep onset latency (SOL) and waking after sleep onset (WASO). Improved sleep has also been linked to stretching. Yoga and other stretching and flexibility practises, according to certain controlled studies, have improved the self-reported quality of sleep in older persons <sup>[9]</sup>.

Stretching may encourage a restful night's sleep and aid with insomnia symptoms, according to the evidence. A 2018 study found that stretching helped those with chronic insomnia feel less tense, anxious, and sleep deprived. Stretching can help you unwind and relax, lower your stress, and get rid of any pain you might be experiencing. You're more likely to be able to fall asleep and stay asleep while your body is relaxed and tranquil. A study indicated that those who are inactive may benefit from stretching and exercise, and another found that people who practice stretching-based meditation movements like yoga may benefit from improved sleep quality <sup>[11]</sup>.

Smoking, caffeine, alcohol consumption, and overeating are all unhealthy habits that can make an existing sleep problem worse or make therapy more difficult. These individuals may be more inclined to discontinue these harmful habits if they engage in regular aerobic exercise. The effect of improved cardio respiratory fitness with participation in physical training programs on sleep has been explored as a moderating factor. The studies analyzed the exact effectiveness of exercise and music therapy in general population <sup>[12]</sup>.

## **METHODOLOGY:**

Subjects who are willing to participate in the study were selected based on inclusion criteria (Age: 18 to 25 years, Gender: Both male and female, Participants with global PSQI score 5-21) and exclusion criteria (Any recent infections, Participants suffered with psychiatric disorders like hypomania). They were informed about the process of study and the safety of the procedure and informed consent were obtained. Pre-test values were measured using Pittsburgh sleep quality index (PSQI) as outcome measures. The total of 30 participants with PSQI Global Score 5-21 were selected for the Study. These participants were given few exercises like Diaphragmatic Breathing Exercise, Standing Toe Touch, Arm Circles, Child Pose, Corpse Pose for 15 mins with any soft (melodious) instrumental music to participant's own interest or religious chants with volume which does not exceed less

than 70% for 15mins. Frequency of the treatment was 1 session per day, for 5 days per week and was given consecutively for 2 months. After the treatment session the post-test were measured using PSQI. The values were tabulated and statistically evaluated.

**RESULTS:**

From statistical analysis made with quantitative data indicated statistically significant differences in the values of PSQI score.

Table 1 compares the pre-test and post-test values of PSQI. The pre-test value of the PSQI was 7.90, but the post-test was 3.33.

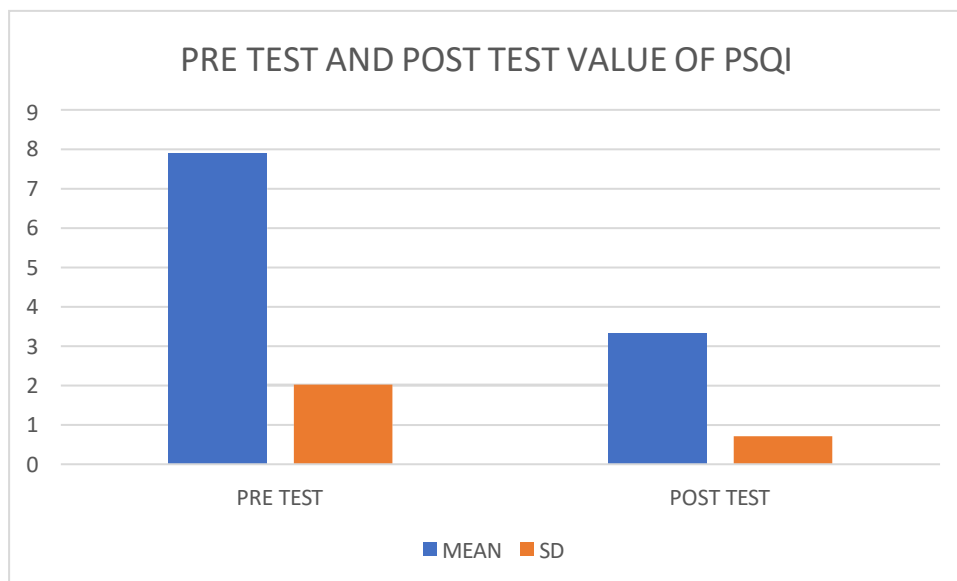
As a result, with a p-value of 0.0001, the findings are judged statistically significant.

**TABLE 1: Comparison of pre and post-test values of PSQI Global Score**

PARAMETER	MEAN	SD	T-VALUE	P-VALUE
Pre-test	7.90	2.02	11.5772	0.0001
Post-test	3.33	0.71		

**Graph 1: Comparison of pre and post-test values of PSQI Global Score**

It shows that, A pre-intervention mean value of Pittsburgh Sleep Quality Index (PSQI) was 7.90(±2.02). After giving exercises with music therapy to the subjects, the mean value was 3.33(±0.71), which shows the statistically significant differences between the values of PSQI.



Name \_\_\_\_\_ Date \_\_\_\_\_

## Sleep Quality Assessment (PSQI)

### What is PSQI, and what is it measuring?

The Pittsburgh Sleep Quality Index (PSQI) is an effective instrument used to measure the quality and patterns of sleep in adults. It differentiates "poor" from "good" sleep quality by measuring seven areas (components): subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction over the last month.

### INSTRUCTIONS:

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

#### During the past month,

1. When have you usually gone to bed? \_\_\_\_\_
2. How long (in minutes) has it taken you to fall asleep each night? \_\_\_\_\_
3. What time have you usually gotten up in the morning? \_\_\_\_\_
4. A. How many hours of actual sleep did you get at night? \_\_\_\_\_  
 B. How many hours were you in bed? \_\_\_\_\_

5. During the past month, how often have you had trouble sleeping because you	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
A. Cannot get to sleep within 30 minutes				
B. Wake up in the middle of the night or early morning				
C. Have to get up to use the bathroom				
D. Cannot breathe comfortably				
E. Cough or snore loudly				
F. Feel too cold				
G. Feel too hot				
H. Have bad dreams				
I. Have pain				
J. Other reason (s), please describe, including how often you have had trouble sleeping because of this reason (s):				
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?				
9. During the past month, how would you rate your sleep quality overall?	Very good (0)	Fairly good (1)	Fairly bad (2)	Very bad (3)

### Scoring

- |                    |  |          |
|--------------------|--|----------|
| <b>Component 1</b> | #9 Score   | C1 _____ |
| <b>Component 2</b> | #2 Score (<15min (0), 16-30min (1), 31-60 min (2), >60min (3))<br>+ #5a Score (if sum is equal 0=0; 1-2=1; 3-4=2; 5-6=3) | C2 _____ |
| <b>Component 3</b> | #4 Score (>7(0), 6-7 (1), 5-6 (2), <5 (3))   | C3 _____ |
| <b>Component 4</b> | (total # of hours asleep) / (total # of hours in bed) x 100<br>>85%=0, 75%-84%=1, 65%-74%=2, <65%=3                      | C4 _____ |
| <b>Component 5</b> | # sum of scores 5b to 5j (0=0; 1-9=1; 10-18=2; 19-27=3)  | C5 _____ |
| <b>Component 6</b> | #6 Score   | C6 _____ |
| <b>Component 7</b> | #7 Score + #8 score (0=0; 1-2=1; 3-4=2; 5-6=3)   | C7 _____ |

Add the seven component scores together \_\_\_\_\_ **Global PSQI** \_\_\_\_\_

**A total score of "5" or greater is indicative of poor sleep quality.  
 If you scored "5" or more it is suggested that you discuss your sleep habits with a healthcare provider**

### DISCUSSION:

This study found that student's quality of sleep was enhanced by exercise and music therapy. The use of music therapy, one of the non-pharmacological treatments for sleep disturbances, is a painless, risk-free, cost-effective therapeutic approach that may be used to all facets of health. Based on these results, it is advised to play the song Hejaz for people who have sleep difficulties. Calming musical intervention and moderate treadmill walking exercise with induction therapy were successful in improving both subjective and objective sleep indices in patients with insomnia. Both treatments yielded the same favorable effects on the actual quality of sleep. The design of trials examining the efficacy of music therapy for persistent sleep disturbances must take into account the fact that it takes at least three weeks to evaluate the efficacy of music. Music seems to help with sleep issues, both short-term and long-term. It can be applied to improve sleep quality in a hospital or in the community for a variety of groups with a wide age range and cultural backgrounds [13].

Exercise effectiveness, comfort, and adherence are all improved while listening to carefully selected music due to the good physiological and psychological effects that are triggered. Exercise training improves sleep quality just somewhat and decreases

overall sleep latency and the requirement for sleep aids. These results indicate that physical exercise therapy may be an excellent replacement for or complement to traditional sleep-related therapies, especially given that exercise is generally inexpensive, accessible, and safe <sup>[11]</sup>.

Physical exercise before bedtime had impact on the respondents' sleep habits, according to the study's findings. Reductions in the Pittsburgh Sleep Quality Index's overall score and its components for subjective sleep quality, sleep latency, and use of sleep medicine show that exercise training has a generally positive impact on sleep quality, according to pooled analyses of the data <sup>[14]</sup>.

Stretching made those with chronic insomnia feel less tense, worried, and sleep deprived. Stretching may promote a comfortable night's sleep and help with insomnia symptoms. Stretching can relieve any discomfort you may be feeling, help you unwind and relax, and reduce your stress. One study suggested that those who practice stretching-based meditation practices like yoga may benefit from increased sleep quality, and another found that persons who are inactive may benefit from stretching and exercise <sup>[10]</sup>.

Low-impact exercise is helpful in lowering anxiety and general discomfort. But when combined with music therapy, it shows considerable improvements in equilibrium and quality of life. Subjects who participated in music therapy and exercise had a higher rate of treatment adherence <sup>[15]</sup>.

Getting a good sleep may be especially important for adult populations to avoid chronic health difficulties. Higher global PSQI scores are statistically substantially associated with a higher chance of depressive symptoms among the general adult population in the US. The PSQI's global sleep score may be somewhat predictive of early depressive symptoms <sup>[16]</sup>.

#### LIMITATIONS OF THE STUDY:

1. The study consisted of smaller sample size.
2. The study was done in a short time period with a small number of subjects.

#### RECOMMENATIONS OF THE STUDY:

1. To make the study more valid, long-term study with large sample size is recommended.
2. Further research is advised to analyze the effects of exercise and music therapy for sleep disturbances.

#### CONCLUSION:

The results obtained from this research was statically significant and can be concluded that there was a definite and positive effect of exercise before bed time with music therapy for sleep disturbances among young adults.

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