Annals of Yoga and Physical Therapy

Open Access

Austin Publishing Group

Research Article

Effect of Yoga Nidra Practice on the Sleep Quality of University Students

Pranav Kumar[1*]; Harshvardhan Pandey[2]

[1]Assistant Professor, DIT University, Dehradun, Uttarakhand, India

[2]Research Scholar, Sri Sri University, Cuttack, Odisha, India

***Corresponding author:** **Pranav Kumar**
Assistant Professor, DIT University, Dehradun, Uttarakhand, India.
Email: pranav.dmk@gmail.com

Received: June 15, 2023
Accepted: July 14, 2023
Published: July 21, 2023

Abstract

Introduction: Sleep is one of the basic needs for survival and quality of life however there is poor awareness about sleep quality in general. The prevalence of sleep issues is concerning worldwide among all age groups, especially in the adolescent and young population. Apart from the currently used interventions like Sleep hygiene, the practice of Yoga Nidra is found to reap benefits in improving sleep quality in the clinical population. Its effectiveness can be explored on university students with sleep issues.

Methodology: The study was conducted at Sri Sri University, Cuttack, Odisha. The participants were university students (Age 18 to 28 years), 26 participants (20 males, 6 females) were selected for the study using a screening tool- Sleep Disorder Questionnaire out of 80. The participants were given a 10 day intervention of Yoga Nidra using a twenty minutes recorded version by H.H. Sri Sri Ravishankar Ji. The data was collected using a standardized sleep quality instrument- Pittsburg Sleep Quality Index (PSQI) to measure the quality and patterns of sleep in adults.

Results: The analysis shows that there is a significant difference between Pre (M=7.42, SD=3.06) and Post (M=4.69, SD=2.81) scores of Global PSQI t (25) =4.984, $p<0.05$. There was a positive effect of the practice of Yoga Nidra with post scores being significantly lower than the pre scores on five components namely Subjective sleep quality, Sleep latency, Sleep duration, Habitual Sleep efficiency and Daytime dysfunction. There was a non-significant difference found in Sleep disturbance and a negative trend in the Use of sleep medication although it was non-significant.

The results suggest that Yoga Nidra may be an effective technique for university students to reduce sleep issues and improve sleep quality.

Keywords: Yoga nidra; Sleep; Sleep quality; Meditation

Introduction

Sleep is a vital part of our life and can be regarded as one of the most important sources of energy as it leads to energy restoration in a way which no other process does. However, there is poor awareness and knowledge about the importance of sleep quality. Especially among the student population, there is a lack of awareness about the value of maintaining sleep hygiene. Sleep hygiene is the disciplined way to give the body the essential rest in form of sleep with awareness and self-control over the time, duration and surroundings. There is a dedicated subfield in modern psychology called sleep psychology that analyses the different aspects of sleep. Sleep serves a number of functions in the brain both directly and indirectly. The ability to learn, memorise and consolidate the information into long-term memory happens during the state of deep sleep.

Sleep-Related Disorders and Prevalence

As per the public health data across the globe, inadequate sleep is a key issue across all age groups and the scale of the matter is concerning as it is not highlighted leading to unseen economic costs to the healthcare systems. There have been linkages found to hormonal, cardiovascular, and neurological issues and increased accidents due to cognitive impairment with poor sleep habits as per the study by Chattu et al. The use of digital technology is adding to the issue, especially among adolescents and the young population which is leading to physiological as well as psychological disturbances. This study lays importance

Citation: Kumar P, Pandey H. Effect of Yoga Nidra Practice on the Sleep Quality of University Students. Ann Yoga Phys Ther. 2023; 6(1): 1051.

on preventive diagnosis at the community level and developing strategies to reduce the onset of a number of health issues through sleep quality interventions [11].

The COVID-19 pandemic has led to increased sleep issues among all age groups as found by a study by Alimordi et al. Sleep issues also showed a strong link to psychological distress during and after the pandemic. This study emphasised that effective interventions to treat sleep issues can aid in reducing psychological problems like anxiety and depression and vice versa [1].

At universities and colleges, it is generally observed that students due to multiple factors like academic pressure, co-curricular activities, lifestyle habits and study schedules are prone to disturbed sleep cycles, insomnia, circadian rhythm disorder and other sleep-related issues. This can lead to sleep-related disorders as per G47.9 (ICD 10) which can affect their overall health and cognitive abilities. Sleep quality is also affected by irregular sleep routines and other factors like the use of caffeine, alcohol and drugs. These irregular patterns of sleep and poor sleep quality can lead to the development of anxiety, depression and other mood-related disorders.

Yoga Nidra

Yoga Nidra is one of the yoga practices that involves relaxation and guided imagery by taking awareness of various parts of the body and surroundings [38]. Yoga Nidra is a type of meditation-based intervention wherein the instructions are to be followed by paying attention in a relaxed manner in Shavasana (corpse pose).

The practice of Yoga Nidra has its origins in the Vedas and was practised by contemplators from time immemorial. The technique of Yoga Nidra was first described in a methodological way by Swami Satyananda Saraswa ati, from Bihar School of Yoga. He explained Yoga Nidra as "a systematic method of inducing complete physical, mental and emotional relaxation and in this state the relaxation is achieved by turning inwards, away from outer experiences" [43].

Yoga Nidra is all about effortless relaxation as it rejuvenates the mind as well as relaxes the body's physiological functions. It is also called as yogic power nap and it works to restore and conserve energy by cooling the body down after the asana practice or day-to-day work. There are different versions and types of Yoga Nidra given by various schools of Yoga. However, the basic framework of the processes remains the same. The eight steps of Yoga Nidra by Gurudev Sri Sri Ravishankar Ji are as follows

1. Lie down straight on your back in Corpse Pose (Shavasana). Close your eyes and relax. Take a few deep breaths in and out. Remember to take slow and relaxed breaths.

2. Start by gently taking your attention to your right foot. Keep your attention there for a few seconds, while relaxing your foot. Then gently move your attention up to the right knee, right thigh and hip. Become aware of your whole right leg.

3. Gently, repeat this process for the left leg.

4. Take your attention to all parts of the body: genital area, stomach, navel region, chest.

5. Take your attention to the right shoulder, right arm, palms, and fingers. Repeat this on the left shoulder, left arm, throat, face, and finally the top of the head.

6. Take a deep breath in and observe the sensations in your body. Relax in this state for a few minutes.

7. Slowly becoming aware of your body and surroundings, turn to your right side and keep lying down for a few more minutes. Rolling over to the right side makes the breath flow through the left nostril which helps cool the body.

8. Taking your own time, you may then slowly sit up, and whenever you feel comfortable, slowly and gradually open your eyes.

This set of instructions represents the structure of the guided Yoga Nidra practice in form of audio recording. (The Art of Living, n.d.)

Yoga Nidra as an Intervention for Sleep-Related Disorders

The practise of Yoga Nidra can be very potent in dealing with sleep problems as it activates the parasympathetic system and brings out deep relaxation at both physical and mental levels. There have been studies on the effect of Yoga Nidra on sleep disorders in clinical patients with various chronic ailments [34].

A quasi experimental design was conducted during COVID-19 pandemic to find out the effect of Yoga Nidra on sleep quality of female adults. The study was done using Pittsburgh Sleep Quality Index (PSQI) and the analysis showed significant difference in Global PSQI score for the experimental group before and after the intervention. The study suggested improved sleep quality among young female adults during the Covid-19 pandemic (Neeraja and Naachimuthu, 2022).

However, there are no studies on its efficacy on sleep-related problems in university students. Therefore, this study can provide evidence of the effectiveness of Yoga Nidra on improvement in Sleep quality.

Review of Literature

Most Sleep studies have been conducted using Electroencephalogram (EEG) which monitors the brain waves and presents them in real time on a computer screen which is analysed using the software. The analysis of the Electroencephalogram (EEG) provides data about the functions of the brain and indications of the sleep stage [29] The current progress in sleep research is growing using the bio-signals like EEG which have been successfully playing a key role in brain studies along with the new age of Functional Magnetic Resonance (fMRI). Also, the newer functional dimensions of sleep EEG are being understood with the use of combined EEG-fMRI studies [28].

Sleep-Related Disorders

Sleep Disorders are classified in the International Classification of Diseases (ICD-10) under G47.9 (ICD 10). As per the journal article by Jolley et al., Population studies revealed that sleep disorders are affecting a major population which could not be estimated earlier due to the criteria used. For example, the prevalence of chronic insomnia varies depending on the criteria used and it could be four times the figure presented [24].

Sleep Deprivation

There are numerous studies on Circadian rhythm sleep disorders which can be commonly found in clinical practice [7]. This review paper by Bjorvatn and Pallesen covers disorders vis-a-vis delayed sleep phase disorder, advanced sleep phase disorder, free-running, irregular sleep-wake rhythm, jet lag disorder and

shift work disorder. Circadian misalignment and sleep deprivation often develop out of the timing of sleep [42]. The only clock-related health condition classified by the ICD-10 Code number G47.2 refers to 'Disorders of the sleep-wake schedule' (as part of Chapter VI: Diseases of the nervous system), including 'Delayed sleep phase syndrome' and 'Irregular sleep-wake pattern'.

It's been observed that university students don't follow the proper sleep routine, depriving themselves of proper sleep [12] leading to circadian rhythm disorders and insomnia. This can lead to sleep disorders as per G47.9 (ICD 10) which can affect their overall health and cognitive abilities.

In a study [30] to identify sleep patterns and predictors of disturbed sleep in a large population of students of an American university, it was found that over 60% of students had poor sleep quality. The use of sleep medicines and recreational psychoactive drugs to sleep or stay awake was found rampant. It was also observed that the students with poor sleep quality faced more physical and psychological health issues as compared to those with good sleep quality. Emotional and academic stress was found to impact sleep negatively. The study recommended specially designed intervention programs for university students as sleep quality showed a direct relationship with their physical and mental health.

A study was conducted by Gaultney, to find out and identify vulnerability to sleep disorders and the impact on academics due to sleep issues among college students in America. The findings of the survey depicted that around twenty- six per cent of students were prone to at least one sleep disorder, and there was a considerable negative effect on the academic performance of students with disturbed sleep cycles. The findings included the effects of sleep deprivation in students in form of Excessive Daytime sleepiness (EDTS) [18].

The effects of sleep hygiene on sleep health were studied in Indian college students wherein a probable relationship between poor sleep hygiene with Excessive Daytime Sleepiness (EDTS) and poor sleep quality was found. The youngsters are generally unaware of the importance of good sleep and often develop poor sleep habits during hostel stay. The study found that around 77 per cent of college students had poor sleep hygiene which made them vulnerable to poor sleep quality by two times and more than two and half times greater prone to EDTS [27].

In a study on Indian college students, sleep quality was assessed using Pittsburg Sleep Quality Index (PSQI). The findings suggested that around 30 percent of college students had poor sleep quality with the mean PSQI score of the sample on the higher side. There are seven components of sleep quality in PSQI amongst which sleep latency, sleep disturbance and subjective sleep quality scores were above the standard score. However, there was scarce use of sleep medications or drugs for sleep issues found among the students [26].

A study was conducted on university students in India to find out about sleep habits and the prevalence of sleep problems. It was found that medical students of the institution especially had poor sleep quality due to the use of caffeine and alcoholic drinks which lead to reduced and disturbed sleep. The students with poor sleep habits also reported increased irritability and hampered interpersonal relationships [21].

Mental Health and Sleep

Mental Health is defined as "a state of mind characterized by emotional well-being, good behavioural adjustment, relative freedom from anxiety and disabling symptoms, and a capacity to establish constructive relationships and cope with the ordinary demands and stresses of life" (APA, n.d.).

A number of researches have been conducted in the clinical populations which suggest an association between sleep disturbances and mental health issues [41] A study was conducted on university students with healthy sleep habits, to find a relationship between sleep disturbances and mental health problems. The research showed that poor sleep quality leads to reduced mental health in students. "The regression analyses also described the way night-time sleep duration and the frequency of night sleep disruptions predict mental health outcomes" [33].

Sleep quality impacts overall mood and emotional stability and hence can make an individual vulnerable to chronic mental health issues. A study on Indian college students was conducted by Ghrouz et al. to find an association between poor sleep quality and mental health problems like anxiety and depression. It was found that 51 per cent of students suffered poor sleep quality which was significantly associated with anxiety and depression among both genders [19].

Sleep issues as per medical findings are a primary disorder rather than secondary to depression, therefore, it needs attention from parents as well as college psychologists, especially in America where sleep issues are very common in college students. A study was conducted to determine the relationship between sleep deprivation and poor sleep quality on academic performance of non-depressed university students in America. The study showed a significant negative correlation between the Global Sleep Quality Score (GSQ) on PSQI and academic grades which suggests a direct effect of sleep quality on the academic output of students [20].

Sleep disturbance and depression are found to be comorbid in a number of clinical patients. A study by Nyer et al. was conducted on college students where the relationship between sleep disturbance and mental health in adolescents and young adults was confirmed. It was found that students with depressive symptoms along with sleep disturbance showed significantly higher anxiety and poor cognitive functions as compared to the students with depression and no sleep disturbances. This study showed that the "Students with depressive symptoms with and without sleep disturbance did not significantly differ in depressive severity, hopelessness, or quality of life" [35]. College students with depressive symptoms with sleep disturbance were prone to show severe anxiety symptoms, and cognitive impairment than those without sleep disturbance [35].

Sleep Interventions

There have been numerous researches worldwide, especially in clinical populations that show the effectiveness of interventions to improve sleep hygiene and awareness about sleep habits in the treatment of sleep disorders. This study on a healthy population worked to create evidence in a comprehensive manner and concludes that sleep hygiene knowledge impacts sleep practices and this helps in improving sleep quality [8].

Sleep issues like chronic sleep loss, associated sleepiness and daytime impairments among adolescents and youngsters pose

to be barriers to their academic performance, career goals and overall health. There have been a number of studies conducted on sleep patterns in adolescents and the lifestyle factors like screen time, caffeine intake, irregular sleep routine etc. There is a dire need to create awareness in the young minds about the basics of sleep, healthy sleep practices and its health-related consequences like obesity, cardiovascular disorders, psychological distress, fatal driving accidents etc. The current trend of sleep deprivation in order to be more productive and efficient needs to be addressed through counselling and sleep quality interventions [36].

Yoga Nidra- The Yogic Sleep

Yoga Nidra which is also called yogic sleep is the practice involving a state of restfulness with a sense of awareness of the body functions and surroundings. In the review article on Yoga Nidra by [37] the goal of Yoga Nidra is described as the practice leading to a deep state of relaxation, which differs from sleep with the sense of awareness of one's surroundings. Swami Satyananda Saraswati in the 1960s highlighted and brought forward this practice to enhance one's cognition that too without much effort, which he experienced for himself [43]. Yoga Nidra is also found to bring about improvement in both physiological and psychological health. Clinical studies depicted the effect of Yoga Nidra on positive physiological changes at the level of neurochemicals like Dopamine and hormones too [45].

There have been a number of studies on the effect of yoga Nidra on stress and well-being in various populations [44] One of the studies by Moszeik et al. showed lower stress, higher well-being and improved sleep quality after the intervention [34].

There has been a significant reduction found in mild depression and anxiety levels among college students with the practice of Yoga Nidra [25]. It was also reported by the participants that their aggressive traits have reduced and they are feeling more comfortable after the intervention.

In a study on the effect of Yoga Nidra practice on adolescent wellbeing, it was found that there is an enhanced sense of enthusiasm, alertness, quietude, clarity of thought, control over anger, self-confidence, and self-awareness. Yoga-Nidra was found to be beneficial in improving multiple dimensions of adolescent well-being [50].

Overall, the practice of Yoga Nidra brings about profound relaxation by relieving the body's muscles and nerves which can lead to better sleep. There are many psychological interventions to deal with sleep issues like Cognitive Behavioral Therapy for Insomnia (CBTI) however they are found to be underutilised due to number of system based issues vis-à-vis very few trained CBTI experts [13]. Yoga Nidra technique can be used as an alternative therapy for sleep issues with the generation of scientific evidence among healthy and clinical populations.

Method

The research study was conducted on Indian university students (undergraduate, postgraduate, PhD programs) of the age group 18-28 years.

Sampling Frame- For the selection of the sample, Sleep Disorder Questionnaire was distributed to all the university students through an online medium- invitation mail from the Director of student affairs id, WhatsApp, Telegram etc.

Sample

The sample of the study will be university students of the age group 18-28 years. For the selection of the sample, Sleep Disorder Questionnaire was distributed in the university through an online medium and a sample of 26 participants with disturbed sleep patterns, and signs of poor sleep quality were selected for the intervention.

The Sleep Disorder Questionnaire was filled by 80 students out of which 71 participants showed some sleep disturbances as per their responses. Out of which 30 students were located on campus for the intervention. Two participants discontinued due to health issues and two participants' data was missing leading to a final sample of 26 participants. The age of the total sample of 26 participants ranged from 18 to 22 (M=19.42, SD=1.270). There were males (76.9%) and females (23.1%). All the participants were from undergraduate programs.

Measures

The sleep Disorder Questionnaire was used for screening purposes of the participants for disturbed sleep patterns and poor sleep quality. The questionnaire involved items pertaining to insomnia, circadian rhythm disorder, parasomnias, and psychological issues like anxiety.

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 by measuring seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction over the last month.

The client self-rates each of these seven areas of sleep. Scoring of the answers is based on a 0 to 3 scale, whereby 3 reflects the negative extreme on the Likert Scale.

A global sum of "5" or greater indicates a "poor" sleep quality.

Duration of the Test: 5-7 minutes

Reliability and Validity: The PSQI have internal consistency and a reliability coefficient (Cronbach's alpha) of 0.83 for its seven components. A study conducted to check the validity of PSQI for the Indian population was done by Manzar et al. wherein it was evident that PSQI had internal consistency, internal homogeneity, and diagnostic characteristics that compared well with Polysomnography among a sample of young adult male students in India. Cronbach's alpha for the questionnaire was found to be 0.736. Internal homogeneity was high, with the majority of correlations between questionnaire component scores and the summed global score being significant (p<0.010). This evidence aids in establishing the applicability and certain aspects of the validity of the PSQI in the population. [32].

Procedure

The Sleep Disorder Questionnaire was circulated in university as google form through online mediums like Email, Whatsapp, Telegram etc. The form consisted of researcher information with the necessary details about the study followed by the consent form wherein the basic purpose and information about the survey was explained that this survey is to study the sleep quality and measure the effect of Yoga Nidra practice on the sleep quality of university students.

The eligibility criteria for participation in the study were also clearly stated along with the consent agreement and an option to exit the survey in case of disagreement to the consent form. Then the assurance about the confidentiality of the personal information was given stating that the information will be confidential and used only for the intended purpose of the study.

In the next section after the agreement, the detailed questionnaire was made accessible to the participants consisted of three sections- the demographic data, sleep disorder questionnaire and submit section.

Based on the screening method and availability for in-person intervention, 30 participants were invited for Yoga Nidra intervention in a group setting from June 2, 2022 to June 11, 2022.

The participants were given group intervention of Yoga Nidra using a recorded 20 minutes version of Yoga Nidra by Sri Sri Ravishankar Ji for a period of 10 days at a fixed time and location. Before the intervention, The Pittsburg Sleep Quality Index (PSQI) was administered to take the data before the intervention. After completion of the intervention, again PSQI was administered to collect the final data of the participants. On the last day of the intervention, an open-ended question about the participant's subjective experience was asked through a google form.

Results

The study explored the effect of guided Yoga Nidra by H.H. Sri Sri Ravishankar Ji on the sleep quality of university students with disturbed sleep. Paired sample T-test in SPSS-25 software was used to evaluate the difference between the Pre and Post scores of sleep quality components of the Pittsburg Sleep Quality Index (PSQI). Based on the literature review, the hypothesis was that there would be an improvement in sleep quality.

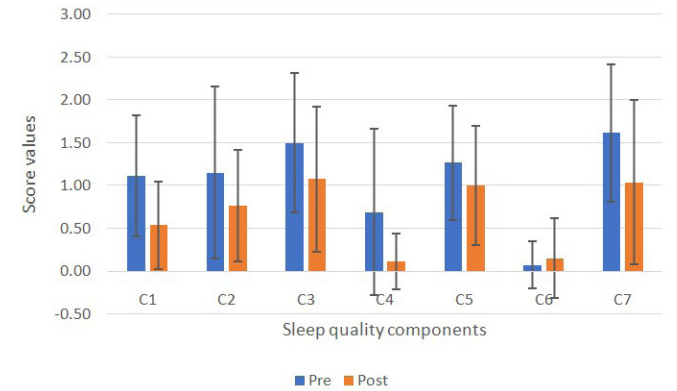

Figure 1: Pre and Post scores of sleep quality components.
Note: Seven sleep components are Subjective sleep quality (C1), Sleep latency (C2), Sleep duration (C3), Habitual sleep efficiency (C4), Sleep disturbances (C5), Use of sleep medications (C6), Daytime dysfunction (C7)

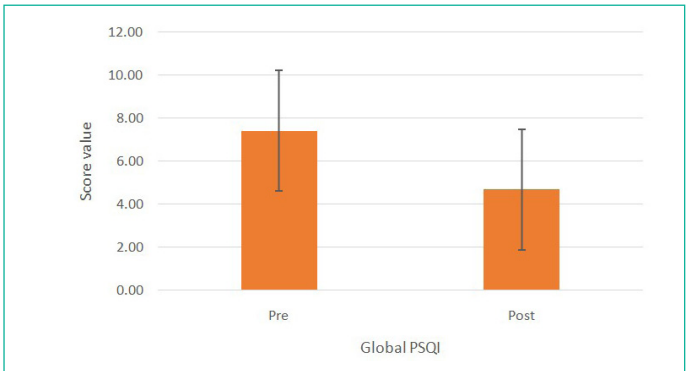

Figure 2: *Pre and Post scores of Global PSQI.*
Note: Global PSQI is the sum of all seven components of sleep quality

Figure 1 and figure 2 below depict the Pre and Post scores. There was a positive effect of the practice of Yoga Nidra with post scores being significantly lower than the pre scores on five components namely Subjective sleep quality, Sleep latency, Sleep duration, Habitual Sleep efficiency and Daytime dysfunction. There was a non-significant difference found in Sleep disturbance and a negative trend in the Use of sleep medication although it was non-significant.

The analysis shows that there is a significant difference between Pre (M= 7.42, SD=3.06) and Post (M=4.69, SD=2.81) scores of Global PSQI $t\ (25) =4.984$, $p<0.05$. There is a significant difference, between Pre *(M=1.12, SD=.71)* and Post *(M=.54, SD=.508)* scores of Subjective sleep quality (C1) $t\ (25)=4.57$, $p<0.05$, between Pre *(M=1.15, SD=1.0081)* and Post *(M=.77, SD=.65)* scores of Sleep latency (C2) $t\ (25) =2.440$, $p<0.05$, between Pre *(M=1.50, SD=.81)* and Post *(M=1.08, SD=.85)* scores of Sleep duration (C3) $t\ (25)=2.186$, $p<0.05$, between Pre *(M=0.69, SD=.97)* and Post *(M=.12, SD=.33)* scores of Habitual sleep efficiency (C4) $t\ (25)=3.261$, $p<0.05$ and between Pre *(M=1.62, SD=.80)* and Post *(M=1.04, SD=.96)* scores of Daytime Dysfunction (C7) $t\ (25) =.003$, $p>0.05$.

There is a non-significant difference between Pre *(M=1.27, SD=.67)* and Post *(M=1.00, SD=.69)* scores of Sleep disturbance (C5) $t\ (25) =1.66$, $p>0.05$.

There is a negative but non-significant difference between Pre *(M=.08, SD=.27)* and Post *(M=.15, SD=.46)* scores of Use of sleep medications (C6) $t\ (25) =-1.44$, $p>0.05$.

Table 1: Inclusion and Exclusion criteria.

Variable	Inclusion criteria	Exclusion criteria
Age	18-28 years	Below 18 or above 28
Health status	Disturbed sleep without any chronic illness/ clinical cause	Disturbed sleep due to chronic illness/clinical cause
Profession	Students	Non-students

Table 2: Pre and Post scores of seven components of sleep quality and Global PSQI

		Mean	N	Std. Deviation
Subjective sleep Quality	C1 Pre	1.12	26	0.711
	C1 Post	0.54	26	0.508
Sleep latency	C2 Pre	1.15	26	1.008
	C2 Post	0.77	26	0.652
Sleep duration	C3 Pre	1.50	26	0.812
	C3 Post	1.08	26	0.845
Habitual sleep efficiency	C4 Pre	0.69	26	0.970
	C4 Post	0.12	26	0.326
Sleep disturbance	C5 Pre	1.27	26	0.667
	C5 Post	1.00	26	0.693
Use of sleeping medications	C6 Pre	0.08	26	0.272
	C6 Post	0.15	26	0.464
Daytime dysfunction	C7 Pre	1.62	26	0.804
	C7 Post	1.04	26	0.958
Global PSQI	CT Pre	7.42	26	3.062
	CT Post	4.69	26	2.811

Therefore, the hypothesis that there will be a significant difference in the pre and post-levels of Global PSQI is accepted Table 2.

Discussion

The current study investigated the effects of Yoga Nidra on a group of university students with disturbed sleep. It was found that practising Yoga Nidra yields improvement in the overall sleep quality of the students. The results suggest that Yoga Nidra may be an effective technique for university students. Overall the scores of Global PSQI show a significant improvement in Pre- Post scores.

Subjective sleep quality (C1) denotes the subjective understanding of the overall sleep quality of the individual. A significant difference, between Pre and Post scores of Subjective sleep quality, suggests that the participants' perceived sleep quality has improved

Sleep latency (C2) is the time it takes for you to go from being fully awake to sleeping. A significant difference, between Pre and Post scores of Sleep latency, shows reduction in time in falling asleep after the intervention.

Sleep duration (C3) is the number of hours of actual sleep one gets at night. A significant difference between Pre and Post scores of Sleep duration with decreased Post scores depicts increased sleep time than before the intervention.

Habitual sleep efficiency (C4) denotes the sleep efficiency in terms of total number of hours of sleep over the number of hours spent in bed before falling asleep. A significant difference between Pre and Post scores of Habitual sleep efficiency with sharp fall in the Post score shows reduced time taken to fall asleep leading to increased sleep efficiency.

Sleep disturbances (C5) depict troubled sleep due to various reasons vis-à-vis waking up at midnight with an urge to urinate, cough or snore during sleep, bad dreams, breathing issues etc. There is a non-significant difference between Pre and Post scores of Sleep disturbance suggesting poor improvement in troubled sleep due to biological and environmental causes.

Use of sleep medications (C6) indicates the use of medicines (prescribed or "over the counter") to help fall asleep. There is a negative trend but non-significant difference between Pre and Post scores of Use of sleep medications, about which no conclusion can be drawn.

Daytime dysfunction (C7) is the indicator of trouble staying awake while driving, eating meals, or engaging in social activity along with problems keeping up the enthusiasm to get things done. A significant difference between Pre and Post scores with reduced Post scores of Daytime Dysfunction shows improved daytime wakefulness and better productivity in daily activities.

The Global PSQI score was obtained by adding all seven component scores together. A total score of "5" or greater is indicative of poor sleep quality. The analysis shows that there is a significant difference between Pre and Post scores of Global PSQI with drastic improvement in mean score from 7.42 (Pre M) to 4.69 (Post M) $t\ (25) = 4.984$, $p<0.05$.

Overall, It can be inferred from the analysis that the practice help students improve their patterns of sleep, have better sleep quality and be more productive during the daytime.

References

1. Alimoradi Z, Broström A, Tsang HWH, Griffiths MD, Haghayegh S, et al. Sleep problems during COVID-19 pandemic and its' association to psychological distress: A systematic review and meta-analysis. E Clinical Medicine. 2021; 36: 100916.
2. American Psychological Association. Mental health; n.d. Apa Dictionary of Psychology. 2022.
3. American Psychological Association. Sleep psychology. American Psychological Association. 2022.
4. Balasubramaniam M, Telles S, Doraiswamy PM. Yoga on our minds: A systematic review of yoga for neuropsychiatric disorders. Front Psychiatry. 2013; 3: 117.
5. Bhavanani AB. Application of Yoga Concept in the Health Improvement. 2022.
6. Bhide SR, Bhargav H, Gangadhar BN, Desai G. Exploring the therapeutic potential of yoga philosophy: A perspective on the need for Yoga-Based Counselling Program (YBCP) in common mental disorders. Indian Journal of Psychological Medicine. 2023; 45: 420-9.
7. Bjorvatn B, Pallesen S. A practical approach to circadian rhythm sleep disorders. Sleep Med Rev. 2009; 13: 47-60.
8. Brown FC, Buboltz WC, Soper B. Relationship of sleep hygiene awareness, sleep hygiene practices, and sleep quality in university students. 2010; 28: 33-8.
9. Büssing A, Michalsen A, Khalsa SBS, Telles S, Sherman KJ. Effects of yoga on mental and physical health: A short summary of reviews. Evid Based Complement Alternat Med. 2012; 2012: 165410.
10. Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Res. 1989; 28: 193-213.
11. Chattu VK, Manzar MD, Kumary S, Burman D, Spence DW, et al. The global problem of insufficient sleep and its serious public health implications. Healthcare (Basel). 2018; 7.
12. Colten HR, Altevogt BM. Sleep disorders and sleep deprivation: an unmet public health problem. Sleep Disord Sleep Deprivation Unmet Public Health Problem. 2006: 1-404.
13. Datta K, Tripathi M, Mallick HN. Yoga nidra: an innovative approach for management of chronic insomnia- A case report. Sleep Sci Pract. 2017; 1: 1-11.
14. Desikachar K, Bragdon L, Bossart C. The yoga of healing: exploring yoga's holistic model for health and well-being. Int J Yoga Ther. 2005; 15: 17-39.
15. Effect of yoga nidra on quality of sleep among young female adults during COVID-19 pandemic. Indian J Health Wellbeing. 2022; 13: 48-52.
16. Fabbri M, Beracci A, Martoni M, Meneo D, Tonetti L, et al. Measuring subjective sleep quality: a review. Int J Environ Res Public Health. 2021; 18: 1082.
17. Gard T, Noggle JJ, Park CL, Vago DR, Wilson A. Potential self-regulatory mechanisms of yoga for psychological health. Front Hum Neurosci. 2014; 8: 1-20.
18. Gaultney JF. The prevalence of sleep disorders in college students: impact on academic performance. J Am Coll Health. 2010; 59: 91-7.

19. Ghrouz AK, Noohu MM, Dilshad Manzar M, Warren Spence D, BaHammam AS, Pandi-Perumal SR. Physical activity and sleep quality in relation to mental health among college students. Sleep Breath. 2019; 23: 627-34.

20. Gilbert SP, Weaver CC. Sleep quality and academic performance in university students: A wake-up call for college psychologists. J Coll Stud Psychother. 2010; 24: 295-306.

21. Giri P, Baviskar M, Phalke D. Study of sleep habits and sleep problems among medical students of Pravara Institute of Medical Sciences Loni, Western Maharashtra, India. Ann Med Health Sci Res. 2013; 3: 51-4.

22. Gruber R. Making room for sleep: the relevance of sleep to psychology and the rationale for development of preventative sleep education programs for children and adolescents in the community. Can Psychol. 2013; 54: 62-71.

23. Irish LA, Kline CE, Gunn HE, Buysse DJ, Hall MH. The role of sleep hygiene in promoting public health: a review of empirical evidence. Sleep Med Rev. 2015; 22: 23-36.

24. Jolley RJ, Liang Z, Peng M, Pendharkar SR, Tsai W, Chen G et al. Identifying cases of sleep disorders through international classification of diseases (ICD) codes in administrative data. Int J Popul Data Sci. 2018; 3: 448.

25. Joshi R. Anxiety and depression related to yog nidra among professional students. Yoga Mimamsa. 2020; 52: 29-33.

26. Kaur G, Sharma V, Singh A. Association of sleep quality with general health: an Indian college students study. Int J Med Sci Public Health. 2015; 4: 1767-1771.

27. Kaur G, Singh A. Sleep hygiene, sleep quality and excessive daytime sleepiness among Indian college students. J Sleep Med Disord. 2017; 4: 1076.

28. Laufs H, Walker MC, Lund TE. "Brain activation and hypothalamic functional connectivity during human non-rapid eye movement sleep: an EEG/fMRI study"—its limitations and an alternative approach. Brain. 2007; 130: e75.

29. Liu Z, Sun J, Zhang Y, Rolfe P. Sleep staging from the EEG signal using multi-domain feature extraction. Biomed Signal Process Control. 2016; 30: 86-97.

30. Lund HG, Reider BD, Whiting AB, Prichard JR. Sleep patterns and predictors of disturbed sleep in a large population of college students. J Adolesc Health. 2010; 46: 124-32.

31. Luyster FS, Choi JY, Yeh CH, Imes CC, Johansson AEE, Chasens ER. Screening and evaluation tools for sleep disorders in older adults. Appl Nurs Res. 2015; 28: 334-40.

32. Manzar MD, Moiz JA, Zannat W, Spence DW, Pandi-Perumal SR, et al. Validity of the Pittsburgh Sleep Quality Index in Indian university students. Oman Med J. 2015; 30: 193-202.

33. Milojevich HM, Lukowski AF. Sleep and mental health in undergraduate students with generally healthy sleep habits. PLOS ONE. 2016; 11: e0156372.

34. Moszeik EN, von Oertzen T, Renner KH. Effectiveness of a short Yoga nidra meditation on stress, sleep, and well-being in a large and diverse sample. Curr Psychol. 2022; 41: 5272-86.

35. Nyer M, Farabaugh A, Fehling K, Soskin D, Holt D, et al. Relationship between sleep disturbance and depression, anxiety, and functioning in college students. Depress Anxiety. 2013; 30: 873-80.

36. Owens J, Adolescent Sleep Working Group, Committee on Adolescence. Insufficient sleep in adolescents and young adults: an update on causes and consequences. Pediatrics. 2014; 134: e921-32.

37. Pandi-Perumal SR, Spence DW, Srivastava N, Kanchibhotla D, Kumar K, et al. The origin and clinical relevance of yoga nidra. Sleep Vigilance. 2022; 6: 61-84.

38. Parker S, Bharati SV, Fernandez M. Defining yoga-nidra: traditional accounts, physiological research, and future directions. Int J Yoga Therap. 2013; 23: 11-6.

39. Pilcher JJ, Ginter DR, Sadowsky B. Sleep quality versus sleep quantity: relationships between sleep and measures of health, well-being and sleepiness in college students. J Psychosom Res. 1997; 42: 583-96.

40. Pn R, Kutty BM. Functional Importance of Sleep: an Overview. Indian J Sleep Med. 2012; 7: 42-4.

41. Robotham D. Sleep as a public health concern: insomnia and mental health. J Pub Men Health. 2011; 10: 234-7.

42. Roenneberg T, Merrow M. The circadian clock and human health. Curr Biol. 2016; 26: R432-43.

43. Saraswati SS. Yoga nidra. Yoga Publications Trust; 1998.

44. Sharpe E, Butler M, Hanes D, Bradley R. 241 remotely delivered yoga nidra for insomnia and anxiety during COVID-19. Sleep. 2021; 44: A96.

45. Sharpe E, Tibbitts D, Wolfe B, Senders A, Bradley R. Qualitative impressions of a yoga nidra practice for insomnia: an exploratory mixed-methods design. 2021; 27: 884-92.

46. Shrikrishna P, Mahendra B. Effect of yogic practices on insomnia patients. Int J Sports Sci Fit. 2.

47. Rama S. Four primitive fountains – Swami Rama teachings. Google [cited Jun 29, 2022]. Available from: https://sites.google.com/site/swamiramateachings/swami-rama-primitive-fountains.

48. Telles S, Singh N, Bhardwaj AK, Kumar A, Balkrishna A. Effect of yoga or physical exercise on physical, cognitive and emotional measures in children: A randomized controlled trial. Child Adolesc Psychiatry Ment Health. 2013; 7: 1-16.

49. Tripathi MN, Kumari S, Ganpat TS. Psychophysiological effects of yoga on stress in college students. J Educ Health Promot. 2018; 7: 43.

50. Vaishnav BS, Vaishnav SB, Vaishnav VS, Varma JR. Effect of yoga-nidra on adolescents well-being: A mixed method study. Int J Yoga. 2018; 11: 245-8.

51. Walker M. Why we sleep unlocking the power of sleep and dreams (Matthew Walker PhD). Scribner Publications; 2017.

52. Woodyard C. Exploring the therapeutic effects of yoga and its ability to increase quality of life. Int J Yoga. 2011; 4: 49-54.