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EFFECT OF YOGA NIDRA ON RISK FACTORS AMONG UNIVERSITY STUDENTS WITH SLEEP DISORDERS.

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Abstract

Sleep disorders can be influenced by various factors, including physiological, cognitive, somatic, and emotional hyperarousal. Stress, medical conditions, shift work, and aging are among the precipitating factors contributing to sleep issues, which are prevalent worldwide, particularly among adolescents and young adults. In addition to conventional interventions like sleep hygiene, Yoga Nidra has been found beneficial in improving sleep quality among clinical populations. To explore its effectiveness among university students with sleep issues, a study was conducted at Kerala University, Thiruvananthapuram, Kerala.

Twenty university students aged 18 to 25 years (10 males, 10 females) were selected using a screening tool, the Sleep Disorder Questionnaire, and participated in a 4 weeks Yoga Nidra intervention. The study found that Yoga Nidra practices were effective in reducing mental health-related variables such as mental fatigue, stress, anxiety, and depression among students with sleep disorders compared to pre-intervention levels.

Post-intervention scores showed significant improvement compared to pre-intervention scores on subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, and daytime dysfunction. Although there was a non-significant difference in sleep disturbance and a negative trend in the use of sleep medication, the overall 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 OF THE STUDY

Sleep is one among the basic drives of life, the others being eating, drinking, breathing, and reproducing. One-third of human life is spent in sleep. This indicates the importance that nature has placed on sleep. From time immemorial, sleep and dreams have fascinated everyone – from philosophers, poets, astrologers, and religious followers, to those with scientific curiosity and inclination. Sleep and dreams have been a source of inspiration and solution to life's problems for many people. The great Indian mathematician Srinivasa Ramanujan had credited some of his solutions to complex mathematical problems to visions seen in dreams. But science has come a long way from such subjective speculation about the workings and functionality of sleep. Since the 1970s and the invention of electroencephalogram (EEG), the scientific understanding of the nature of sleep has vastly improved. Sleep fulfills the following essential bodily functions: ϖ Restoration: Cellular repair and protein synthesis are enhanced.

During the deep sleep stage, growth hormones are secreted.

❖ **Conservation of energy**: Metabolism is decreased and the energy is conserved for the next wake cycle. The secretion of insulin and glucose in the bloodstream is also optimally regulated. ϖ Regulation of immune response: Sleep improves the function of T cells, which fight against the pathogens. ϖ Ontogenetic hypothesis: It postulates that sleep during infancy and early childhood helps in brain maturation.

❖ **Memory consolidation**: Sleep promotes learning and memory through synaptic homeostasis. Sleep reinforces memory circuits and helps in learning, logical decision making, and creativity. Hippocampus, a centre for learning and memory, is less active in those who are deprived of enough sleep (Tamminen, 2016).

❖ **Glymphatic clearance**: During sleep, neurotoxic waste materials, such as βamyloid, are eliminated twice as much as during the wake state. This prevents the development of certain neurodegenerative disorders such as Alzheimer's disease.

❖ **Gut health**: Sleep maintains a healthy gut by maintaining the gut microbiome.

❖ **Emotional regulation**: Sleep offers emotional balance and stability by diluting the emotional sting of painful memories. Amygdala, the emotional centre in the brain, reacts 5 60% more to negative stimuli on lack of sleep. This leads to increased stress, anxiety, and depression (Tamminen, 2016).

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In this fast-paced life, people often want to accommodate more and more activities in the waking state – be it work, entertainment, or multiple engagements – to the detriment of the necessary amount of time for sleep. Most people abuse sleep until it becomes a problem or a disorder. Although there are more than listed sleep disorders, they can be broadly classified into two major categories: dyssomnias and parasomnias. Sleep disorders of dyssomnia are characterized by the inability to initiate and maintain quality sleep for the required duration. Parasomnia refers to those disorders that exhibit abnormal behavioural or physiological events occurring during sleep but do not involve the sleep mechanism per se (Ohayon, 2005).

Sleep disorders are the result of certain predisposing, precipitating, or perpetuating factors. People with increased physiological (heart rate, metabolic rate, and so on), cognitive (daytime alertness), somatic (elevated beta activity during sleep), and emotional (stressed, anxious, and so on) hyperarousal have a predisposing tendency to develop sleep disorders. Stress, medical or psychiatric conditions, classes, and aging are some of the precipitating factors. Poor sleep hygiene and unhelpful behavioral and cognitive practices (such as having irregular sleep/wake timing and doing stimulating activities before bedtime) act as perpetuating factors (Stepanski, 2006). Sleep disorders lead to significant problems at school, work, social functioning, and overall health.

Yoga Sutra of Pathanjali talks of nidra as a citta-vritti (mental faculties or modification). The five activities or modifications of the citta are pramana (correct 21 perception), viparyaya (wrong perception), vikalpa (imagination), nidra (deep sleep), and smrti (memory). The following verse talks of the nature of deep sleep: Abhavapratyayalambana tamovrttirnidra. (Yoga Sutra 1.10) Nidra or dreamless sleep is devoid of any activities of mind (abhavapratyaya), and is the result of a predominance of tamo guna (tamovrtti). Tamo guna induces a feeling of heaviness and lethargy, or it can also be due to boredom and exhaustion. The below verse talks of the benefit of the svapna and nidra avasthas, and how they can be used to provide a solution to a problem or come out of dhukam (suffering) (Desikachar, 1999). Svapnanidrajnanalambanam va. (Yoga Sutra 1.38) It claims that both these states of consciousness have the ability to provide insights on various issues concerning the waking state. During the waking state, the mind is preoccupied with the external world, and hence the perception of events and situations may lead to viparyaya (misunderstanding and thus sorrow).

During svapna and nidra, the consciousness is internalized and untainted by external influence. Through enquiry of experiences in these states, fresh and unique ideas and insights may be gained.

Yoga nidra is a pratyahara state of one-pointed awareness (yoga) and sleep (nidra). When the body is made still (mimicking sleep), the sense organs are withdrawn from the external world, and the mind focussed on a single awareness, greater relaxation ensues. Sleep is an unconscious state where the mind can neither be perceived nor cultivated. In the waking state, the mind is too scattered with the sense objects for it to be at complete rest. During yoga nidra practice, one is at the cusp of sleep and awareness (hypnagogic state), and in this state there is complete relaxation and greater receptivity to impress on the mind. During this state of complete relaxation, one gains access to the subconscious state of mind. The subconscious mind has great potential in eliminating psychosomatic disorders, gaining emotional balance, and shaping the personality of a person (Swami Satyananda Saraswati, 2009).

The practice of rotation of consciousness across the body parts in yoga nidra induces the parasympathetic activity and prepares the body for sleep. The brainwave states achieved in yoga nidra is similar to that of sleep. There exist a positive correlation between and sleep and cognitive function, and prior investigations have established that meditation and yoga nidra have improved working memory and cognition (Desai, 2017).

Yoga nidra balances the activity of the right and left hemispheres (ida and pingala) of the brain, as evidenced through an equal flow of breath in both nostrils (Desai, 2017). Techniques such as stating sankalpa (positive affirmations), experiencing pairs of opposite emotions, and visualizing of archetypal symbols help in reprogramming unproductive thought patterns and behaviours. Such procsesses create mental poise by observing and integrating conflicting thoughts and emotions in a calm state of mind. Stress, anxiety, and depression are closely linked with sleep problems, and yoga nidra has great potential in alleviating sleep disorders.

STATEMENT OF THE PROBLEM

The goal of the study was to determine the effect of yogic nidra on the risk factors among College students with sleep disorders

SIGNIFICANCE OF THE STUDY

Various studies have proved the direct correlation between sleep disorders and various negative health conditions such as obesity, hypertension, diabetes, stroke, and depression (Colten and Altevogt, 2006). There is a need to highlight the sleep-related health problems faced by college students in India, and this study will throw light on the application of yogic practices in improving the quality of life among college students with sleep disorders. sleep problems affect more students than others. As per the 2002 National Sleep Foundation poll in America, more college students than men experience symptoms of insomnia at least a few nights a week

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(63% vs 54%). mental condition conditions unique to college students , like the educational competition , love affairs and examinations, can affect how well a student's sleeps. This leads to reduced concentration, increased accidents, weight gain, and deterioration in overall health. This study will contribute toward advancing the current knowledge about the physiological, cognitive, and mood states among college students who suffer from sleep disorders, and will offer insights on the application of specific yogic techniques that act as preventive and rehabilitative measures against sleep disturbance and its related comorbidities.

REVIEW OF LITERATURE

Dol (2019) assessed the effects of yoga nidra on life stress and self-esteem in university students. This study is a non-equivalent control group pretest-posttest design. Forty university students were selected by convenience sampling, with 20 assigned to a yoga nidra group and 20 to a control group. The yoga group participated in bi-weekly, one-hour sessions of yoga nidra for eight weeks. Life stress intensity level was measured using a 10 cm Visual Analog Scale. Self-esteem score was measured by Rosenberg's Self-Esteem Scale. The yoga nidra group showed significantly decreased life stress intensity levels compared to the control group. The yoga group also showed significantly increased self-esteem scores compared to the control group. These findings indicate that yoga nidra could alleviate the life stress intensity level and increase self-esteem in university students.

Mooventhan and Nivethitha (2017) conducted a review study on the effect of yoga on various health parameters among the elderly. Their review suggests that the regular practice of yoga can act as an effective intervention in improving physical (reduces heart rate, blood pressure, blood glucose, oxidative damage, fatigue, weakness, fear of fall, and improves heart rate variability), mental (reduces depression and anxiety), emotional (reduces anger, stress, tension, and improves self-efficacy), social (improve life satisfaction), and vital (improves vitality) planes of elderly individuals, offering a better quality of sleep and quality of life.

Saraswati Devi and Saraswati Kala (2015) studied the role of yoga nidra and shirodhara on hypertensive patients. The study was conducted on 32 hypertensive patients aged 30–60 years, and they were randomly selected from Polyclinic, Dev Sanskriti Vishwavidyalaya, Gayatrikunj, Hardwar through the method of accidental sampling. In this study, pre-post single group design was used and t test has been used for statistical analysis. There was a significant reduction in the mean values of systolic blood pressure and diastolic blood pressure. It was observed that a significant reduction in the systolic and diastolic blood pressure occurred in subjects practicing yoga nidra and shirodhara ($p < 0.001$). The finding of the study reveals that yoga nidra and shirodhara significantly reduce the level of systolic and diastolic blood pressure among hypertensive patients.

OBJECTIVES OF THE STUDY

To determine whether the study outcome shows a significant difference in the chosen mental-health related variables such as mental fatigue, perceived stress, anxiety, and depression among college students with sleep disorders due to yoga nidra.

METHODS USED FOR THE STUDY

The research problem of this study is sleep disorders among College students. There is a lacuna in research that has studied this population with respect to sleep disorders, and the effect that an alternative and complementary therapy such as yoga will have on the chosen problem. The factors influenced in choosing for this study college students with sleep disorders who were in the age group of 17to 25 years and from Thiruvananthapuram city as subjects.

For the purpose of the study, experimental random group design was adopted. In selecting the subjects, random sampling design was employed.

Around 20 college students aged between 17 and 25 were screened from Thiruvananthapuram district for sleep disorders. The college students were equally divided into two groups.

1. Experimental Group (Yogic Practices Integrated with Yoga Nidra Group; n = 10)
2. Control Group (no intervention; n = 10)

SELECTION OF VARIABLES

A careful review of the related literature regarding the effect of yogic practices on sleep disorders was made. Also various yogic techniques and their influence on sleep were duly noted from the yogic literature. Similarly, various risk factors with respect to sleep disorders were noted from recent scientific findings and past research.

INDEPENDENT VARIABLES

Yogic Practices Integrated with Yoga Nidra

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DEPENDENT VARIABLES (Risk factors)

Physiological Variables

1. Mean arterial blood pressure
2. Heart rate
3. Body mass index

Cognitive Variables

4. Attention
5. Memory

Mental-Health Related Variables

6. Mental fatigue
7. Perceived stress
8. Anxiety
9. Depression

The Experimental Group participated in the yogic practices integrated with yoga nidra for a period of 4 weeks. The Control Group received no intervention. After the experimental period of 4 weeks, posttest scores for the risk factors were obtained from the two groups. The difference between the initial and final scores on the risk factors was considered as the effect of the yogic intervention integrated with yoga nidra on the experimental groups compared to Control Group. The mean differences were tested for significance using analysis of covariance (ANCOVA).

RESULT AND DISCUSSION

Null Hypothesis: yoga Nidra will bring about a significant improvement in the chosen risk factors among college students with sleep disorders in the Experimental Group compared to the control group.

Table.1
RESULTS ANCOVA AND CONCLUSION ON HYPOTHESIS I

Variables	Yogic Practices Integrated with Yoga Nidra	F-value control group	F-value Experimental Group	Null Hypothesis
Mean arterial blood pressure	Decreased	2.1	4.97*	Rejected
Heart rate	Decreased	2.5	7.37*	Rejected
Body mass index	Reduced	2.18	3.24*	Rejected
Attention	Improved	2.9	6.31*	Rejected
Memory	Improved	1.42	11.06*	Rejected
Mental fatigue	Reduced	1.03	8.8*	Rejected
Perceived stress	Decreased	3.1	26.38*	Rejected
Anxiety	Decreased	2.81	19.6*	Rejected
Depression	Decreased	2.34	7.61*	Rejected

Based on the results of the ANCOVA analysis, the study found that integrating Yogic Practices with Yoga Nidra had significant effects on various variables. Here are the key findings:

Mean Arterial Blood Pressure: P value is less that .01 therefore there is a significant decrease in mean arterial blood pressure of experimental group, indicating a positive effect on cardiovascular health.

Heart Rate: From the above ANCOVA Similarly, there was a significant decrease in heart rate, which is also beneficial for cardiovascular health.

Body Mass Index (BMI): The intervention led to a reduction in BMI, which suggests potential benefits for weight management and overall health.

Attention: Participants showed improvement in attention, indicating that the intervention may have positive effects on cognitive function.

Memory: There was a significant improvement in memory, suggesting that the intervention could enhance cognitive abilities related to memory.

Mental Fatigue: Participants reported reduced mental fatigue, indicating that the intervention may help in reducing fatigue and improving mental well-being.

Perceived Stress: There was a significant decrease in perceived stress levels, suggesting that the intervention could be effective in reducing stress.

Anxiety and Depression: Participants reported decreased levels of anxiety and depression post-intervention, indicating potential benefits for mental health.

In conclusion, the study's hypothesis that integrating Yogic Practices with Yoga Nidra would have positive effects on various health and psychological outcomes was supported by the results. The intervention led to

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improvements in cardiovascular health, cognitive function, mental well-being, and stress-related outcomes. These findings suggest that integrating Yogic Practices with Yoga Nidra can be an effective approach for promoting overall health and well-being.

SUGGESTIONS

Yogic practices may be offered as a complementary therapeutic solution by the health sector, especially health centres and hospitals. Awareness regarding the benefits of adopting yoga practice and sleep hygiene may be created among the masses by the health sector.

The government may propagate yoga as therapy among the population towards comorbid illnesses of sleep disorders such as diabetes, obesity, and high blood pressure, and as a complementary remedy toward specific sleep disorders.

Health Benefits: The study demonstrates the potential health benefits of integrating Yogic Practices with Yoga Nidra, including improvements in cardiovascular health (lower mean arterial blood pressure and heart rate), weight management (reduced BMI), and mental well-being (reduced mental fatigue, stress, anxiety, and depression).

Cognitive Benefits: The intervention also showed positive effects on cognitive function, with improvements in attention and memory. This suggests that integrating Yogic Practices with Yoga Nidra may help enhance cognitive abilities.

Stress Reduction: One of the most significant findings was the reduction in perceived stress levels. This indicates that the intervention could be particularly beneficial for individuals looking to manage stress and improve overall mental health.

In conclusion, the study suggests that integrating Yogic Practices with Yoga Nidra can have positive effects on various health and psychological outcomes. By incorporating these practices into daily life, individuals may experience improvements in their overall health, well-being, and quality of life. Yoga Nidra is effective in improving the cognitive variables of attention and memory among college students with sleep disorders compared with the control group. Yoga Nidra is also effective in reducing the mental-health related variables of mental fatigue, stress, anxiety, and depression among college students with sleep disorders compared with the control group. Yoga Nidra is decreasing the physiological variables of mean arterial blood pressure, heart rate, and body mass index among college students with sleep disorders. Yoga nidra improving the cognitive variable of attention among college students with sleep disorders. 6. Yoga Nidra improving the cognitive variable of memory among college students with sleep disorders.

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