Effectiveness of Jacobson's Relaxation Technique and Yoga in Insomnia Among Shift Working Nurses

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Abstract

Background: Nurses are one of the main professions in the hospital to recover patients from their abnormal health conditions. The activity of nurses is intimately connected to shift work. Daily shift work results in increased workload and mental stress, which leads to sleep disorder and delayed adaptation for young nurses to shift work, this may cause the nurse's difficulty falling asleep or insomnia. There is compelling evidence that shift work has anegative impact on sleep, alertness, and exhaustion, which may contribute to mental health issues and sleep issues.

Aim: This study aims to find the effectiveness of Jacobson's relaxation technique and yoga in insomnia among shift nurses.

Methodology: In phase 1: The survey was conducted among 100 nurses through Google forms using ISI questionnaires. They were chosen with the help of the convenience sampling technique. Among 100 responded participants, 54% were diagnosed to have insomnia based on the total score range. 20% of selected nurses disagreed to participate in the experimental study (phase 2). Ultimately, 30 nurses were chosen to take part in the experimental trial based on the inclusion and exclusion criteria of phase 2. The participants in the study who had sleeplessness received two therapies. 30 selected nurses were randomly allocated into two groups, 15 in each group. One group was given yoga (Group Y) and another group was given Jacobson's relaxation technique (Group J). It was given for a time period of 4 days per week for a duration of one month.

Results: A statistically significant difference between Group Y (Yoga) and Group J (Jacobson's relaxation technique) was found by statistical analysis of the statistical data. In comparison to Group J, Group Y had lower PSQI values. As a result, group Y and group J differ statistically significantly from one another.

Conclusion: It has been concluded that both yoga and Jacobson's relaxation technique were more effective in improving sleep in nurses with insomnia, among them yoga is more effective than Jacobson's relaxation technique.

Keywords

Insomnia, yoga, Jacobson's relaxation technique, Sleeping quality

Introduction

A subjective complaint of difficulty falling asleep, maintaining sleep, or waking up too early is known as insomnia (Molen et al. 2014). Burnout is the most common cause of insomnia, and it also predicts 42 percent, 25 percent, and 32 percent of the variance in nurses' sadness, anxiety, depression, and stress (Mousavi et al.,2017). In addition, subjects with an unusually low number of days off have a higher risk of sleeplessness (Kurumatani et al.,1994).

In earlier investigations, risk factors for sleeplessness were identified. Individual traits like being a woman, being older, having a low BMI, living in poverty, being married, and having one or more physical or cognitive illnesses were on the one hand, while psychological demands, such as time constraints, the amount of work, and differences in work instructions, were on the other (Karesh et al.,1998).

Through a variety of emotional, cognitive, and emotional reasons, work schedules may harm one's health (Harma et al., 2010). In Norway in 2011, 32.7% of all professionals functioned schedules in an unsociable hour (Eldevik et al., 2013). In addition, insomnia susceptibility is an intriguing predisposing factor for poor sleep quality among shift workers (i.e., sleep reactivity) (Ghezeljej et al., 2017).

To regulate and treat the difficulties, a variety of pharmacological and non-pharmacological approaches areused (Ferguson et al., 2004). Progressive muscle relaxation is a non- pharmacological Jacobson invented these techniques in 1938, in which the body and mindare deeply alleviated of any tension and anxiety (Gao et al., 2018). Moreover, gradual muscular relaxation. Most significantly, relaxation strengthens the bond between patients and healthcare providers. This method talks about the value of non-invasive relaxing, anxiety reduction, and better sleep quality for burn sufferers (Wang et al., 2012). Yoga is an old eastern tradition that helps to lower anxiety. Yoga, a sort of mind-body- spirit exercise, is a holistic treatment for those suffering from a variety of physical and psychological problems (Harorani et al., 2020).

Methodology

In phase 1, the survey was conducted among nurses through google forms. The survey was carried out using an insomnia severity index questionnaire. The google forms containing the questionnaires were circulated among 100 nurses and they were asked to fill the questionnaire. They were explained the safety and simplicity of the procedure and an informed consent form was obtained. The diagnosis of insomnia was based on the outcome score of the ISI. At the end of this phase, 100 nurses responded, among them 54% were diagnosed with insomnia and among them 20% chose to disagree to participate in phase 2 of study. Finally, 30 were taken

basedon inclusion and exclusion criteria for phase 2 study.

The study was conducted by giving two interventions to participants having insomnia. Participants were selected based on inclusion and exclusion criteria. A detailed procedure was explained to the 30 participants and an informed consent form was attached. All the information was recorded, and study variables were also measured at the baseline including age, and gender. The chosen nurses were divided into two groups at irregular intervals, with 15 in each group. Group Y was given yoga for a time period of 4 days (30 minutes) per week for a duration of one month and then determine the effectiveness of yoga. Group J was given Jacobson's relaxation technique for a time period of 4 days (30 minutes) per week for a duration of one month and then determined the effectiveness of Jacobson's relaxation technique. All the subjects were undergone pre-test measurements with Pittsburgh sleep quality index and the same was repeated for the post-test at the end of 4 weeks to find which group was effective for treating insomnia.

Group Y– yoga
Yoga is a traditional technique for the treatment of insomnia. It includes, Warmup - 2 minutes, Pranayama -5 minutes, Relaxation - 2 minutes, Virabhadrasana – 5 minutes, Relaxation – 2 minutes, Vajrasana – 5 minutes, Relaxation – 2 minutes, Savasana – 5 minutes, Relaxation – 2 minutes

Warmup: Subjects were instructed to warm up or do any physical activities such as leg bends, leg swings, shoulder/ arm circles, lunges, squats, walking, or a slow jog was done for 2 minutes.
Bhastrika Pranayama: Starting position: subjects were asked to sit on the yoga mat Procedure: Subjects were instructed to inhale deeply through the nose exhale rapidly, through nostrils, and ask them to repeat this asana continuously for 5 minutes.
Virabhadrasana: Starting position: Subjects were asked to stand on the yoga mat Procedure: Subjects were asked to turn their heads to left. And now bend the left knee and make a 90° angle. Instruct them to keep the angle of arms and hips the same, 180°. Finally, ask them to keep their heads straight to the left and gaze at your front. This asana was done continuously for 5 minutes.
Vajrasana: Starting position: Subjects were asked to sit on the yoga mat. Procedure: Subjects were instructed to kneel down on a flat surface on a yoga mat with sit-down legs. Ask them to keep, their knees close and big toes touching each Other, but keep heels apart. Palms on their thighs with back\spine straight. This asana was done continuously for 5 minutes.
Savasana: Starting position: Subjects were asked to lie on the yoga mat. Procedure: Subjects were instructed to lie on the yoga mat and ask them to keep their legs apart and bring arms alongside the body, but slightly separated from the torso. This asana was done continuously for 5 minutes.

Group J – Jacobson's relaxation technique
The treatment used in this study was because participants were trained in Jacobson's relaxation technique by over 15 nurses, sessions occurring per 4 days for 4 weeks. Nurses were advised to close their eyes and sit in a comfortable seated position in a dimmed room during each session. The therapist instructed thenurses to concentrate on physical sensations and to tighten, a specific set of muscles for 10 seconds, feel the contraction, and then ask the patients to slowly relax for 5 seconds for each group of muscles, and then repeat for 30 minutes.

Results and Discussion

From ISI scores the results revealed that mean value for the male and female nurses with the age group of (22-30) was 25.21 and age group of (31-40) was 37.05. From statistical analysis made with the quantitative data, there was a statistically significant difference between the Group Y and Group J and also within the group. The result of study revealed that in Group Y, the mean value of pretest in PSQI was 6.87 and posttest was 2.73. In Group J, the mean value of pre-test in PSQI was 7.47 and the mean value of post-test was 4.20. The comparison of post mean was 2.73 in Group Y and 4.20 in Group J, which showed statistically significant p value <0.0001. Thus, indicating significant improvement in sleep.

Table 1. Gender and Age Wise Distribution of Responses

Gender	Response	Age	Responses
Female	87	**22-30**	60
Male	13	**31-40**	40

Table 2. Tabulated Prevalence Values of Insomnia Severity Index Age

Age (22 -30)	Gender(60)	Insomnia(33)	No Insomnia(27)
Mean±SD	25.21±2.44	13.27±3.60	3.37±1.54
Age (31-40)	**Gender(40)**	**Insomnia (21)**	**No Insomnia(19)**
Mean±SD	37.05±1.99	16.76±4.44	4.10±1.37

Table 3. Pre- and Post-Test Values of Pittsburgh Sleep Quality Index Group Y

Outcome Measures		Mean±SD	t-value	p-value
Pittsburgh	Pre-Test	6.87 ± 0.92		
sleep quality index	post – test	2.73± 0.59	14.2238	<0.0001

Table 4. Pre and Post-Test Values of Pittsburgh Sleep Quality Index Group J

Outcome Measures		Mean±SD	t-value	p-value
Pittsburgh Sleep Quality Index	Pre-Test	7.47± 1.25	8.5114	<0.0001
	Post-Test	4.20± 1.01		

Table 5. Comparison of Post-Test Values of Pittsburgh Sleep Quality Index Group Y And Group J

Post Value		Mean±SD	t-value	p-value
Pittsburgh Sleep Quality Index	Group Y	2.73 ± 0.59	4.8338	<0.0001
	Group J	4.20 ± 1.01		

This study was carried out among shift-working nurses with Insomnia. The survey data was collected using the insomnia severity index. Out of 100 subjects, 30 subjects were taken for intervention and segregated into two groups. The data were analyzed statistically. The high percentage of falling asleep complaints associated with shift working nurses may be due to work stress and depression as well as repetitive varying shift work. Insomnia is frequently thought to be the result of hyperarousal (Cohen et al., 2004). Alternatively, increasedsomatic, cognitive, and cerebral activation (Riemann et al., 2010, Perlis et al., 1997).

The findings of a study that examined a variety of physiologic arousal indicators in insomniacs support the idea that anxiety contributes to the pathology of insomnia. Both the peripheral (autonomic) and the central (cortical) nerve systems can be impacted by physiological anxiety in insomniacs (Bonnet et al., 2010, Feige et al., 2013, Espie et al., 2002). Numerous theories contend that anxiety in insomnia might include both mental and psychological activity. Numerous hypotheses suggest (Harvey et al., 2002) that before bed, mental and emotional anxiety may result in both short-term and long-term insomnia. (Shanthi et al.,2020). The findings of a study that looked at a variety of physiologic arousal measurements in insomnia patients support the idea that hyperarousal is involved in the pathophysiology of insomnia.

Melanie K. Mean et al. (1999) concluded that this study shows that young individuals with insomnia have a wide range of daytime functioning complaints, implying that Jacobson's relaxation technique treatment improve not only sleep but also a daytime functional subjective experience (Fidya Anisa Firdaus, et al. 2020). This research suggests that yoga treatment can

help people with sleep issues enhance the quality of their sleep. The result of the study concluded that both treatments were effective, but yoga improves sleep compare to Jacobson's relaxation technique. Hence it was recommended to implement this treatment in clinical practice.

Conclusion

From the result, it has been concluded that both yoga and Jacobson's relaxation technique were effective in increasing sleep-in nurses with insomnia, but comparatively, yoga was more effective in improving sleep than Jacobson's relaxation technique.

Acknowledgements

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