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Original Research Article

Effect of yoga on insomnia among nurses at multi speciality health facility, United Arab Emirates

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ABSTRACT

Background: Insomnia is a communal sleep problem. Nurses are commonly getting this due to their nature of work, family situation and lack of their coping which affect their attention throughout the day. Studies shown that yoga is an olden practice which relaxes the mind and sleep among adults. Yoga brings changes in autonomic nervous system, thus improves functional brain network. However, there are limited studies conducted to understand how the yoga improves nurses sleep. Present study is to find out the effect of yoga on insomnia. This study aimed to assess the effect of Yoga on insomnia among nurses.
Methods: Experimental design was opted for this study. 70 nurses participated in this study from one of the government-multispeciality hospital. Samples were randomly allocated to the experimental and control group. Experimental group underwent yoga for 30 minutes, daily for 90 days. Data was collected through online before and after the intervention from both experimental and control group. The tool used to collect data was Insomnia Severity Index (ISI) scale.
Results: The mean post-test insomnia score among nurses in the test group 20.51 was higher than the post test insomnia score among nurses in the control group which is 15.97 with the t=4.543, df=68 at a level of 5% significance. It shows that there is a significant improvement in the sleep after doing yoga among nurses.
Conclusions: Yoga was very effective in terms of improving the sleep among nurses.

Keywords: Insomnia and yoga, Nurse

INTRODUCTION

COVID-19 seriously threatens human health especially the nurses whose nature of work is very challengeable. Their augmented work responsibilities thru the pandemic crisis caused a worsening of the already challenging and stressful working circumstances.[1] The reasons for insomnia are witnessing patient's death and sufferings, job loss of the partners, long working hours, changing shifts, leaving the family, using electronic devices for many different purposes, lack of exercise, fear and anxiety of the corona virus spread, inadequate personnel protective equipment and stigmatised as a nurse and experienced it while going to the market/public places.[2]

Insomnia symptoms were detected in 34.0-40.1% of health care workers during the COVID-19.[3-5] A survey done by USA identified that 40% of the nurses were sleeping fewer than 7 hours per 24 hours, representing that nurses were amongst the most sleep-deprived health care professioals.[6] This prolonged sleep deprivation can have major effects on their well-being which upsurge the threat for occupational injuries. Various studies have conveyed the impacts of chronic insomnia, including gastrointestinal disorders, musculoskeletaldisorders, cardiovascular disease, diabetes mellitus, stroke, mental health diseases and different types of cancer and also insomnia decrease the attention span and fade the memory of nurses, which leads to emotional uncertainty

as well as other mental disorders. Also, insomnia disturbs the efficacy and quality of nursing care, leading to errors, sentinel events and clashes.[7] Nurses necessitate to preserve high attention since their job profile is connected to patient safety and gratification.[8] Administrative support plays an interceding role in the prevention of insomnia.[9] So, it is an instantaneous necessity for mental health interventions to protect the nurses from insomnia at the earliest.

Yoga is a mixture of numerous postures, breathing practices, and meditation. Advantageous effects of Yoga are lessening of blood pressure, dismissing of anxiety, postponing functional decline, declining sleep disturbances, and enhancement in serum lipid profile.[10] Breathing exercises in yoga advance the strength of the respiratory muscles which improve tissue perfusion and oxygen saturation.[11] Yoga also increase the vagal tone, decrease sympathetic discharge as well as reduced catecholamine levels in plasma. Declined physiological arousal is one of the reasons for less sleep disturbances.[12] The exercise element of Yoga upsurges thalamic Gamma Aminobutyric Acid which control noradrenergic and serotoninergic systems and to release opioids. The mindfulness element stimulates the hypothalamic-pituitary-adrenal system to decrease cortisol levels. Profound, mindful breathing and tender stretches, particularly concentrating the spine, work like a cradlesong for the nervous system. Yoga upsurge melatonin levels and increase immune response as well.[13-15] However, a smaller number of studies being conducted among nurses to identify the outcome of yoga in the prevention of insomnia. So, the current study aimed to find out the effect of yoga on insomnia among nurses.

Objectives of this study were to determine the difference between the before and after treatment in the effect of Yoga on insomnia among test group of nurses, to determine the difference between the before and after treatment in the effect of Yoga on insomnia among control group of nurses, and to determine the difference between the study and control group in the effect of yoga on insomnia among nurses

METHODS

Quantitative research approach was used to this study and design used is true **e**xperimental design. The study was conducted in Dubai Government Hospital from November 2022 to January 2023 Quantitative research approach was used to this study and design used is true experimental design. The study was conducted in Dubai Government Hospital from november 2022 to January 2023.

Questionnaire- Insomnia Severity Index (ISI) was prepared with consent in the Microsoft office forms and the link was send to all accessible population after the pilot study. The nurses who accept the consent was responded the questions. From that samples (70) who met the inclusion criteria were collected as mentioned in table 1 and randomly allocated to the control (35) and test group (35). Yoga was taught to the test group samples and continued for additional 3 months, everyday 30 minutes after receiving consent from Institutional Review Board, dubai government hospital, nursing director and also sanction from Dubai Scientific Research Ethics committee (DSREC).

Table 1: Sample size calculation.[22]

Sample size: cross-sectional, cohort, and randomized clinical trials			
Two-sided significance level (1-alpha):			95
Power(1-beta, % chance of detecting):			80
Ratio of sample size, unexposed/exposed:			1
Percent of unexposed with outcome:			5
Percent of exposed with outcome:			32
Odds ratio:			9
Risk/prevalence ratio:			6.4
Risk/prevalence difference:			27
	Kelsey	Fleiss	Fleiss with CC
Sample size-exposed	33	32	39
Sample size-nonexposed	33	32	39
Total sample size	66	64	78

RESULTS

Difference between the before and after treatment in the effect of yoga on insomnia among test group of nurses

Null Hypothesis (H0): There is no significant variance in the level of insomnia among nurses in the test group before and after Yoga. Alternative Hypothesis (H1): There is no significant difference in the level of insomnia among nurses in the test group before and after yoga.

Since the p value of the test (0.000) is less than 0.05 and the mean test score significantly increased by 7.086 points (t=9.827, df=34 at a level of 5% significance) after implementing yoga. We reject the null hypothesis and accept that there is a significant difference in the level of insomnia among nurses in the test group before and after yoga. The correlation between level of insomnia among nurses in the study group before and after yoga was positively significant (r=0.717) (Table 2).

Difference between the before and after treatment in the effect of yoga on insomnia among control group of nurses

Null Hypothesis (H0): There is no significant difference in the level of insomnia among nurses in the control group before and after yoga. Alternative Hypothesis (H_1): There is no significant difference in the level of insomnia among nurses in the control group before and after yoga.

Since the p value of the test (0.000) is less than 0.05 and the mean test score significantly decreased by -4.657 points (t= -10.043, df=34 at a level of 5% significance) after implementing yoga intervention. We reject the null hypothesis and accept that there is a significant difference in the level of insomnia among nurses in the control group before and after yoga. The correlation between level of Insomnia on psychosocial status among nurses in the control group before and after yoga (r=0.279) (Table 3).

Table 2: The comparison between the level of insomnia among nurses in the test group before and after yoga.

Study group of yoga	Mean	N	SD	r	MD	t	df	P value
Before	20.51	35	3.119	0.717*	7.086	9.827	34	0.000*
After	13.43	35	5.908					

*Statistically significant (p<0.05)

Table 3: The comparison between the level of insomnia among nurses in the control group before and after yoga.

Study group of yoga	Mean	N	SD	r	MD	t	df	P value
Before	15.97	35	2.572	0.279	-4.657	-10.043	34	0.000*
After	20.63	35	1.911					

*Statistically significant (p<0.05)

Difference between the study and control group in the effect of yoga on insomnia among nurses

Null Hypothesis (H0): There is no significant variance between the study and control group in the level of insomnia among nurses. Alternative Hypothesis (H_1): There is significant variance between study and control group in the level of insomnia among nurses.

The mean post test score in study group (20.51) was significantly higher than mean post test score in the control group (15.97) (t=4.543, df=68 at a level of 5% significance). Since the p-value less than 0.05, we reject the null hypothesis and conclude that there is a significant difference between study and control group of yoga in the level of insomnia among nurses (Table 4).

Table 4: The comparison between the study and control group of yoga in the level of Insomnia among nurses.

Yoga in insomnia	N	Mean	SD	MD	t	df	p
Study group	35	20.51	3.119	4.543	6.648	68	0.000*
Control group	35	15.97	2.572				

*statistically significant (p<0.05)

DISCUSSION

The mean post-test insomnia score among nurses in the test group 20.51 was higher than the post test insomnia score among nurses in the control group which is 15.97. It shows that there is a significant improvement in the sleep after doing yoga among nurses

The present study finding was supported by the outcome of the study done by Parajuli et al which stated that four weeks of yoga intervention among female nursing professionals significantly improve the sleep quality.[19] The present study findings also supported by Artha et al, systematic review done from 2014 to 2024 on articles, 26 articles from PubMed, 265 articles from SAGEPUB and 684 articles from SCIENCE DIRECT related to the effect of yoga on insomnia and sleep quality among women with sleep issues. At the end, a total of 7 papers met the criteria, concluded that yoga helps the women including pregnant women or worker or women with disease to manage their sleep problems.[18]

The finding of this study advocated that yoga was effective in improving the sleep quality among nurses. However, further study with large sample size is required to confirm the present finding.

CONCLUSION

The present study revealed that 12 weeks of yoga intervention reduces insomnia and improves nurses' sleep. Hence, yoga is one of the cost-effective tools to improve the quality of sleep among nurses, which can direct to the enhancement of overall health among nurses.

Recommendations

The findings of the study have practical application in the nursing field. Yoga can be included in the nurse's day to day activity. Yoga can be included in the orientation program itself to help the nurses to learn and practice in their lifetime. This study suggest plan and organize an education program on yoga and ensure that nurses are practicing it regularly. The findings of the study suggest conduct further studies in different settings with large sample.

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