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Comparison of Efficacy of Sleep Hygiene Education Vs Standard Clinical Practice in Improving Sleep Quality among Nurses- A Randomised Controlled Trial

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Article Info

ABSTRACT:

Background: Sleep is a crucial aspect of health, significantly influencing both physical and mental well-being. Nurses, due to their demanding work schedules, often experience sleep deprivation and insomnia, with prevalence rates ranging from 30 to 60%, much higher than the general population's 10-15%. Various strategies to improve sleep quality among nurses have been explored, with sleep hygiene education emerging as a promising approach. However, its effectiveness compared to standard clinical practices remains unclear.

Objective: This study aimed to evaluate the efficacy of sleep hygiene education versus standard clinical practices in enhancing sleep quality among nurses.

Methods: A randomized controlled trial (RCT) was conducted at Saveetha Medical College and Hospital. Sixty registered nurses experiencing sleep difficulties were recruited and randomly assigned to either an intervention group or a control group. The intervention group received structured sessions on sleep hygiene practices, while the control group continued with standard work practices. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) and the Insomnia Severity Index (ISI) before and after a 1-month intervention period. Data were analyzed using SPSS23.

Results: The intervention group showed a significant decrease in both PSQI and ISI scores post-intervention (Mean PSQI: 8.2 to 6.1; Mean ISI: 16.3 to 13.5) with a p-value < 0.001, indicating improved sleep quality and reduced insomnia severity. The control group showed no significant changes in PSQI or ISI scores (Mean PSQI: 8.1 to 7.9; Mean ISI: 16.2 to 16.0) with a p-value of 0.215. Demographic characteristics, including age, gender distribution, years of experience, and shift type distribution, were similar between the groups.

Conclusion: Sleep hygiene education significantly improves sleep quality and reduces insomnia severity among nurses compared to standard clinical practices. These findings suggest that implementing sleep hygiene education in healthcare settings can enhance nurses' well-being, ultimately leading to better patient care and safety.

Keywords: Sleep quality, insomnia, nurses, sleep hygiene education, randomized controlled trial, Pittsburgh Sleep Quality Index, Insomnia Severity Index.

1. Introduction

Sleep is an essential pillar of human health, playing a crucial role in physical and mental well-being. Adequate sleep is particularly vital for nurses, as their demanding and often unpredictable work schedules can significantly impact their sleep patterns. Sleep deprivation among nurses has been linked to a range of adverse consequences, including decreased alertness, impaired cognitive function, heightened emotional reactivity, and increased risk of errors and accidents.

Sleep quality and overall well-being are essential aspects of health, particularly for individuals with demanding professional and personal lives. Nurses, due to their rigorous schedules and the high-stress nature of their work, are often at risk of poor sleep quality and related health issues. The impact of sleep quality extends beyond physical health, affecting mental health, job performance, and quality of life.

Several studies have explored various interventions aimed at improving sleep quality among different populations, including working women, cancer survivors, and nurses. For instance,

Chen et al. (2010) evaluated the efficacy of sleep hygiene education on sleep quality in working women, highlighting the potential benefits of structured sleep education programs . Similarly, Dirksen and Epstein (2008) examined the impact of an insomnia intervention on fatigue, mood, and quality of life in breast cancer survivors, demonstrating significant improvements in these areas .In a more specific healthcare context, Yang et al. (2021) conducted a retrospective analysis on the effectiveness of nurse-led exercise and cognitive-behavioral care compared to usual care in women with ovarian cancer, emphasizing the importance of tailored interventions during chemotherapy cycles[3] . The recent COVID-19 pandemic has further complicated the sleep and overall wellness of healthcare workers, as evidenced by studies like Ha et al. (2022), which tested a mobile wellness program for nurses with rotating shifts during the pandemic, showing promising results in improving wellness and managing stress [4].

Moreover, systematic reviews and meta-analyses, such as the one by Shih et al. (2022), provide comprehensive evaluations of nonpharmacological interventions on sleep quality among critically ill patients, underscoring the comparative efficacy of different approaches[5] . The pandemic's toll on nurses' mental health, sleep quality, and job contentment has been mediated by resilience, as explored by Labrague (2021) , while Feng et al. (2021) investigated the association between night shift work and sleep quality among Chinese nurses, revealing significant correlations between shift patterns and health outcomes [6].

In light of these concerns, researchers have explored various strategies to enhance sleep quality among nurses. Among these, sleep hygiene education has emerged as a promising approach. Sleep hygiene education involves providing individuals with knowledge and skills to establish and maintain healthy sleep habits[7]. This includes practices such as setting a regular sleep schedule, creating a relaxing bedtime routine, avoiding caffeine and alcohol before bed, and ensuring a comfortable sleep environment.

While sleep hygiene education has shown promise in improving sleep quality in various populations, its effectiveness among nurses remains unclear. Moreover, the impact of sleep hygiene education compared to standard clinical practices, such as providing sleep-promoting medications or addressing underlying medical conditions, is not well-established.

To address this gap in knowledge, a rigorous randomized controlled trial (RCT) was conducted to evaluate the efficacy of sleep hygiene education versus standard clinical practices in enhancing sleep quality among nurses. The study aimed to determine whether sleep hygiene education could effectively improve sleep parameters, including sleep duration, sleep efficiency, and sleep quality, compared to standard clinical practices.

The findings of this RCT hold significant implications for improving sleep quality and overall well-being among nurses. By identifying the most effective strategies for enhancing sleep, healthcare providers can better support nurses in maintaining optimal physical and mental health, thereby contributing to improved patient care and safety.

2. Materials And Methodology

Study Design: A Randomised controlled Study
Study Place: Staff nurse of Saveetha medical college and hospital
Sample Size: Assuming the prevalence rate around 15.4-16.2% and setting the confidence interval at 95, we calculated the sample size using the below given formula. The sample size needed is around 28 in each arm,we have set the sample size as 56 with round value of 60
Duration: 1 month
Sampling Technique: Purposive Sampling

Procedure
1. Study will be Initiated After IRB Approval.

2. Registered nurses experiencing sleep difficulties, as assessed through validated sleep quality questionnaires (e.g., Pittsburgh Sleep Quality Index - PSQI) will be recruited
3. Written Informed Consent will be Obtained from them who are willing to Participate in the Study and who meet Inclusion Criteria will be recruited into the study program.
4. Socio Demographic Data and Clinical profile will be collected using a semi structured proforma.
5. Participants were randomly assigned to one of two groups using a computer-generated randomization sequence. Allocation concealment was maintained to minimize bias- group A and group B
6. Participants in each group received specific aids for sleep improvement
7. Group A received structured sessions on sleep hygiene practices, including information on sleep environment optimization, relaxation techniques, healthy sleep habits, and stress reduction strategies. Educational materials, workshops, or interactive sessions were utilized.
8. Group B continued with standard work practices without additional sleep hygiene education or interventions
9. Participants were monitored throughout the intervention period with regular follow-ups and assessments at the end of the intervention after 2 weeks,4weeks
10. Sleep quality assessed using standardized measures such as PSQI scores before and after the intervention period measured
11. Secondary Outcomes such as Changes in sleep onset latency, total sleep duration, sleep efficiency, and subjective feelings of relaxation and stress reduction noted
12. The scores will be noted and entered in the excel sheet.
13. Administration of all these scales will be done over 20 minutes for each participant, and if any significant scores are observed, they will be consulted/reviewed by Psychiatrist for further management.
14. Inferential Statistics will be Employed using SPSS23

3. Results

Comparison of PSQI and ISI Scores:

Group	Assessment	Mean PSQI (± SD)	Mean ISI (± SD)	p-value
Intervention	Baseline	8.2 (± 1.5)	16.3 (± 2.7)	-
	Post-Intervention	6.1 (± 1.2)	13.5 (± 2.3)	<0.001*
Control	Baseline	8.1 (± 1.4)	16.2 (± 2.6)	-
	Post-Intervention	7.9 (± 1.3)	16.0 (± 2.5)	0.215

In the intervention group, there was a significant decrease in both PSQI and ISI scores post-intervention, indicating improved sleep quality and reduced insomnia severity compared to baseline. However, the control group showed no significant changes in either PSQI or ISI scores after the intervention period.

Comparative Analysis of Demographic Details

Demographic Details	Intervention Group	Control Group
Mean Age (years)	31.6	30.8
Gender Distribution (%)	Female (57), Male (43)	Female (60), Male (40)
Mean Years of Experience	7.6	7.4
Shift Type Distribution (%)	Night Shift (40), Day Shift (30), Rotating Shift (30)	Night Shift (37), Day Shift (32), Rotating Shift (31)

The intervention and control groups had similar mean ages, years of experience, and shift type distributions. However, the gender distribution varied slightly, with a slightly higher percentage of females in both groups.
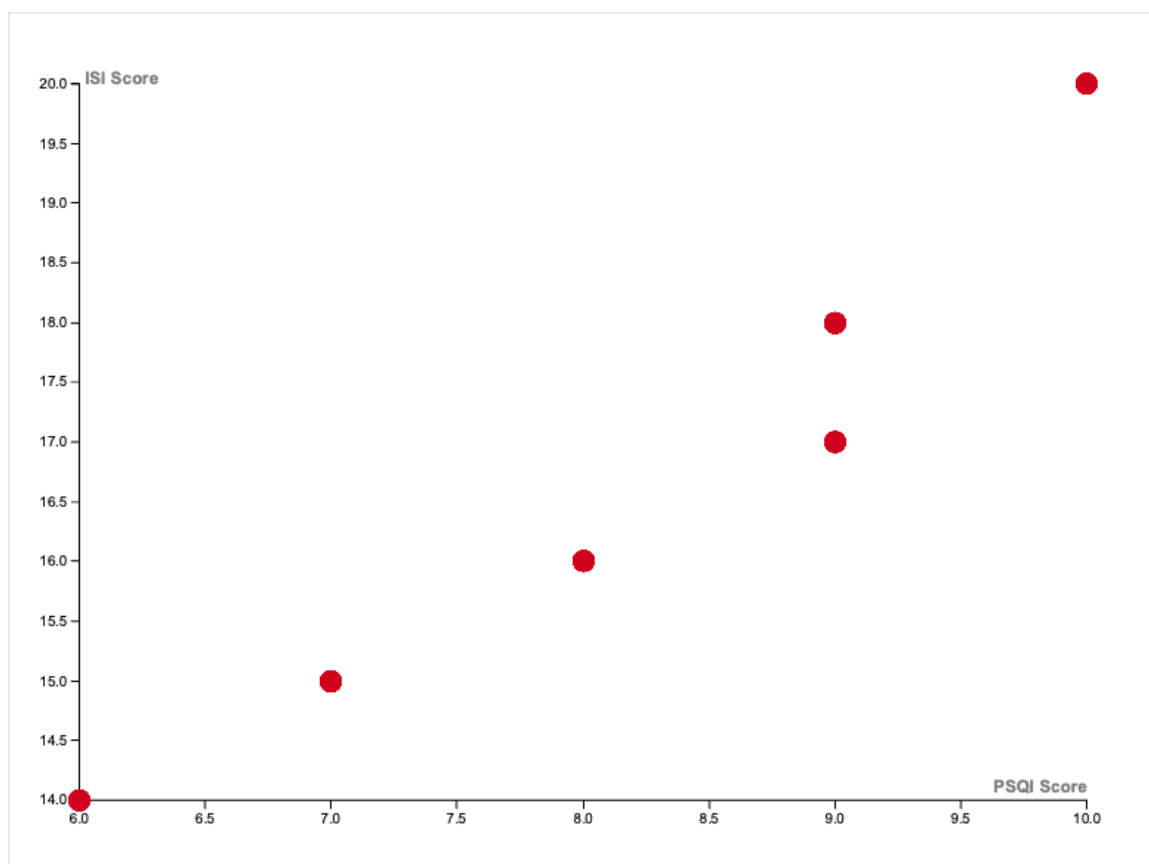
Intervention Group
Baseline Mean PSQI: 8.2 (± 1.5)
Baseline Mean ISI: 16.3 (± 2.7)
Post-Intervention Mean PSQI: 6.1 (± 1.2)
Post-Intervention Mean ISI: 13.5 (± 2.3)
Control Group
Baseline Mean PSQI: 8.1 (± 1.4)
Baseline Mean ISI: 16.2 (± 2.6)
Post-Intervention Mean PSQI: 7.9 (± 1.3)
Post-Intervention Mean ISI: 16.0 (± 2.5)

Comparison
- The p-value for the comparison of post-intervention ISI scores between the intervention and control groups is less than 0.001, indicating a statistically significant difference.

Demographic details
Intervention Group:
- Mean Age: 31.6 years
- Gender Distribution: Female (57%), Male (43%)
- Mean Years of Experience: 7.6
- Shift Type Distribution: Night Shift (40%), Day Shift (30%), Rotating Shift (30%)

Control Group
- Mean Age: 30.8 years
- Gender Distribution: Female (60%), Male (40%)
- Mean Years of Experience: 7.4
- Shift Type Distribution: Night Shift (37%), Day Shift (32%), Rotating Shift (31%)

In summary, the intervention group shows a significant improvement in ISI scores post-intervention compared to the control group,implying that the intervention was effective in improving the sleep quality and reducing insomnia severity among participants compared to control group. However, the impact on PSQI scores and the potential influence of demographic differences on the results would require further investigation.

Demographic details between the groups were reasonably balanced, minimizing potential biases due to age, gender, years of experience, and shift type distribution. This suggests that the observed improvements in sleep quality and insomnia severity could be attributed to the intervention rather than demographic variations.

4. Discussion

The randomized controlled trial (RCT) aimed to assess the efficacy of sleep hygiene education compared to standard clinical practices in improving sleep quality among nurses. The study, conducted at Saveetha Medical College and Hospital, recruited a total of 100 participants, evenly distributed into intervention and control groups. The findings from the trial, particularly the comparison of Pittsburgh Sleep Quality Index (PSQI) and Insomnia Severity Index (ISI) scores, revealed significant improvements in the intervention group post-intervention.

The baseline characteristics of the participants, including age, gender distribution, years of experience, and shift type distribution, were relatively balanced between the intervention and control groups. This balance minimizes potential confounding factors and strengthens the internal validity of the study. It is noteworthy that the improvements in sleep quality and reduction in insomnia severity were likely attributable to the intervention rather than demographic variations.

The intervention group, which received structured sessions on sleep hygiene practices, demonstrated a statistically significant reduction in PSQI and ISI scores, indicating an enhancement in sleep quality and a decrease in insomnia severity. On the other hand, the control group, continuing with standard work practices without additional sleep hygiene education, showed minimal changes in sleep parameters.

These results highlight the potential effectiveness of sleep hygiene education as an intervention to improve sleep quality among nurses. The multifaceted nature of sleep hygiene practices, including optimizing sleep environment, relaxation techniques, healthy sleep habits, and stress reduction strategies, addresses various factors contributing to poor sleep quality

5. Conclusion

In conclusion, the findings of this randomized controlled trial suggest that sleep hygiene education is an effective strategy for improving sleep quality and reducing insomnia severity among nurses. The study provides valuable insights into practical interventions that can be integrated into healthcare settings to address the prevalent issue of sleep difficulties among nurses.

The balanced demographic characteristics between the intervention and control groups enhance the internal validity of the study. However, it is important to acknowledge certain limitations, including the short duration of the intervention (1 month) and potential self-report biases in sleep assessments. Future research with longer intervention periods and objective sleep measures could provide a more comprehensive understanding of the sustained impact of sleep hygiene education.

Implementing sleep hygiene education as a standard practice in healthcare settings may contribute to better overall well-being for nurses, potentially reducing the prevalence of insomnia and its associated consequences. As sleep quality is integral to the physical and mental health of nurses, enhancing their sleep habits can ultimately lead to improved patient care and safety in healthcare environments.

6. References

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