

Introduction

- High quality and restful sleep is difficult for patients to obtain in an acute care setting.
- This challenge may lead to memory deficits, a decreased immune system, metabolic syndrome, increased length of stay in the hospital, acute delirium, increased morbidity and mortality, increased hospitalization costs, and decreased patient satisfaction.
- A nurse-driven standardized sleep bundle may be implemented in acute care settings and evaluated for efficacy.
- If a standardized sleep bundle was implemented, it may potentially be utilized in a healthcare system to improve prioritization of sleep hygiene.

Background/Significance

- Many interventions to promote sleep have been attempted at the study site. However, there has never been a standardized sleep bundle that has been utilized.
- Patients who have undergone cardiac surgery have likely experienced sleep disruptions during their hospital stay and after discharge. These patients also have an increased risk for neurocognitive and psychological issues, such as delirium.
- The 2020 HCAHPS revealed that patients scored the study site's cardiac division "2 out of 5 stars" under the "quietness of the environment at night." This is notable because noise is cited as a reason for sleep disturbance in the acute care population.

Standardized Sleep Bundle

S	Sedatives and Stimulants
L	Lights
E	Earplugs
E	Environmental disturbances
P	Pain assessment
M	Medications
A	Activity
D	Delirium

Methodology

Quality Improvement Project

- Quasi-experimental
- Pre-intervention and post-intervention survey
- Prospective and retrospective

Setting

- Large academic medical center in NYC
- 36 bed cardiothoracic ICU stepdown unit

Population

- 15 full-time CTICU stepdown RNs

Intervention

- Implementation of an evidence-based standardized sleep bundle called the SLEEP-MAD mnemonic

Outcomes Measured

- Nurse prioritization of sleep hygiene via administered surveys
- HCAHPS scores for question: "During your hospital stay, how often was the area around your room quiet at night?"

Analysis

- Paired t-test to compare pre-intervention and post-intervention surveys
- Microsoft Excel

Results

Table 2.
Descriptive Statistics of Pre-Survey and Post-Survey Scores (N=15)

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Q1	15	1	3	1.0000	0.0000
Post-Q1	15	1	3	1.2667	0.5936
Pre-Q2	15	1	2	1.2000	0.4140
Post-Q2	15	1	2	1.3333	0.4880
Pre-Q3	15	1	3	1.7333	0.7037
Post-Q3	15	1	3	1.8000	0.6761
Pre-Q4	15	2	4	3.2667	0.8837
Post-Q4	15	1	4	2.7333	0.8837
Pre-Q5	15	2	5	3.6667	0.8165
Post-Q5	15	1	3	2.6667	0.6172

Table 3.
T-Test: Paired Two-Sample for Means

	PRE All-In	Post All-In
Mean	2.1733	1.9600
Variance	1.6047	0.8227
Observations	75	75
Pearson Correlation	0.8647	
Hypothesized Mean Difference	0	
df	74	
t Stat	2.7841	
P(T<=t) two-tail	0.0068	
t Critical two-tail	1.9925	

- The lower the mean score, the greater the nurses' prioritization of sleep hygiene. Since the post-intervention mean was lower than the pre-intervention mean, the data analysis showed that nurses' prioritization increased after implementing the SLEEP-MAD mnemonic.

Results

- Reject the null hypothesis: A standardized sleep bundle increased nursing prioritization of sleep hygiene.
- ($p = 0.00068$); according to the paired t-test, a p value less than ($\alpha = 0.05$) suggests that the results were significant
- HCAHPS score post-intervention was the same as pre-intervention: 2 out of 5 stars

Discussion

- It may be inferred that nurses perceived they found it easier to prioritize sleep and they felt their patients had an increase in sleep quality after implementing the SLEEP-MAD mnemonic.
- This current study and the study done by Tang et al. (2019), helps support the findings that sleep quality may be improved by using a standardized approach.
- General feedback from the nurses stated that the SLEEP-MAD mnemonic was easy to use.
- On average, the nurses stated they used the mnemonic at least twice per week.

Facilitators

- Nurses eager to improve their patients' sleep quality
- Both surveys and the SLEEP-MAD mnemonic did not take long to complete and were straightforward

Barriers

- Nursing compliance with using the SLEEP-MAD mnemonic. Nurses did not use it during every shift for every patient.

Limitations

- Inability to interview patients that the SLEEP-MAD mnemonic was being offered to, per the site IRB's request
- Short implementation period of 8 weeks
- Small sample size of 15 nurses
- Implemented on a single unit within one specialty

Implications

Clinical Practice

- By implementing a standardized tool, nurses may potentially prioritize sleep hygiene in their routine care.

Healthcare Policy

- Incorporating a standardized sleep bundle into these institutions would allow a more streamlined approach to prioritizing sleep hygiene among acutely ill patients.
- Potential policy change for nurses to screen patients on admission for their risk of sleep deprivation and delirium. When patients at high risk for sleep deprivation and delirium are identified, a policy may guide nurses to utilize the SLEEP-MAD mnemonic as an early intervention.

Quality and Safety

- This project highlighted the need for a standardized, evidence-based approach to promote good sleep hygiene. If the standard of care was always to introduce a sleep bundle early during a patient's hospital stay, this may help mitigate noise disturbances that hinder sleep quality and decrease the risk for delirium, which impairs patient safety.

Education

- Results suggest that there is not enough education or promotion of sleep hygiene on the study unit.
- The mnemonic may be incorporated into new hire orientation. If the culture and norm of the unit is established at the beginning, standardization of sleep hygiene could potentially become routine care.

Economy

- Prioritizing sleep hygiene → improved patient satisfaction scores → increased funds the hospital retains with value-based purchasing
- Decreased delirium → decreased length of stay → decreased hospital costs

References and Contact Information

Jywel Almirante
jva37@sn.rutgers.edu

