

Introduction

- Sleep is a basic human need and is one of the most important factors in maintaining good mental and physical health.
- The World Health Organization (WHO) (2019) recommends that hospital patients are not exposed to noise over 35-40 decibels (dB),
- Typical ICUs have an average sound of 55 to 80dB, which is problematic because a constant noise volume above a 50-dB level has shown a variety of negative health effects on patients.

Background & Significance

- Hinkulow (2014) explained that, when sleep is given precedence and hospital night-time activities are reduced, there is a decrease of sedative usage, anxiety levels, decreased use of physical and chemical restraints.
- Other benefits included fewer incidents of delirium and falls, shorter hospital stays, and improved Hospital Consumer Assessment of Health Plans Survey (HCAHPS) scores (Centers for Medicare and Medicaid [CMS] 2017)
- Individuals can become sleep deprived when they are ill, stressed or move to a new environment such as a hospital causing a disruption of circadian rhythm that regulates the timing of sleepiness and wakefulness throughout the day (National Sleep Foundation, 2019)
- Sleep deprivation causes significant impairment to the central nervous system and this triggers a cascade of effects on physiological processes, affecting the regulation of the quality and quantity of immune responses

Aims & Objectives

The overall aim of the project is to ultimately decrease the level of noise in the critical care units to meet the recommendations by WHO. In concert with this overarching aim, the project will also focus on improving patient satisfaction scores.

- Monitor noise levels in the critical care unit prior to and 6 weeks after the launch of the noise reduction awareness campaign.
- Construct an educational program incorporating pre-launch data on noise and present to staff members in the critical care unit
- Develop additional components of a campaign to heighten awareness i.e. posters around unit or reward recognition for further reinforcement and encourage continuity.
- Analyze noise level data and compare pre to post awareness campaign. Develop a summary report and present to organizational leadership with findings, recommendations, and next steps.

Methodology

Design: The use of a quantitative approach by using a pre- and post-design to assess two factors; HCAHPS scores and critical care unit noise level measurements.

Setting: The setting of the study consists of two critical care units in a trauma level 2 teaching hospital, located in a densely populated metropolitan city in New Jersey. The two critical care units are comprised of 41 single bedrooms with admitted patients experiencing medical, cardiac, neurological, and surgical intensive care levels of acuity.

Study population: Inclusion criteria included full time staff members, part time staff members, and per-diem staff. Participants in the project included nurses, patient care coordinators (PCCs), patient care technicians (PCTs), residents, intensivists, and management.

Methodology

Study Intervention:

- Phase one includes a pre-audit noise levels of the two units for 48 hours.
- Phase two is a retrospective review of HCAHPS scores for the two studied units from the previous month (October 2020).
- The third phase provides a learning module for staff members via an online system at the institution.
- The next stage of the project will be to expand awareness of the importance of noise control that included a board display placed on a wall in the middle of the nursing station which describes the noise reduction campaign, the HCAHPS scores and a reference list of ways to decrease noise levels
- The last phase is to perform a post audit noise level measurement for 48 hours and compare. In addition to comparing the HCAHPS scores for (November 2020).

Data Analysis: To determine if statistically significant changes were observed between the pre- and post-audit of sound level measurements after intervention would use the Mann Whitney- U test.

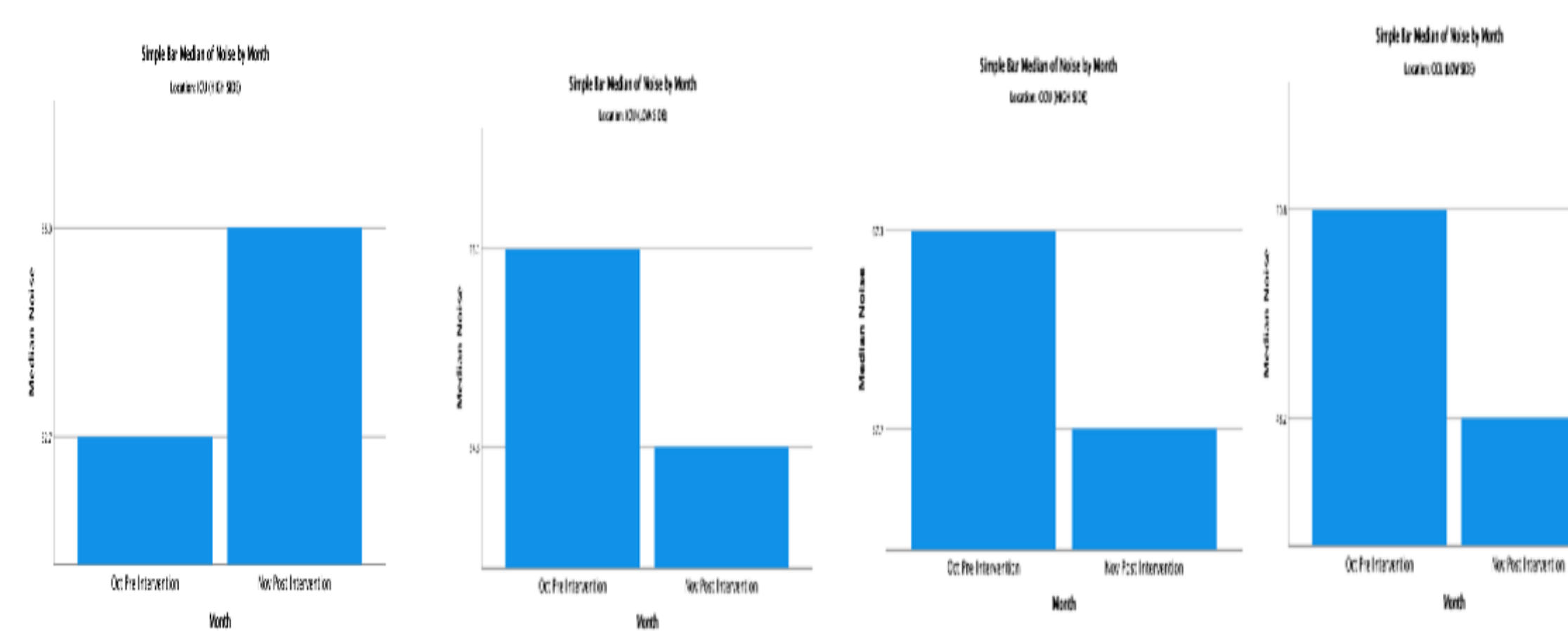
A descriptive statistic on the percentile ranking would be used to provide the HCAHPS scores before and after the noise reduction launch.

Results

Findings:

The ICU (high) was the only location that increased after the noise reduction campaign. ICU (low) was noted to have a decrease in noise despite it being the “Covid” unit and experienced a statistically significant value.

The CCU high and low side had a statistical significance in noise reduction that was evident by the comparable averages of the high side averages.



Month	October	November	December
HCAHPS (Noise question)	50%	50%	60%

October sample size (n) = 6, November (n) = 4, December (n) = 5

Implications

Clinical Practice:

- All staff members have a key role in creating a healing milieu by making minor adjustments such as altering monitor noise levels or tailoring monitors to correspond to patients’ level of acuity to prevent false alarms, and mindfulness of conversations and noise level of the unit.

Healthcare Policy:

- If the findings of this noise reduction campaign could be applied to the overall hospital population, then it would likely result in a significant increase in overall patient satisfaction and improve the hospital environment and job satisfaction. This would have a rippling effect not only to patients and healthcare employees but to the overall hospital reputation and monetary reimbursement consequently affecting the stakeholders of the institution.

Quality and Safety:

- The literature indicates empowering hospital employees with the education about noise and how to customize patient care, therefore, providing a positive effect to patients and the institution. .

Education:

- All the studies reviewed shared one similarity, which was education and staff awareness was the best strategies to reduce noise levels. By implementing the noise reduction campaign, staff members were able to discover the negative impact excessive noise had on the patients and their fellow co-workers.

Economic:

- Most interventions requires minimal to no cost to utilize within the units.

References

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