THE UNIVERSITY OF ARIZONA College of Nursing

BRIDGING KNOWLEDGE GAPS: QUALITY IMPROVEMENT INITIATIVE ON OBSTRUCTIVE SLEEP APNEA FOR ANESTHESIA

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Abstract

- The objective of this quality improvement(QI) project is to improve OSA detection, optimize perioperative management, and reduce adverse outcomes, such as oxygen desaturation and prolonged hospital stays, by addressing knowledge gaps

Purpose

- The main purpose is to enhance anesthesia providers' knowledge and skills in managing obstructive sleep apnea (OSA) through a tailored educational intervention

Background/Significance

- Obstructive sleep Apnea is a sleeping disorder thataffects up to 25% of the general population and is associated with an increased risk of adverse perioperative events such as episodic oxygen desaturation, respiratory failure, and cardiac arrest in some cases(Chang et al., 2020).
- Studies have shown inadequate anesthesia providers' knowledge of OSA treatment modalities and management(Erwin et al., 2018; Singh et al., 2021; Solanki et al., 2019).
- CRNAs' role in administering anesthesia to transgender patients during transition surgeries requires advanced education and training (Castillo III, 2021).
- Ruan et al., (2023) found that CPAP effectively prevents postoperative complications among OSA patients.
- This project seeks to bridge this knowledge gap by implementing an educational intervention for anesthesia providers at DHR Healthcare.

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Reference

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Methods

- ***QI project design and intervention*:** The project design is a quality improvement (QI) project using an educational presentation
- ***Assessment Tool:***This QI project employed post-pre survey methodology to evaluate the impact of educational intervention on OSA among anesthesia provide
- ***Participant Involvement:*** The volunteered participants for this project consisted of a convenience sample of 32 Certified Registered Nurse Anesthetist (CRNA), and 33 Nurse Anesthesia Residents (NAR) in the anesthesia department

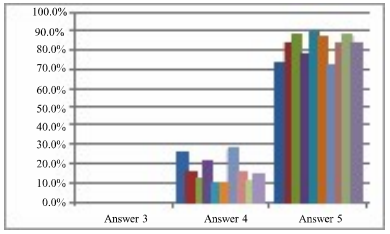
Results

SURVEY QUESTION	MEAN BEFORE	MEAN AFTER	DIFFERENCE (BEFORE-AFTER)	SQUARED DEVIATION
1	2.91	4.73	- 1.82	0.01
2	3.15	4.83	- 1.68	0
3	2.96	4.84	- 1.88	0.03
4	3.01	4.88	- 1.87	0.02
5	3.06	4.78	- 1.72	0
6	3.29	4.90	- 1.62	0.01
7	3.29	4.88	- 1.67	0
8	3.21	4.72	- 1.58	0.02
9	3.14	4.84	- 1.72	0
10	3.12	4.82	- 1.58	0.02
			M:- 1.71	S: 0.11

Difference Scores Calculations
Mean: - 1.71
μ_0 = 0
S^2 = SS/df = 0.11/(10-1) = 0.01
S^2_M = S^2/N = 0.01/10 = 0
S_M = $\sqrt{S^2_M}$ = $\sqrt{0}$ = 0.04

T – Value Calculation
t = (M – μ)/S_M = (-1.71-0)/0.04 = - 48.34
The Value of t is -48.341506
The Value of p is <.00001 –
The result is significant at p <0.05

Figure 4: Participants Response AFTER the Educational Intervention



Strongly disagree (1)," "Disagree (2)," "Undecided (3)," "Agree (4)," and "Strongly agree (5)."

Figure 5: Participants Response BEFORE the Educational Intervention

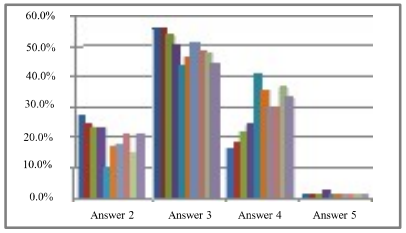
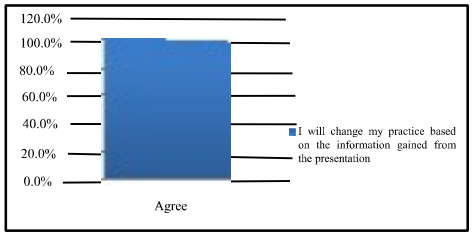


Figure 6: Participants' willingness to change practice AFTER Educational Intervention



Discussion

- This QI project spanned three days of education in different locations of the implementation site (Main Hospital, Women's Hospital, and ambulatory surgery center) to ensure maximum participation and improve their overall understanding of OSA perioperative management and treatment options.
- Most participants fall within the age of 25-34 (50.8%), followed by 35-44 (24.6%), then 45-54 (23.1%), and >54 (1.5%).
- Participants in internships have the highest participation (50.8%), followed by participants on contract (46.1%), and then participants who work full-time (3.1%).
- All the respondents (n=65) "Agreed" to change their clinical practice after the educational intervention.
- These results suggest that educational intervention achieved the intended impact of increasing anesthesia providers' knowledge of OSA perioperative treatments, improving practice, and ensuring patients' safety

Conclusion

- Considering the findings of this QI project, there is a compelling case for the continued integration of educational sessions on OSA treatment modalities in healthcare facilities.
- This approach may contribute to closing the OSA knowledge gap and better perioperative management of OSA patients, potentially improving patient outcomes and reducing the burden of OSA-related comorbidities.