

No Laughing Matter: Nitrous Oxide in Labor and Delivery and the Environment

Andrea Fritz, MD, MPH; Courtney Hood, MD; Benjamin Cobb, MD

Department of Anesthesiology, University of North Carolina, Chapel Hill, North Carolina

INTRODUCTION

- In the United States, healthcare contributes an estimated 10% of the country's greenhouse gases, and nitrous oxide (N₂O) is a commonly used greenhouse gas in the healthcare sector¹
- N₂O lasts in the atmosphere for over 100 years and has a global warming potential around 300x that of carbon dioxide¹
- N₂O is frequently offered as analgesia during labor and delivery

MATERIALS AND METHODS

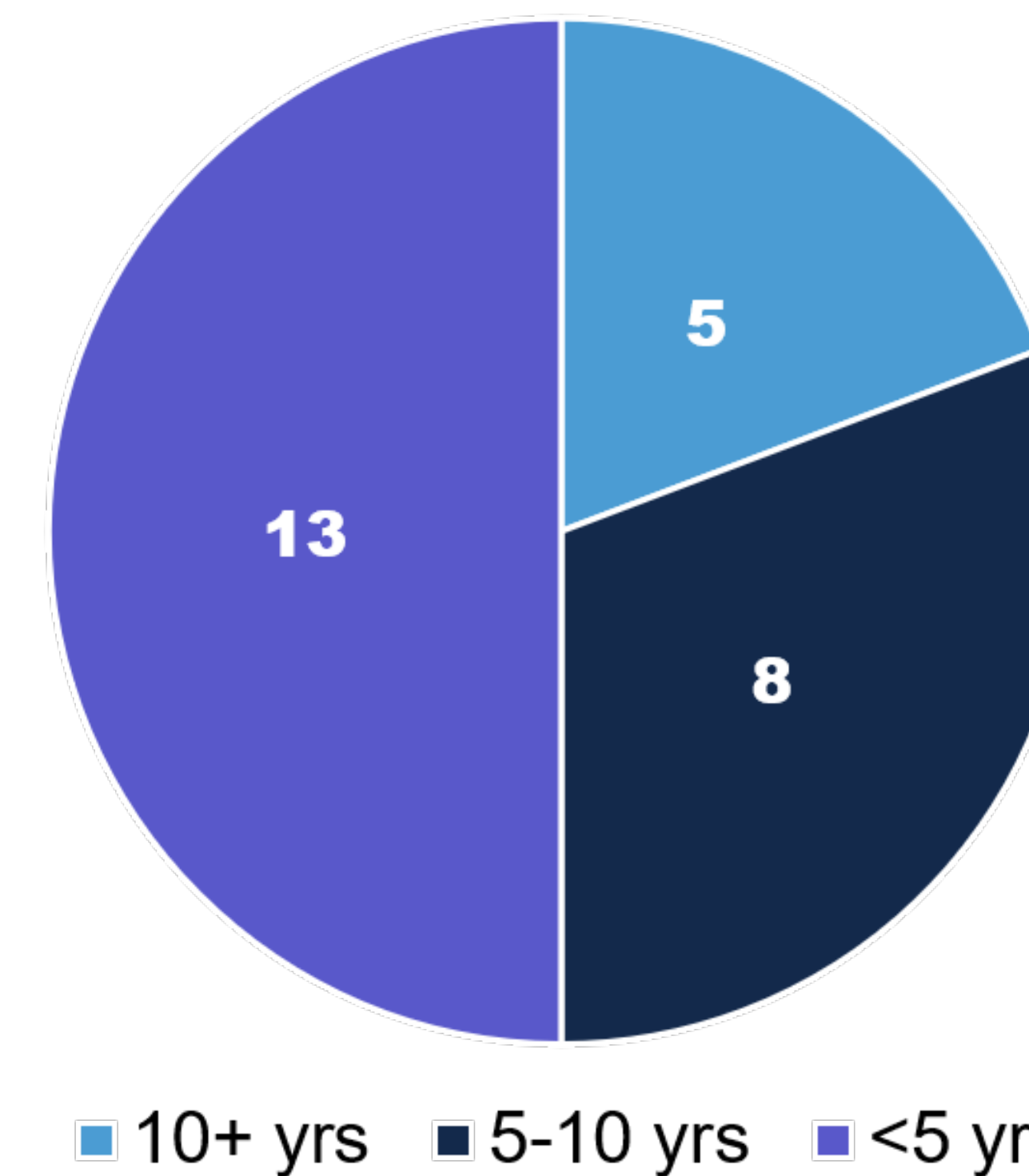
Goal: improve staff education about environmental implications of N₂O so that patients may become better informed and incorporate this information when deciding on analgesia options for labor

Target audience: labor and delivery nurses because research has shown that parturients receive information from many sources, including their nurses²

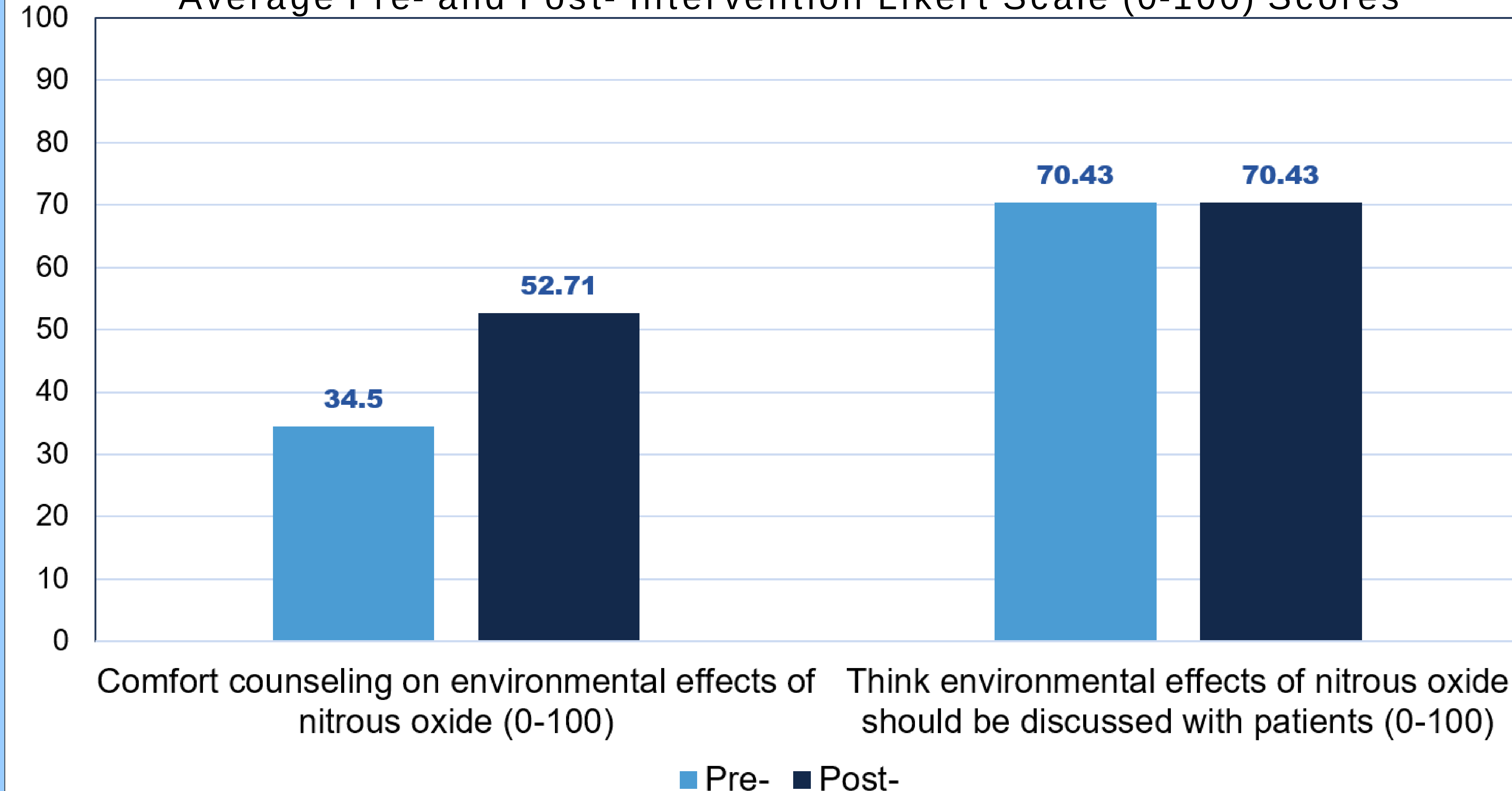
Intervention: educational PowerPoint about N₂O and its environmental effects that was embedded into a survey and presented at an L&D nursing meeting. Survey questions included length of career as well as pre- and post-intervention Likert scales about comfort with counseling on the environmental effects of N₂O and thoughts about whether environmental effects of N₂O should be discussed with patients

Analysis: descriptive statistics and paired t-testing

Work Experience of 26 Respondents



Average Pre- and Post- Intervention Likert Scale (0-100) Scores



RESULTS

- 26 labor and delivery nurses responded
 - 19.23% (5) had 10+ yrs experience
 - 30.77% (8) had 5-10 yrs experience
 - 50.00% (13) had <5 yrs experience
- For Likert scale (0-100) about comfort counseling about environmental effects of N₂O
 - Pre-intervention average: 34.50
 - Post-intervention average: 52.71
 - P<0.05
- For Likert scale (0-100) about thinking environmental effects of N₂O should be discussed with patients
 - Pre-intervention average: 70.43
 - Post-intervention average: 70.43
 - P>0.05

CONCLUSION

The results showed that our intervention significantly improved nurses' comfort counseling patients on this topic but did not have an effect on their belief that environmental implications should be included in analgesia discussions. This study was limited by a small sample size, but future educational efforts could be targeted at obstetric and anesthesiology providers in an effort to improve shared decision making with patients.

REFERENCES

1. Gordon D. Sustainability in the operating room: reducing our impact on the planet. *Anesthesiol Clin*. 2020;38(3):679-692. doi:10.1016/j.ancclin.2020.06.006
- 2.. Hodnett ED. Pain and women's satisfaction with the experience of childbirth: A systematic review. *Am J Obstet Gynecol*. 2002;186(5):S160-S172. doi:10.1016/S0002-9378(02)70189-0