

Improving the Incidence of Headache Related to Lumbar Puncture: An Evidence-Based Practice Intervention

John Huffaker, MSN, APRN & Tiffany James, DNP, APRN

PROBLEM STATEMENT

- Headache is the most common reported adverse effect associated with lumbar punctures (LP)¹
- Many geriatric patients undergoing LP at the performance site report Post-dural puncture headache (PDPH)
- Recent literature demonstrates atraumatic needles were associated with a significantly reduced risk of PDPH compared to conventional needles²

PROJECT PURPOSE

- **Project purpose:** reduce the risk of headaches associated with lumbar puncture procedures within the selected facility
- **Project aim:** outline recommendations regarding needle type utilized during a LP to minimize the risk of headache
- **Clinical question:** In elderly individuals, ages 60 and older, undergoing a lumbar puncture (LP), does implementing an evidence-based protocol to guide needle type used during the LP reduce the complication of headache by 30% compared to current practice over three months?

MODEL/NURSING THEORY

- John Hopkins Nursing Evidence-Based Practice (JHNEBP) model

METHODS

- **Subjects**
 - Individuals ≥60 requiring a lumbar puncture procedure
- **Setting**
 - Outpatient medical practice that specializes in cognitive disorders
- **Instruments/Tools**
 - PDPH will be assessed with the Numeric Pain Rating Scale (NPRS) assessment tool
 - NPRS administered immediately following LP and 24-hour follow-up evaluation
- **Intervention and Data Collection**
 - Protocol for atraumatic needle created, pre- (3 months) and post-intervention (3 months) NPRS assessment conducted (6 months total), data analysis of pre-and post-implementation comparison of reported headache

Figure 1. Reported PDPH (Immediately after LP)

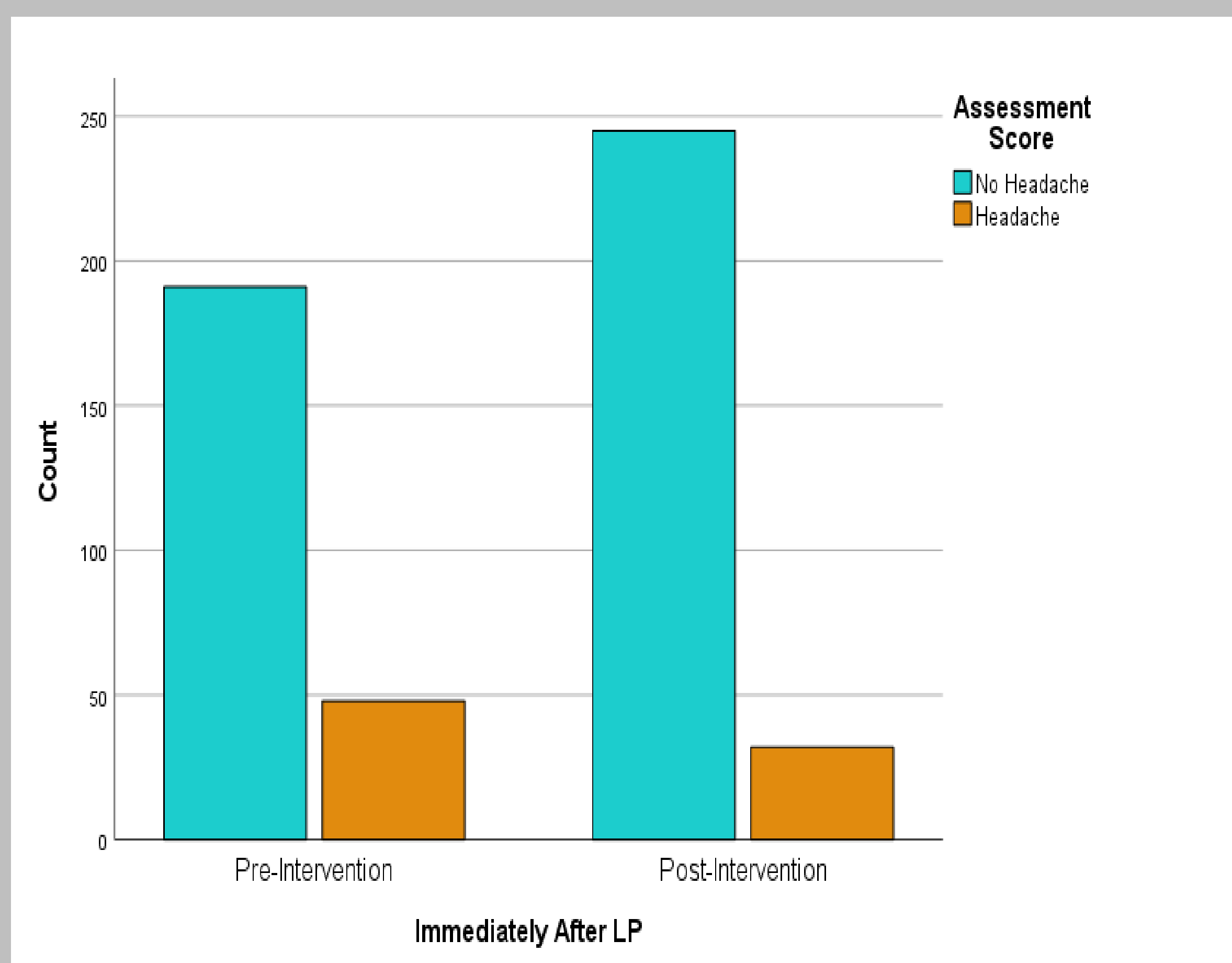


Figure 2. Reported PDPH (24-hour after LP)

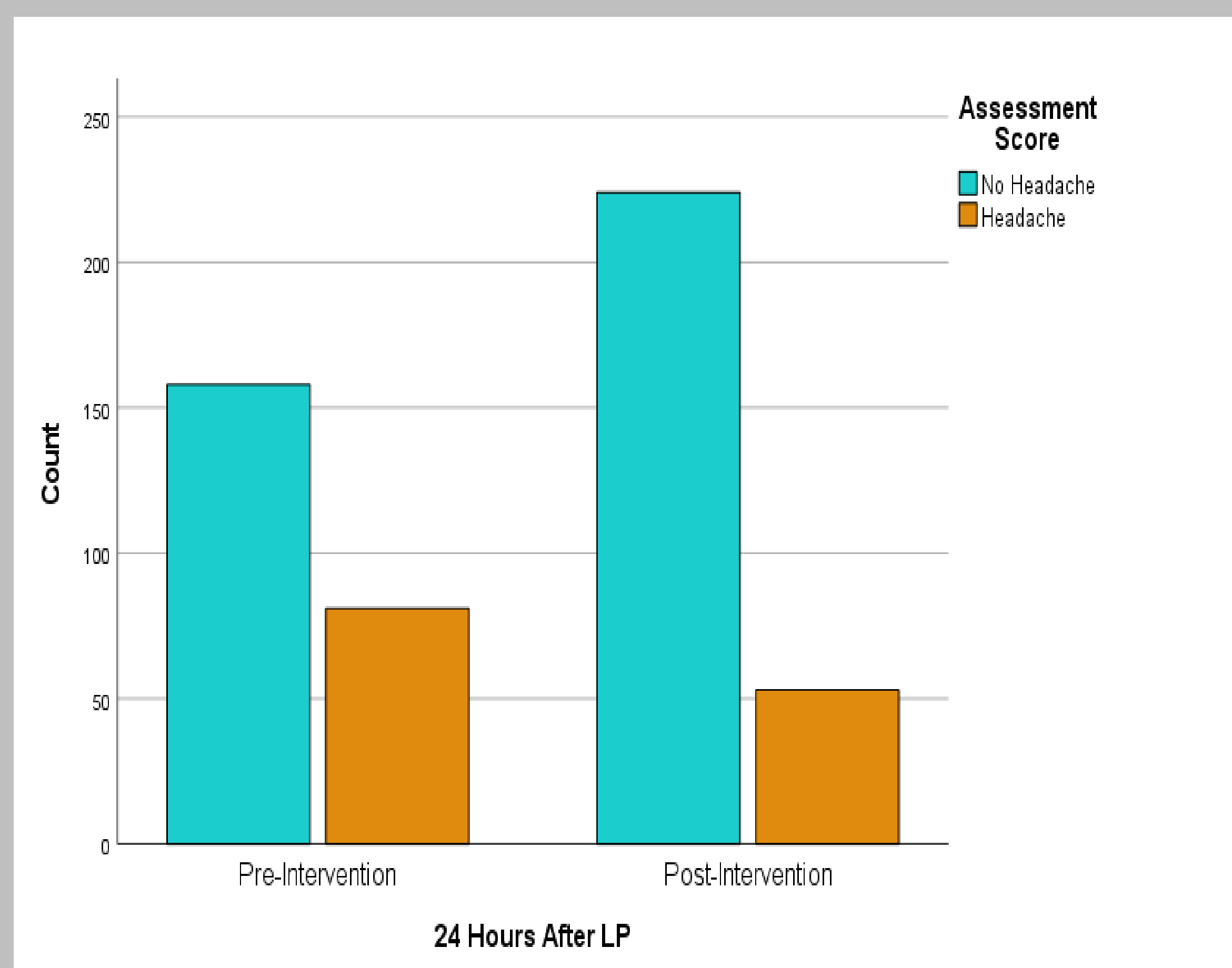


Figure 3. Needle Type Used

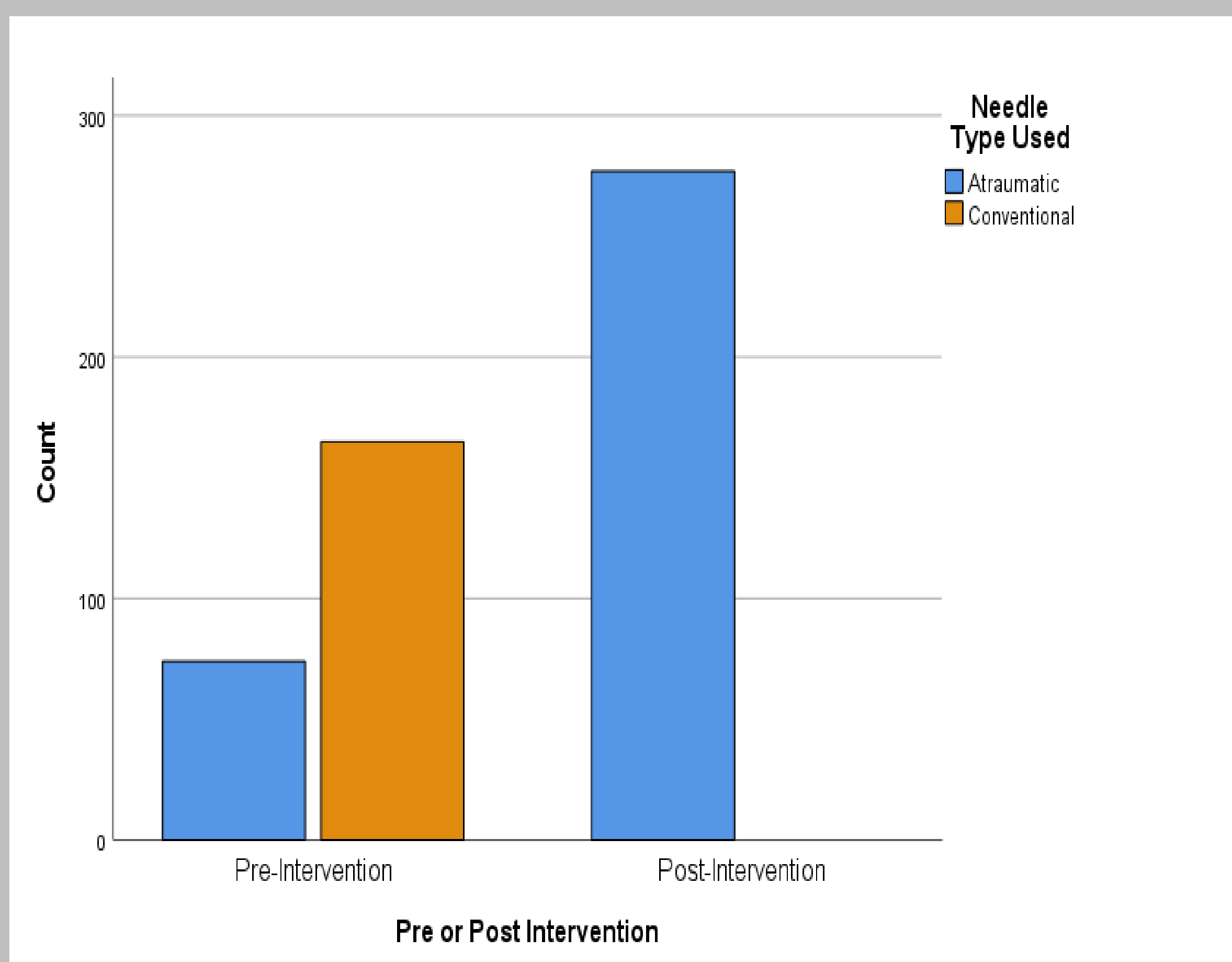
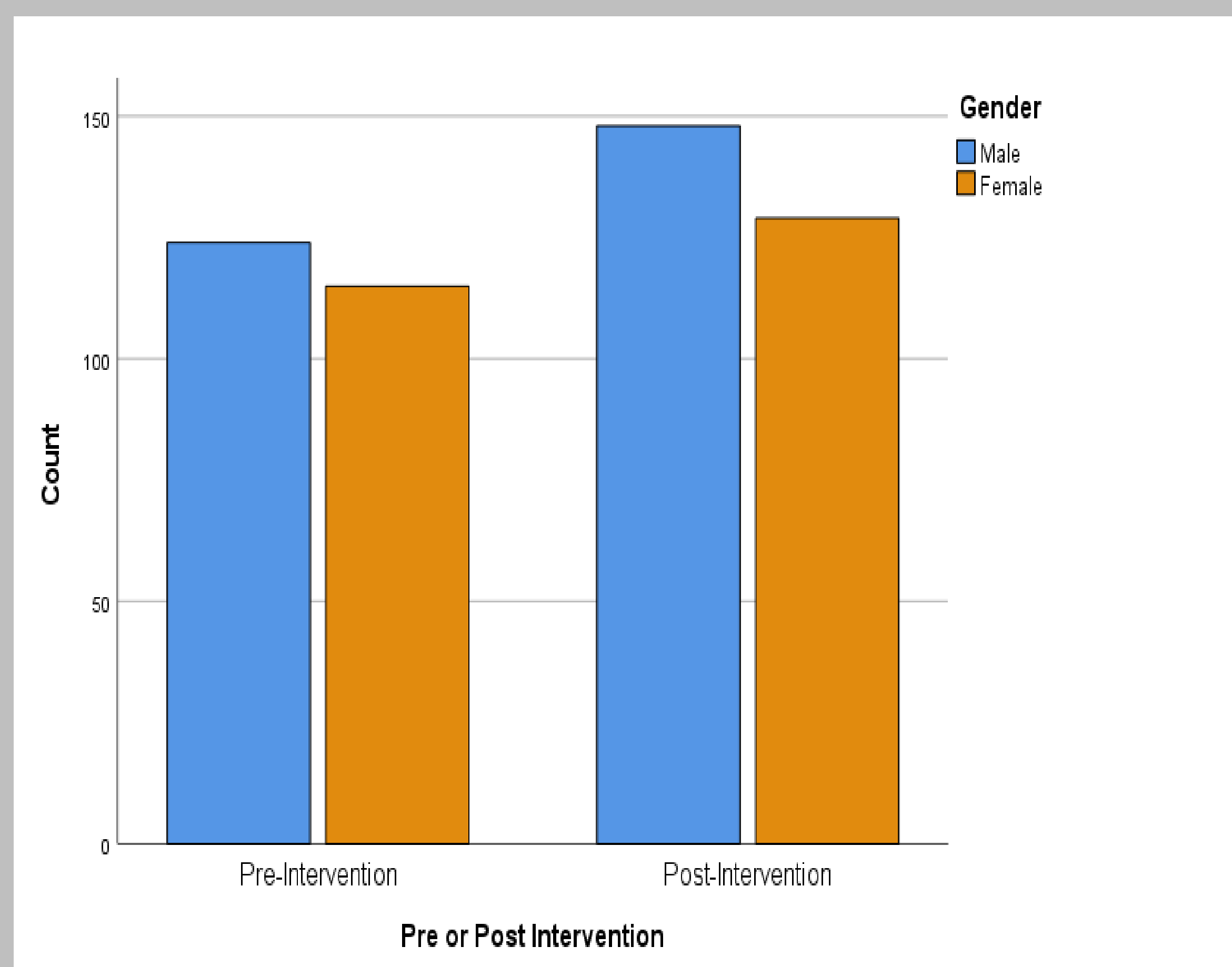


Figure 4. Gender



RESULTS

- Total cases (239 pre- & 277 post-implementation)
- 69% of pre-intervention headache when using conventional needle
- Immediate assessment reported PDPH 20.1% (pre-) vs 11.6% (post-)
- 24-hour assessment reported PDPH 33.9% (pre-) vs 19.1% (post-)

DISCUSSION

- The incidence of headache was reduced after implementation
 - Protocol to guide needle type used during the LP will be permanently implemented at site
- Limitations:
- 1) Patients' assessment for headache is subjective, allowing for individual interpretation.
 - 2) Healthcare providers experience and comfort level using atraumatic needles

IMPLICATIONS FOR ADVANCE PRACTICE NURSING

- Enhancement of knowledge and improvement of patient outcomes
- This DNP project translates research into evidence-based clinical practice, does not increase costs, and has the potential to improve quality of care.
- Sustainability: The project is sustainable as it leverages new and existing clinic procedures to reinforce best practices.

REFERENCES



The use of atraumatic needles reduced the incidence of Post-dural Procedure Headache (PDPH)