

ABSTRACT

Background

Efforts to improve operating room (OR) safety can be optimized if we understand the safety attitudes of those who work in the OR. We sought to describe the safety attitudes of current OR personnel.

Methods

Survey: The Safety Attitudes Questionnaire (OR Version) was modified to develop a shorter, 23-item anonymous electronic survey to measure attitudes toward OR safety. Respondents were also asked to rate the quality of their communication with other providers who care for surgical patients.

Participants: Surgeons and proceduralists, anesthesia providers, and nurses who worked in perioperative services and on the surgical wards.

Data: Respondents' demographic information was collected. Survey responses were on a 5-point Likert scale, where a higher score reflected a better safety attitude or higher quality communication, as appropriate.

Analysis: Classical test theory and factor analysis. ANOVA was used to compare responses between surgeons/proceduralists, anesthesia providers and nurses. Results are reported as mean (SD).

Results

Survey: The 23 survey items reliably measured attitudes toward OR safety ($\alpha=0.92$).

Respondents: 170 staff responded to the survey (55 surgeons, 29 anesthesia providers, and 86 nurses). Mean age of respondents was 40.1 (10.9) years. Median duration of experience was 8 years (range: <1 to 42).

Attitudes toward OR safety culture: The mean score on the 23-item survey for all respondents was 3.95(0.68). Scores differed significantly among provider groups ($p=0.0009$). Surgeons' mean score was 0.57 higher than anesthesia providers' ($p<0.05$), and 0.33 higher than nurses' ($p<0.05$).

Quality of communication: The surgeons' perception of the quality of their communication with nurses was higher than the nurses' perception of the quality of their communication with surgeons (3.95 vs. 3.05, $p<0.0001$). Similarly, surgeons' perception of the quality of their communication with anesthesia providers was higher than the anesthesia providers' perception of their communication with surgeons (4.43 vs. 3.81, $p=0.0015$). However, the anesthesia providers' perception of the quality of their communication with nurses did not differ from the nurses' perception of the quality of their communication with anesthesia providers (3.62 vs. 3.68, $p=0.77$).

Conclusion

The abbreviated questionnaire is a reliable measure of OR safety attitudes. Surgeons had the most positive OR safety attitude, but there was consistent discrepancy in the way surgeons rated their communication with other provider groups – surgeons reported that the quality of their communication with anesthesia providers and nurses was better than how these other groups rated their communication with surgeons. This finding calls to question the validity of the surgeons' survey scores, and whether they truly had the best safety attitude.

MATERIALS AND METHODS

Survey: The Safety Attitudes Questionnaire (OR Version) was modified to develop a shorter, 23-item anonymous electronic survey to measure attitudes toward OR safety (Table 1). Respondents were also asked to rate the quality of their communication with other providers who care for surgical patients.

Setting: Children's general hospital.

Participants: Surgeons and proceduralists, anesthesia providers, and nurses who worked in perioperative services and on the surgical wards.

Data: Respondents' demographic information was collected. Survey responses were on a 5-point Likert scale, where a higher score reflected a better safety attitude or higher quality communication, as appropriate. Scores were reversed for items 2, 3, 9, 14 and 19.

Analysis: Classical test theory and factor analysis. ANOVA was used to compare responses between surgeons/proceduralists, anesthesia providers and nurses. Results are reported as mean (SD).

INTRODUCTION

The recent focus on quality initiatives in health care begs for attention to be given to measuring safety attitudes in the perioperative setting. Safety and safety culture are priorities of the Joint Commission, the Agency for Healthcare Research and Quality and the US National Quality Forum. The Safety Attitudes Questionnaire^{1,2} (OR Version) (SAQ-OR) is a validated tool that measures safety attitudes in the perioperative environment. Efforts to improve operating room (OR) safety can be optimized if we understand the safety attitudes of those who work in the OR. We sought to describe the safety attitudes of current OR personnel and identify areas for improvement of OR safety.

TABLE 1: SAFETY ATTITUDE SURVEY QUESTIONS

The following items were scored using a 5 –point Likert scale, from Agree Strongly (5) to Disagree Strongly (1). ($\alpha=0.92$)

1. The physicians and nurses here work together as a well-coordinated team	13. All the personnel in the ORs here take responsibility for patient safety
2. In the ORs here, it is difficult to speak up if I perceive a problem with patient care**	14. In the OR, it is difficult to discuss errors**
3. I am frequently unable to express disagreement with staff/attending physicians**	15. Briefing OR personnel before a surgical procedure is important for patient safety
4. Nurse input about patient care is well received in the OR	16. All necessary information is available before the start of a procedure
5. Decision making in the OR utilizes input from all relevant personnel	17. Debriefing OR personnel at the conclusion of a surgical procedure is important for patient safety
6. Disagreements in the ORs here are resolved appropriately (i.e. not who is right, but what is best for the patient)	18. All necessary information about the procedure and the patient is known at the end of a procedure
7. The culture in the ORs here makes it easy to learn from the errors of others	19. I have seen others make errors that had the potential to harm patients in our OR**
8. I know the first names and last names of all the personnel I worked with during my last shift/day in the OR	20. Morale is high in the OR here
9. Personnel frequently disregard rules or guidelines that are established for the OR**	21. The hospital is a good place to work
10. I would feel safe being treated here as a patient	22. I like my job
11. Medical errors are treated appropriately in this hospital	23. I am proud to work at this hospital
12. Patient safety is constantly reinforced as the priority in the ORs here	** Score reversed

TABLE 2: RESPONDENT DEMOGRAPHICS

Age	\bar{x} 40.1 (SD 10.9)
Years of experience	8 (range <1 to 42)
Gender	
Female	109 (64.1%)
Male	57 (33.5%)
Other/Not reported	4 (2.3%)
Position	
Surgeons	55 (32.3%)
Anesthesia Providers	29 (17.0%)
Nurses	86 (50.6%)
Ethnic Group	
White (not Hispanic)	118 (69.4%)
Black (not Hispanic)	18 (10.6%)
Hispanic	2 (1.2%)
Asian/Pacific Islander	21 (12.4%)
Multi-ethnic	3 (1.8%)
Other/Not reported	8 (4.7%)

FIGURE 1

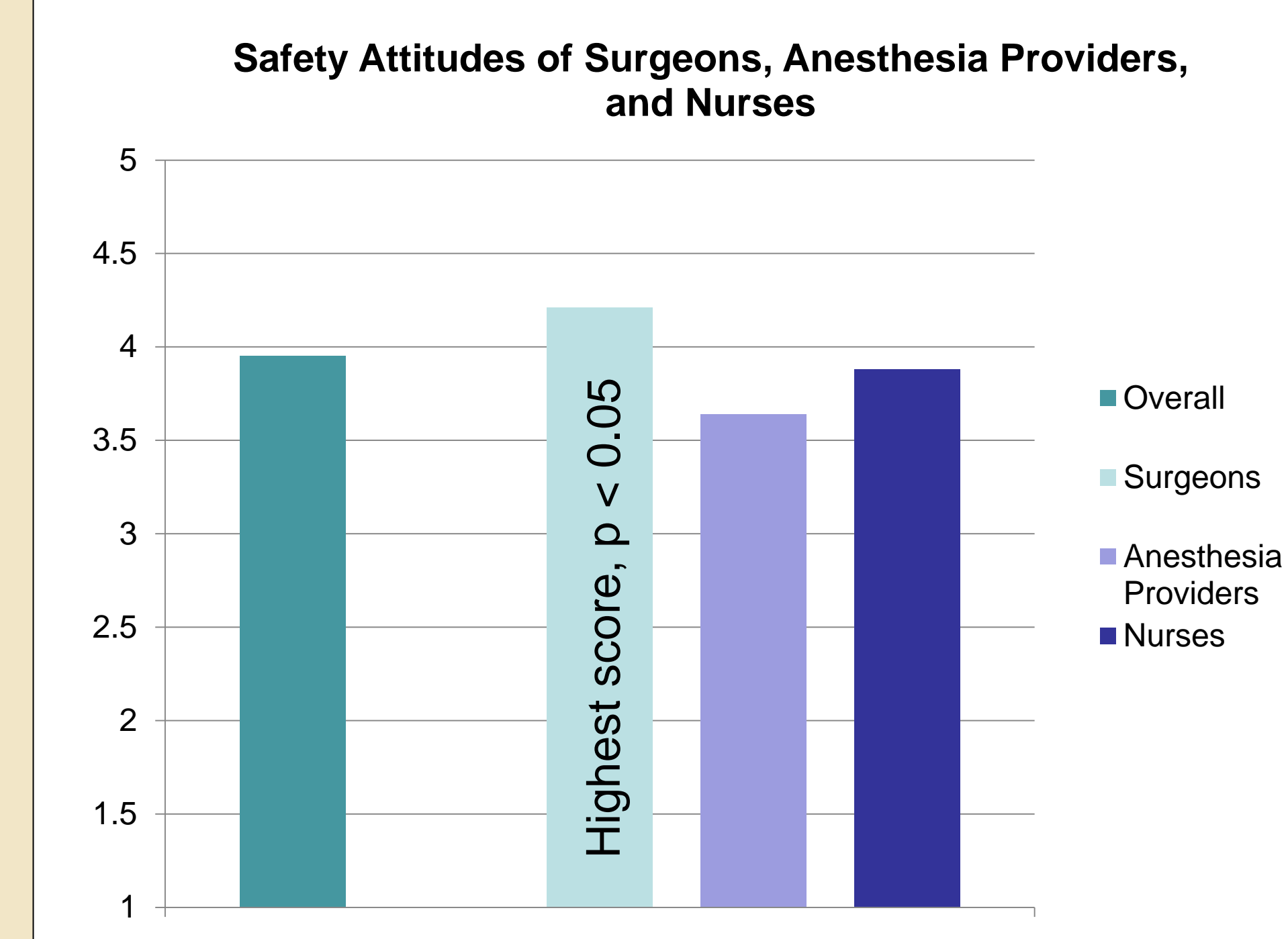


FIGURE 2

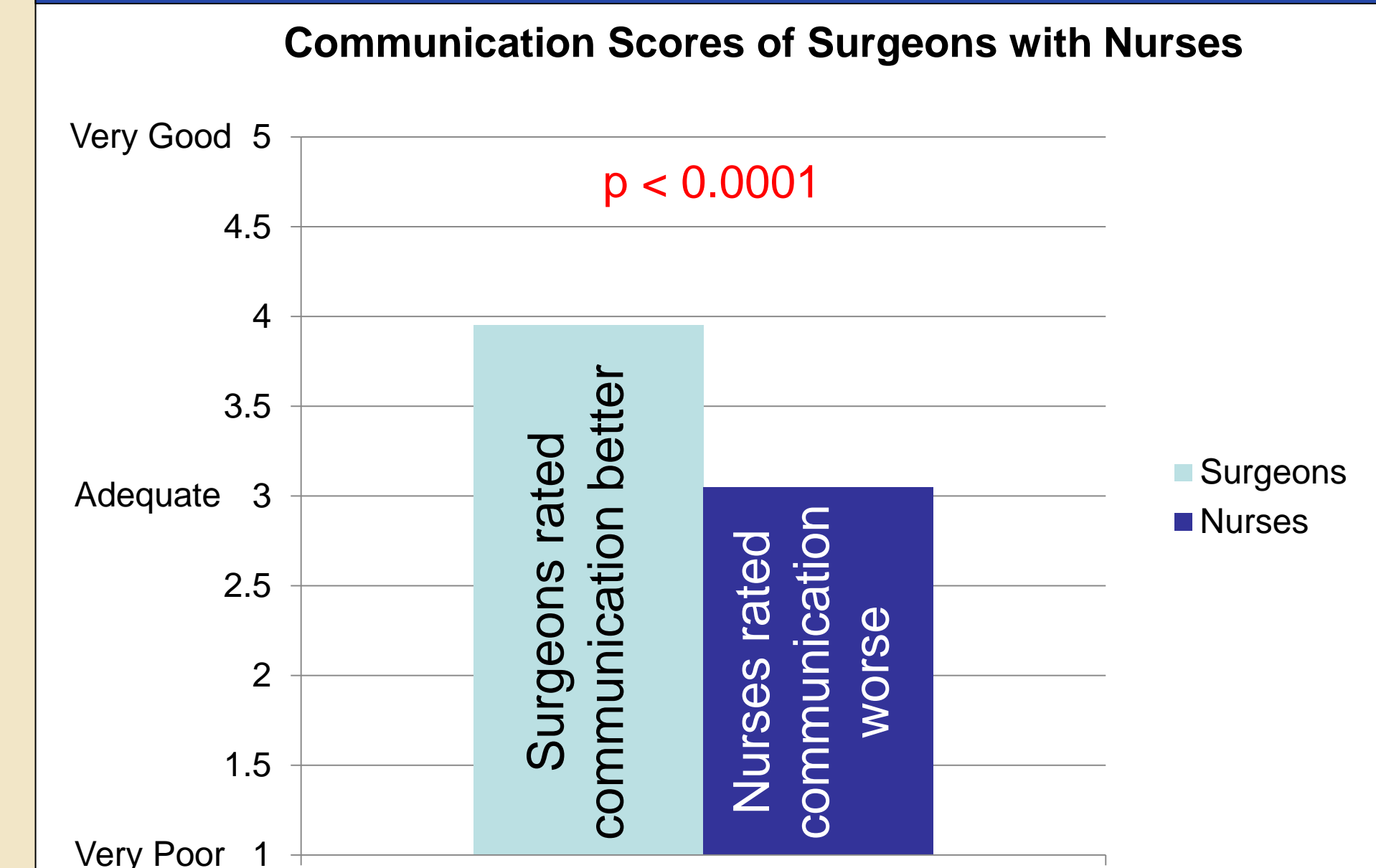


FIGURE 3

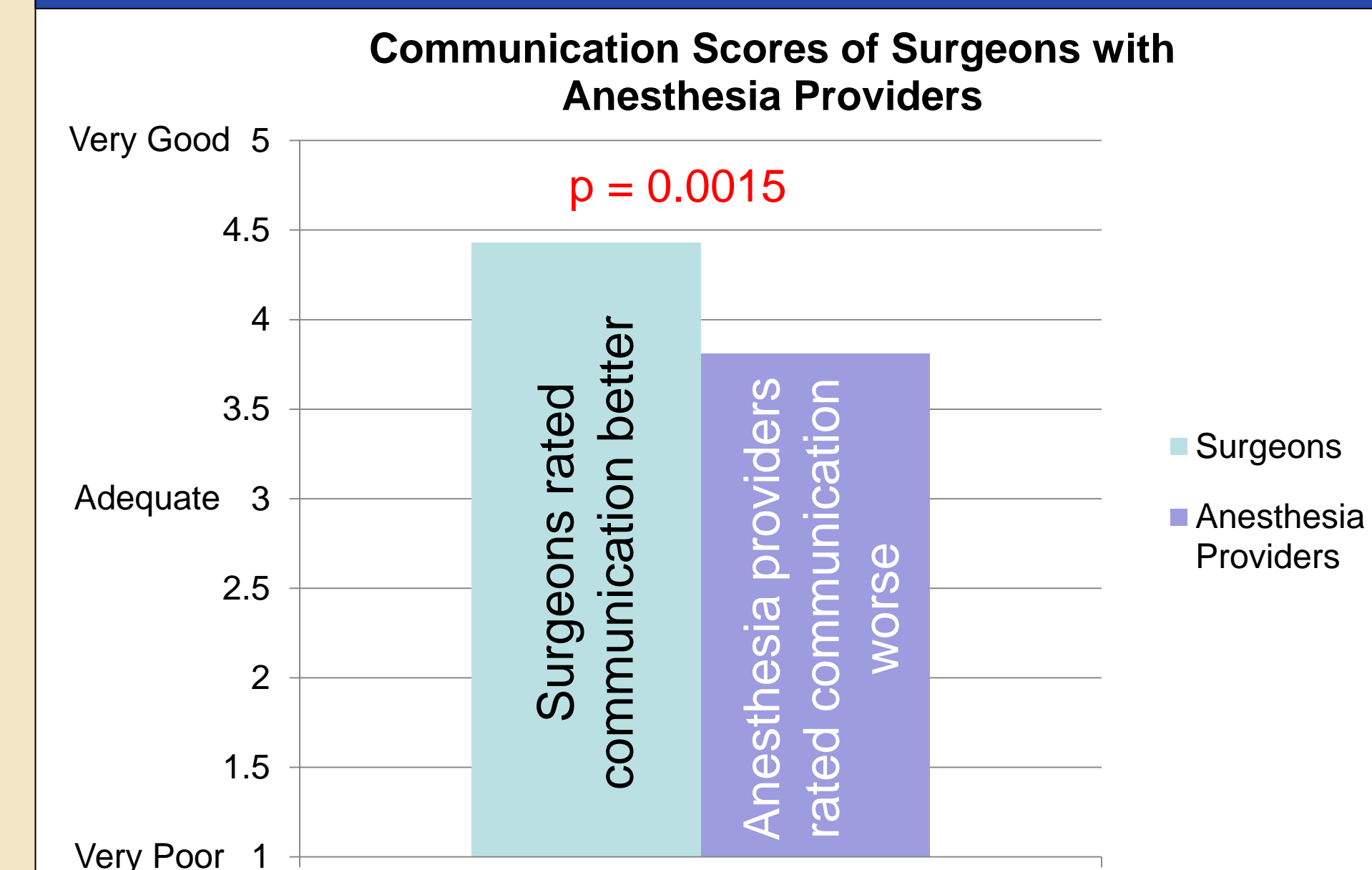
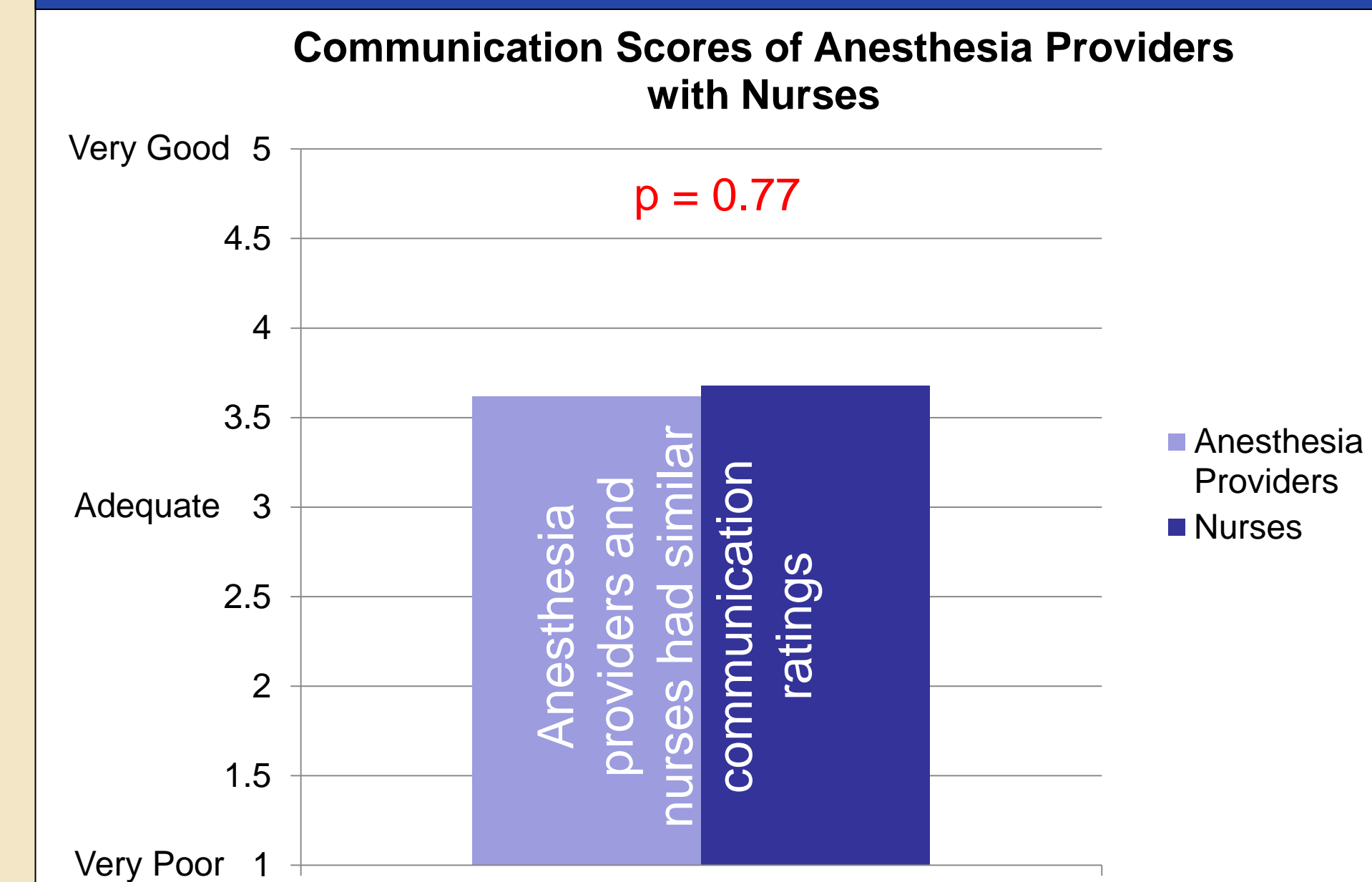


FIGURE 4



RESULTS

Survey

- The 23 survey items reliably measured attitudes toward OR safety ($\alpha=0.92$)

Respondents

- 170 staff responded to the survey
 - 55 surgeons, 29 anesthesia providers, 86 nurses
- Mean age of respondents was 40.1 (10.9) years
- Median duration of experience was 8 years (range: <1 to 42)

Attitudes toward OR safety (Figure 1)

- Mean 23-item score was 3.95(0.68)
- Scores differed significantly among provider groups ($p=0.0009$)
- Surgeons' mean score was 0.57 higher than anesthesia providers' ($p<0.05$), and 0.33 higher than nurses' ($p<0.05$)

Quality of communication

- Surgeons' perception of the quality of their communication with nurses was higher than the nurses' perception of the quality of their communication with surgeons (3.95 vs. 3.05, $p<0.0001$) (Figure 2)
- Surgeons' perception of the quality of their communication with anesthesia providers was higher than the anesthesia providers' perception of their communication with surgeons (4.43 vs. 3.81, $p=0.0015$) (Figure 3)
- However, the anesthesia providers' perception of the quality of their communication with nurses did not differ from the nurses' perception of the quality of their communication with anesthesia providers (3.62 vs. 3.68, $p=0.77$) (Figure 4)

CONCLUSIONS

- The abbreviated questionnaire reliably measures OR safety attitudes
- Surgeons had a significantly more positive rating of OR safety
- Surgeons rated their communication with both other groups higher than each of those groups rated their communication with surgeons
- This finding calls to question the validity of the surgeons' survey scores, and whether they truly had the best safety attitude

REFERENCES

- Sexton J, Helmreich R, Thomas E, et al. Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. BMC Health Services Research. January 2006;6:44-10.
- http://www.uth.tmc.edu/schools/med/imed/patient_safety/documents/Survey-SAQ-OR-2003.pdf

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