Relationship Between Non-Technical Skills for Surgeons (NOTSS) and Risk-Adjusted Complications

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BACKGROUND

• Effective nontechnical skills (decision-making, situation awareness, leadership, communication, and teamwork) are necessary for surgeons to provide optimal patient care.
• There is limited data regarding how nontechnical skills are associated with patient outcomes.

OBJECTIVES

• To assess the relationship between surgeons’ non-technical skills and postoperative outcomes.

METHODS

• Prospective observational study.
• Trained NOTSS raters with nurses and anesthetists used the NOTSS tool to assess the intraoperative non-technical skills of general surgeons from February to September 2022.
• The overall NOTSS score for each surgeon was calculated by averaging the NOTSS scores assessed by rater, nurses, and anesthetists.
• Patient outcome data were collected from the Illinois Surgical Quality Improvement Collaborative (ISQIC) database.
• The American College of Surgeons National Quality Improvement Program (ACS NSQIP) approach was used to calculate the risk-adjusted complications.
• Robust linear regression models were used to assess the association between surgeons’ nontechnical skills and risk-adjusted post-operative complications.

RESULTS

• Of the 45 surgeons who were observed in the study, 23 (51.1%) had patient outcome data captured by the ISQIP database.
• 2 of the 23 participants (8.7%) were female.
• For every unit increase in the NOTSS score, there was a significant 3.9 decrease in the adjusted risk of any post-operative complication, a significant 0.8 decrease in risk of mortality, and a significant 0.6 decrease in the adjusted risk of returning to the operating room.

CONCLUSION

• Higher surgeons’ non-technical skills were associated with the decreased risk-adjusted complication of any postoperative complication, mortality, and returning to the operating room.
• Strategies to improve post-operative patient outcomes should include the improvement of surgeons’ non-technical skills.