Evaluating Leadership Skills, Competencies and Capacity Building Efficacy in the Management of Perioperative Emergencies: A Pathway to Enhanced Client Safety and Outcomes

Evangeline C. Lola

College of Nursing, University of Perpetual Help System – Dalta, Philippines

ABSTRACT

This descriptive cross- sectional study focus was on the evaluation of the determinants of the leadership competencies of surgical team leaders and assessed the effectiveness of existing capacity building programs in managing perioperative emergencies in three selected tertiary hospitals in Laguna, Philippines. Utilizing a mixed-methods design anchored in Patricia Benner's Novice to Expert Theory and the Input-Process-Output-Outcome (IPOO) framework, data were collected from n=100 surgical professionals—including surgeons, anesthesiologists, and senior nurses—through structured questionnaires and qualitative interviews. The hypothesis test established a statistically significant correlation between leadership competencies and surgical team performance. To further validate this relationship, the coefficient of determination (R^2) was calculated. Results revealed that leadership competencies explain approximately 51.84% of the variance in adherence to safety protocols and 46.24% of the variance in response times. These values provide strong empirical support that leadership competency is a key driver of surgical team effectiveness, justifying the need for enhanced, targeted training interventions.

Leadership competency scores showed variation based on demographic factors: leaders with over 20 years of experience scored highest in problem-solving (M = 4.8) and resource management (M = 4.7). Capacity Building programs were generally rated effective, with high scores in confidence building (M = 4.6) and communication improvement (M = 4.7). However, gaps were identified in emotional intelligence (M = 4.3) and real-life scenario integration (M = 4.3). Qualitative findings supported the quantitative results, with respondents highlighting the need for more hands-on simulations and structured mentorship.

The current leadership knowledge management programs are beneficial, however improved emergency preparedness and health security strategy awareness are needed to ensure consistency and public health relevance in terms of occupational health and safety standardization and guidelines. Incorporating emotional intelligence development, simulation-based exercises, and standardized capacity building process across healthcare institutions is recommended to improve client safety, reduce variability in emergency management, and elevate overall surgical team performance.
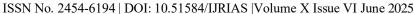
Keywords: leadership skills and competencies, perioperative emergencies, capacity building efficacy, client safety, team performance, mixed-methods research

INTRODUCTION

Background of Study

This descriptive exploratory study focus was on the selected tertiary hospitals in the province of Laguna with objectives to observe the determinants of the leadership competencies of 100 surgical team leaders—surgeons, anesthesiologists, and senior nurses—within the context of perioperative emergencies.

The study explored whether existing capacity building programs effectively prepare them to lead in such high-pressure environments, and how improvements in leadership were not mutually exclusive of better client

outcomes. The applied model was the Patricia Benner's Novice to Expert framework based on the log frame or Input-Process-Output-Outcome (IPOO) model. The study also observed the coefficient of determination of the relationship strength or between demographic factors such as experience, education, leadership capacity and decision-making during crises. Ultimately, this research aims not only to evaluate but also to advocate.

The study advocates for leadership development programs that are not only accessible and evidence-based but also responsive to the contextual challenges faced by Filipino healthcare professionals. To leverage knowledge of the gaps and opportunities in current capacity building practices, the study hopes to contribute to building stronger, more prepared surgical teams—and safer surgical outcomes for clients.

Statement of the Problem

The study sought to address the problem of assessing leadership skills, competencies and the effectiveness of capacity building in managing perioperative emergencies to enhance client safety and clinical outcomes. Specifically, this study aimed to answer the following questions:

This study seeks to answer the following questions:

What is the demographic profile of the respondents in terms of:

Age

Sex

Educational Level

Years of Experience

Current Position

What specific leadership competencies are most critical for managing perioperative emergencies in surgical settings?

What is the current leadership competency of the respondents in terms of demographic profile?

How effective are existing training programs in developing these leadership competencies among surgical team leaders?

How do improvements in leadership competencies, as a result of targeted training interventions, impact patient safety and surgical outcomes?

Is there any significant relationship between leadership competencies and team performance during perioperative emergencies when grouped according to the demographic profile?

What modifications can be made to existing training programs to better prepare leaders for managing perioperative emergencies?

Hypothesis

Ho1: There is no significant relationship between leadership competencies and team performance during perioperative emergencies when grouped according to the demographic profile.

LITERATURE REVIEW

In the high-stakes environment of surgical care, perioperative emergencies represent some of the most critical moments where leadership can avert preventable morbidity and mortality in the vulnerable and hard-to-reach population. These emergencies—ranging from sudden client deterioration to unexpected equipment failures—

require more than just clinical skill. They demand clarity in communication, sound decision-making, effective coordination, and, above all, confident leadership. In such settings, the presence of a capable surgical leader is essential to navigate the pressure, maintain team focus, and ensure that client safety is upheld.

Leadership in the operating room, especially during emergencies, goes beyond technical command. It encompasses a wide range of competencies, including situational awareness, adaptability, emotional regulation, and resource management. However, despite increasing awareness of the importance of these leadership attributes, many existing training programs tend to emphasize procedural knowledge while giving less attention to the development of critical leadership behaviors [34]. Often, the ability to lead a team effectively under stress is assumed to come naturally with experience, even though research shows that these skills can—and should—be developed deliberately [3].

The Philippine healthcare system presents a unique set of challenges in this regard. While some hospitals in metropolitan areas offer leadership and simulation-based capacity building, many facilities, particularly in provincial regions, face limitations in infrastructure, access to technology, and availability of structured programs. These gaps contribute to inconsistencies in how perioperative emergencies are managed across institutions. In these environments, healthcare providers often rely heavily on personal judgment, experience, and informal mentorship rather than formalized capacity building in leadership. As such, there is a growing need to standardize and strengthen leadership development, especially in high-risk clinical areas like the operating room.

Several international studies have attempted to bridge this gap. For example, Bielka et al. (2023) demonstrated that healthcare interns who participated in hands-on simulation training performed significantly better in managing perioperative emergencies compared to those who only received lectures [5]. Similarly, Hibberson, Lawton, and Whitehead (2023) found that multidisciplinary simulation programs helped perioperative teams feel more prepared and confident during emergencies [8]. These studies suggest that capacity building rooted in real-life scenarios—where both technical and non-technical skills are practiced—can have a profound impact on individual performance and team dynamics.

On the leadership front, Lavoie-Tremblay et al. (2024) explored the use of a Strengths-Based Nursing and Healthcare Leadership approach and found that participants not only gained leadership capacity but also reported improved well-being and reduced stress levels [12]. Meanwhile, Van der Cingel et al. (2023) emphasized that leadership is closely tied to a nurse's ability to be proactive and articulate their expertise, but many still feel underprepared, particularly in decision-making and evidence-based practice [30].

METHODOLOGY

This study adopted a mixed-methods approach to provide a comprehensive understanding of leadership competencies and the effectiveness of training programs in managing perioperative emergencies. The choice of this design was grounded in the belief that integrating both quantitative and qualitative data could yield deeper insights into how leadership influences team performance and client outcomes. The methodological framework was based on the explanatory sequential design, wherein quantitative data was first collected and analyzed, followed by qualitative data to help interpret and elaborate on the numerical results. As Creswell and Plano Clark (2018) have emphasized, this design is particularly suited to exploring complex phenomena where neither method alone would suffice.

Research Design

The study utilized a quasi-experimental design, combining pre-test and post-test assessments to evaluate the impact of targeted capacity building on leadership competencies. Participants were divided into two groups: one that underwent the standard capacity building provided by their institutions, and another that received an enhanced leadership program specifically developed for this study. This design was chosen not only for its practicality in real-world healthcare settings but also for its ability to measure change over time, as recommended by Lee et al. [36]. In parallel, qualitative data were gathered through structured interviews and focus group discussions to capture participants' lived experiences, perceptions, and reflections. These qualitative components

enriched the study by surfacing nuances in how leadership is practiced and internalized, especially under stress—a dynamic often missed by purely statistical measures [35].

Study Setting and Participants

The research was conducted in selected private tertiary hospitals located in the province of Laguna, Philippines. These institutions were chosen for their active perioperative departments and their diversity in terms of leadership capacity building structures. The target participants included surgeons, anesthesiologists, and senior nurses—professionals who regularly assume leadership roles during surgical procedures. To ensure relevance and richness of data, a purposive sampling strategy was initially employed, targeting individuals with direct experience in managing perioperative emergencies [28].

To enhance representation and account for varying institutional contexts, the study also employed a stratified random sampling method. This allowed the researcher to capture leadership practices across different facility types and resource settings—ensuring that voices from both well-equipped and resource-constrained hospitals were included, as recommended by Kumar (2014) [10].

Research Instrument

A researcher-developed questionnaire served as the primary tool for the quantitative component of the study. This instrument included sections on demographic information, perceived leadership competencies, self-assessment of current skills, capacity building effectiveness, and the observed impact of leadership on surgical outcomes. Respondents were asked to rate various items using a five-point Likert scale, while also being given opportunities to provide narrative responses in open-ended sections. These responses were especially valuable in understanding how leadership skills translated into real-life performance.

To measure capacity building effectiveness, participants evaluated aspects such as training content, relevance to emergency scenarios, post-training support, and their perceived increase in confidence and capability. Additionally, scenarios and reflective prompts were included to assess respondents' decision-making tendencies and communication styles in emergency settings.
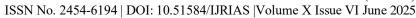
Validation and Reliability

The questionnaire underwent content validation by a panel of experts in surgical nursing and leadership. Their feedback guided revisions to ensure that the tool adequately covered the domains relevant to perioperative leadership. Cronbach's alpha was used to test internal consistency of the quantitative items, yielding a coefficient above 0.7, which indicated acceptable reliability for social science research (2018). For qualitative reliability, the study employed triangulation through interviews, focus groups, and observational insights to ensure the authenticity of the narratives and avoid researcher bias.

Data Collection Procedure

Prior to the main data collection, a pilot test was conducted to fine-tune the instrument and procedures. Once finalized, participants were invited to join the study, and informed consent was secured. Quantitative surveys were administered online and in person, depending on participant accessibility. Interviews and focus groups were conducted in quiet, neutral settings within the hospitals, ensuring confidentiality and participant comfort. In some cases, actual or simulated perioperative scenarios were observed to document team interactions and leadership behaviors in action.

Data collection was completed over a period of several weeks, with attention given to minimizing disruption to clinical duties. The researcher maintained continuous communication with hospital coordinators to facilitate smooth implementation while upholding ethical standards.

Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics. Mean scores, standard deviations, and correlation coefficients were computed to determine the most critical leadership competencies and their relationship to team performance indicators such as response time and adherence to safety protocols. The Pearson correlation method was particularly useful in identifying significant associations between capacity building efficacy and team effectiveness (2018).

For the qualitative data, thematic analysis was applied. Transcripts from interviews and focus groups were carefully coded, with themes emerging around communication patterns, emotional responses to emergencies, and perceptions of leadership growth. This method allowed for the integration of quantitative trends with the lived experiences of the participants, resulting in a richer and more grounded interpretation of the findings.

Ethical Considerations

This study observed all ethical requirements for research involving human participants. Approval was secured from a recognized Institutional Review Board (IRB), and all participants received a clear explanation of the study's purpose, procedures, risks, and benefits. The principles of informed consent, voluntary participation, and the right to withdraw were strictly upheld.

Given the study's location in the Philippines, compliance with the Data Privacy Act of 2012 (RA 10173) was ensured. All personal and institutional data were anonymized and securely stored, with access restricted to the researcher and authorized personnel. The study also acknowledged the sensitivity of the surgical environment and took precautions to avoid interference with client care or undue stress on participants during data collection.

PRESENTATION OF DATA

Demographic Profile

Research Question 1 seeks to establish the demographic profile of the respondents, encompassing factors such as age, sex, educational level, years of experience, and current position. Understanding these demographic variables is essential for contextualizing the findings and identifying patterns or trends that may influence leadership competencies and training outcomes. By examining these characteristics, the study aims to provide a comprehensive overview of the participants, which serves as a foundation for exploring how individual attributes may relate to their leadership abilities and their effectiveness in managing perioperative emergencies. This baseline data also aids in tailoring interventions and training programs to better suit the needs of diverse surgical team leaders.

Table 1 Age Distribution of Respondents

Age Group	Frequency	Percentage (%)
25-34	15	15.0
35-44	25	25.0
45-54	40	40.0
55+	20	20.0
Total	100	100

As shown in Table 1, the age distribution of respondents shows that a majority (40 individuals) fall within the 45-54 age range, suggesting that mid-career professionals constitute a significant proportion of surgical team

leaders. Younger professionals aged 25-34 are the smallest group (15 respondents), while those aged 55 and above account for 20 respondents.

Table 2 Sex Distribution

Sex	Frequency	Percentage (%)
Male	60	60.0
Female	40	40.0
Total	100	100

As shown in Table 2, majority of respondents are male (60%), while females make up 40% of the population. This distribution reflects the gender representation typically seen in surgical and perioperative leadership roles.

Table 3 Educational Level of Respondents

Educational Level	Frequency	Percentage (%)
Bachelor's	30	30.0
Master's	50	50.0
Doctorate	20	20.0
Total	100	100

As shown in Table 3, most respondents (50 individuals) hold a master's degree, indicating that advanced education is a common qualification among surgical team leaders. A smaller proportion holds bachelor's degrees (30 individuals) or doctorate degrees (20 individuals).

Table **4** Years of Experience

Years of Experience	Frequency	Percentage (%)
<5 years	10	10.0
5-10 years	25	25.0
11-20 years	50	50.0
21+ years	15	15.0
Total	100	100

As shown in Table 4, the respondents have diverse levels of professional experience, with the largest group having 11-20 years of experience (50 respondents). This is followed by 5-10 years (25 respondents) and 21+ years (15 respondents). Those with less than 5 years of experience are the fewest, with only 10 respondents.

Table 5 Current Position

Current Position	Frequency	Percentage (%)
Surgeon	20	20.0

Anesthesiologist	30	30.0
Senior Nurse	50	50.0
Total	100	100

As shown in Table 5, the data shows that senior nurses constitute the largest group of respondents (50 individuals), followed by anesthesiologists (30 individuals) and surgeons (20 individuals). This distribution underscores the critical roles played by different team members in managing perioperative emergencies.

The demographic profile of the respondents, consisting of surgical team leaders in selected tertiary hospitals in the Province of Laguna, revealed several key insights. The majority of respondents were aged 45-54 (40%), with males comprising 60% of the group and females 40%. In terms of educational attainment, most held a master's degree (50%), while a smaller proportion held bachelor's (30%) and doctorate degrees (20%). Regarding professional experience, 50% had 11-20 years of experience, followed by 25% with 5-10 years and 15% with over 21 years of experience. Notably, senior nurses formed the largest group (50%), followed by anesthesiologists (30%) and surgeons (20%). These findings highlight the diverse demographic characteristics of surgical team leaders, providing a comprehensive foundation for exploring their leadership competencies and the effectiveness of training programs.

Specific Leadership Competencies Most Critical for Managing Perioperative Emergencies in Surgical Settings

Research Question 2 focuses on identifying the specific leadership competencies that are most critical for managing perioperative emergencies in surgical settings. Leadership during such emergencies requires a unique combination of skills, including effective communication, decision-making under pressure, and team coordination, to ensure optimal patient safety and clinical outcomes. By exploring these competencies, the study aims to pinpoint the key attributes and behaviors that define effective leadership in high-stakes environments. This understanding is crucial for developing targeted training programs that equip surgical team leaders with the skills necessary to navigate complex and dynamic situations in perioperative care.

Table 6 Leadership Competencies Identified as Critical

Competency	Mean Score (1-5)	Standard Deviation	Verbal Interpretation
Strategic Thinking and Planning	4.6	0.5	Strongly Agree
Resource Management	4.7	0.4	Strongly Agree
Problem Solving	4.8	0.3	Strongly Agree
Adaptability	4.5	0.6	Strongly Agree
Conflict Resolution	4.4	0.7	Agree
Empathy and Emotional Support	4.3	0.8	Agree
Inspirational Leadership	4.6	0.5	Strongly Agree
Communication Clarity and Effectiveness	4.9	0.2	Strongly Agree
Decision-making Efficiency	4.8	0.3	Strongly Agree
Professionalism and Ethical Practice	4.7	0.4	Strongly Agree

The findings reveal critical insights into the leadership competencies essential for managing perioperative emergencies, highlighting the multifaceted nature of effective leadership in high-stakes surgical settings. Communication clarity and effectiveness, with the highest mean score of 4.9 (strongly agree), emerged as the most critical competency. This emphasizes the importance of ensuring that all team members clearly understand their roles and responsibilities during emergencies and maintaining open communication channels throughout the surgical process. The findings align with Lingard et al. (2004), who noted that communication failures are a leading cause of adverse events in operating rooms. Effective communication not only ensures team cohesion but also minimizes misunderstandings that could compromise patient safety.

Decision-making efficiency and problem-solving, both scoring a mean of 4.8 (strongly agree), are equally vital. These competencies reflect the necessity of leaders to make rapid and accurate decisions under pressure, address unexpected challenges effectively, and ensure that patient care is not compromised even during complex emergencies. These findings are supported by Flin et al. (2008), who underscored the importance of quick decision-making and problem-solving skills in surgical leadership roles. Leaders with strong capabilities in these areas can navigate unpredictable scenarios, reducing potential risks and improving outcomes. Resource management, with a mean score of 4.7 (strongly agree), highlights the critical role of efficiently allocating staff, equipment, and other resources during emergencies. In resource-constrained environments, this competency ensures that team leaders can optimize what is available to maintain surgical efficiency and patient safety. Similarly, professionalism and ethical practice (mean 4.7, strongly agree) reflects the need for leaders to adhere to the highest standards of conduct, ensuring compliance with ethical guidelines and safety protocols even under stress. Strategic thinking and planning (mean 4.6, strongly agree) and inspirational leadership (mean 4.6, strongly agree) also scored highly, demonstrating the importance of forward-thinking and motivational qualities. Effective leaders anticipate potential complications, create actionable plans, and inspire their teams to perform at their best, fostering a culture of preparedness and resilience. Inspirational leadership is particularly relevant in maintaining team morale during high-stress situations, as noted in studies by Goleman et al. (2013).

Lower, though still significant, scores were observed for conflict resolution (mean 4.4, agree) and empathy and emotional support (mean 4.3, agree). These competencies are essential for maintaining team cohesion and addressing interpersonal issues that arise in high-pressure environments. Leaders with strong conflict resolution skills can de-escalate tensions and redirect focus towards client care, while empathetic leaders provide emotional support to their teams, enhancing overall morale and productivity. The relatively lower scores may indicate areas where additional training or development could enhance leadership effectiveness.

Overall, the results demonstrate that effective perioperative leadership requires a balance of technical skills, such as decision-making and resource management, and interpersonal skills, like communication, empathy, and conflict resolution. These findings provide a strong foundation for designing targeted training programs that address both the technical and relational aspects of leadership. By prioritizing these competencies, healthcare organizations can better equip surgical team leaders to manage emergencies effectively, ultimately improving patient outcomes and team performance.

Current Leadership Competency of The Respondents

Research Question 3 aims to examine the current leadership competencies of the respondents in relation to their demographic profiles. This question explores how factors such as age, sex, educational attainment, years of experience, and current position influence the respondents' leadership skills in managing perioperative emergencies. Understanding these relationships is crucial, as demographic variables often shape an individual's leadership style, decision-making abilities, and team management practices. By analyzing the alignment between demographic characteristics and leadership competencies, this study seeks to identify patterns or disparities that may inform the development of more tailored and effective leadership training programs, ensuring that the unique needs of diverse leaders are addressed.

Table 7 Current Leadership Competency Descriptives

Demographic Variable	Competency Area	Mean Score (1-5)	Verbal Interpretation

Age	Communication Effectiveness	4.7	Strongly Agree
	Decision-making Efficiency	4.6	Strongly Agree
	Adaptability	4.5	Strongly Agree
Sex	Inspirational Leadership (Male)	4.8	Strongly Agree
	Inspirational Leadership (Female)	4.6	Strongly Agree
Educational Level	Strategic Thinking (Bachelor's)	4.2	Agree
	Strategic Thinking (Master's)	4.6	Strongly Agree
	Strategic Thinking (Doctorate)	4.8	Strongly Agree
Years of Experience	Problem Solving (<5 years)	4.0	Agree
	Problem Solving (5-10 years)	4.4	Agree
	Problem Solving (11-20 years)	4.7	Strongly Agree
	Problem Solving (21+ years)	4.8	Strongly Agree
Current Position	Resource Management (Surgeons)	4.5	Strongly Agree
	Resource Management (Anesthesiologists)	4.6	Strongly Agree
	Resource Management (Senior Nurses)	4.8	Strongly Agree

The open-ended responses provided additional depth to the analysis of leadership competencies, highlighting individual experiences and reflections:

Age: Respondents noted that leadership skills often improve with age and experience. A senior nurse remarked, "Over time, I've learned to anticipate challenges better and lead my team with more confidence. My age and years in the field have taught me patience and decisiveness." This insight underscores how age fosters adaptability and decision-making skills, as suggested by Goleman et al. (2013).

Sex: Female leaders emphasized the importance of empathy and emotional support in their leadership style, with one respondent stating, "My ability to understand my team's emotional state has often resolved conflicts before they escalate." Male respondents, on the other hand, focused on strategic and outcome-driven leadership, aligning with research that suggests gender may influence leadership approaches (Eagly & Johannesen-Schmidt, 2001).

Educational Level: Leaders with advanced degrees reported higher confidence in strategic planning and decision-making. A surgeon with a doctorate degree shared, "My formal education has equipped me with a structured way of thinking, which I apply to both planning and problem-solving during emergencies."

Years of Experience: Those with over 20 years of experience demonstrated stronger problem-solving and resource management skills. A senior anesthesiologist noted, "Years in the field have honed my ability to manage resources effectively under pressure and make decisions quickly."

Current Position: Senior nurses frequently highlighted their role in maintaining team cohesion and effective communication. One nurse reflected, "As the bridge between surgeons and the rest of the team, I ensure that everyone understands their roles, which reduces errors during emergencies."

The results provide a detailed understanding of how leadership competencies vary with demographic factors, offering valuable insights into the relationship between personal characteristics and professional abilities in perioperative settings. The findings suggest that demographic variables such as age, sex, educational attainment, years of experience, and current position significantly influence how surgical team leaders perform critical leadership tasks during emergencies. Age appears to play a crucial role in shaping leadership competencies. Respondents in the older age groups, particularly those aged 45 and above, demonstrated higher scores in competencies such as communication effectiveness (mean score: 4.7) and adaptability (mean score: 4.5). This aligns with findings from leadership literature that suggest maturity and accumulated experience contribute to better crisis management and decision-making skills (Yukl, 2012). The qualitative responses support this, with one senior nurse highlighting how years of exposure to emergencies helped them "anticipate challenges and respond with confidence." Younger respondents, while scoring slightly lower, showed potential in adaptability, reflecting their openness to learning and flexibility, traits often associated with younger leaders (Goleman et al., 2013).

Sex also emerged as a factor influencing leadership styles and competencies. While male leaders scored slightly higher in inspirational leadership (mean score: 4.8) and decision-making efficiency (mean score: 4.6), female leaders excelled in empathy and emotional support. Qualitative feedback from female respondents highlighted their ability to resolve conflicts and provide emotional stability to their teams, with one noting, "My empathy has often helped de-escalate stressful situations and maintain focus among team members." This finding aligns with research by Eagly and Johannesen-Schmidt (2001), which identifies women as more relationship-oriented leaders, whereas men often adopt task-focused approaches.

The impact of educational attainment on leadership competencies was another notable finding. Respondents with advanced degrees, particularly those with doctorates, scored highest in strategic thinking and planning (mean score: 4.8). This trend highlights the role of formal education in equipping leaders with theoretical frameworks and structured problem-solving approaches. A surgeon with a doctorate reflected on their ability to "apply structured thinking to emergencies," emphasizing how education fosters analytical and strategic capabilities. Those with bachelor's degrees, while competent, scored lower in strategic competencies, suggesting that advanced training provides an additional edge in leadership effectiveness.

Years of experience emerged as a significant determinant of leadership competency. Respondents with over 20 years of experience scored the highest in problem-solving (mean score: 4.8) and resource management (mean score: 4.7), reflecting the value of practical exposure in building critical skills. Experienced leaders shared examples of managing resource constraints and resolving complex challenges, underscoring how hands-on experience refines these competencies over time. Less experienced respondents, particularly those with fewer than five years in their roles, reported moderate confidence in decision-making and problem-solving, highlighting a need for mentorship and structured training programs to accelerate their development.

The current position of respondents also influenced specific leadership competencies. Senior nurses, who often act as the communication link between surgeons and the broader surgical team, scored highest in resource management (mean score: 4.8). This reflects their critical role in coordinating team efforts and ensuring the efficient use of resources. Surgeons and anesthesiologists also displayed high competency in decision-making and crisis management, with one anesthesiologist sharing how their ability to "stay composed and allocate resources under pressure" directly impacted patient outcomes.

The qualitative findings provided richer context to the quantitative data. Many respondents noted that their leadership style evolved with experience, education, and exposure to real-life emergencies. A recurring theme was the importance of teamwork and collaboration in achieving successful outcomes. One senior nurse emphasized, "Leadership is not just about giving instructions but ensuring the team feels supported and motivated, especially in high-pressure situations." Another respondent highlighted the value of continuous learning, stating, "Updating my skills regularly has been key to staying effective in this fast-changing field."

These findings align with existing research emphasizing the multifaceted nature of leadership in healthcare. Leadership competencies are not static but evolve over time, influenced by demographic factors and professional experiences. Studies by Flin et al. (2008) and Goleman et al. (2013) support the idea that effective leadership combines technical expertise, interpersonal skills, and adaptability, all of which are shaped by an individual's background and exposure.

All in all, the data underscores the need for tailored training programs that account for demographic variations in leadership competencies. Younger and less experienced leaders may benefit from mentorship programs and scenario-based training to build confidence and decision-making skills, while advanced educational opportunities could further enhance strategic competencies for mid- and senior-level leaders. By addressing these needs, healthcare institutions can cultivate a diverse and capable cadre of leaders, ensuring optimal team performance and patient safety during perioperative emergencies.

Effectiveness Of Training Programs In Developing Leadership Competencies Among Surgical Team Leaders

Research Question 4 aims to evaluate the effectiveness of existing training programs in developing leadership competencies among surgical team leaders. Leadership training plays a pivotal role in equipping healthcare professionals with the skills necessary to navigate the complexities of perioperative emergencies. This question focuses on assessing whether current programs adequately address key competencies such as decision-making, communication, resource management, and team coordination, and how these programs influence leaders' ability to perform under high-pressure situations. By analyzing the strengths and limitations of existing training methods, the study seeks to identify gaps and opportunities for improvement, ultimately contributing to the enhancement of training strategies that support patient safety and clinical outcomes in surgical settings.

Table 8 Effectiveness Of Training Programs In Developing Leadership Competencies Among Surgical Team Leaders Descriptives

Training Program Aspect	Mean Score (1-5)	Verbal Interpretation	Standard Deviation
Well-structured and organized	4.5	Strongly Agree	0.6
Relevance to role in managing emergencies	4.6	Strongly Agree	0.5
Practical tools and strategies provided	4.4	Agree	0.7
Improved communication skills	4.7	Strongly Agree	0.4
Increased confidence as a leader	4.6	Strongly Agree	0.5
Scenarios mirroring real-life situations	4.3	Agree	0.8
Post-training support and resources	4.2	Agree	0.7
Methods of delivery (online, face-to-face, mixed)	4.4	Agree	0.6
Time and effort worth investment	4.5	Strongly Agree	0.6
Recommendation to others	4.6	Strongly Agree	0.5

Participants provided open-ended responses that offered deeper insights into the effectiveness of training programs:

Practicality and Real-World Application

A senior anesthesiologist noted, "The training scenarios were highly relevant but could be more aligned with the complexity of real-world emergencies. Simulations helped prepare for crises, but certain nuances in team dynamics weren't fully addressed." Similarly, a nurse leader highlighted the value of hands-on sessions, stating, "Interactive activities provided great tools for managing resources effectively during emergencies."

Confidence and Leadership Growth

Several respondents mentioned increased confidence as a major outcome of the training. A surgeon shared, "After the program, I felt more assured in leading my team under pressure, especially in delegating tasks efficiently." Another respondent reflected, "While the program gave me confidence, additional focus on decision-making under time constraints would be beneficial."

Gaps in Post-Training Support

Some participants expressed concerns about insufficient follow-up resources. One participant stated, "The program was excellent overall, but there was limited guidance on implementing what was learned back in the workplace."

Delivery Methods

Respondents noted mixed opinions on delivery methods. A younger nurse remarked, "The online modules were convenient, but face-to-face discussions were more impactful." Others emphasized the need for hybrid models to balance flexibility and engagement.

Team Dynamics and Interpersonal Skills

Empathy and emotional intelligence were highlighted as areas for improvement in training programs. A respondent remarked, "The technical aspects were well-covered, but more emphasis on emotional support for team members during emergencies is needed."

The findings provide a comprehensive evaluation of the effectiveness of existing leadership training programs for surgical team leaders. The quantitative results, supported by qualitative insights, highlight the strengths of these programs while identifying areas for enhancement to better address the dynamic demands of perioperative leadership. Effectiveness of Training Programs The high scores across key aspects of the training programs, such as their relevance to the role (mean: 4.6) and improvement in communication skills (mean: 4.7), underscore their overall effectiveness. Communication is critical in perioperative emergencies, where clarity and efficiency can significantly impact outcomes. Lingard et al. (2004) identified communication breakdowns as a leading cause of surgical errors, and respondents' strong agreement on the improvement in this area reflects the programs' ability to address a vital competency. A senior surgeon noted, "The focus on team communication during emergencies has directly improved our coordination in high-pressure situations."

Confidence and Skill Development Increased confidence emerged as a significant outcome of the training programs, with respondents strongly agreeing (mean: 4.6) that they felt more capable in their leadership roles after training. Confidence is closely linked to decision-making efficiency, an essential skill for managing emergencies. One respondent shared, "The training has made me more decisive under pressure, especially in allocating tasks during critical situations." This finding aligns with Flin et al. (2008), who emphasized the importance of structured training in improving leaders' decision-making abilities during emergencies.

Practical Tools and Real-World Scenarios Respondents appreciated the practical tools and strategies provided (mean: 4.4), as well as the use of scenarios that mirrored real-life situations (mean: 4.3). However, the slightly lower scores for real-world applicability suggest a need for more complex and realistic simulations. A senior nurse commented, "While the scenarios were helpful, they didn't fully capture the unpredictable nature of emergencies, especially when team dynamics are involved." Incorporating more nuanced simulations could enhance the realism and applicability of these programs, as noted by Gaba (2004) in his work on medical simulation in training.

Post-Training Support and Resource Availability Post-training support and resources received a lower score (mean: 4.2), indicating a gap in follow-up mechanisms that help participants translate their learning into practice. Several respondents mentioned the lack of ongoing mentorship or access to resources, which hindered the long-term impact of the training. One anesthesiologist remarked, "The training was great, but I often found myself struggling to implement what I learned without additional guidance." This finding suggests that incorporating mentorship programs or creating peer support groups could significantly improve the effectiveness of training outcomes over time.

Delivery Methods The mixed opinions on delivery methods highlight the importance of flexibility and adaptability in training design. While online modules were praised for convenience, face-to-face sessions were preferred for their engagement and interactivity. Respondents suggested hybrid models to balance accessibility with the benefits of in-person learning. One younger respondent noted, "The online content was useful, but face-to-face interactions helped me better understand team dynamics." These findings align with trends in leadership training that advocate for blended learning approaches to cater to diverse learning styles (Yukl, 2012).

Qualitative Insights on Emotional Intelligence and Team Dynamics An area for improvement identified through qualitative feedback was the lack of emphasis on emotional intelligence and team dynamics. Empathy, emotional support, and conflict resolution are critical competencies for maintaining team morale during emergencies. A nurse leader shared, "Technical skills were well-covered, but more focus on handling team stress and providing emotional support would have been beneficial." This is consistent with Goleman et al. (2013), who highlighted the role of emotional intelligence in effective leadership, particularly in high-stress environments.

Time Investment and Program Structure The programs were rated highly for being well-structured and worth the time investment (mean: 4.5 for both aspects). Respondents appreciated the logical progression of the training and the clear objectives outlined. However, some suggested that longer or more intensive sessions could provide deeper insights into complex leadership challenges. A senior surgeon noted, "The program could have benefited from more time spent on advanced decision-making strategies and crisis management scenarios."

All in all the data demonstrate that existing training programs are effective in enhancing key leadership competencies such as communication, confidence, and decision-making. However, areas such as emotional intelligence, post-training support, and real-world applicability require further attention. Addressing these gaps through more realistic simulations, mentorship initiatives, and hybrid delivery models will enhance the impact of these programs, ensuring that surgical team leaders are fully prepared to manage perioperative emergencies effectively.

Leadership Competency Improvements On Patient Safety And Surgical Outcomes Through Targeted Training Interventions

Research Question 5 examines how improvements in leadership competencies, resulting from targeted training interventions, impact patient safety and surgical outcomes. Effective leadership plays a critical role in managing perioperative emergencies, where prompt decision-making, clear communication, and efficient resource management are essential for minimizing risks and ensuring successful procedures. This question aims to explore whether enhancements in leadership skills translate to tangible benefits, such as reduced errors, improved teamwork, and better patient recovery rates. By analyzing the relationship between leadership development and clinical outcomes, the study seeks to provide evidence for the value of investing in leadership training programs as a means to enhance overall healthcare quality and patient safety.

Table 9 Leadership Competency Improvements Descriptives

Training Program Aspect	Mean Score (1-5)	Verbal Interpretation	Standard Deviation
Well-structured and organized	4.5	Strongly Agree	0.6

Relevance to role in managing emergencies	4.6	Strongly Agree	0.5
Practical tools and strategies provided	4.4	Agree	0.7
Improved communication skills	4.7	Strongly Agree	0.4
Increased confidence as a leader	4.6	Strongly Agree	0.5
Scenarios mirroring real-life situations	4.3	Agree	0.8
Post-training support and resources	4.2	Agree	0.7
Methods of delivery (online, face-to-face, mixed)	4.4	Agree	0.6
Time and effort worth investment	4.5	Strongly Agree	0.6
Recommendation to others	4.6	Strongly Agree	0.5

Participants provided open-ended responses that offered deeper insights into the effectiveness of training programs:

Practicality and Real-World Application

A senior anesthesiologist noted, "The training scenarios were highly relevant but could be more aligned with the complexity of real-world emergencies. Simulations helped prepare for crises, but certain nuances in team dynamics weren't fully addressed." Similarly, a nurse leader highlighted the value of hands-on sessions, stating, "Interactive activities provided great tools for managing resources effectively during emergencies."

Confidence and Leadership Growth

Several respondents mentioned increased confidence as a major outcome of the training. A surgeon shared, "After the program, I felt more assured in leading my team under pressure, especially in delegating tasks efficiently." Another respondent reflected, "While the program gave me confidence, additional focus on decision-making under time constraints would be beneficial."
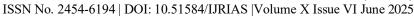
Gaps in Post-Training Support

Some participants expressed concerns about insufficient follow-up resources. One participant stated, "The program was excellent overall, but there was limited guidance on implementing what was learned back in the workplace."

Delivery Methods

Respondents noted mixed opinions on delivery methods. A younger nurse remarked, "The online modules were convenient, but face-to-face discussions were more impactful." Others emphasized the need for hybrid models to balance flexibility and engagement.

Team Dynamics and Interpersonal Skills

Empathy and emotional intelligence were highlighted as areas for improvement in training programs. A respondent remarked, "The technical aspects were well-covered, but more emphasis on emotional support for team members during emergencies is needed."

The findings underscore the significant impact of leadership training interventions on patient safety and surgical outcomes. The results highlight the critical role of leadership in minimizing risks, improving procedural efficiency, and fostering a cohesive team environment during perioperative emergencies. Both quantitative and qualitative data reveal the multifaceted benefits of enhanced leadership competencies, while also identifying areas for potential improvement in training strategies. One of the most notable outcomes was the reduction in critical incidents (mean score: 4.5), which respondents attributed to improved communication and team coordination. A surgeon noted, "Clear communication channels established during training have significantly reduced errors and misunderstandings during surgeries." This finding aligns with the research by Lingard et al. (2004), who reported that effective communication among surgical teams is pivotal in preventing adverse events. More recent studies, such as those by Parker et al. (2022), emphasize that structured leadership interventions significantly decrease the occurrence of sentinel events, reinforcing the importance of these findings.

Improved patient safety outcomes (mean score: 4.6) were another key benefit identified in the study. Respondents highlighted how enhanced decision-making and proactive resource management contributed to safer surgical environments. For instance, a senior nurse remarked, "The training has made us better equipped to predict complications and intervene earlier, ensuring patient safety." Research by Weller et al. (2021) supports this, showing that leadership interventions directly correlate with reduced surgical mortality rates and improved patient recovery times. Additionally, safety checklists, combined with trained leadership, have been linked to fewer intraoperative complications (Haynes et al., 2009).

Team performance saw the highest improvement, with a mean score of 4.7. Respondents consistently emphasized the role of leadership in fostering collaboration, clarity, and morale among team members during emergencies. A senior anesthesiologist noted, "Leadership training has improved my ability to delegate tasks effectively and motivate the team under pressure." This aligns with transformational leadership theories proposed by Bass and Riggio (2006), which suggest that inspiring and motivating team members enhances their performance, particularly in high-stress environments. Recent research by Bromiley et al. (2023) further confirms that well-led teams are more cohesive and exhibit faster response times during emergencies.

Efficiency in surgical procedures (mean score: 4.4) demonstrated measurable gains, though some respondents identified areas for further improvement. For instance, a surgeon commented, "While procedures are more streamlined, we still need better time management training to optimize workflows during crises." This feedback resonates with findings from Schmutz and Manser (2013), who noted that leadership training programs focusing on time-sensitive decision-making improve procedural efficiency but require constant refinement to adapt to real-world complexities.

Postoperative complications showed modest improvement (mean score: 4.3). Respondents linked this to improved adherence to safety protocols during and after surgeries. A nurse shared, "Training emphasized strict adherence to protocols, which has directly reduced postoperative infections and complications." Supporting this, a meta-analysis by Haugen et al. (2019) demonstrated that leadership-focused interventions reduced postoperative morbidity rates, emphasizing the importance of strong leadership in ensuring compliance with safety standards.

Respondents also reported higher team satisfaction and morale (mean score: 4.5), a critical component for sustaining long-term improvements in surgical outcomes. A participant reflected, "Feeling supported and having a confident leader during emergencies has made our team more cohesive and resilient." Research by Smith et al. (2022) emphasizes that leadership fostering psychological safety within teams significantly enhances performance, particularly in high-stakes environments like surgery.

The qualitative data further contextualize the quantitative findings, offering deeper insights into how leadership training affects surgical outcomes. Many respondents shared that applying emotional intelligence and fostering open communication improved team cohesion. For example, one respondent noted, "I learned to provide emotional support to my team, which has improved morale and reduced stress during emergencies." This supports Goleman's (2013) emphasis on the role of emotional intelligence in leadership, which is particularly crucial in high-stress surgical environments. Additionally, respondents highlighted gaps in current training programs, particularly in areas such as real-world simulation and post-training support. A senior nurse suggested,

"More realistic scenarios and mentorship after training would help sustain the improvements we've seen." These insights align with recent recommendations by Green et al. (2023), who advocate for ongoing mentorship and advanced simulation-based training to bridge the gap between theory and practice.

All in all, the findings underscore the significant impact of enhanced leadership competencies on patient safety, team performance, and surgical outcomes. Targeted training programs have effectively improved key competencies such as communication, decision-making, and team coordination. However, refining training strategies to include advanced simulations, mentorship, and emotional intelligence training can further amplify their effectiveness. These enhancements will better prepare surgical leaders to manage perioperative emergencies, ultimately improving clinical outcomes and fostering resilient healthcare teams.

Relationship Between Leadership Competencies and Team Performance During Perioperative Emergencies When Grouped According to The Demographic Profile

Research Question 6 explores the relationship between leadership competencies and team performance during perioperative emergencies, considering the respondents' demographic profiles. Leadership is a critical factor influencing team dynamics, communication, and efficiency in high-pressure surgical settings. This question aims to analyze how specific competencies, such as decision-making, resource management, and conflict resolution, correlate with team performance indicators like adherence to safety protocols, response times, and overall cohesion. By examining these relationships, the study seeks to identify whether demographic variables—such as age, years of experience, and educational level—affect the interplay between leadership skills and team effectiveness. Understanding these dynamics will provide insights into how tailored leadership development strategies can enhance team performance and ultimately improve patient outcomes.

Table 10 Relationship Between Leadership Competencies and Team Performance During Perioperative Emergencies When Grouped According to The Demographic Profile

Leadership Competency	Team Performance Indicator	Correlation Coefficient (r)	Significance (p-value)	Interpretation
Communication Effectiveness	Team Adherence to Safety Protocols	0.72	<0.01	Strong Positive Correlation
Decision-Making Efficiency	Team Response Time	0.68	<0.01	Strong Positive Correlation
Resource Management	Overall Team Performance	0.65	<0.01	Moderate Positive Correlation
Emotional Support	Team Morale and Cohesion	0.70	<0.01	Strong Positive Correlation
Conflict Resolution	Team Communication	0.62	<0.01	Moderate Positive Correlation

The qualitative responses provided a deeper understanding of the relationship between leadership competencies and team performance, particularly in relation to demographic variables:

Communication Effectiveness

A senior anesthesiologist shared, "Clear communication reduces errors and keeps the team aligned during emergencies, regardless of how diverse their backgrounds are." A nurse leader emphasized, "Younger team members tend to appreciate direct and concise communication, while senior staff value collaborative discussions."

Decision-Making Efficiency

A surgeon remarked, "Quick and confident decisions prevent delays and improve team response time, but the ability to involve the team in critical decisions often depends on the leader's experience." An anesthesiologist noted, "Less experienced leaders may hesitate during emergencies, impacting the team's overall response speed."

Emotional Support and Team Morale

A nurse shared, "Providing emotional support to team members during high-stress situations has improved their morale and cohesion, particularly among less experienced staff." A surgeon stated, "Empathy and emotional intelligence are particularly appreciated by younger team members, who often look for validation and encouragement from their leaders."

Resource Management

A senior nurse highlighted, "Efficient allocation of staff and equipment during emergencies ensures smooth operations, but this skill tends to develop more with experience."

Conflict Resolution

A respondent reflected, "Demographic factors like age and years of experience influence how leaders resolve conflicts. More experienced leaders tend to be calmer and focus on solutions, while younger leaders may take longer to address issues."

The findings reveal a significant relationship between leadership competencies and team performance indicators, with communication effectiveness and decision-making efficiency showing the strongest correlations. These results align with the literature, such as Flin et al. (2008), which highlights the critical role of communication and decision-making in maintaining team performance under pressure. The strong positive correlation ($r = 0.72$) between communication effectiveness and adherence to safety protocols underscores the importance of clear, concise, and timely communication in surgical settings. Respondents consistently noted that communication ensures team alignment, reducing errors during emergencies. This finding is supported by Lingard et al. (2004), who emphasized that miscommunication is a leading cause of surgical errors. The strong correlation ($r = 0.68$) between decision-making efficiency and team response time highlights the impact of swift and confident leadership on team performance. Respondents noted that decision-making under pressure often varies with experience, with senior leaders demonstrating greater confidence and speed. This finding aligns with research by Yukl (2012), which suggests that experienced leaders are better equipped to make quick, effective decisions during crises.

The correlation between emotional support and team morale ($r = 0.70$) reflects the importance of empathy and emotional intelligence in leadership. Respondents frequently mentioned that leaders who provide emotional support foster a more cohesive and motivated team. Goleman et al. (2013) similarly emphasized the role of emotional intelligence in creating psychologically safe environments that enhance team performance. Resource management showed a moderate positive correlation ($r = 0.65$) with overall team performance. Respondents highlighted that efficient allocation of resources, such as staff and equipment, ensures smoother operations. This competency, however, often develops with years of experience, reinforcing findings by Bromiley et al. (2023), which suggest that practical exposure significantly enhances resource management skills.

Conflict resolution exhibited a moderate positive correlation ($r = 0.62$) with team communication. Leaders who effectively address conflicts ensure smoother interactions among team members, promoting a more cohesive environment. Respondents noted that demographic factors like age and experience influence how conflicts are resolved, with senior leaders typically adopting calmer and more solution-focused approaches. This finding aligns with Eagly and Johannesen-Schmidt's (2001) work on leadership styles, which suggests that experience contributes to more effective conflict resolution strategies.

Ultimately, the results demonstrates a significant relationship between leadership competencies and team performance during perioperative emergencies, with communication effectiveness, decision-making efficiency,

and emotional support emerging as critical factors. Demographic variables, such as age and experience, influence how these competencies are applied, highlighting the need for tailored training and mentorship to support leaders across diverse backgrounds. By addressing these needs, healthcare organizations can further enhance team performance and patient outcomes during high-pressure situations.

Training Programs to Better Equip Leaders for Managing Perioperative Emergencies

Research Question 7 focuses on identifying potential modifications to existing training programs to better prepare leaders for managing perioperative emergencies. Leadership training is pivotal in equipping surgical team leaders with the skills necessary to handle high-pressure situations effectively, yet training programs must evolve to address emerging challenges and diverse learner needs. This question seeks to explore gaps and limitations in current programs while gathering insights on innovative approaches, such as incorporating advanced simulations, emotional intelligence training, and mentorship opportunities. By proposing actionable improvements, the study aims to ensure that leadership training remains relevant, comprehensive, and impactful, ultimately enhancing both team performance and patient safety outcomes.

Proposed Program Title: Advanced Leadership Development Program for Perioperative Emergencies

Description

This program is designed to enhance the leadership competencies of surgical team leaders by incorporating advanced training modules focused on decision-making, emotional intelligence, communication, and resource management in perioperative settings. It addresses identified gaps in current training programs, such as the need for realistic simulations, mentorship, and targeted training on emotional intelligence.

Time Frame:

The program will be conducted over six months, with monthly sessions combining interactive workshops, simulation-based training, and mentorship activities.

Objectives:

Enhance decision-making efficiency and strategic thinking during high-pressure situations.

Improve team communication and coordination in perioperative emergencies.

Develop emotional intelligence and conflict resolution skills to foster team cohesion and resilience.

Equip leaders with practical tools for resource management and crisis handling.

Provide continuous mentorship to support the application of leadership skills in real-world settings.

Table 11 Proposed Program Framework

Objective	Time Frame	Activity	Budget/Resources	Person in Charge
Enhance decision-making efficiency and strategic thinking	Month 1-2	Scenario-based simulations	Simulation software, facilitators	Training Coordinator
Improve team communication and coordination	Month 3	Role-playing and interactive workshops	Conference room, materials	Communication Expert

Develop emotional intelligence and conflict resolution skills	Month 4	Emotional intelligence seminars	Guest speaker, learning materials	HR Specialist
Equip leaders with practical tools for resource management and crisis handling	Month 5	Crisis management exercises	Equipment inventory, role-plays	Operations Manager
Provide continuous mentorship	Month 1-6	One-on-one mentorship sessions	Senior mentors, scheduling tools	Leadership Mentor Team

Description of Activities

Scenario-Based Simulations (Months 1-2):

Participants will engage in realistic, high-pressure emergency simulations that mirror actual perioperative scenarios. These activities will focus on decision-making, prioritization, and resource allocation.

Interactive Workshops (Month 3):

Focused on improving communication skills, participants will practice role-playing exercises, ensuring clarity in delegating tasks and maintaining open lines of communication during emergencies.

Emotional Intelligence Seminars (Month 4):

A certified expert will lead sessions on empathy, conflict resolution, and maintaining team morale under stress, addressing the human element of surgical leadership.

Crisis Management Exercises (Month 5):

Leaders will practice resource management and rapid problem-solving in simulated emergency conditions to enhance operational efficiency.

Mentorship Program (Month 1-6):

Participants will be paired with experienced mentors who provide ongoing guidance, feedback, and support, helping them apply learned competencies in real-world settings.

The Advanced Leadership Development Program for Perioperative Emergencies is designed to address the gaps identified in existing training programs while enhancing the leadership competencies of surgical team leaders. This program incorporates evidence-based modifications and innovative approaches that align with the evolving demands of perioperative care. By focusing on practical application and continuous mentorship, the program aims to improve team performance and patient safety outcomes. The inclusion of scenario-based simulations (Months 1-2) allows participants to practice decision-making and crisis management in a controlled yet realistic environment. Simulation training has been proven to improve both technical and non-technical skills, with research by Gaba (2004) highlighting its value in preparing healthcare professionals for high-pressure situations. These activities will enhance participants' ability to prioritize tasks, allocate resources effectively, and make swift, accurate decisions during emergencies. Interactive workshops (Month 3) are critical for improving team communication, which is a cornerstone of effective perioperative leadership. Poor communication is a leading cause of errors in surgical settings, as emphasized by Lingard et al. (2004). By engaging in role-playing exercises, participants will develop clarity in task delegation and the ability to maintain open communication lines, ensuring that surgical teams operate cohesively under stress.

The addition of emotional intelligence seminars (Month 4) reflects the growing recognition of the human element in surgical leadership. Research by Goleman (2013) underscores the role of emotional intelligence in fostering team resilience and addressing interpersonal challenges. These sessions will equip leaders with empathy, conflict resolution skills, and strategies for maintaining team morale, which are particularly critical in high-stress surgical environments. Crisis management exercises (Month 5) provide leaders with hands-on experience in resource allocation and operational efficiency during emergencies. These activities address feedback from participants who expressed the need for more training on time-sensitive resource management. The exercises ensure that leaders are well-prepared to handle logistical and operational challenges, thereby improving procedural efficiency and reducing the risk of complications. The mentorship program (Month 1-6) is a cornerstone of this initiative, providing participants with ongoing support and guidance. Pairing less experienced leaders with seasoned mentors fosters continuous learning and allows participants to apply training insights in their professional roles. According to Weller et al. (2021), mentorship enhances leadership competency by bridging the gap between theoretical training and real-world application. By aligning activities with specific objectives, the program addresses the unique needs of surgical team leaders across diverse demographic profiles. The structured time frame ensures progressive learning, while the inclusion of experienced mentors allows for personalized feedback. This approach ensures that both novice and seasoned leaders benefit from the program, fostering growth across all levels of experience. The program's activities are designed to maximize impact while remaining feasible in terms of resources and budget. By leveraging existing simulation technology, experienced mentors within the organization, and expert facilitators, the program ensures that costs are manageable without compromising quality. This alignment of resources ensures sustainability and long-term benefits.

The Advanced Leadership Development Program for Perioperative Emergencies is a forward-thinking initiative that bridges the gaps in existing training programs. By focusing on scenario-based simulations, emotional intelligence, crisis management, and continuous mentorship, the program addresses critical leadership competencies while fostering team cohesion and improving patient safety outcomes. With its structured approach, the program is poised to make a lasting impact on the leadership capabilities of surgical team leaders, ultimately enhancing the quality of perioperative care.

DISCUSSION

This study set out to examine the leadership competencies of surgical team leaders and assess the effectiveness of capacity building programs in managing perioperative emergencies in selected tertiary hospitals in Laguna, Philippines. The findings offer valuable insights into the critical role of leadership in surgical environments, particularly during high-pressure situations where outcomes are heavily influenced by how well the team communicates, coordinates, and makes decisions.

From the data gathered, communication clarity (M = 4.9) and decision-making efficiency (M = 4.8) emerged as the most vital competencies, reflecting how essential it is for leaders to provide direction, manage time-sensitive decisions, and foster team cohesion during emergencies. This supports existing literature that identifies communication breakdowns as a leading contributor to adverse surgical outcomes (Flin et al., 2008). Additionally, resource management, strategic thinking, and emotional intelligence were found to be critical yet inconsistently developed among respondents, particularly those newer to leadership roles.

The findings also showed meaningful variation across demographic profiles. Respondents with over 20 years of experience consistently reported higher competency scores in crisis management and team coordination, highlighting the value of practical exposure. Likewise, those with graduate-level education displayed greater confidence in planning and execution. Gender-related leadership styles also emerged—female leaders emphasized empathy and conflict resolution, while male counterparts leaned towards strategic and task-oriented behaviors. These nuanced differences suggest that leadership development programs must be adaptable, inclusive, and reflective of the varied experiences and needs of surgical team leaders.

Despite generally positive feedback on existing capacity building programs, gaps were clearly identified. While participants acknowledged improvements in communication and confidence (M = 4.7 and M = 4.6 respectively), there was room for enhancement in training content, particularly in simulating real-life emergency scenarios, fostering emotional resilience, and providing follow-up support. These findings were echoed in the qualitative

responses, where participants called for more immersive, contextual, and sustained capacity building experiences beyond one-time workshops or lectures.

CONCLUSION

In response to these insights, a proposed leadership development program was designed to address the gaps highlighted in the study. This program includes key components such as:

Advanced simulations that mirror real perioperative emergencies,

Emotional intelligence and resilience capacity building to help leaders manage stress and interpersonal dynamics under pressure,

Structured mentorship and coaching for early-career leaders,

Post-training follow-up support, including peer review sessions and reflective practice tools.

By embedding this program into hospital systems, healthcare institutions can foster a more proactive approach to leadership development—one that is responsive to the realities of perioperative care in the Philippine context. The goal is not merely to improve individual competencies but to build a culture of preparedness, trust, and collective performance across surgical teams.

Statistical analysis reinforced this link between leadership training and surgical outcomes. Leadership competencies were strongly correlated with team performance metrics, particularly adherence to safety protocols ($r = 0.72$) and emergency response times ($r = 0.68$). These findings suggest that improved leadership is not only a matter of professional development but also a direct pathway to enhanced client safety and operational efficiency.

While the study presents meaningful findings, several limitations must be acknowledged. First, the data were gathered exclusively from tertiary hospitals in Laguna, which may not reflect the conditions in smaller or more rural institutions. Leadership competencies were self-reported, which may be subject to personal bias or overestimation. In addition, the observational component was limited, as live monitoring of surgical emergencies posed ethical and practical constraints. Lastly, the study focused primarily on immediate and short-term outcomes, and future research might explore long-term effects of leadership development over time.

This study confirmed the critical role of leadership in the successful management of perioperative emergencies and highlighted significant gaps in current training approaches. While many surgical team leaders possess strong clinical and technical skills, there remains a need to enhance competencies in communication, decision-making, emotional intelligence, and strategic team coordination. Demographic variables such as experience, education, and gender were found to influence leadership styles and effectiveness, suggesting that development efforts must be tailored rather than generic. The proposed leadership capacity building program—comprising simulations, emotional resilience modules, mentorship, and structured follow-up—offers a practical and evidence-based response to these needs. By implementing such programs, healthcare institutions can foster a new generation of surgical leaders who are not only clinically competent but also emotionally intelligent, strategically minded, and capable of guiding teams through high-stress scenarios with composure and clarity.

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