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Patient Safety Determinants in Surgical Settings: A Literature Review

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Abstract: This research highlights the importance of patient safety in surgical procedures and the influencing factors. Patient safety becomes the primary focus, particularly within the scope of the operating room. Several crucial factors that contribute to maintaining patient safety include the operating room environment, staff participation, safety protocols, and communication among surgical team members. Nineteen journals have been analyzed by the researcher to identify determinants of patient safety within the surgical operating room. The analysis results from this literature review reveal that factors such as safety culture, effective communication among surgical teams, and the physical conditions of the operating room significantly impact patient safety. The significance of medical team skills, implementation of safety protocols, and the use of checklists have proven to reduce the risk of errors in surgical procedures. Conversely, occurrences of surgical wound infections, medical equipment failures, and lack of communication among medical teams can jeopardize patient safety.

Keyword: Determinants, patient Safety, Surgical Patients

INTRODUCTION

Surgical procedures are a healthcare service provided within a hospital setting. Care before, during, and after surgery can lead to morbidity and mortality in patients due to the side effects of these services. Therefore, patient safety during every surgical procedure becomes a priority and necessity, prompting the World Health Organization (WHO) to promote and enforce it across all healthcare systems. WHO requires its members to collectively advocate for a culture of patient safety in every healthcare service (Fathy et al. 2022; Nwosu et al. 2022)

According to the Minister of Health Regulation of the Republic of Indonesia in 2017, Patient Safety is a system designed to make patient care safer, encompassing risk assessment,

identification and management of patient risks, reporting and analyzing incidents, the ability to learn from incidents and their follow-ups, as well as implementing solutions to minimize risks and prevent injuries caused by errors in performing an action or failing to take actions that should have been taken.

The operating room is an incredibly vital and complex area that requires excellent teamwork and careful attention. Nurses play an indispensable and crucial role within the operating room, influencing the success of uncomplicated surgeries. This assertion is reaffirmed by Joseph et al (2018) and Changes in the operating room environment, such as frequent door openings, chaos, poor air quality due to inadequate ventilation, surface contamination, and noise, can impact and jeopardize patient safety. Moreover, besides affecting patient safety, these factors also influence the performance and satisfaction of operating room staff or nurses. Factors such as the layout of the operating room and the lack of ergonomics in surgical equipment and furniture within the operating room can ultimately lead to a decline in the safety of surgical patients.

Determinants of surgical patient safety encompass various factors that can influence patient security and outcomes during surgical procedures. The safety culture implemented in healthcare settings, including within the operating room, plays a crucial role in promoting patient safety. Staff engagement and awareness of the importance of patient safety significantly impact their practices during procedures (Spagnolo et al. 2013; Wagner et al. 2022). Effective communication among surgical team members and good collaboration among doctors, nurses, anesthesiologists, and other medical personnel are essential to prevent errors that could endanger patients. Physical factors such as operating room design, ventilation, lighting, and environmental cleanliness can affect patient safety. A well-designed operating room can reduce the risk of infections, accidents, and errors during surgical procedures (Hammond et al. 2023).

Skills, training, and the proficiency of the medical team are crucial in maintaining patient safety. High levels of expertise and in-depth understanding of surgical procedures can reduce the risk of errors. The utilization of standard protocols and best practice guidelines in surgical care helps to reduce the risk of errors and complications. These protocols include pre-operative assessments, the use of safety checklists, and infection prevention measures (Arad et.al 2023; Committee 2006). An inadequate environment can impact the quality of surgical outcomes. For instance, insufficient lighting can hinder the accurate identification of anatomical structures, potentially affecting the surgical outcome. Drastic or unexpected changes in the operating room environment can also affect the comfort of patients and staff. Factors such as room temperature, noise, or uncomfortable lighting levels can make patients and staff feel uneasy(Daryani, Hamranani, and Wijaya 2023; Gillespie et al. 2016).

Therefore, it is crucial to plan changes in the operating room environment carefully, considering their impact on safety, team performance, procedural efficiency, outcome quality, as well as patient and staff comfort. Good communication among all healthcare team members and thorough planning are highly necessary to implement environmental changes without compromising patient safety and the quality of care.

There are several issues related to surgical patient safety that often arise and become focal points in efforts to enhance healthcare service quality. Surgical site infections are a serious problem that can occur post-surgery. These infections may stem from poor hygiene, inadequate sterilization, or environmental contamination in the operating room (Kim et al. 2015). Medical equipment failures, technical errors, or mistakes during surgical procedures can pose serious risks to patient safety (Stahel, Mauffrey, and Butler 2014). Patient misidentification errors can lead to incorrect procedures performed on the wrong patient or inappropriate medical interventions. Errors in anesthesia administration or unexpected reactions to anesthesia can have serious impacts on patient safety (Ezha Gadis Rekly Arimbi 2023; Kim et al. 2015).

Delay in diagnosing medical conditions or providing necessary medical interventions can worsen a patient's condition. Inadequate or ineffective communication among medical team members can result in procedural errors or inappropriate decision-making. Medication Errors: Mistakes in drug dosages, improper medication use, or unexpected drug reactions can endanger patient safety (Møller et al. 2015). Neglecting necessary post-operative care or inadequate monitoring can increase the risk of post-operative complications. Administrative errors such as medical documentation negligence or inaccurate reporting can impact patient safety. Lack of adherence to patient safety protocols or best practice guidelines can also be serious issues in surgical procedures (Dixon et al. 2015; Girma, Mude, and Bekele 2022; Lawton et al. 2012).

METHOD

This research applies a qualitative approach through a literature review method. The literature review will focus on the interconnection of factors related to surgical patient safety. An analysis was conducted by examining 19 articles from previous studies that discussed factors influencing surgical patient safety, gathered from various sources such as Science Direct, Web of Knowledge, and Scopus (Elsevier).

The entirety of these 19 previous research articles was analyzed and summarized to achieve the intended research goals. The literature review research method involves a systematic series of steps used to gather, evaluate, and analyze relevant literature concerning a specific research topic (Almasdi Syahza 2010; Sugiyono 2016).

RESULTS AND DISCUSSION

Discussion on the importance of patient safety during surgical procedures and various factors that can influence patient safety and outcomes. In the context of the operating room, patient safety aspects take precedence. Factors such as the surgical environment, staff involvement, safety protocols, and communication among surgical team members play a crucial role in maintaining patient safety.

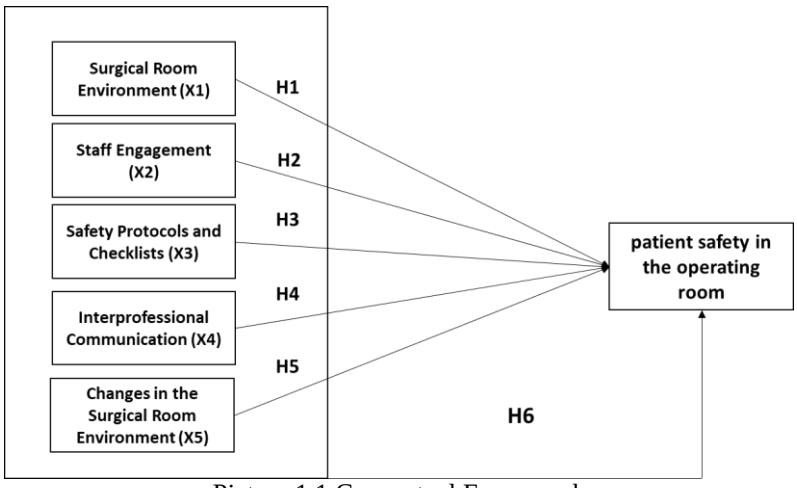
Patient safety is a critical aspect of any surgical procedure. Attention to patient safety is advocated by the World Health Organization (WHO) and is implemented within healthcare systems. The operating room demands particular attention due to its high complexity and influence on surgical outcomes (Fathy et al. 2022; Nwosu et al. 2022). Nurses play a crucial role in the operating room, impacting the success of surgeries. Changes in the operating room environment such as frequent door openings, chaos, poor air quality, and noise can affect nurse safety and performance (Fathy et al. 2022; Joseph et al. 2018). The safety culture applied in healthcare settings plays a vital role in promoting patient safety. Effective communication among surgical team members is essential in preventing errors that may jeopardize patients. Physical factors like operating room design, ventilation, lighting, and environmental cleanliness can influence patient safety (Hammond et al. 2023; Spagnolo et al. 2013; Wagner et al. 2022). Skills, training, and the proficiency of the medical team are crucial to maintaining patient safety. The use of standard protocols and safety checklists can reduce the risks of errors and complications in surgical procedures(Daryani, Hamranani, and Wijaya 2023; Gillespie et al. 2016; Kim et al. 2015)

Surgical site infections, medical equipment failures, patient identification errors, and ineffective communication among medical team members can jeopardize patient safety (Ezha Gadis Rekly Arimbi 2023; Kim et al. 2015). Changes in the operating room environment must be carefully considered, taking into account their impact on safety, team performance, patient comfort, and staff. Effective communication among all healthcare team members and thorough planning are crucial to implementing environmental changes without compromising patient safety and care quality (Dixon et al. 2015; Girma, Mude, and Bekele 2022; Lawton et al. 2012; Münter et al. 2020).

Conceptual Framework

Based on the background, literature review, and discussions above, a conceptual framework for research can be constructed with significant variables that influence patient safety in the operating room, such as: Surgical Room Environment (X1), Staff Engagement (X2), Safety Protocols and Checklists (X3), Interprofessional Communication (X4) and Changes in the Surgical Room Environment (X5).

The conceptual framework for this research is outlined as follows:



Picture 1.1 Conceptual Framework
Source: Developed by the researcher(2023)

Other than the three exogenous variables that affect patient safety in the operating room (Y), there are many other variables such as Patient Identification Errors and Healthcare Team Communication. The sources of the variables resulting from the literature review can be seen in the following table:

Table 1.1 Source of Research Variables

No	Variable	Conceptual
1	Surgical Room Environment	Fathy et al(2022); Nwosu et al (2022). Fathy et al (2022; Joseph et al (2018).
2	Staff Engagement	
3	Safety Protocols and Checklist	
4	Communication Among Team Members	Hammond et al(2023); Spagnolo et al(013); Wagner et al (2022).
5	Surgical Site Infections	
6	Medical Equipment Failure	
7	Patient Identification Errors	Daryani, Hamranani, and Wijaya(2023); Gillespie et al (2016); Kim et al(2015)
8	Changes in the Surgical Room Environment	Ezha Gadis Rekly Arimbi(2023); Kim et al. (2015);Dixon et al(2015); Girma, Mude, and Bekele(2022); Lawton et al (2012); Münter et al (2020).
9	Healthcare Team Communication	

Source: Developed by the researcher(2023)

CONCLUSION

Conclusion

1. The Surgical Room Environment influences patient safety in the operating room.
2. Staff Engagement affects patient safety in the operating room.
3. Safety Protocols and Checklist impact patient safety in the operating room.
4. Communication Among Team Members influences patient safety in the operating room.
5. Changes in the Surgical Room Environment affect patient safety in the operating room.

6. Simultaneously, the Surgical Room Environment, Staff Engagement, Safety Protocols and Checklist, Communication Among Team Members, and Changes in the Surgical Room Environment influence patient safety in the operating room.

Suggestion

The suggestions outlined in the article are as follows:

1. Ensure specific attention to patient safety in every surgical procedure.
2. Involve nurses effectively in ensuring patient safety and maintaining a conducive operating environment.
3. Implement effective communication among surgical team members.
4. Use safety protocols and checklists to reduce the risk of errors and complications during surgical procedures.
5. Carefully consider changes in the surgical room environment to minimize their impact on patient safety and care quality.

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