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Nurses' compliance with handover practices in adult medical surgical units at a tertiary care hospital in Karachi, Pakistan

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NURSES' COMPLIANCE WITH HANDOVER PRACTICES IN ADULT MEDICAL SURGICAL UNITS AT A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN

By

AMBER QASIM ALI

Dedication

I would like to dedicate this dissertation to my teacher Mrs. Ashraf Rafiq. Her wisdom, love, support, and motivation has always given me the strength to believe in myself, and inspiration to choose the correct path in my personal and professional ventures.

Abstract

Background: The exchange of the shift changeover report of patient, from nurse to nurse at the patient's bedside is known as "bedside handover." Although this method is becoming more and more popular in the nursing sector, not many people genuinely practice it.

Purpose: To determine the different factors impacting nurses' compliance and to evaluate the compliance rate of nurses to comply with bedside handover guidelines.

***Methods*:** A cross-sectional observational study was conducted in the medical surgical ward at the Aga Khan University Hospital, Karachi. During the study, the structured bedside handover technique known as "kardex," which adheres to SBAR (Situation, background, assessment, recommendations), that was already being used in the hospital setting was converted into binary scale checklist and was utilized. The clinical instructor and researcher at same time observed 26 participants together in order to improve reliability, and inter-rater agreement was computed. Cohen's Kappa value (1.000) depicts perfect agreement between two raters. Regression, independent T-test, one-way ANOVA, and descriptive statistics were used to analyse the data.

Results: The observed data had a mean compliance of 69.1 and a standard deviation of 18.6. The mean compliance's 95% confidence interval (CI) spans from 65.9 to 72.3 (95% CI [65.9, 72.3]). A number of parameters were considered in the analysis of the compliance rates. Moderate adherence to protocols was seen in the age groups of 20–30 and 31–40 years, with 67.8% and 69.0%, respectively. There was a notable difference in adherence between the sexes, with women showing greater levels at 72.1% and men at 55.8%. There was no discernible influence of qualifications on compliance. At shift handovers, however, unique trends emerged, night shifts had the highest compliance (74.4%), followed by evening shifts (71.0%) and morning shifts (64.9%). Interestingly, at 77.1%, nurses with more than five years of experience showed the

strictest adherence. These findings highlight a range of factors that affect compliance rates, demonstrating different adherence levels among nurses based on age, gender, shift schedules, and experience .Conclusion**:** Key trends in compliance are shown by the data analysis comprising 131 nurses from an array of demographic backgrounds. Compliance is non-significant with age, while it is highly influenced by gender, with younger people and female adhering to more rules. Experience levels show a significant link that favours people with 6 to 15 years of experience, while qualifications have little bearing. Compliance is somewhat impacted by shift assignments; nurses working the night shift have the highest mean compliance. Additionally, there is no discernible impact of the selected handover technique on compliance. For healthcare facilities looking to enhance bedside handover procedures for better patient care and safety, these findings provide practical insights.

List of Abbreviation / Acronyms

SBAR: Situation, Background, Assessment, Recommendation

ISBAR: Introduction, Situation, Background, Assessment, Recommendation

PCH: Person Centred Handover

ICU: Intensive Care Unit

CINHAL: Commutative Index of Nursing and Allied Health Literature

PS: Patient Safety

NH: Nurse Handover

BIET: Barrier Identification and Elimination Tool

ERC: Ethical Review Committee

BScN: Bachelors of Science in Nursing

RN: Registered Nurse

RM: Registered Midwife

ANOVA: Analysis of Variance

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I would like to thanks my study participants who co-operated with me throughout the study.

My gratitude to my husband and family members for their support.

Thank you all

Declaration

I declare that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university and to the best of my knowledge it does not contain any material previously published or written by another person, except where due reference has been made in the text.

The editorial assistance provided to me has in no way added to the substance of my thesis which is the product of my own research endeavours.

(Signature of Candidate)

15th November 2023

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Chapter One: Introduction

This chapter provides a summary of background, research setting, reason for the study proposed research question, its importance, and an overview of the dissertation. The study cites the current nursing shift handover procedure, which employs traditional verbal handover with note-taking. The chapter also presents creating and implementing of a computerized structured format for hand-off using the SBAR handover tool, following the National Clinical Guidelines for Communication (clinical handover). It also emphasizes the need for compliance with the handover process in tertiary care hospitals, processes to streamline, improve communication, compliance, going forward and patient safety.

Background of the Study

The responsibility for a patient's care is discussed and information is passed on amongst healthcare professionals on a daily basis, at every healthcare facility. In order to follow the patient's prescribed course of treatment, "handover", which refers to the transfer of authority, responsibility, and obligation from one care provider to the next, is a standard practice (Haile et al., 2017). Over the past 10 years, clinical handover has been described in a variety of ways, with each description highlighting the main goals and features of this safety element of patient care. One of the clinical handover duties that is commonly cited is “the passing on of professional accountability and responsibility for some or all aspects of care for a patient, or a set of clients, to a different individual or expert group on a short-term or perpetual premise" (Manas et al., 2016).

Raeisi et al. (2019) conducted a systematic review to look at the problems with patient handover in healthcare services. Numerous issues are noted in the review, including a lack of standardization, poor communication, insufficient documentation, and incomplete handover.

Handover refers to the exchange of patient data and obligations between healthcare providers. It is an essential feature of care coordination, especially when patients are switched between different clinical teams or levels of care. The handover procedure, however, is rife with difficulties that could result in medical blunders, service delays, and patient injury. More than 60% of sentinel or catastrophic patient events have been reported to be caused by ineffective handover communication (Holly & Poletick, 2014).

Standardizing this process has been found to improve patient safety by guaranteeing accurate and pertinent information sharing, with the opportunity for clarifying questions. There is currently a knowledge gap on the ideal technique to organize this event, and the procedure is not currently standardized. The process of providing patient care has grown more complex or demanding despite developments in the field. This statement suggests that despite advancements in medical knowledge, technology, and treatments, the overall environment or circumstances surrounding patient care have become more complex. This could be because of a number of factors, including resource constraints, rising patient volumes, changing health conditions, increased demands, or adjustments to healthcare policies and systems. However, in an era of escalating disease severity, the need for efficient handover is essential (Simamora & Fathi, 2019).

The greatest high-risk areas, according to Nyikuri (2020), are shift handovers. It has been found that poor communication is linked to treatment delays, prescription errors, perinatal mortality and morbidity, patient falls, and wrong-site procedures.

Poor communication is a major contributing cause of medical errors, according to The Joint Commission's 2017 report. This report cites inadequate transfer communication as a significant factor affecting patient outcomes. A standardized report method is advised by The Joint Commission to reduce medical mistakes and enhance patient outcomes. Health care professionals take boundless self-importance in their work and work determinedly to meet

patient necessities and deliver the greatest care they can. But, when the patient is transferred to another healthcare practitioner for continuing care, treatments, or services, this diligence and attentiveness frequently falter.

Communication can be an issue during hand-over because expectations between the information sender and the recipient may not be the same. When the receiver receives unreliable information, or crucial information, delayed, misinterpreted, or otherwise not what is required, then there is a risk of patient harm, ranging from minor to serious. Many factors, including health care provider standards and training, language barriers, cultural or ethnic considerations, and inadequate, missing, or non-existent paperwork, to name a few, play a role in hand-off communication failure.

Clinical handover procedures are still a problem for quality enhancement globally. It has been established that the level of care provided during the succeeding shift directly correlates with the effectiveness of the handover (Holly& Poletick, 2014).

The absence of a set handover method and the inconsistent nature of handover communication can result in mistakes and patient harm. (Nagammal et al., 2016). A communication technique that is frequently used to enhance handover communication is the Situation-Background-Assessment-Recommendation (SBAR) tool. The use of the SBAR for handover communication was investigated in the study by (Nagammal et al. 2016). If patient information is updated throughout each shift, computerized tools can help the nursing staff with the core tasks of handover and nurses can develop competency of handover practices (Gordon & Findley, 2011).

One cannot overstate the understanding and compliance levels of medical professionals, and nurses in particular. (Chisanga, 2017).

Factors affecting the quality of handover

The second aspect focuses on the people performing the task and their abilities, regardless of the way they do the task. In this context, an ethnographic study, based on the observation of healthcare facilitators, suggested that the quality of handover depends mostly on the prior experience and the workload of the healthcare providers. The more experience they get, the less likely they are to make errors and the better they understand individual patients, which leads to wholesome relationships with the patients. Workload and work quality are inversely correlated in the context of nursing and handover procedures. Increased workloads during periods of heavy handover frequently result in hurried information transfers, incomplete interactions, and time constraints. This stress may impair the precision and completeness of the handover procedure, which may have an effect on the standard of care given by nurses and possibly jeopardise patient safety.. Moreover, the research also highlighted a few issues with the staff, which included not listening actively when information is being given, and lack of access to reports and documentation, which hinders performance (Bost et al., 2012). A study on the perceptions of the workers involved in handovers unravels that they find the information exchange as merely a task to be performed perform at the end of their shift. They evade or not even consider the responsibility and accountability factors that come with the transfer of such sensitive information (Chin et al., 2012; Effcott et al., 2009).

International research has been focusing on effective communication during the shift-to-shift nursing handover for many years, because the accuracy of the information transferred can have a direct influence on patient safety (Halm, 2013). The most crucial function of handoffs is information processing; making sure that crucial data are transferred for patient safety. However, handoffs serve many functions, from social bonding to coaching and instructing to team building.

In public hospitals in Pakistan, shift handovers are typically communicated informally and without the use of a standardized process (source). Information about the care of patients is not appropriately transmitted when there is no coordinated protocol in place and there is no suitable environment. This ultimately results in an increased chance of medical errors, a loss of continuity in care, and adverse events that compromise the safety of patients.

Unfortunately, no prior research on shift handover in Pakistan could be found. Therefore, it was considered imperative to carry out research and examine the pertinent problems. Hence, a study was carried out in a public sector tertiary care hospital in Peshawar, Pakistan, to determine communication barriers amongst nurses during shift changeover (Asghar Khan *et al.* 2021)

Principles of hands over

Data collection tools included the Handover Evaluation Scale and an observation form that the researchers developed using the SBAR technique to support non-participant observation. According to the British Journal of Medical & Health Sciences (2020). To swiftly and accurately share patient data, a standardized communication method called SBAR should be used. The acronym SBAR stands for Situation, Background, Assessment, and Recommendation. Age, sex, diagnosis, complaints, vital signs, and whether or not the patient's health is stable are all included in the term "situation," which also refers to the patient's current status. It also contains information about the patient's needs, preferences, and treatment plan. The background includes clinical history or the justification for the patient's admission (e.g., medical history, test results, allergy status, etc.).

Compliance

There are numerous definitions of compliance. A precise definition for the idea of compliance in nursing and other health-related occupations should be investigated since there is no gold standard for its measurement. The idea of patient-centered care in the nursing

profession is examined by Honda and Iwata (2016), including how it is defined in various fields. Nurses are urged to take a patient-centered approach to care in order to encourage active patient and family participation in their care. An approach that enhances patient centered care is bedside handover. The technique is being used more frequently in nursing, but there is little data to support its use and compliance (Malfait, et al., 2018).

Purpose

The purpose of the study was to assess nurses' compliance with handover practice guidelines for adult patients in the medical surgical units at a tertiary care hospital in Karachi, Pakistan. In the setting selected for this research, it is standard practice for nurses to follow the SBAR (S=situation, B= background, A= assessment, R= recommendations) assessment tool to ensure that all patient information is properly transferred to the next nurse at the end of each shift, in order to promote patient health.

Research Questions

1. What is nurses' compliance rate with handover practice guidelines?
2. What are the factors associated with nurses' compliance in the handover process?

Significance of the Study

The communication and compliance of healthcare professionals plays a critical role in patient treatment, throughout the healthcare continuum. Patient outcomes being negatively impacted by miscommunication is a common theme throughout many healthcare organizations. However, nurses can safeguard patient information during transfer in a number of ways. Although nurses may employ a variety of transfer procedures, the issue of omitting important information still exists. Unorganized paper notes, according to studies, may omit important patient information (Uhm et al., 2019).

The handover procedure has a significant impact on patient treatment. The likelihood of mistakes arises due to the high number of non-compliance events with handover guidelines. Medical mistakes and unfavorable patient outcomes can result from handovers that omit or fail to disclose crucial patient information. When the nurse gets incorrect information, or it is lacking, delayed, misinterpreted, or otherwise not what is required during each handover, there is a risk of harm. The non-compliance of nurses during handover is the leading cause of health risks among patients (Sharp et al., 2019).

The purpose of the handover, according to Cohen and Hilligoss (2010), is to increase the efficacy of the receiving party's actions, as they take over responsibility for the patient's care. However, without efficient communication, talented individuals form an inadequate team (Hodges & Lingard, 2018). In a disorderly and fluid environment, where there are numerous demands and interruptions, healthcare workers must continuously balance and process information. A review of the idea of compliance with handover underlines the complexity of the problem with references to hierarchical models, human factors, high dependability, resilience in healthcare, interruptions, multitasking, and complexity science (Hodges & Lingard, 2018). Thus, this research focused on nurses' compliance with handover practices in adult medical surgical units, at a tertiary care hospital in Karachi, Pakistan.

Personal Experience

I once had a clinical experience where a late assigned release occurred due to staffing deficit. The person on duty failed to inform the other person about blood transfusions during handover. The patient suddenly fell unconscious, and a rush call was made since the busy shift staff was unable to open the patient's file. The patient's low hemoglobin level and gastrointestinal bleeding were found to be the primary causes. The patient ended up in severe condition as a result of improper handover.

Summary

Information about patients is transferred between nurses through a process called nurses' handover. Patient care may be compromised by an incomplete handover. The topic introduction, study background, study purpose, study questions, and significance of the study, in the light of recent literature, have all been covered in this chapter.

Chapter Two: Literature Review

A thorough analysis of the theoretical and empirical literature relevant to the current investigation is provided in this chapter. The SBAR handover model is covered in the first section of the review, which provides a theoretical context for the study. Also explained is the search strategy that was used to choose the literature. The literature (Table 2.1) on issues that nurses confront during the handover process and the elements that help it go efficiently, with a focus on compliance, is also discussed. To further clarify important words the chapter also offers conceptual explanations. The chapter comes to a conclusion with a summary of the literature that was found.

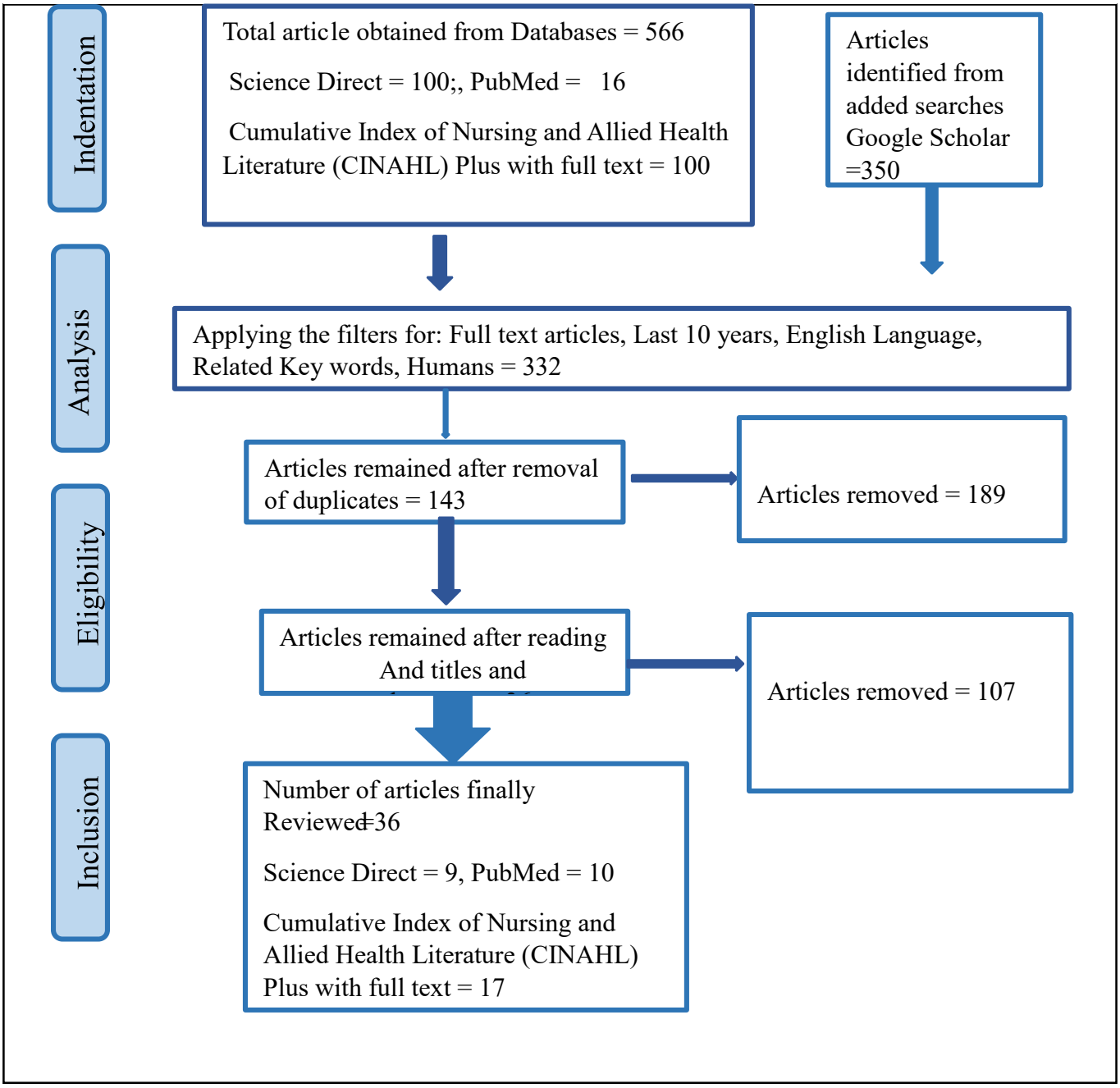
Search Strategy

The following keywords: compliance, handover, nurses, and tertiary care hospital, were used in a thorough literature search using databases including PubMed, CINAHL (Cumulative Index of Nursing and Allied Health Literature), Science Direct, and Google Scholar. Studies were included if they satisfied the following requirements: they examined nurses' adherence to the handover process in tertiary care institutions, they included quantitative or qualitative data, they were published in the English language; and they were carried out between 2010 and 2023.

By doing the study of literature, the caliber of the chosen studies was evaluated. Each studies' details included methodology, sample size, location, and findings regarding the nurses' adherence to the handover process in tertiary care institutions. A narrative technique was used to combine the data that was taken from the included research. In order to uncover essential topics regarding nurse compliance with the handover procedure at tertiary care institutions, a thematic analysis of the extant literature was done. The literature includes a total of 34 studies. The studies with all their finding and methods were included in the

literature review. Those articles which uses the word handover or compliance were extracted for the study. A PRISMA model is given below as Figure 1

figure 1: PRISMA



Theoretical framework

The SBAR (Situation, Background, Assessment, Recommendation) model and King's Goal Attainment Theory is used as the theoretical framework of the study. The SBAR model is used as a clear and simple communication tool to standardize the handover procedure and enhance patient safety. King's Goal Attainment Theory places a strong emphasis on the value of communication and cooperation between patients and healthcare professionals, which can help achieve desired health results. These frameworks can support patient safety, enhance communication, and make it easier to meet health objectives throughout the handover procedure.

SBAR Model

In order to cut down on errors and enhance communication, the aviation industry first developed the SBAR model, a structured communication framework. Later, it was modified for use in healthcare settings as a tool to improve communication efficiency, accuracy, and clarity during handover (Ghonem & El-Husany, 2023). Situation, Background, Assessment, and Recommendation are the four parts of the model. Giving relevant information regarding the patient's medical background, current medications, food allergies, and other relevant issues that may affect decision-making is part of the Background component. Making recommendations for interventions, more activities, or more information is part of the recommendation component (Ghonem & El-Husany, 2023).

According to research, using SBAR can speed up the handover process, boost provider satisfaction with the handover procedure, and improve the accuracy and completeness of

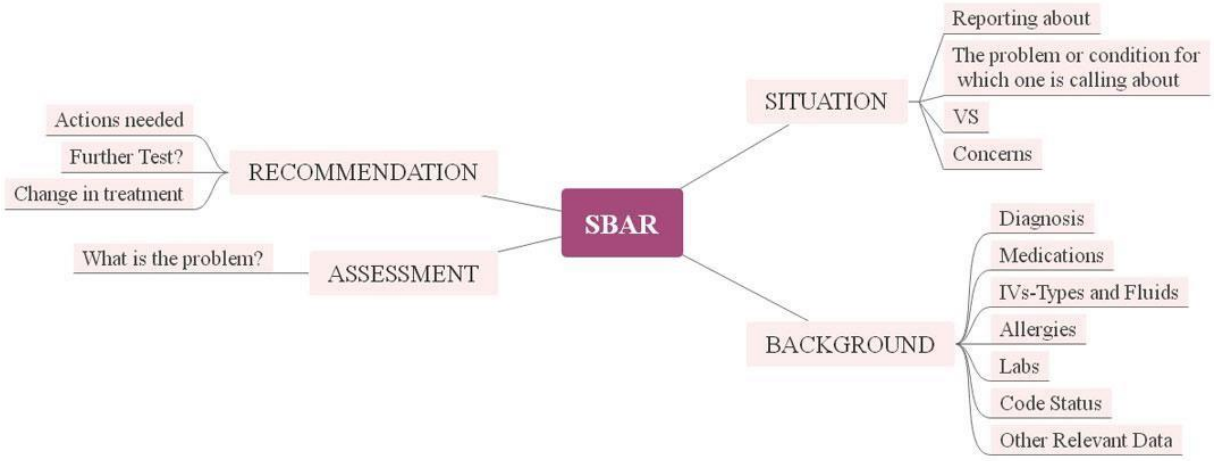
handover information. Additionally, the model has been shown to be successful in lowering negative incidents and enhancing patient outcomes.

The study by Pun (2023) investigated the relationship between nurses' knowledge of the SBAR tool and their perceived quality of handover. The root analysis' findings showed that the perceived quality of handover was not significantly impacted by the nurses' familiarity with the SBAR tool. The study emphasizes the significance of nurses' adherence to the SBAR tool, the requirement for developing good communication skills, and the significance of current patient information in achieving high-quality handover. (Pun, 2023)

The Situation-Background-Assessment-Recommendation (SBAR) standard and the combined mind map communication mode were tested in a quasi-experimental study by Li et al. (2022) to determine their efficacy in lowering handover errors and unfavorable occurrences in an emergency department. The findings suggested that the combined use of the SBAR standard and mind map communication mode was successful in reducing handover defects and adverse events in the emergency department (p 0.05) (Li et al., 2022).

The study improved handover communication in perioperative settings by implementing the SBAR tool in two Australian hospitals (Kitney et al., 2020). The findings revealed enhanced handover communication quality and elevated team morale. However, ongoing education and training are required, the study's findings suggest that the SBAR tool can enhance handover communication in perioperative settings, but its effectiveness depends on continued training and assistance (Kitney et al., 2020).

Figure 2: (Nursing Concept map (Edrawmin)



The healthcare infrastructure has changed over time. The process of providing treatment to patients is impacted by the rise in patient acuity and the handling of complex patients. However, a number of factors, including technological developments, adjustments to healthcare laws and regulations, and changes in society values and expectations, continuously alter the healthcare environment. These modifications may affect how nursing care is provided, but they do not change nursing's primary goal.

To give their patients, the best care possible, nurses must learn to employ new medical treatments and diagnostic instruments that have been made feasible by technological breakthroughs. Nursing care delivery may be affected by changes in healthcare laws and regulations, such as new documentation standards or adjustments to how much is paid for specific operations. The purpose of nursing is to "assist people in maintaining their health so they can perform their roles." (King, 1981, p. 3).

Goal attainment theory

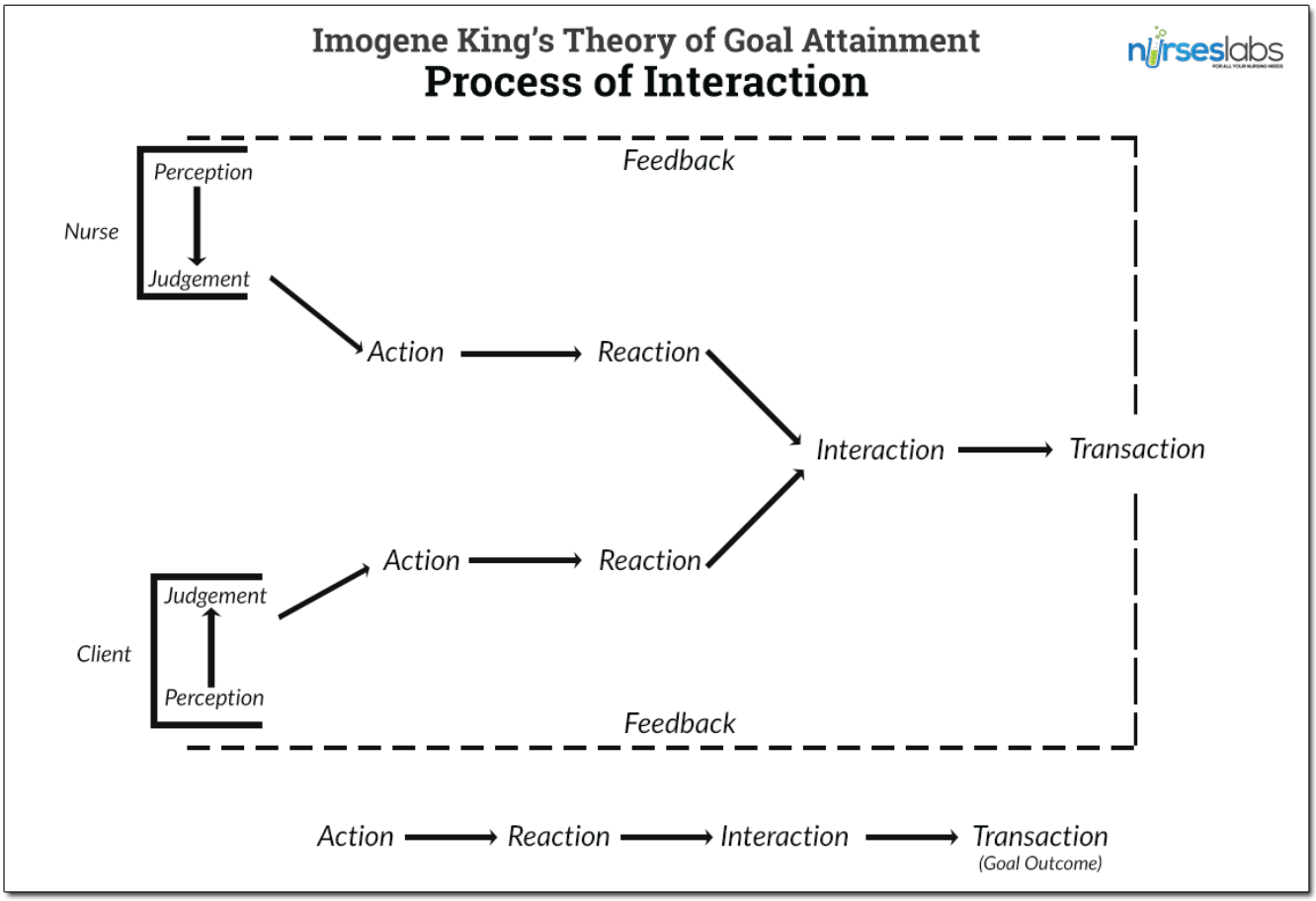
King (1981) developed the Goal Attainment Theory which describes a system of interactions between personal, interpersonal, and social systems. This triad of systems interacts to impact the goal of improving the patients' health for the patients to function in their role. As these systems align, goal attainment is possible. The ability of the nurse to be conscious of their position or role in the patient's care process is what is referred to as the first system, or the personal system. (King, 1981). An introduction to nursing as a series of interactions leading to transactions in nursing circumstances is given in "A Theory of Goal Attainment" (King, 1981, p. 177). This system is affected by how the nurse interprets information and how learning advances one's objective. The SBAR can help with monitoring patient data and learning from the handover procedure.

The Goal Attainment Theory's relational system comes next. The interpersonal system is made up of interactions between careers and patients. (King, 1981). Cooperation between these organizations is crucial to achieving the goal of improving patient well-being. The connection between parts of this system is essential. The handover process is influenced by both verbal and nonverbal exchanges between nurses throughout the transition. A standardized SBAR provides a systematic approach to handovers and keeps the handover process focused and directed towards the goal (Ruhomauly et al., 2019).

The social system is the third and final system in this trio. Interaction with the facility as a whole is the social structure. Individuals involved in this exchange use the resources of the organization to accomplish a shared objective (King, 1981). An organization that uses a standard SBAR gives its employees a standardized tool to help them achieve the objective of improving patient health.

In 1981, King discussed how the use of standardized medical records was led by the conceptual framework of the Goal Attainment Theory and how goal-oriented nursing records can enhance patient care. It is possible to "provide a continuity of care" and accomplish the objective of improving patient health by using standardized forms comparable to SBAR (King, 1981, p. 171). A consistent record provides a systematic approach to delivering quality and accomplishing objectives (King, 1981, p. 177)

Figure 3: (king's theory of goal attainment)



Challenges faced by nurses in a handover process

The handover process presents difficulties for nurses that may compromise patient care. Time restraints, poor communication abilities, language hurdles, an abundance of information, interruptions, a lack of standardization, and technical problems, are a few of these difficulties. These difficulties may result in communication breakdowns, misunderstandings, mistakes, and inconsistent information sharing. To guarantee a safe and efficient transfer for patients, it is crucial that nurses and healthcare organizations address these issues.

Communication

Scholes et al. (2019) conducted a literature review to identify the factors affecting clinical handover of patients arriving by ambulance to the emergency department. They reviewed 12 studies and found that incomplete information transfer, differences in expectations, lack of communication, and environmental factors are the major barriers to effective clinical handover. They also found that structured handover protocols and the use of technology can improve the quality of clinical handover (Scholes et al., 2019).

A comprehensive analysis of 17 studies on nursing handoff communication and its impacts on patient care was undertaken by Vine et al. (2018). Improved patient safety, elevated satisfaction, and better clinical results were found to be linked to good communication during handoff, as revealed by the review.

Inadequate handoff communication can result in mistakes, delayed diagnosis, and lengthier hospital stays. A reduction in adverse events and hospital acquired infections is the consequence of effective communication, which increases the likelihood that all pertinent patient information is appropriately communicated and understood by the receiving nurse. Overall, the review emphasizes the value of efficient handoff communication between nurses for enhancing patient care (Vines et al., 2018).

Warne et al. (2017) reviewed 17 studies on handover of critically ill patients from OR to ICU. They identified three main obstacles to efficient handover: a lack of standardization, poor communication, and a complex environment. Information conveyance was inconsistent due to a lack of standardization, while it was incomplete due to impediments to communication. Technology, interdisciplinary communication, and structured procedures were all mentioned as potential improvements to handover. The method was standardized and transfer accuracy was increased via structured protocols. Healthcare professionals were able to effectively interact through inter professional communication, which promoted mutual understanding and cohesive cooperation.. Technology has made it easier to standardize processes and increased the accuracy of information flow
(Warne et al. (2017)

Tobiano et al. (2020) conducted semi-structured interviews with 19 nurses from different specialties at an Australian hospital to investigate the front-line nurses' impressions of intra-hospital handover. To ensure patient safety and care continuity, the nurses emphasized the significance of precise and prompt information transfer. They also noted that distractions, time constraints, and poor communication skills were obstacles to efficient handover. The study emphasizes the necessity for staff members to have excellent communication skills as well as for an organized and consistent handover process that is adapted to the needs of each

patient. Information transfer and socialization must coexist in harmony for handover to be effective (Tobiano et al., 2020).

Lack of standardization

A study by Fawaz et al., 2020) aimed to identify the barriers and facilitators to compliance with handover protocols among nurses. The study was conducted in a large tertiary hospital in Saudi Arabia, and data were collected through semi-structured interviews with 23 nurses. The study found that the main barriers to compliance were the lack of standardization, communication issues, and time constraints. The main facilitators to compliance were education and training, the use of electronic medical records, and support from management (Fawaz et al., 2020).

Raeisi et al. (2019) conducted a systematic review of 15 studies to identify challenges associated with patient handover in healthcare services. The authors discovered that there were several healthcare settings, including hospitals, nursing homes, and emergency rooms, where there was a lack of standardization and rules for handover. Lack of standardization caused communication hurdles between healthcare professionals and variation in information transfer, which resulted in the incomplete or incorrect transfer of crucial patient information. According to the authors, implementing standardized handover protocols and standards can be a useful intervention for enhancing handover procedures (Raeisi et al., 2019).

Kumar et al. (2016) investigated nursing handover practices in a neurosciences center in India. They noticed that handover procedures between units lacked uniformity while contributing to inadequate handover communication(Kumar et al.) . To enhance communication and guarantee patient safety, the authors suggested creating standardized handover protocols.

Time constraint

A comprehensive evaluation of qualitative studies on registered nurses' perceptions of patient involvement in the perioperative situation was undertaken by Petersson et al. (2015). The authors found that, although nurses are aware of the potential benefits of patient participation for patient outcomes, safety, and satisfaction, time constraints were a significant barrier to patient participation.

A qualitative study conducted in Sweden investigated how nurses viewed person-centered handovers in a cancer inpatient context. Involving patients in the handover process, according to the study's findings, increased their involvement in their own care. However, implementation was difficult because of time constraints and disparate expectations among healthcare professionals. Despite these difficulties, person-centered handovers were found to be beneficial for raising patient safety and care quality. To support this strategy, standardized policies and practices are required (Kullberg et al., 2018).

According to Slade et al. (2019), mandated bedside handovers were usually viewed favorably by nurses since they improved patient involvement and inter-professional communication. On the other hand, nurses encountered difficulties like time constraints during the handover procedure, which may be resolved by more training, support, and resources offered by healthcare organizations.

Lack of teamwork

The article by Mazzocco et al. (2009) investigated the relationship between surgical team behaviors and patient outcomes. The study utilized direct observations of surgical teams during procedures and collected patient outcome data postoperatively. The behaviors of surgical teams were evaluated using a validated observational tool (i.e., Observational

Teamwork Assessment for Surgery (OTAS)). The study found that higher levels of teamwork and communication were associated with better patient outcomes, such as lower rates of surgical site infections and shorter hospital stays. Conversely, lower levels of teamwork and communication were associated with adverse events and longer hospital stays. The findings suggest that promoting teamwork and communication among surgical teams may improve patient outcomes in surgical care.

A focus group study was undertaken by Hada et al. (2019) to determine the supports and challenges to efficient nursing handover. According to the study, obstacles to a successful nursing turnover include insufficient staffing, a lack of standardized handover procedures, and disruptions during the handover, and inadequate communication and documentation tools. Supports, on the other hand, included leadership backing, sufficient funding and manpower, standardized handover procedures, and ongoing instruction and training on handover techniques. The study suggests creating evidence-based solutions to improve nursing handover practices utilizing a knowledge translation framework. Addressing the noted barriers and strengthening the noted supports are necessary for effective nurse handover.

Lack of resources

In the study by Oxelmark et al. (2018), the authors found that nurses' lack of time and resources was a significant hindering factor to patient participation in hospital care in Sweden. This obstacle is a frequent problem in the healthcare industry, as nurses may be overworked and have little time to dedicate to caring for specific patients. According to the study, overcoming this barrier necessitates not just modifications to the way healthcare is delivered but also a change in attitudes and behaviors towards patient-centered care. The authors suggested raising awareness and educating healthcare workers on patient participation in order to address this problem. In order to prioritize patient involvement in their treatment and

develop ways to include patients even with limited resources, nurses may need training and tools.

Lack of training programs

In a systematic review of 30 articles on nurse handoffs, Riesenberg et al. (2010) found three recurrent issues , namely, poor communication, a lack of standardized handoff procedures, and reliance on verbal communication only. Along with the adoption of standardized handoff procedures and the use of information technology to support handoffs, the authors advised the creation of training programs for nurses on effective handoff communication. The report emphasizes the necessity of strengthening training initiatives to address the issues with nurse handoffs (Riesenberg et al., 2010).

To address clinical handover communication among nurses in their organizational and cultural setting, Chien et al. (2022) devised a customized intervention. The intervention includes comments on handover communication, leadership support, help from clinical champions, and a communication training programs. The study's findings, which emphasis the significance of addressing the organizational context of handover communication, showed that the intervention significantly improved nursing handover communication and patient-centered care.

Inadequate information exchange

The study aimed to evaluate the patient handover process among emergency service nurses and to identify the factors that affect the quality of handovers. A descriptive study was conducted among 176 emergency service nurses in Turkey using a self-administered questionnaire (Gungor et al. 2022). The questionnaire included questions related to the handover process and factors affecting the quality of handovers. The results showed that the majority of the participants perceived the handover process as incomplete and not effective.

Factors affecting the quality of handovers included inadequate information exchange, lack of standardized handover procedures, lack of feedback, and lack of time for handover. The study suggested that the implementation of standardized handover protocols, providing feedback, and allocating more time for handovers could improve the quality of patient handovers in emergency services (Gungor et al., 2022).

Lack of knowledge

Spooner et al. (2018) used the Knowledge-to-Action Framework to build an evidencebased nurse handover tool in an ICU. By enhancing the accuracy and completeness of the information given and fostering better teamwork among healthcare providers, the tool increased the quality and safety of handovers. The study emphasizes how critical it is to integrate evidence-based nursing handover tools in healthcare settings utilizing a methodical approach, such as the Knowledge-to-Action Framework.

Using a mixed-method approach, Pilcher et al. (2022) investigated the attitudes and customs around obstetric shift-to-shift transfer in Kerala, India. Despite the fact that obstetric handover was viewed as vital by healthcare professionals, the study discovered that there were differences in handover procedures and attitudes among various healthcare providers. According to the survey, only 23% of healthcare professionals acknowledged giving handover to the following shift and less than half of them reported getting it from the previous shift. The paper makes the case for the necessity to standardize handover procedures and emphasizes the significance of communication in handover.

Factors that improved handover process

The enhancement of the handover process has been attributed to a number of variables, with a focus on compliance. These include using standardized handover tools and processes, giving healthcare professionals handover training, involving patients and

families in the handover process, and fostering a culture of communication and collaboration among healthcare professionals. It has been demonstrated that adherence to these criteria improves patient outcomes, such as fewer unfavorable occurrences and higher levels of patient satisfaction. To enhance the quality and safety of the handover process, efforts should be made to increase compliance with these factors.

Electronic handover tools

After reviewing 56 studies on clinical handover, Pakhare et al. (2014) came to the conclusion that standardizing the handover procedure and utilizing electronic health records could enhance clinical handover quality. A complex process that requires coordination of care, information transmission, and communication is clinical handover.

Trinh et al. (2020) found that electronic handover tools have proved successful in improving the completeness and accuracy of information transfer, reducing errors, and strengthening communication among healthcare providers in surgical care. The success of electronic handover tools may rely on how they are designed and implemented, the authors stated, and more study is required to ascertain their effect on patient outcomes. The study's findings generally support the idea that using electronic handover tools can help to increase the quality and safety of surgical care handover.

Face to face contacts

A comprehensive evaluation was carried out by Hesselink et al. (2015) to find methods for enhancing the accuracy and security of the transfer of patient data between primary and secondary care providers. They discovered that interventions like face-to-face handovers, standardized communication tools, and training programs were successful in raising the standard and safety of handover. The authors also emphasized the necessity of unambiguous

handover rules and procedures as well as improved primary and secondary care providers' coordination and communication.

Bressan et al. (2020) carried out a study to offer evidence-based suggestions for patient safety (PS) and nurse handover (NH). The authors found 17 reviews and divided their conclusions into suggestions for both practice and further study. The evaluations suggested modifying nursing handover procedures to improve patient safety by lowering adverse events, and one of the methods was to encourage face-to-face interaction between nurses, maybe in addition to bedside reporting. According to the study's findings, standardized handovers backed by technological innovations and in-person interactions can increase patient safety. To quantify the relationship between handover and patients' safety issues, well-designed longitudinal studies in various settings are advised.

Compliance in handover process

Compliance in the handover process refers to the degree to which nurses adhere to standardized handover processes and protocols. During the handover process, compliance is crucial for maintaining patient safety and continuity of care. According to research, adhering to standardized handover procedures can increase coordination, lessen mistakes, and improve patient outcomes (Sharp et al., 2019).however, it is also noted obstacles to compliance, such as a lack of training, insufficient funding, and reluctance to change. Healthcare organizations can develop standardized handover protocols, give resources and support for nurses during the turnover process, educate staff members on appropriate handover communication, and more to encourage compliance. Regular feedback and monitoring can also aid in locating areas where compliance can be strengthened. There are several barriers in compliance faced by nurses in handover process (Sharp et al., 2019).

Barriers in compliance in handover process among nurses

The barriers faced by nurses in compliance in handover process among nurses are lack of trainings, poor knowledge, lack of time, communication issues, lack of standardization, etc. There are a number of obstacles that may prevent nurses from complying with the handover process, including, 1.Time constraints: Because of their busy schedules and limited time, nurses could feel pressured and unable to finish the handover process completely. 2. Communication breakdowns: Interruptions during the handover process, language obstacles, and differences in communication styles can all lead to communication failures. 3. Lack of consistent procedures: Lack of standardized handover procedures might cause misunderstandings and inconsistencies in the information conveyed. 4. Insufficient training: Nurses may not receive enough instruction on how to conduct efficient handovers, which could result in a communication breakdown or error. Inadequate resources Effective handover communication can be hampered by insufficient resources, such as staffing shortages, restricted access to patient data, or inadequate communication technologies. By removing these obstacles, nurses may be more compliant with the handover procedure, which will eventually improve patient safety and the standard of care. These obstacles can be resolved and supported by strategies including standardized handover procedures, continual training and education, and the use of technology.

Adherence to standardized handover procedures

The study's objectives were to examine nurses' adherence to handover guidelines and to present an evidence-based methodology to increase handover compliance. The investigation was carried out in a university hospital in Turkey using a pretest-posttest methodology. 123 nurses' handover procedures were recorded both before and after the policy was implemented. After the protocol was implemented, compliance with handover standards

significantly increased, with an overall compliance rate of 87.6% compared to 68.3% before the intervention (p 0.001) (Bost et al., 2010).

Inadequate equipment

The article examines the factors that influence compliance with the moving and handling policy among student nurses. The study employed a qualitative approach, where data was collected through semi-structured interviews with ten student nurses in a UK university. The study found that lack of time, insufficient training, inadequate equipment, poor role modeling, and heavy workload were the key factors that negatively affected student nurses' compliance with the moving and handling policy. Furthermore, the findings showed that the students had a limited understanding of the policy and the importance of complying with it. The authors recommend that student nurses receive more training and education on moving and handling policies, and that role modeling should be emphasized in clinical practice. The study concludes that compliance with the moving and handling policy is a multifaceted issue that requires a concerted effort from stakeholders to ensure that student nurses comply with it (Cornish & Jones, 2010).

Lack of consistent procedures

In the article by Gurses et al. (2009) present a practical tool to identify and eliminate barriers to compliance with evidence-based guidelines. The tool, called Barrier Identification and Elimination Tool (BIET), was developed and tested in a large academic medical center in the United States. The study involved 20 multidisciplinary teams working on a range of clinical processes, including hand hygiene and surgical site infection prevention. The BIET tool consists of a questionnaire that helps identify barriers to guideline compliance and a process to develop and implement interventions to eliminate these barriers. The study found that the BIET tool was effective in identifying barriers to compliance and facilitating the

implementation of targeted interventions. The authors conclude that the tool has the potential to improve guideline compliance and patient outcomes in healthcare settings (Gurses et al., 2009).

Gap analysis

There is a lack of study on nurses' compliance with the handover process, particularly regarding the factors that influence compliance and the measures that can be employed to enhance compliance. Few research have specifically investigated nurse adherence to handover protocols, despite several studies looking at handover procedures and their impact on patient outcomes. In order to increase compliance and ultimately patient safety, it can be helpful to understand the reasons that contribute to non-compliance with handover protocols. Future studies in this field might also examine how technology and standardized standards affect nurses' adherence to handover procedures.

Conceptual definitions

Handover

In the context of healthcare, the term "handover" refers to the transfer of responsibility for patient care and the critical patient information from one healthcare team or professional to another. Handover involves the transfer of knowledge, responsibility, and authority across several shifts, departments, or care locations (Bruton et al., 2016).

Compliance

The degree to which people or organizations follow suggested or required practices, rules, or regulations is referred to as compliance. Compliance is essential in the healthcare industry for guaranteeing patient safety and high-quality care (Chow et al., 2020).

Summary

To summarize, the studies (Appendix VI), which evaluated how well nurses at tertiary care institutions adhered to the handover process, were carried out in diverse contexts and countries. The results showed that nurses in tertiary care hospitals had less than ideal compliance with the handover procedure, and causes like a lack of standardized handover protocols, poor communication, and insufficient training were noted as barrier against compliance. According to the systematic review's conclusions, standardized handover protocols, better communication, and more training are required to boost nurse compliance with the handover process at tertiary care hospitals. It is explained how these findings affect future research and nursing might practice. A systematic study of how well nurses in tertiary care hospitals adhered to the handover process was conducted using the PRISMA model. The results emphasis the necessity for initiatives to increase nurses' adherence to the handover process and the significance of standard protocols, communication, and training in doing so.

Chapter 3: Methodology

The chapter provides an explanation of the research methodology in the study. It provides an overview of a sample study and sampling technique. This chapter the study's settings, ethical considerations, eligibility requirements, data collection tools, data gathering and data analysis process.

Study Design

Utilizing a standardized handover checklist (Appendix I), an analytical cross-sectional study design was used to determine the degree to which nurses complied with the recommended handoff procedures at a tertiary care hospital, which was selected as the setting for this research. During the handover process, the checklist was utilized as a tool to assess and analyse the level of compliance with handover practices in the research setting.

Study Variables

The participants of this study were registered nurses working at a tertiary care hospital. The primary variables of interest were compliance and handover practices. This research intended to acquire insights into the present condition of handover processes among nurses working in tertiary care settings by investigating the link between compliance and handover practices.

Operational Definitions

Compliance

The term "compliance" was used to characterize how closely nurses adhered to the established standards, protocols, or guidelines to uphold quality standards, ensure patient safety, and improve healthcare results. These guidelines and protocols are developed through evidence-based practices and the healthcare professionals are required to consistently adopt

these practices, as these play a critical role in fostering effective healthcare delivery and improving patient outcomes (Sands & Aunger, 2020).

Handover process

In this research, "handover" referred to the process through which important patient information, duties, and care were passed from one healthcare worker to another, generally during shift changes or transitions in care. It entailed the sharing of complete and correct information regarding the patient, such as their medical history, present health condition, ongoing therapies, and any outstanding issues or tasks. An efficient handover supports continuity of care, improves patient safety, and makes sure that the healthcare team communicates with one another proficiently. It is crucial for continuity and provision of high quality care to patients (David et al., 2018).

Study Setting

This research was conducted at the Aga Khan University Hospital in Karachi, Pakistan. The study primarily focused on the adult medical and surgical wards of the hospital.

Study Population

The nurses who, at the time of study, were working in the adult medical-surgical units at the Aga Khan University Hospital in Karachi, Pakistan, were the population that was the focus of this study.

Eligibility Criteria

Inclusion criteria

The nurses working in the study setting and involved in handover practices.

Exclusion criteria

Head nurses and managers working in the medical-surgical wards.

Sample Size and Sampling Method

In the setting selected for this research, 300 registered nurses were employed at the time of the study. The sample size was calculated using Open Epi, taking into account an intended compliance rate of 85%, a confidence level of 85% and 5% margin of error which resulted in a calculated sample size of 119 participants. After accounting for a 10% nonresponse rate, the final sample size was 131 participants. The researcher is sure that the findings are accurate within a margin of error of 5%, for the entire study, because of the size of the study's sample. The Open Epi formula to calculate the sample size is given below:

$$\eta = \frac{Z^2 \times P \times (1-P)}{E^2} \times \frac{1}{1-(NR/100)}$$

The necessary sample size is η.

Z is the Z-score that corresponds to the appropriate level of confidence.

The predicted compliance rate is denoted by the letter P.

The desired margin of error is denoted by the letter E.

The nonresponse rate (in percentage form) is NR.

Now, according to the values

Compliance rate (P):85 %(0.85 as decimal) and Confidence level (Z): corresponding to 95% Z score would be 1.96

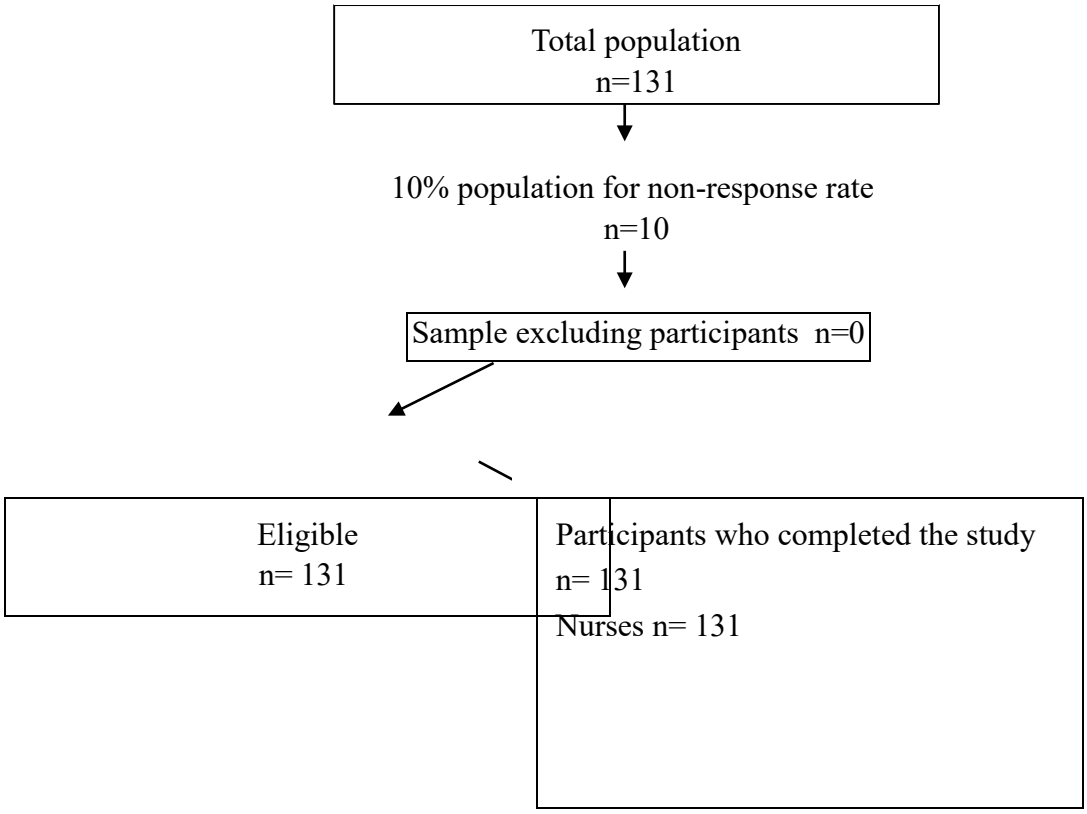
Margin of error (E): 5 % (0.05 as decimal)

Non-response rate NR: 10%

$$\eta = \frac{(1.96)^2 \times 0.85 \times (1-0.85)}{0.05^2} \times \frac{1}{1-(10/100)}$$

Based on the conclusion of this expression the value that was found 130.67, was quite near 131.

Figure 4: Sample Recruitment



Data Collection Process

Data was collected across different shifts (i.e., morning, evening, and night), in order to collect information about the compliance patterns of nurses with handover procedures. This strategy strengthened the likelihood of gathering a thorough perspective of handover procedures, across a wide range of individual registered nurses, work schedules, and time periods, was captured.

Data collection was carried out using a checklist (Appendix I). The checklist included important aspects of the handover procedure, such as transfer of patient information, delegation of tasks, and procedures for communication. The procedure of handing over of patient care from one nurse to the next was directly observed by the researcher. The researcher

noted the pertinent information, actively watched/listened to the handover conversations, and completed the checklist for each participating nurse. This approach of collecting data by direct observation assured the accuracy of the data and its collection in real time.

Data Collection Tool

The SBAR (Situation, Background, Assessment, and Recommendation) tool is used for the handover process at the Aga Khan Hospital. This tool was suggested by the Joint Commission (2017). As this tool already being used in Aga Khan University Hospital therefore, no pilot testing was done in the study. This tool was intended to serve as an organized framework for efficient communication during handover. It guaranteed that the patient's vital information on the situation, pertinent background facts, assessments, and recommended actions were delivered in a consistent and complete manner.

A demographic tool (Appendix II), in addition to the SBAR checklist, was also used to collect information on the nurses who participated in the study. This demographic tool collected data including participants' age, years of experience, and educational background. This provided a better understanding of the characteristics of the nursing staff in the study. Moreover, this information assisted in acquiring better knowledge of how the characteristics of the nursing staff included in the study influenced their possible handover procedures.

Previously, inter-rater agreement across a number of different evaluators was assessed through kappa calculation and kappa value of 0.71, indicated that the SBAR tool is highly reliable (Mitchell et al., 2012).

Data Analysis

To provide a concise summary of the gathered data, descriptive analysis was carried out. Descriptive statistics, such as the mean, standard deviation, and range, were computed to

summarize the continuous variables, whereas the median, frequencies, t-test, and percentages were used to summarize the categorical variables. The compliance ratio with the structured content, and, more specifically, the SBAR protocol was calculated for each handover session by dividing the number of tasks that were completed by the total number of tasks required. Moreover, independent samples t-test was employed to ascertain the presence of any association between compliance scores and categorical independent factors.

The selected threshold for statistical significance was set at $\alpha = 0.05$ or below. Furthermore, a chi-square analysis was applied to explore potential associations between compliance scores and categorical independent variables. Similar to the t-test, the level of significance chosen for hypothesis testing was $\alpha = 0.05$.

Additionally, a linear regression analysis was conducted to examine the potential predictive relationship between compliance scores and independent variables. The significance threshold for the regression analysis was maintained at $\alpha = 0.05$.

The analytical procedures were executed utilizing Statistical Package for Social Sciences (SPSS™) version 26.0.

Study Rigor

The research maintained rigorous adherence to the study's methodology and design, ensuring the authenticity and reliability of the outcomes. This was ensured through the meticulous application of inclusion and exclusion criteria, while employing standardized data collection methods that had been verified and endorsed within the relevant field of research. Ethical considerations were stringently upheld throughout the process. The study encompassed details concerning the research environment, sample size, and demographic attributes, enhancing the potential of generalizing the conclusions to different settings or populations sharing analogous characteristics.

Ethical Considerations

The Aga Khan University's Review Committee (ERC) in Pakistan reviewed and approved this study (Appendix III). Additionally, formal consent was obtained from the chief nursing officer of the Aga Khan University Division of Nursing Services in Pakistan (Appendix IV) and the chief medical officer of the Aga Khan University Hospital in Karachi, Pakistan (Appendix V). A poster was posted in the unit, which provided the participants with the essential details while maintaining their anonymity. In the data collection instrument, instead of individuals' names code numbers were used. The data was grouped according to shifts (morning, evening, and night), in order to facilitate orderly analysis, while maintaining the anonymity of the participants.

Summary

To summarize, using a standardized handover checklist, based on the SBAR (Situation, Background, Assessment, and Recommendation) tool, registered nurses working in adult medical-surgical units were observed for compliance with the recommended handover procedures, in this analytical cross-sectional study, at the Aga Khan University Hospital, Karachi, Pakistan. Data were gathered by closely observing handover processes on various morning, evening, and night shifts and days of the week, week-ends, and public holidays. To ascertain the determinants impacting handover practices, the obtained data, including demographic data, was analysed using descriptive statistics, independent t-tests, and linear regression analysis. Through clear inclusion and exclusion criteria, validated data collection tools, stringent data security procedures, and ethical concerns, the study placed a strong emphasis on rigor by getting feedback from the thesis team, assuring participant rights and confidentiality. The research obtained leadership approval and ethical approval, and the researcher ensured efforts to preserve participants' confidentiality throughout the process.

Chapter 4: Results

The results on the compliance of nurses to handover protocols are examined in detail in this chapter. It is divided into three primary parts. An overview of the descriptive statistics related to the socio-demographic parameters is given in the first part. Inferential statistics are explored in the second section, which also looks at the connection between compliance levels and socio-demographic traits. The last section presents a regression model that evaluates these characteristics' effects on compliance. A summary of the chapter's main conclusion is provided at the end.

Statistical analysis

All the participants were undergraduate degree prepared, with nearly 60% being graduates of a direct entry a BScN (i.e., a four year program post-secondary) or post-RN BScN (i.e., after three years of nursing diploma and one year of diploma in midwifery or another specialization) Those having diploma with midwifery are recognized as RN, RM.

The 39-item SBAR tool was used in this study to evaluate the handover compliance on all three practice shifts (i.e., morning, evening, night) in the unit. A binary scale with "yes" and "no" response possibilities is used to conduct the assessment.

To calculate the inter-rater reliability , 26 participants were observed by two observers at a same time, specifically, the researcher and a clinical nurse instructor working in the department. The collected data was then used to calculate Cohen’s Kappa value. The calculation of percent agreement depicts 100% value, which shows perfect agreement between the two raters. To calculate the Compliance, the positive (yes) responses and non-compliance the negative

responses (No) were summed up, and then divided each by the total number of items i.e., 39 in the SBAR tool. Finally, these numbers with multiplied by 100 to get percent compliance and non-compliance rates.

Age, gender, years of experience, preferred shift, handover start and end hours, and handover manner are among the demographic factors that were considered in the study. An overview of the sample is obtained by analyzing the proportions and frequencies of the demographic variables; the proportion of compliance score indicates the rate of compliance. The study used t-tests and ANOVA (Analysis of Variance) to compare compliance levels among various subgroups depending on the demographic characteristics to identify factors that affect compliance. Regression analysis was also used to evaluate the associations between compliance and the demographic factors. This approach made it possible to investigate how factors like age, gender, years of experience, preferred shift, timing of handover, and manner affect the degree to which handover protocols are followed.

In conclusion, this study looks at 131 nurses working various shifts to determine the compliance with handover using the SBAR tool.

Table 1: Frequency and proportion of demographic data

Demographic Variables		**Frequency (n)**	**Proportion (%)**
Age			
	20-30	97	74
	31-40	34	26
Gender			
	Male	32	24.4
	Female	99	75.6
Qualification			
	BScN	76	58
	Post RN	51	38.9
	Midwifery(RN,RM)	4	3.1
Years of experience			
	1-5	115	87.8
	6-15	16	13.2
Shift			
	Morning	74	56.5
	Evening	36	27.5
	Night	21	16
Methods used during handover	Verbal	32	24.4
	Patient red file	19	14.5
	Kardex	52	39.7
	Handover paper	28	21.4
Hand over start time	08:00-08:15	71	54.1
	15:00-15:15	30	22.9
	21:30 -21:50	30	22.9
	8:10-8:20	71	54.1

Handover end time	15:05-15:20pm 22:35-23:00pm	30 30	22.9 22.9

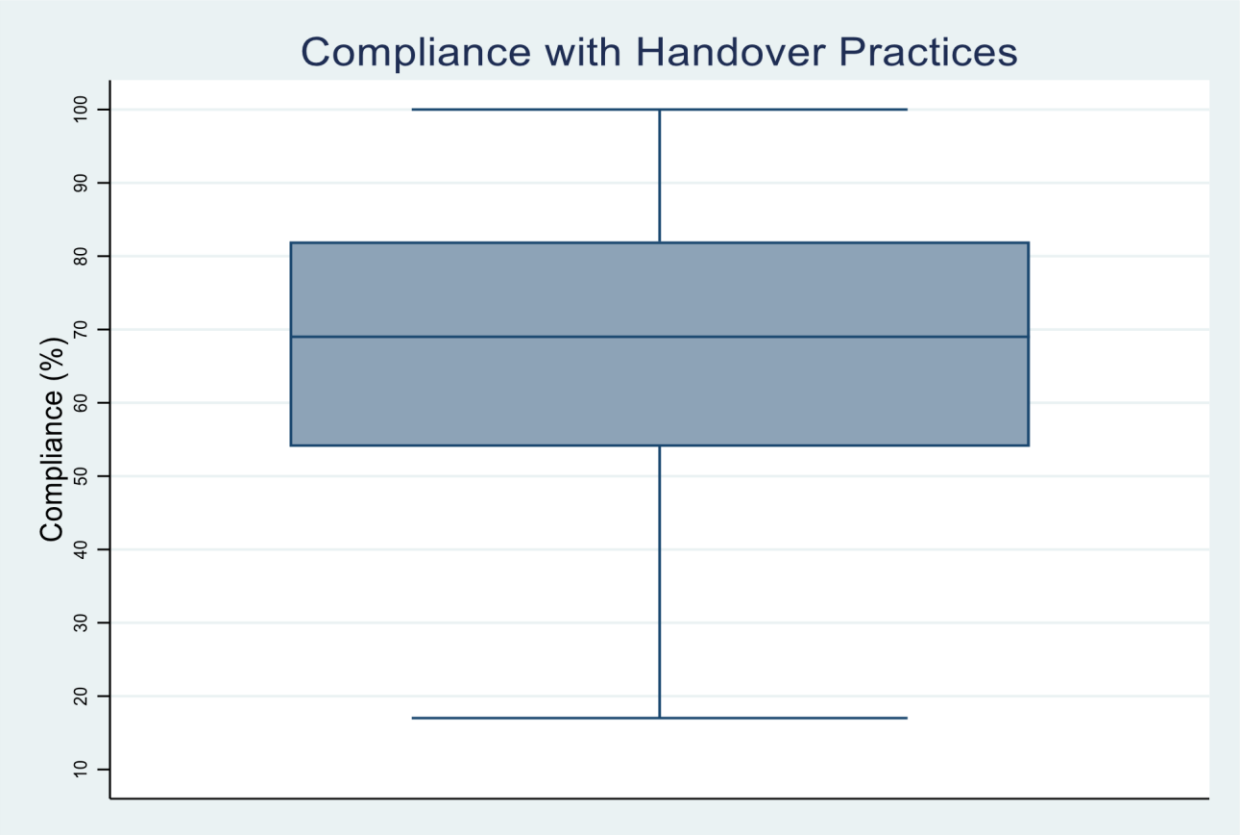
There were 131 participants in the study, of which 24.2% were males and 75.6% were females. The participants represented a range of demographics, including age groups, education level, years of experience, shift patterns (morning, evening, and night), and handover techniques (i.e., patient's red file, Kardex, verbal, and handover paper). Most were between the ages of 20 and 30 (74%), having between one and five years of experience (87.8%), and having a direct-entry bachelor's degree (58%). Most participants (56.5%) were observed in the morning shifts handoff, with Kardex being the most often used modality for handover (39.7%).

Table 2: Compliance as an outcome

Mean Compliance	**Standard Deviation**	**95% Confidence Interval**
69.1%	18.6%	65.972.3

When considering compliance, we are provided with a numerical depiction of how well people or things adhere to a certain rule, regulation, or instruction. In this study, the observed data had a mean compliance of 69.1 % ± 18.6 %, with 95% confidence interval (CI) spans from 65.9 to 72.3% (95% CI [65.9, 72.3]). The compliance data's central tendency, variability, and degree of confidence in the estimate are all shown by these statistical metrics.

Figure 5: Compliance Distribution (N=131)



The plot's boxplot reveals that approximately 25% of the participants have a compliance rate lower than around 55%, while 75% of the participants exhibit a compliance rate of nearly 82%. The median of the study is 69.8%. The graph portrays the lowest observed compliance proportion as being less than 20%, while the highest observed compliance proportion reaches 100%. Overall, this shows that majority of participants was more than 80% complaint with handover.

Table 3: Factors affecting compliance with handover

Demographic Variables		**Mean Compliance**	**95% Confidence Interval**		**P-Value**
			Lower CI	**Upper CI**	
Age (Years)					<0.7507
	20-30	67.8	63.7	71.8	
	31-40	69.0	63.7	74.2	
Gender					<0.001*
	Male	55.8	49.6	62.01	
	Female	72.1	68.6	75.6	
Qualification					0.858[$]
	BScN	68.6	63.9	73.2	
	Post RN	67.2	62.7	71.6	
	Midwifery(RN, RM)	71.5	46.9	96.1	
Experience (Years)					0.040*
	1-5	66.9	63.4	70.4	
	6-15	77.1	69.1	85.2	
Duty Shift					0.069[$]
	Morning	64.9	60.6	69.3	
	Evening	71	64.9	77.1	
	Night	74.4	66.9	81.8	
Methods used during handover					0.625[$]
	Verbal	65.8	59.3	72.4	
	Patient red file	72.2	63.3	81	
	Kardex	67.1	61.9	72.2	
	Handover paper	69.9	62.9	76.9	

[$] One Way ANOVA

*Significant at p=0.05

An overview of the variables that affect handover compliance is shown in Table 3, together with the mean compliance scores, 95% confidence intervals, and p-values that correspond to each variable. The table provides insights on how different demographic factors affect compliance rates. Age is non-significant to compliance, as the table shows ($p < 0.7507$). Additionally, gender has a significant impact on compliance ($p < 0.001$). The mean compliance of female participants is greater at 72.1 (95% CI: 68.6 to 75.6) than that of male participants.

Compliance levels do not seem to be significantly impacted by the type of qualification ($p= 0.858$). The mean compliance for participants with a generic BSN certification is 68.6 (95% CI: 63.9 to 73.2), for those with a post-RN qualification it is 67.2 (95% CI: 62.7 to 71.6), and for those with a midwifery (RN, RM) it is 71.5 (95% CI: 46.9 to 96.1); however, qualification was not significant to the compliance rate. Duty shift type has a trend, but its marginal impact on compliance is not statistically significant ($p = 0.069$). The highest mean compliance is found among night shift workers (74.4; 95% CI: 66.9 to 81.8), followed by evening shift workers (71; 95% CI: 64.9 to 77.1), and then morning shift workers (64.9; 95% CI: 60.6 to 69.3).

Significant difference in compliance was found with years of experience ($p = 0.040$). Individuals who have between one and five years of experience have a mean compliance of 66.9 (95% CI: 63.4 to 70.4), whereas participants with six to fifteen years of experience have a higher mean compliance of 77.1 (95% CI: 69.1 to 85.2).

There is no significant difference in compliance amongst the handover methods used ($p = 0.625$).

Univariate Linear regression

Table 4: Age with compliance

Compliance	Coefficent	Standard Error	T	P>|T|	95% Conf.	Interval
Age 31-40						
Age 20-30	1.195	3.75	0.32	0.75	-6.23	8.62
Constant	67.80	1.91	35.43	0	64.0	71.59

N=131, R-squared= 0.0008, adj R-sq= -0.0070, root MSE=18.846

Univariate linear regression was run between the compliance and each factor to assess their association. There was no significant difference in compliance among both the age categories (p = 0.751)

Table 5: Gender with compliance

Compliance	Coefficient	Standard Error	T	P>|T|	95% Conf.	Interval
Male						
Female	16.27	3.55	4.58	0	9.24	23.31
Constant	55.61	3.09	18.05	0	49.69	61.92

N=131, R-squared= 0.13, adj R-sq=0.13, root MSE=17.48

Univariate linear regression showed that the compliance was on average 16.27% higher for females than the male staff (p value=<0.001). Gender accounted for d 13% variability in compliance in handover practices among the nursing staff.

Table 6: Years of experience with compliance

Compliance	Coefficient	Standard Error	T	P>|T|	95% Conf.	Interval
Years of experience 1-5						
Years Of Experience	10.26	4.94	2.07	0.04	0.47	20.5
Constant	66.86	1.72	38.66	0	63.43	70.28

N=131, R-squared= 0.03, adj R-sq=0.02, root MSE=18.54

Univariate linear regression was run between the compliance and year of experiences to assess their association. "Years of Experience" appears to have a statistically significant impact on compliance. Specifically, having more years of experience is associated with higher levels of compliance. The constant term also has a substantial impact on compliance.

Table 7: Qualification with compliance

Compliance	Coefficient.	Standard.Error	T	P>|T|	95% conf.	Interval
Post RN BScN						
Qualification						
BScN	-1.42	3.42	-0.42	0.67	-8.19	5.34
Midwifery(RN,RM)	2.92	9.69	0.3	0.76	-16.2	22.11
Constant	68.57	2.16	2.1	0	64.28	72.86

N=131, R-squared= 0.002, adj R-sq= 0.01, root MSE=18.90

Univariate linear regression was run between the compliance and qualification to elaborate the association. Qualification levels BScN and Midwifery (RN,RM) are not statistically significant predictors of Compliance, while the constant term is highly significant.

Table 8: Shifts with compliance

Compliance	Coefficient	Standard Error	T	P>|T|	95% conf.	Interval
Morning						
Shifts						
Evening	6.06	3.76	1.61	0.11	-1.35	13.5
Night	9.44	4.58	2.06	0.04	0.37	18.5
Constant	64.93	2.15	30.1	0	60.66	69.1

N=131, R-squared= 0.04, adj R-sq=0.02, root MSE=18.52

According to this regression analysis, Night shift appears to have a statistically significant impact on Compliance, while Evening shift does not. The constant term is highly statistically significant and has a substantial impact on Compliance.

Table 9: Method of handover with compliance

Compliance	Coefficient.	Standard Error	T	p>|T|	95% conf.	Interval
Methods						
Patient red file	6.31	5.46	1.61	0.25	-4.5	17.1
Kardex	1.21	4.24	0.29	0.77	-7.17	9.6
HandoverPaper	4.08	4.88	0.84	0.4	-5.57	13.74
Constant	65.84	3.33	19.74	0	59.24	72.4

N=131, R-squared= 0.013, adj R-sq=0.009, root MSE=18.8

According to this regression analysis, none of the methods (Patient Red File, Kardex, or Handover Paper) appear to have a statistically significant impact on compliance. The constant term is highly statistically significant and has a substantial impact on compliance.

Table 10: Multivariate Linear Regression

Compliance	Coefficient.	Standard Error	T	p>|T|	95% conf.	Interval
Sex	16.39	3.44	4.75	0.00	9.56	23.2
Years of Experience	12.06	4.51	2.6	0.009	3.12	20.9
Shift						
Evening	5.1	3.44	1.49	0.140	-1.69	11.9
Night	9.4	4.17	2.25	0.026	1.13	17.66
Constant	39.27	6.15	6.38	0	27.09	51.46

N=131, R-squared= 0.21, adj R-sq=0.192**,** root MSE=16.87

This table represent the results of a regression analysis, where "compliance" is the dependent variable, and the independent variables include "sex", "years of experience", and "shift". According to this regression analysis, "sex" and "years of experience" appear to have statistically significant impacts on compliance. Specifically, being male and female and having more years of experience are associated with higher levels of compliance. The variable "shift" has mixed results, with night shift being statistically significant while evening shift is not. The constant term also has a substantial impact on compliance.

Summary

In this chapter, a comprehensive analysis of compliance of handover among nurses is depicted in an elaborative way, using socio demographic variables. The data set consist of 131 nurses in three different shifts. Frequency distribution of data shows that the age group with the highest mean compliance (69.0) is 31-40 years old; the group with the lowest mean compliance (67.8) is 20-30 years old. The mean compliance of females is substantially greater (72.1) than that of males (55.8). There is no discernible difference in compliance between Post RN BScN and BScN, with midwifery (RN,RM) exhibiting the highest mean compliance (71.5). Compared to participants with 1–5 years of experience (66.9), those with 6–15 years of experience showed better mean compliance (77.1). Employees on the night shift had the highest mean compliance (74.4), followed by those working the evening shift (71) and the morning shift (64.9). The patient red file has the highest mean compliance (72.2), followed by verbal communication (65.8), handover paper (69.9), and Kardex (67.1). The rate of compliance indicates that the 95% confidence interval for the mean compliance score, which is 69.1, ranges from 65.9 to 72.3. There is a moderate amount of fluctuation in compliance scores, as indicated by the data's 18.6 standard deviation. According to the confidence interval, there is a 95% chance that the actual population mean compliance is between 65.9 and 72.3. Compliance is also highly influenced by gender, with female compliance being higher than male compliance. Compliance is not greatly impacted by qualification. Experience affects compliance, with nurses with 6 to 15 years of experience showing better compliance. Although not statistically significant, shift indicates a tendency where night shift workers have the highest compliance. The technique chosen for handover has no appreciable effect on compliance.

Chapter 5: Discussion

This chapter provides a comparative analysis of the study with respect to previous studies, emphasizing areas of overlap, differences, and findings not reported earlier if any. The chapter presents the elements that affect nurses' compliance, providing insight into how age, gender, education, years of experience, and working shift affect the compliance rates. The chapter concludes by providing insights on possible areas of concentration and investigation for future research projects.

The results of a multi-centre observational study on adherence to a structured bedside hand over protocol were published by Malfait et al. (2018). The authors of the study highlighted the need of following the prescribed protocol in a clinical setting and evaluating its compliance rates. The authors asserted that, in general, adherence to the structured bedside handover methodology showed positive trends. However, they also acknowledged that the complex nature of compliance, which can differ in various clinical contexts and can be impacted by a variety of factors, but in their study, they did not fully explore these (Malfait et al. 2018).

In the current study, various factors affecting compliance are measured. As mentioned in the findings section the demographic variables used in our study included age, sex, years of experience, shifts, and methods. These results advance our knowledge of participant characteristics in relation to nursing handover compliance.

As part of a quality improvement effort, nursing staff compliance to a checklist for person-centered handovers was reported in a study by Sharp,et al. (2019). According to their research, there were differences in the nursing staff’s compliance with the checklist. The

authors acknowledged that there may be variances in compliance rates and that these variances are a necessary component of the complexity involved in putting person-centered handovers into practice. They claimed that, while the checklist was a useful tool for enhancing handovers, total adherence by all employees was not often attained. Notwithstanding several differences, the study's findings showed that the checklist improved person-centered handovers in a constructive way. When it comes to research, hedging is the practice of expressing uncertainty or limitations in findings with cautious wording, such as "possibly" or "suggests," without compromising credibility. In order to present their work in a fair and nuanced manner, researchers can use it to recognise potential variability or alternate hypotheses. In a study author acknowledged that the observed variances might be impacted by personal practices or contextual factors that were not specifically examined in the study. Thus, they concluded that, although the nursing staff adhered to a person-centered handover checklist, there were some differences among these staff. (Sharp, et al.5, 2019).

Wong et al. (2019) presented the findings of a best practice implementation project that concentrated on clinical nursing handovers to guarantee the continuity of secure patient care in adult surgical wards in their published paper. The significance of proficient clinical nursing handovers in augmenting patient safety and care continuity was underscored by the findings. According to the authors, patient care in adult surgical wards improved when best practices were applied to clinical nursing handovers. They stressed that the improvement of patient outcomes and the decrease in adverse events were made possible by adherence to these best practices. Nonetheless, it was also mentioned that specific interventions, such as staff training and the creation of standardized standards, were necessary for the implementation to be successful.

To summarize, Wong et al.'s (2019) study produced findings that showed how clinical nursing handovers implementing best practices improve patient care and safety in adult surgical wards. As compared to the above study, our study concluded compliance of handover among nurses and which factors can play a role in it.

Bukoh and Siah (2020) presented the findings of a thorough examination of organized handover interventions between nurses and their influence on patient safety outcomes in their published systematic review. According to the authors, the goal of their review was to offer a thorough evaluation of the body of knowledge already available on the subject. According to the review, systematic nurse handover interventions have been linked to improved patient safety results by decreased medication errors, improved general patient care, and improved communication. The authors stressed that different healthcare settings applied structured handover interventions in different ways, depending on the particular intervention employed, the nursing staff's training, and the cultural background of healthcare systems. In conclusion, Bukoh and Siah's (2020) systematic study produced findings that demonstrated the beneficial effects of organized handover interventions between nurses on patient safety outcomes.

The results of a study on nurses' perceptions and compliance with the Identification, Situation, Background, Assessment, and Recommendation (ISBAR) tools for handoff communication in a tertiary hospital in Dammam were published by Chiew et al. (2019). According to the study, nurses' opinions of the ISBAR tools were mainly favorable. It was reported that nurses understood how beneficial the ISBAR tools were for facilitating handoff communication and raising the standard of patient care. The tools were also considered by the authors to be a useful tool for increasing patient safety by nurses. The study found that, although nurses had a generally high opinion of the ISBAR tools, there were differences in their compliance. According to the authors, the existence of established procedures and

training programs, together with the degree of awareness and familiarity with the instruments, were factors that affected compliance. Chiew et al. (2019) reported findings that showed nurses' favorable opinions of the ISBAR tools for tertiary hospital handoff communication. To improve compliance with these important instruments, the study found variances in compliance, highlighting the significance of raising knowledge and familiarity as well as establishing supportive protocols and training. Similarly, our study was also conducted in tertiary hospitals and assessed handover among nurses.

Nhut et al. (2020) presented the findings of their study on the observance of nurses at a Vietnamese hospital's pre-operative room with regard to the patient handover procedure. The study found that there were differences in the nurses' adherence to the patient handover procedure. It was reported that, although protocols and criteria for patient handover were in place, nurses' actual adherence to them was not always at its best. According to the authors, variables affecting compliance included differences in individual practices, time restrictions, and communication difficulties. The study underlined how crucial it is to increase patient handover procedure compliance to improve the standard and security of pre-operative room patient care. The authors reported that to overcome the identified hurdles to compliance, specific interventions, more training, and ?different methods are required. In conclusion, Nhut et al. (2020) reported findings that showed variances in the nurses' adherence to the patient handover procedure in the Vietnamese hospital's pre-operative room. According to the study, methods and interventions are required to increase compliance, which will eventually improve the standard and safety of patient care. How does this compare to your study?

Jain and Yadav (2017) published their research on shift handover communication compliance with a standardized method. They reported that participants' compliance with the standardized shift handover communication system varied. Although a well established

system was in place, individual compliance levels varied. The authors found that personal habits, system knowledge, and availability of helpful resources all had an impact on compliance. The study underlined how crucial it is to increase adherence to the established procedure to improve shift changeover efficacy. It was stated that increasing compliance could lead to better patient care outcomes, less errors, and enhanced communication. To summarize, research by Jain and Yadav (2017) revealed differences in adherence to a uniform shift changeover communication protocol. Their study found that in order to improve compliance, communication, and patient care outcomes, interventions, training, and resources are required. Is there any comparison to your paper?

Tan et al. (2020) detailed the outcomes of a best practice implementation project that improved the verbal handover procedure for nurses working in inpatient orthopedic wards According to the study, using best practices for the verbal handover procedure had an advantageous effect. It was reported that nurses saw improvements in the general handover procedure and communication, which improved patient care and safety. The authors stressed that a supportive healthcare culture, well-structured protocols, and staff training were all necessary for successful implementation. It was stated that these elements were vital to guaranteeing the long-term viability of the adopted procedures. In summary, Tan et al. (2020) reported findings that demonstrated the benefits of using best practices in improving the verbal handover procedure for nurses working in inpatient orthopedic wards. Similarly, our study also included verbal handover procedures in a tertiary care centre?.

Milesky et al. (2018) presented findings of their observational study which examined patient handover communications between nurses in an oncology critical care unit. According to the study, there were differences in the nurses' patient handover communications. It was mentioned that, although handover procedures were set in stone, nurses' real communication

styles varied. The authors noted that workload, individual communication styles, and contextual factors all had an impact on communication. The study emphasized how critical it is to enhance patient handover communications' efficacy and consistency. Standardized handover procedures and training have been suggested to improve communication, which will eventually improve patient care and safety.-Hence the research by Milesky et al. (2018) revealed differences in the way nurses in the oncology critical care unit spoke with patients during the handover process. In order to improve patient care and safety, the study found that interventions and training are required to increase the consistency and efficacy of handover communication.

Pino et al. (2019) conducted research to improve interunit handoff process compliancethrough a revised handoff procedure. The authors reported that their research findings were encouraging. The revised handoff procedure's implementation resulted in a considerable increase in compliance rates across the board. The standardized handoff protocols were better understood and followed by nurses and other healthcare professionals. Patient safety and the standard of care were improved resulting in more effective and faster handovers between units. The experiment demonstrated that focused efforts could result in favorable changes and improvements in patient care and safety, underscoring the need for organized quality improvement activities in healthcare settings. However, in our research we did not introduce any new method of the handoff, we looked at the compliance of the practices that already exist in the units.

Study Strengths

Our study differs from earlier research in several noteworthy ways: This study uses a multivariate approach, in contrast to many other studies that frequently concentrate on single factors. The checklist that contained 39 items was useful to evaluate compliance of nurses was a

strength. The demographic data was useful to identify the factors which effects quality of handover. This study has the advantage of a comparatively diverse sample size, with 131 observations. Prior studies on compliance with handover procedures have not thoroughly examined shift patterns. The present study adds to the body of knowledge by offering new perspectives on the potential effects for various adjustments on compliance. Each predictor in the research is given coefficients, standard errors, t-statistics, p-values, and confidence intervals as part of an extensive regression analysis. This degree of specificity makes it possible to assess each variable's impact on compliance.

Limitations

Although the study unequivocally shows a link between nurses' compliance with handover, and various factors affecting it, we recognize a number of possible limitations. We observed the following restrictions in our research: The brief duration of this study hindered our capacity to thoroughly assess a range of clinical outcomes associated with nurses' handover compliance. One gender was overrepresented in the study, resulting in an unbalanced gender ratio. It would have been better if the gender distribution had been more equal. Data was only gathered from one hospital in Karachi. The findings may not have been as generalizable beyond the current environment. Moreover, nurses from other private and government hospitals are not taken into account. The unpredictability and the need for additional research or actions to improve compliance when needed are also highlighted by the rather large confidence interval. Taking into account these constraints, we propose a number of possible avenues for future research that build upon the results of this investigation. Patients and healthcare professionals may both benefit from this field of research. Healthcare providers can create more efficient patient care plans by better understanding the elements

impacting nurses' compliance with handover. Notwithstanding the limitations of the study, it has advanced our understanding of the connections between several variables and handover compliance. It is our aim that this research will advance the field of healthcare and provide a solid basis for future investigations.

Recommendations

Following are the recommendations of this study:

Education: Establish dedicated training courses for nurses that concentrate on efficient handover protocols, stressing the significance of adherence and its influence on patient care. Promote an environment where learning never stops in healthcare facilities by motivating nurses to stay current on the best practices for handover procedures. Perhaps risk/benefit on compliance might be a useful ‘knowledge’ translation tool.

Research: To obtain more comprehensive knowledge, encourage additional research into the particular elements influencing compliance with handover processes. Examine how cutting-edge technologies and communication instruments might enhance handover quality and compliance. Examine how well various instructional strategies and interventions might increase compliance. This study is suggested to be replicated at different sites including critical care areas. It is also suggested that different types of handover tools be used in future research.

Policy: Create uniform handover procedures and guidelines at the institutional and governmental levels to advance the likelihood of continuous application of best practices. Establish safe staffing levels such as trained nurses who can comply with guidelines. To reduce potential barriers to compliance, clearly define staffing ratios and nurse-patient assignments. Promote the inclusion of compliance reporting and monitoring in healthcare

policy, so that organizations are held responsible for upholding strict guidelines for handover processes. Establish an auditing process for 'missed opportunities'.

Practice: Encourage handovers to be patient-centered, with the patient's welfare at the forefront of all conversations. Conduct routine evaluations and audits of healthcare facilities' handover compliance. Promote an environment of transparency by allowing nurses to discuss any difficulties or obstacles preventing adherence without worrying about the consequences.

Conclusion

The study concluded that the rate of compliance among nurses is 69.1%. Finally, it was determined that mean compliance, which expresses the average degree of adherence or conformity to a set of rules or norms within a certain population or sample, was 69.1. The study participants generally demonstrate a moderate level of adherence to the established rules or expectations, as indicated by the mean compliance of 69.1. This finding means that, practically speaking, we may be very certain that, in the wider group from which the sample was taken, the real average compliance falls between 65.9 and 72.3. The study's findings offer a thorough summary of the ways that different demographic characteristics and handover techniques affect nurses' compliance. Notably, age is found to be a key determinant, with younger participants (those in their 20s and 30s) showing higher levels of compliance. Another important factor is gender, as women regularly show higher levels of compliance than men. Moreover, nurses exhibiting 6-15 years of experience exhibit greater adherence, underscoring the significance of years spent in the field. The trend suggests that compliance is higher during night shifts, although it is not statistically significant. Compliance is greatly impacted by the handover method selected; patient red files yield the highest compliance rates. These results highlight the difficulty in ensuring compliance with nursing handovers and have ramifications for bettering healthcare procedures and guidelines, which will eventually

improve patient safety and care. This study's multivariate linear regression analysis offers a comprehensive understanding of nursing handover compliance. Robust statistical measures highlight the caliber of the analysis by confirming the statistical significance of the model. Furthermore, the study differs from previous studies in that it can reveal the complex relationship between many demographic and predictive characteristics and compliance. In conclusion, this study is exceptional in the industry due to its thorough methodology, statistical rigor, and in-depth understanding of the factors influencing compliance. It not only pinpoints the major variables that influence compliance but also offers insightful advice to medical professionals looking to improve the standard of patient care. These numbers and percentages offer a solid basis for comprehending the degree of compliance within the group under study and for drawing conclusions or judgements about the compliance behavior of the larger population.

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Appendix I

ISBAR tool for nurses' handover at Aga Khan University Hospital Karachi

S. No	Components	Yes	No	Comments
1.	Date of admission			
2.	Date of transfer			
3.	Current location			
4.	Previous location			
5.	Patient identification			
6.	Physician Name			
7.	Age			
8.	Sex			
9.	Primary diagnosis			
10.	Presenting complain			
11.	Language barrier			
12.	Infection status			
13.	Isolation precaution			
14.	Risk for fall			
15.	Code status			
16.	Past medical history			
17.	Allergies			
18.	Any specific cognitive deficit			
19.	Patient valuables			
20.	Medications			
21.	Vital signs			
22.	Activity level			
23.	Pain status			
24.	Dressing			
25.	Reflo monitoring			
26.	Diet			
27.	Tubes/drains			
28.	Skin status			
29.	Intravenous/ central venous access			
30.	Critical test results			

31.	**Radiological investigations**			
32.	**Drip/infusions**			
33.	**Hygiene care**			
34.	**Oxygen therapy**			
35.	**Airway**			
36.	**Planned/performed procedures**			
37.	**Orders to be carried**			
38.	**Nursing alters / risk**			
39.	**Discharge plan**			

Appendix II

The Aga Khan University
School of Nursing and Midwifery
Questionnaire
for Demographic Data

S. NO	Components	Remarks
1.	Name (optional)	
2.	Age	
3.	Gender	○ Male ○ female
4.	Qualification	○ Registered nurse ○ Post RN ○ Generic BSN ○ Midwifery(RN,RM) ○ MSN
5.	Experience	
6.	Shift	○ Morning ○ Evening ○ Night
7.	Start time of handover	
8.	End time of handover	
9.	Methods use during handover	○ Verbal ○ Patient red file ○ Kardex

		○ Handover paper ○ Other

Appendix III

Ethical Review Committee

Aga Khan University Hospital, Karachi Pakistan

Approval

آغا خان یونیورسٹی
THE AGA KHAN UNIVERSITY

25-Jul-2023

Dr. SALMA RATTANI RATTANI
Department of School of Nursing and Midwifery
Aga Khan University
Karachi

Dear Dr. SALMA RATTANI RATTANI,

2023-8366-25799, SALMA RATTANI RATTANI: Assessing Nurses' compliance to handover practices at a tertiary care hospital in Karachi, Pakistan

Thank you for submitting your application for ethical approval regarding the above mentioned study.

Your study was reviewed and discussed in ERC meeting. There were no major ethical issues. The study was given an approval for a period of one year with effect from 25-Jul-2023. For further extension a request must be submitted along with the annual report.

List of document(s) approved with this submission.

Submission Document Name	Submission Document Date	Submission Document Version
Salma Rattani cerificate valid till 26 January 2025		
Khairunnissa Hooda CITI Completion Certificate KH		
Permission letter from CNO	18-Apr-2023	1
Permission letter from CMO	18-Apr-2023	1
Demographic questionnaire	18-Apr-2023	1
Amber Qasim Ali certificate valid till 27 May 2024		null
Rafat Jan Certificate valid till 23 June 2023		null
Mohammad Illyas certificate valid till 17 february 2026		null
Khairunnissa Hooda Certificate valid till 23 march 2026		null
Data Collection Tool	18-May-2023	1
Thesis Proposal V8	20-Jul-2023	2
consent form 4	20-Jul-2023	2
ERC Response V3	20-Jul-2023	3

Any changes in the protocol or extension in the period of study should be notified to the Committee for prior approval. All informed consents should be retained for future reference.

Please ensure that all the national and institutional requirements are met.

Thank you.

Sincerely,

Appendix IV

Chief Nursing Officer

Aga Khan University Hospital, Karachi Pakistan

Approval

آغا خان یونیورسٹی ہسپتال، کراچی
The Aga Khan University Hospital, Karachi

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan
Tel: +92 21 3493 0051
Fax: +92 21 3493 4294, 3493 2095
www.aku.edu

Dated : March 13, 2023

Title : "Nurses' compliance to handover practices in adult medical surgical units at a tertiary care hospital in Karachi, Pakistan"

Dr. Salma Rattani
Associate Professor
AKUSONAM

As Chief Nursing Officer at the Aga Khan University Hospital, Karachi, I approve the above named study to be conducted within the Hospital, following required approvals and maintaining compliance with all Institutional ethical and regulatory requirements.

Khairunnissa Hooda
Chief Nursing Officer, Nursing Services
Aga Khan University Hospitals

Appendix V

Chief Medical Officer

Aga Khan University Hospital, Karachi Pakistan

Approval

آغا خان یونیورسٹی
THE AGA KHAN UNIVERSITY

Dated: January 10, 2023

Title: Nurses' compliance to handover practices in adult medical surgical units at a tertiary care hospital in Karachi, Pakistan

Principal Investigator: Dr. Salma Rattani
Associate Professor, School of Nursing
Aga Khan Hospital
Karachi

The above-entitled study is a cross sectional study in the Aga Khan University Hospital, Karachi.

As Chief Medical Officer at the Aga Khan University Hospital, Karachi, I approve the above named study to be conducted within the Hospital, following required approvals and maintaining compliance with all Institutional ethical and regulatory requirements

Asim F. Belgaumi,
Professor, Pediatric Hematology & Oncology,
Department of Oncology.
Chief Medical Officer,
Associate Dean for Clinical Affairs
Aga Khan University Hospital.

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Appendix VI
Table of literature

Author(s)	Year of publication	Purpose of study	Study design	Sample size	Key findings
Bost, N., Crilly, J., Wallis, M., Patterson, E., & Chaboyer, W.	2010	To assess existing research on the clinical transfer of patients brought by ambulance to the emergency room	Literature review	N/A	Emphasized the significance of clinical handover and the potential repercussions of improper handovers
Bressan, V., Mio, M., & Palese, A.	2020	To gather evidence on nursing handovers and patient safety	review	40 systematic reviews and meta-analyses	emphasized the significance of nursing handovers and their effect on patient safety; called attention to the necessity for handover standards and training.
Bruton, J., Norton, C., Smyth, N., Ward, H., & Day, S.	2016	To investigate nurse handover experiences among patients and staff	Qualitative study	30 patients and 12 staff members	Identified communication gaps, underlined the value of patient involvement in handover, and emphasized the need for consistent, patient-centered handovers.
Chien, L. J., Slade, D., Dahm, M. R., Brady, B., Roberts, E., Goncharov, L., Taylor, J., Eggins, S., & Thornton, A.	2022	To assess a specific intervention addressing clinical handoff communication in nursing within its organizational and cultural context	Mixedmethods study	4 wards with a total of 108 nurses	Following the intervention, there was better communication, efficiency, and patient-centeredness of handover.

Chow, J. T., Khanna, A. K., & Hinshaw, L.	2020	to investigate patient perceptions of care transitions and how they affect security and quality	Qualitative study	10 patients and 6 caregivers	identified the need for patient-centered handovers, communication gaps, and the need of patient involvement in handover
Cornish, J., & Jones, A.	2010	Examining the perspectives and experiences of student nurses with reference to handling and moving policy compliance	Qualitative study	12 nursing students	Identified hurdles to policy compliance in terms of communication and resources, and underlined the need for student support and training.
Fawaz, M., Anshasi, H., & Samaha, A.	2020	To explain the obligations, dangers, rights, and obligations of nurses during the COVID-19 epidemic.	Literature review	N/A	Outlined the hazards and difficulties that nurses encountered during the pandemic and the demand for resources and support for frontline nurses.
Ghonem, N. M. E. S., & El-Husany, W. A	2023	To assess the impact of a shift reporting training program on nurses' knowledge, practice, and perception of shift handoff communication in noncritical departments using the Situation, Background, Assessment, Recommendation method.	Quasiexperimental research	83 staff nurses	Utilizing the Situation, Background, Assessment, and Recommendation tool, the shift work reporting technique significantly enhanced the research participants' understanding, practice, and perception of shift handoff communication.

Gungor, S., Akcoban, S., & Tosun, B.	2022	to assess the factors that affect emergency service nurses' patient handover	Descriptive study	73 emergency service nurses	Communication gaps were identified, and standard handovers and training were required.
Gurses, A. P., Murphy, D. J., Martinez, E. A., Berenholtz, S. M., & Pronovost, P. J.	2009	create a tool to recognize and remove obstacles to compliance following evidence-based recommendations	Descriptive study	N/A	created a tool to help identify and remove obstacles to compliance following evidence-based recommendations
Hada, A., Jack, L., & Coyer, F.	2019	Utilizing a knowledge translation framework, identify the supports and barriers to efficient nursing handover	Focus group study	23 nurses	the necessity of standardized communication methods and techniques, the value of teamwork and collaboration, the necessity of continual training and education, and various other obstacles and supports to efficient handover.
Hesselink, G., Schoonhoven, L., Barach, P., Spijker, A., Gademan, P., Kalkman, C., Liefers, J., VernooijDassen, M., & Wollersheim, H.	2012	to carry out a systematic study of patient transfer strategies from hospitals to primary care	Systematic review	15 studies	It has been discovered that interventions including standardized forms and processes, electronic health records, and handoverspecific staff can enhance the effectiveness of handoffs and patient outcomes.

King, I. M.	1981	To put forth a nursing theory that places an emphasis on the systems, ideas, and procedures involved in patient care.	Theoretical paper	N/A	Proposed a systems theory for nursing that emphasizes the interconnectivity of many aspects, such as communication, decisionmaking, and the environment, that affect patient outcomes.
Kitney, P., Tam, R., Bramley, D., & Simons, K.	2020	To implement an ISBAR-based quality improvement project for handover in two perioperative sites.	Quality improvement project	N/A	.In two perioperative sites, it was discovered that the use of ISBAR principles for handoff improved communication and decreased errors.
Kullberg, A., Sharp, L., Dahl, O., Brandberg, Y., & Bergenmar, M.	2018	to investigate nurses' opinions of personcentered handovers in the setting of an oncological inpatient	Qualitative study	15 nurses	It was discovered that person-centered handovers can increase nurse satisfaction, foster teamwork and collaboration, and improve patient safety.
Kumar, P., Jithesh, V., Vij, A., & Gupta, S. K.	2016	To examine nursing handoffs at a neurosciences centre in India and determine opportunities for improvement.	Crosssectional study	41 nurses	Several areas for improvement were noted, including the requirement for standardized handover procedures, elevated patient and family involvement, and enhanced provider communication.

Li, X., Zhao, J., & Fu, S.	2022	To determine how well the emergency departments combined use of the SBAR standard and mind maps for communication functions.	Quasiexperimental study	62 nurses	It was discovered that using the mind map communication method and the SBAR standard for handoff increased communication and decreased the occurrence of handover errors and unfavourable events in the emergency department.
Mazzocco, K., Petitti, D. B., Fong, K. T., Bonacum, D., Brookey, J., Graham, S., Lasky, R. E., Sexton, J. B., & Thomas, E. J.	2009	To investigate the connection between surgical team actions and patient results.	Observational study	10 hospitals, 60 surgical teams	It was shown that surgical teams' improved teamwork and communication was linked to better patient outcomes and fewer surgical complications.
Oxelmark et al.	2018	to investigate registered nurses' experiences with patient involvement in hospital care	Qualitative research	12 nurses	Mutual regard, trust, and communication were variables that helped; time and resource constraints as well as a lack of patient preparation were problems that hindered.
Pakhare et al.	2014	To examine the research on clinical hand therapy	Literature review	Not applicable	underlined the necessity for standardized handover procedures and revealed research gaps

Petersson et al.	2015	to conduct a thorough assessment of qualitative studies on registered nurses' perceptions of patient involvement in the perioperative context	Systematic review	19 studies	the following five themes: empowerment, involvement, communication, and information
Pilcher et al.	2022	to look into the handover of obstetric patients from shift to shift in Kerala, India	Crosssectional mixed method study	171 healthcare professionals	identified a number of issues, such as language difficulties and insufficient training, and suggested suggestions for improvement
Pucher et al.	2014	To look into how surgical ward care checklists affect postoperative treatment in a controlled setting.	Randomized clinical trial	96 participants	In comparison to the control group, the checklist group provided postoperative care with fewer omissions and mistakes.
Pun	2023	to investigate nurses' opinions of the ISBAR handover protocol and how it relates to the effectiveness of the handover	Case study	8 bilingual nurses	Found that the ISBAR changeover protocol enhanced communication and handover quality.
Raeisi et al.	2019	to carry out a thorough analysis of the difficulties with patient handoff in healthcare services	Systematic review	16 studies	identified a number of issues, including the absence of standardized procedures, communication issues, and insufficient training

Riesenberg et al.	2010	to carry out a thorough analysis of the nursing handoff literature	Systematic review	38 studies	Identified a number of themes, including the effects on patient care, standardization, and communication.
Ruhomauly et al.	2019	to use the SBAR communication tool to raise the level of handover quality	Quality improvement study	N/A	Discovered that using the SBAR tool increased the effectiveness and quality of handover.
Sharp, L., Dahlén, C., & Bergenmar, M.	2019	A personcentered handover (PCH) model carried out at the bedside has been created and tested at Karolina University Hospital in Sweden to enhance handovers and engage patients and their loved ones in the process.	Qualitative study	43 nurses	The nursing team has to do a better job of following the PCH checklist. According to the observations, training in communicationfocused activities would be helpful to set up a personcentered handover procedure.

Scholes, J. et al.	2019	reviewing the clinical handoff of patients brought in by ambulance	Literature review	N/A	There are variances in how patients are transferred from ambulances to emergency rooms, which increases the chance of mistakes and insufficient data.
Slade, D. et al.	2019	Investigating nurses' opinions about required bedside care	Cross-sectional survey	128 nurses	Bedside handover is seen favourably by nurses, who believe that it improves communication and patient safety.
Spooner, A. J. et al.	2018	utilizing evidence-based nursing handover techniques in the ICU	Implementation study using the Knowledge-toAction framework	N/A	The use of a structured nursing handover tool enhanced communication and reduced negative outcomes.

Tobiano, G. et al.	2020	examining the opinions of frontline nurses regarding intrahospital handover	Qualitative descriptive study	30 nurse	The effectiveness of handover procedures is viewed differently by nurses, who have also recognized hurdles to good communication.

Trinh, Q. D. et al	2020	evaluating the efficiency of surgical care's electronic handover tools	Systematic review and meta-analysis	5 studies	Although more research is required, electronic handover tools have the potential to improve surgical patient outcomes.
Vaismoradi, M. et al.	2020	examining how well nurses adhere to patient safety guidelines	Systematic review and meta-analysis	19 studies	There are several variables that can affect how well patient safety rules are followed, including organizational and individual variables.

Vines, J. J. et al.	2018	nursing handoff communication's effects on patient care being studied	Systematic review and meta-analysis	7 studies	Nursing handoff communication that is structured can reduce errors and enhance patient care.
Warne, T. et al.	2107	examining the transfer of critically unwell patients between the operating room and the intensive care unit	Systematic review	13 studies	Standardized communication methods can help to streamline the difficult process of moving critically ill patients from the operating room to the intensive care unit.