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Assessment of Nurses' Adherence to International Safety Measurement in Labor and Delivery Rooms at Governmental Hospitals in Jeddah City

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Abstract: **Conducting this assessment is crucial to understanding the current state of adherence to international safety measures among nurses in the labor and delivery room. And show where government hospitals in Jeddah fall short in terms of nursing adherence with global safety measuring goals in labor and delivery areas. The findings will provide valuable information to healthcare administrators, policymakers, and educators, enabling them to implement targeted interventions and strategies to enhance patient safety. By identifying gaps in adherence, this study will contribute to the development of evidence-based protocols, educational programs, and quality improvement initiatives that can ultimately reduce adverse events, improve patient outcomes, and promote a culture of safety.**

Keywords: **Nurses' adherence, international safety measures ,labor and delivery room, Patient safety, Maternal and neonatal health, Healthcare-associated infections, medication errors, obstetric care, adverse events, patient outcomes.**

I. INTRODUCTION

Childbirth is a natural process that can also be complex and unpredictable, requiring skilled care to ensure thesafety of both the mother and the newborn. In recent years, there has been a growing emphasis on improvingthe quality of care and ensuring patient safety in labor and delivery rooms**.**

The World Health Organization (WHO) has set several international safety measurement goals for labor anddelivery rooms, which aim to reduce maternal and neonatal morbidity and mortality, promote evidence-basedpractices, and improve patient-centered care.

The Ministry of Health (MOH) has set several national safety measurement goals for labor and delivery rooms, which include reducing the rate of cesarean section (C-section) deliveries, reducing the rate of maternal and neonatal morbidity and mortality, and improving patient satisfaction with the care provided**.**

there is limited research on the extent of nursing adherence to international safety measurement goals in Saudi Arabia.

The study aims to identify the level of adherence to these safety measures, identify any gaps or areas of improvement, and provide recommendations for enhancing patient safety and quality of care in the labor and delivery setting.

Identifying potential barriers to adherence with international safety measurement and following emergency protocols is critical for developing targeted interventions to address these barriers and promote adherence.

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Statement of problem:

1. What is the level of nurses`adherence to international safety measurement in labor and delivery rooms?

2. What are the factors that influence nurses`adherence to international safety measurement goals in labor anddelivery rooms among governmental hospitals in Jeddah?

Methods:

quantitative descriptive observational cross-sectional design.

Setting: the study will be conducted at East Jeddah General Hospital, King Abdulaziz Hospital, and King Abdullah Hospital.

II. BODY OF ARTICLE

Literature Review

2.1 Introduction

In the healthcare sector, protecting pregnant women and new mothers throughout labor and delivery is of utmost importance. Maintaining international safety standards in this pressing situation is essential for both providing high-quality care and preventing negative effects (Abousallah, 2018; Aldossary, 2022). In this scoping review, we delve into the current state of nurses' adherence to international safety measures within labor and delivery rooms at governmental hospitals in Jeddah City. Our aim is to provide a comprehensive overview of existing literature, pinpoint research gaps, and map the essential concepts related to patient safety within this specific healthcare setting.

2.2 Search Strategy

In this scoping review, a systematic and comprehensive search strategy was employed to identify pertinent literature pertaining to nurses' adherence to international safety measures within labor and delivery rooms. To achieve this, various electronic databases, including PubMed, CINAHL, Scopus, and Google Scholar, were utilized. The selection of keywords and search terms was carefully considered to capture the essential concepts related to the research topic, as detailed in Appendix A.

Articles and studies considered for inclusion in this review had to meet specific criteria. They had to be published in peer-reviewed journals, available in English, and primarily focus on nurses' adherence to international safety measures during labor and delivery. Moreover, they needed to address patient safety outcomes or implications associated with adherence or non-adherence to these safety measures. To ensure the inclusion of recent research, studies published within the past ten years were prioritized. Conversely, studies that did not meet these inclusion criteria or were unrelated to the research topic were excluded from consideration. Additionally, conference abstracts, and non-peer-reviewed sources were not included.

The initial search across databases yielded a total of 132 potentially relevant articles. To streamline the selection process, a two-step approach was applied. Firstly, the titles and abstracts of retrieved articles were meticulously screened to assess their relevance to the research topic. Articles that met the inclusion criteria at this stage proceeded to the second step. In the second step, a comprehensive review of the full-text articles was conducted to evaluate their suitability for inclusion in the scoping review. This rigorous review process ensured that the selected articles aligned with the research objectives and provided valuable insights into nurses' adherence to safety measures in labor and delivery rooms.

Data was collected from sources that reinforced the study's foundation and contributed to addressing the primary research inquiry. Crucial data and details, including findings concerning the factors related to the research question, were specifically extracted from the reviewed articles.

A total of nine studies reported relevant data on our topic. The review describes the extent of nurses' adherence to international safety measures, the associated risk factors for non-compliance, and their underlying causes.

2.2 Patient Safety in Labor and Delivery Rooms

Patient safety during labor and delivery is a global imperative, especially in maternal and newborn care. The World Health Organization (WHO) has set international safety targets that emphasize evidence-based practices and patient-centered care to reduce maternal and newborn morbidity and mortality (Hessels et al., 2019). Unfortunately, healthcare-related adverse

events continue to affect millions of individuals worldwide, with low- to middle-income countries bearing a significant burden (Slawomirski & Klazinga, 2020). These events, including medication errors, healthcare-associated infections (HCAIs), and diagnostic inaccuracies, not only harm patients but also strain economies.

Maternal and neonatal mortality represent grave global concerns, with over 810 women succumbing daily to preventable causes related to pregnancy and childbirth. Shockingly, in 2017, nearly 295,000 women lost their lives during or shortly after childbirth, the majority of which could have been prevented by adhering to international safety regulations (WHO, 2019). South Asia and Sub-Saharan Africa record the highest maternal mortality rates, with 99% of these deaths occurring in low- and middle-income countries (WHO, 2021).

Equally pressing is neonatal mortality, with over 2.4 million babies failing to survive each year, and nearly half of these deaths happening within the first 24 hours of life. Leading causes include birth asphyxia, infections, and complications arising from preterm birth (WHO, 2021).

In this context, a study conducted at a University Hospital in Egypt aimed to investigate nurses' compliance with safety measures in the labor room, testing the hypothesis that the utilization of instructional guidelines would positively impact nurse knowledge and practices. The study employed a quasi-experimental design and involved a convenient sample of 45 nurses during the morning shift. Data collection included structured interviews, observational checklists, and Likert scales to assess knowledge, practices, and satisfaction. The results indicated that, prior to the intervention, there were significant deficiencies in nurses' compliance with safety measures in the labor room. Specifically, 100% of the nurses did not document vital signs, 73.4% failed to report blood pressure readings exceeding 140/80 mm Hg, 64.4% did not assess whether amniotic membranes had ruptured, and 55.5% omitted describing vaginal discharge or monitoring intravenous fluids when ordered. Additionally, 55.5% did not document patients' allergy and illness history. These findings underscore substantial areas of non-compliance with safety measures within the nursing staff, highlighting the necessity for improvement in this aspect. However, it's noteworthy that after the intervention, there was a noticeable improvement as the rate declined to 8.9%, 62.2%, 0%, and 51.1%. However, this study has some limitations, including its small sample size and absence of a control group, which restrict the generalizability of the findings and the ability to establish causality. The exclusive focus on a single hospital, Ain Shams Maternity University Hospital, raises concerns about the broader applicability of the findings, warranting further research in this direction (Ibrahim et al., 2016).

Another study conducted in India assessed adherence to International Patient Safety Goals among medical and paramedical staff, utilizing a stratified sampling method. The study categorized healthcare providers directly involved in patient care, including doctors, nurses, and paramedical staff such as physiotherapists, lab technicians, radiologists, and dieticians. The findings indicated variations in adherence to these safety goals across the categories, with doctors demonstrating the highest compliance at 72%, followed by nurses at 69%, and paramedical staff at 68%. Non-adherence among the staff was attributed to factors such as a lack of knowledge or increased workload, which created challenges in implementation. In some instances, non-adherence was influenced by a combination of these factors. Notably, doctors and paramedical staff identified insufficient training as a contributing factor to non-compliance, while nurses, despite having regular classes, still encountered difficulties in recognizing and implementing these safety goals (Ananya, R., et al., 2019).

In a cross-sectional study aimed at assessing the adherence of nursing teams to patient safety measures in neonatal units using a validated instrument (Mendes et al., 2021), the research was conducted through direct observations of the nursing staff and a descriptive analysis of 182 records of the "Checklist for patient safety in nursing care during hospitalization in Neonatal Intensive Care Units" at a hospital in Belo Horizonte. The study's findings indicated high levels of adherence, exceeding 90.0%, in areas such as the use of identification wristbands and providing guidance to companions. However, notable gaps in adherence were identified, with a 79.0% absence of wristband identification checks and a 59.0% absence of evaluations of crib wheel locks. Among the 21 items included in the checklist, three showed no non-conformities. In conclusion, the study revealed only partial adherence to patient safety measures, particularly in the domains of patient identification and fall prevention. This lack of adherence poses risks to newborns, making them vulnerable to preventable adverse events. The study has some limitations, including the possibility that healthcare professionals may have intentionally altered their behavior and attitudes because they knew they were being observed during their work. Moreover, it's essential to acknowledge that this study was conducted in a single healthcare setting, with the night shift excluded from the assessment, potentially limiting the generalizability of the findings to other settings and different shifts.

In the Kingdom of Saudi Arabia, another study conducted by Aljohani and Alsharqi in 2021 aimed to assess the patient safety culture in a Saudi hospital using the HSOPS survey (Aljohani & Alsharqi, 2021). The study's findings predominantly indicated a positive perception of patient safety culture across various dimensions, although "hospital handoffs and transitions" emerged as an exception, receiving notably lower ratings. This study, while contributing valuable insights into the patient safety culture of a specific Saudi hospital, is accompanied by certain limitations. These limitations encompass aspects such as sample selection, reliance on self-reported data, and constraints in terms of generalizability. It is also pertinent to highlight that this study did not investigate the adherence of nurses to safety standards in their daily work. Consequently, further investigation is warranted to provide a comprehensive assessment of safety measure adherence and delve into the underlying reasons for non-adherence.

2.3 Consequences of Nurse's Non-Adherence

Non-adherence to international safety measures in labor and delivery rooms can have significant consequences for both maternal and neonatal health. The reviewed studies shed light on the severity of these consequences, emphasizing adverse outcomes associated with non-adherence, including healthcare-associated infections (HAIs), birth injuries, and medication errors. HAIs pose a substantial risk to patients and are prevalent adverse events within healthcare settings. In the United States, HAIs rank among the top 10 leading causes of death (Haque et al., 2018). Studies conducted in Europe have reported prevalence rates of HAIs, with an increased risk for patients in intensive care units (ICUs) (Baljon et al., 2020). These infections can result in considerable morbidity and mortality, underscoring the critical importance of effective infection control measures.

In this context, a retrospective chart review study was conducted to investigate the characteristics of hospital-acquired Methicillin-resistant Staphylococcus aureus (HA-MRSA) infections in pediatric patients in Riyadh, Saudi Arabia. This research is particularly relevant due to the increasing rates of MRSA infections, with a specific impact on children. The study, carried out at King Abdulaziz Medical City, involved individuals aged 14 or younger who tested positive for MRSA between January 1, 2009, and December 31, 2011. Distinguishing between community-acquired and hospital-acquired MRSA was based on the timing of MRSA culture concerning admission, with community-acquired MRSA within 72 hours of admission and hospital-acquired MRSA more than 72 hours after admission. Among 200 MRSA patients, the analysis revealed that approximately 22% (39 patients) had hospital-acquired MRSA. Notably, these patients often required admission to the Pediatric Intensive Care Unit (PICU) and frequently presented with sepsis, supported by positive blood cultures. The study offers valuable insights into the characteristics of HA-MRSA infections in pediatric patients and emphasizes the critical need for stringent infection control measures.

One notable strength of this study is its meticulous differentiation between community-acquired and hospital-acquired MRSA, enhancing the precision of the analysis and improving the understanding of MRSA infections in the pediatric population. Additionally, the study is commended for its transparent and clear presentation of research methods and findings, which enhances the credibility and reproducibility of the results.

However, this study faces certain limitations. Its retrospective design relies on historical data, which may introduce potential gaps and inaccuracies, affecting the reliability of the results. Moreover, the relatively small sample size may limit the generalizability of the findings to a broader population, potentially not fully representing the diversity of pediatric MRSA cases. Furthermore, the exclusive focus on MRSA infections excludes the exploration of other types of infections, suggesting the need for future research in this direction.

Another critical aspect is newborn identification, which is essential for patient safety. A study in Brazil revealed that a significant percentage of babies did not have identifying wristbands, and many cases were not examined before nursing operations, highlighting the need for a culture of safety in hospitals (Silva et al., 2019).

Among the risks in this regard are medication errors, which are considered a significant component of patient harm worldwide. Approximately 50% of avoidable medical harm is related to medication, with 25% of cases being severe or life-threatening (Murphy, 2019). The WHO has emphasized the global burden of pharmaceutical injuries, highlighting the need for improved patient safety (Murphy, 2019). Ensuring proper medication safety practices is essential to preventing medication-related harm.

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2.4 Factors Influencing Adherence to International Safety Standards

The literature review has illuminated a myriad of complex challenges that healthcare professionals, particularly nurses, face when striving to adhere to international safety measures in labor and delivery rooms. One of the most prominent challenges is the burden of heavy workloads. Healthcare professionals working in labor and delivery rooms often grapple with heavy workloads and staffing shortages. The high volume of patients, coupled with the need for continuous monitoring and care during labor, can lead to stress and fatigue among healthcare providers. Understaffing can further exacerbate the situation, making it difficult for nurses and midwives to consistently adhere to safety protocols (Almalki, FitzGerald, & Clark, 2011). The previously mentioned study (Ananya, R., et al., 2019) underscored that non-adherence among healthcare staff can be attributed to several factors, including a lack of knowledge and increased workload, significantly affecting the implementation of patient safety measures.

Vaismoradi et al. (2020) conducted a systematic review to explore the factors influencing nurses' adherence to patient safety principles by analyzing international literature published from 2010 to 2019. The authors conducted a comprehensive search in English, Norwegian, and Finnish databases using relevant keywords. They categorized the findings using Vincent's framework, which classified them into domains such as 'patient,' 'healthcare provider,' 'task,' 'work environment,' and 'organization and management.' The findings revealed that adherence is influenced by factors like patient involvement, healthcare providers' knowledge and attitudes, nurses' collaboration, equipment availability, education, feedback, and care process standardization. However, the study exhibits several limitations, including its limited number of included articles, potential publication bias, and the challenge of generalizing findings across different clinical settings. Furthermore, the review doesn't explicitly address the issue of generalizability to diverse healthcare contexts and cultural settings, an important consideration given that factors influencing adherence may vary between settings and regions (Vaismoradi et al., 2020).

In a recent study, researchers aimed to assess the extent of nurse compliance with infection control measures and identify the barriers nurses face in adhering to these precautions within delivery rooms. The study was conducted in four hospitals located in Australia, involving 51 on-duty nurses during the data collection phase. Utilizing an exploratory research design, the study gathered data through self-administered questionnaires. The findings were concerning, revealing that nurses exhibited a complete lack of compliance with standard infection control measures, with a 100% non-compliance rate. This non-compliance was associated with various factors, including age, education level, work experience, and adherence to standard safety measures, all significant at $p<0.05$. Moreover, participation in training courses also showed a significant correlation with adherence to standard precautions at $p<0.05$. The study's conclusion emphasized that numerous barriers hindered nurses from effectively implementing infection control measures, particularly in emergency situations, where equipment and supplies were lacking, along with the absence of infection control protocols and periodic training courses. Addressing these barriers and improving compliance with infection control measures is essential for enhancing patient safety in the delivery room (Bouchoucha & Moore, 2019).

The literature review provides valuable insights into the challenges and factors influencing nurses' adherence to international safety measures in labor and delivery rooms. However, it highlights a significant research gap: the absence of specific data on nurses' adherence to internationally recognized safety procedures within the labor and delivery rooms of government hospitals in Jeddah City, Saudi Arabia.

To address this research gap, future studies should focus on assessing the adherence of nurses to international safety standards in the context of Jeddah City's government hospitals. Such research would provide a localized perspective on the challenges and barriers faced by healthcare professionals in Saudi Arabia and offer opportunities to tailor interventions to enhance patient safety during labor and delivery.

Understanding the unique challenges and context-specific factors that influence adherence to safety measures in Jeddah City's government hospitals is essential for improving maternal and neonatal care in the region. It will also contribute to the global body of knowledge on patient safety, ensuring that best practices can be shared and implemented across diverse healthcare settings.

The reviewed studies are significant and contribute to our understanding of the complex landscape of nurses' adherence to international safety measures in labor and delivery rooms. However, the studies are not without their limitations. Some of the studies relied on self-reporting, a method that can introduce reporting bias due to social desirability or memory lapses.

Additionally, the findings of qualitative studies may not be universally applicable to all healthcare settings, as they often provide insights based on the experiences and perspectives of a specific group of participants.

III. CONCLUSION

The literature review has shed light on the critical importance of adhering to international safety standards in labor and delivery rooms for the well-being of both mothers and newborns. The World Health Organization has set clear targets to reduce morbidity and mortality in maternal and neonatal care, emphasizing evidence-based practices and patient-centered care. However, healthcare professionals, particularly nurses, face a multitude of complex challenges that hinder their adherence to these standards. These challenges include heavy workloads, staffing shortages, a lack of knowledge, and barriers to implementing safety protocols.

Understanding the factors influencing non-adherence is vital for addressing these challenges effectively. Studies have identified various factors that impact adherence to safety standards, such as patient involvement, healthcare providers' knowledge and attitudes, collaboration among healthcare teams, availability of equipment, education, feedback mechanisms, and care process standardization.

To enhance patient safety in labor and delivery rooms, healthcare institutions must prioritize addressing these factors and provide the necessary support, education, and resources to enable healthcare professionals, especially nurses, to adhere consistently to international safety standards. Only by addressing these challenges can we strive to provide safer and more effective care for mothers and newborns during the critical period of labor and delivery.

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