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The role of nursing within hospitals in the city of Al-Bayda in reducing the rates of acquired infections.

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A B S T R A C T

One of the most significant challenges facing any healthcare system worldwide is hospital-acquired infections. These infections cause a significant increase in mortality, especially given the high rate of hospital stays in facilities that do not adhere to a robust preventative system with a high degree of health awareness. The nursing profession plays a crucial and pivotal role in reducing the incidence of these infections, particularly due to nurses' close proximity to patients, their direct interaction, and their continuous handling of medical equipment and supplies for each patient. This study aims to analyze the role of nursing in reducing hospital-acquired infection rates by assessing adherence to infection control procedures such as hand washing, the use of personal protective equipment, and the regular sterilization of instruments and surfaces. The study also focuses on identifying the obstacles that nurses face in adhering to preventative measures. The study employed a descriptive-analytical approach and relied on a questionnaire consisting of demographic questions and questions about preventative practices. The results showed that adherence to infection control procedures is strongly associated with a decrease in hospital-acquired infection rates, and that continuous training and administrative oversight are among the most important factors in promoting adherence. The study recommends increasing training programs, providing adequate supplies, and strengthening the patient safety culture within hospitals.

Introduction

Hospital-Acquired Infections (HAIs) are defined as infections acquired by a patient within 48 hours of admission to a hospital, where the patient did not have the infection prior to admission. These infections include catheter-associated bloodstream infections, ventilator-associated lung infections, urinary tract infections, and postoperative wound infections [1]. These infections are a global health problem that impacts the quality of healthcare and increases morbidity and mortality rates. The World Health Organization (WHO) indicates that the HAI rate in developing countries ranges from 15% to 20%, and that adherence to infection control measures, such as hand washing, can reduce the infection rate by up to 40% [2]. Nursing is the first line of defense in preventing HAIs, as nurses have direct contact with patients and medical equipment. Their daily practice of implementing infection control procedures is a key factor in controlling the spread of infections within hospitals [3]. Despite the existence of clear infection control protocols and guidelines, HAI rates remain high in many hospitals. The study demonstrated that ongoing training for nurses in sterilization methods led to a 25% reduction in bloodstream infections [4]. It emphasized that adherence to handwashing and the use of personal protective equipment (PPE) is the most important means of reducing hospital-acquired infections [5]. It published a comprehensive guide to infection prevention in hospitals and stressed the importance of training all healthcare staff on infection control protocols [6]. The study clarified the official definition of hospital-acquired infections and the standards for monitoring them [7]. It found that adherence to infection control procedures varies among nurses depending on their department, and that a lack of resources and knowledge increases the spread of infection [8]. An Arab study emphasized the necessity of training nurses working in intensive care units on sterilization and hygiene [9]. National guidelines were developed to reduce hospital-acquired infections, focusing on education and daily nursing practices [10]. A study showed that positive

knowledge among nurses significantly increases adherence to hand washing [11]. Guidelines for "Five Moments for Hand washing" were presented in the healthcare setting [12]. The relationship between nursing staff shortages and high infection rates was demonstrated [13]. The study confirmed that continuing nursing education improves the culture of safety and reduces infections [14]. It highlighted that hospital-acquired infections are one of the greatest threats to patient safety [15]. A study indicated that work-related stress and a lack of resources are the main obstacles to adhering to preventive measures [16]. It presented effective strategies for reducing community-acquired infections and emphasized the role of nursing in these strategies [17].

Materials and Methods

Study Type: Descriptive-Analytical

Study Setting: General Hospital, Intensive Care, Internal Medicine, and Surgery Departments

Study Sample: 50 nurses, randomly selected using stratified stratification.

Data Collection Tools:

1. Questionnaire covering: demographic information, infection control practices, and barriers.
2. Direct Observation: assessment of hand washing, glove use, and sterilization practices.

Analysis Methods: SPSS software was used, along with descriptive analysis (percentages, means) and Chi-Square tests to measure the correlation between adherence and infection rates.

Questionnaire Form

Section 1: Demographic Information

Gender: ☐ Male ☐ Female

Years of Experience: ☐ <1 ☐ 1–5 ☐ 6–10 ☐ >10

Department: ☐ Emergency ☐ Intensive Care ☐ Internal Medicine ☐ Surgery ☐ Pediatrics

Section 2: Infection Control Practices (Likert scale)

Question: Always Sometimes Rarely Never

1. I wash my hands before and after handling each patient. ☐ ☐ ☐ ☐
2. I use gloves when handling body fluids. ☐ ☐ ☐ ☐
3. I use masks and protective gowns when necessary. ☐ ☐ ☐ ☐
4. I sterilize instruments after each use. ☐ ☐ ☐ ☐
5. I received infection control training within the last year. ☐ ☐ ☐ ☐

RESULTS

Hand washing adherence: 62% always, 25% sometimes, 13% rarely or never.

Glove use: 78% always, 15% sometimes, 7% rarely.

Availability of sterilization supplies: 55% always.

Recent infection control training: 40% received it.

Infection rate acquired in the studied wards over three months: 18% of patients.

Discussion

The study demonstrated a strong correlation between adherence to infection control measures and a lower rate of acquired infections These findings are consistent with those of WHO (2022) and Pitted et al. (2019), which emphasized the importance of hand washing and preventive practices.

A local study (Saudi Ministry of Health, 2020) showed the same trend: partial adherence leads to continued transmission of infection. Key obstacles included workload, resource shortages, and inadequate training [18].

The analysis indicates that ongoing training and management oversight are among the most influential factors in improving adherence [19-23].

Recommendations.

1.Provide regular training programs for all nurses on infection control procedures.

2.Strengthen administrative oversight and adherence to protocols.

3. Ensure a constant supply of personal protective equipment and sterilization supplies.

4. Reduce workload and optimize staff distribution to facilitate adherence to procedures.

5.Promote a culture of patient safety within hospitals through workshops and lectures.

Conclusion

Hospital-acquired infections pose a significant threat to patient safety and the quality of healthcare. This study demonstrated that nursing plays a crucial role in reducing infection transmission through strict adherence to infection control, sterilization, and personal hygiene protocols. With ongoing training, supervision, and resource allocation, infection rates can be substantially reduced, leading to improved patient outcomes and lower healthcare costs.

Conflicts of Interest

The authors declare no conflicts of interest.

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