



Predictors of hand hygiene practice among Saudi nursing students: A cross-sectional self-reported study



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Summary Hand hygiene is an important component of infection control, which is critical to ensuring patients' safety in hospitals. Nursing students are regarded as healthcare workers in training and can also be vehicles of cross-contamination within the hospital. Thus, this study aimed to identify the predictors of hand hygiene practice among Saudi nursing students. A descriptive, cross-sectional, self-reported study was conducted among 198 Saudi nursing students. Knowledge, attitude, and practice of hand hygiene were assessed using the WHO Hand Hygiene Knowledge Questionnaire for Health-Care Workers and its adopted scales. A regression analysis was performed to identify the predictors of hand hygiene practice. The respondents demonstrated moderate knowledge of hand hygiene (mean 13.20 ± 2.80). The majority displayed a moderate attitude toward hand hygiene (52.1%), while only a few reported a poor attitude (13.1%). Approximately 68.7%, 29.8%, and 1.5% of the respondents reported moderate, good, and poor practice of hand hygiene, respectively. Having a good attitude toward hand hygiene, being male, being aware that hand hygiene is an effective intervention in preventing healthcare-associated infections (HAIs), attendance at hand hygiene trainings and seminars, and being in the lower academic level of nursing education were identified as predictors of better hand hygiene practice. The importance of ensuring a positive attitude toward hand hygiene and improving awareness of hand hygiene is emphasized, as are educational interventions. Educational interventions should be implemented to reinforce knowledge and instill a positive attitude toward hand hygiene.

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Introduction

Regarded as the simplest yet most cost-effective intervention in reducing healthcare-associated infections (HAIs), hand hygiene is important in any healthcare concern around the world. Hand hygiene is an essential component of infection control, which is critical to ensuring patients' safety in hospitals [1]. Due to the increasing incidence rate of HAIs and the growing burden accompanying them, the increasing complexity of illnesses and their complications, the soaring cost of hospitalization, and the occurrence of multiple-resistant pathogens causing new types of infections, the necessity for strict and effective compliance with hand hygiene has been emphasized [2]. A wide array of studies supports evidence of the effectiveness of hand hygiene, if accurately implemented, in reducing cross-contamination and infection in a healthcare facility [2–4]. Various studies have reported that good compliance with hand hygiene significantly decreases the number of Methicillin-resistant *Staphylococcus aureus* (MRSA) infections in various units of the hospital, such as in the adult Intensive Care Unit (ICU), Neonatal Intensive Care Unit, and neurosurgery units [5,6].

Similar to the rest of the world, HAIs in Saudi Arabia are a great concern. In a previous study, 668 of 1382 patients were reported to contract HAIs during the study period in a military hospital [7]. Furthermore, a study conducted from 2010 to 2011 reported that 48.3% of 170 investigated patients developed HAIs. From the total number of HAIs reported, 32.3% were respiratory tract infections, 25.3% were urinary tract infections, 18.2% were blood infections and 12.9% were surgical site infections [8]. The literature on hand hygiene strongly supports the evidence that strict hand hygiene practice can significantly decrease the incidence of HAIs [9–11]. Another issue of concern relevant to Saudi Arabia is the occurrence of the new disease called Middle East Respiratory Syndrome coronavirus (MERS-CoV). The majority of laboratory-confirmed cases have been associated with healthcare settings through human-to-human transmission [12]. This poses a threat to the members of a healthcare team. Because of this, the WHO and the CDC have issued recommendations for the prevention and control of this novel infection in healthcare settings that include standard, contact, and airborne precautions [13].

One of the key responsibilities of healthcare workers is to prevent cross-contamination

within the healthcare facility. Nurses in particular have the highest risk of transmitting infection-causing microorganisms within the hospital premises because of their high visibility. Moreover, nurses often come in contact with contaminated objects. Most nursing interventions require direct or close contact with the patient, which can become an avenue for the transfer of pathogens if hand hygiene is not properly observed [14,15]. However, compliance with hand hygiene remains a great challenge in healthcare settings, most especially in limited-resource countries [16]. It has been suggested that interventions be multidimensional to attain a sustainable improvement in compliance with hand hygiene in healthcare settings. An example is the International Nosocomial Infection Control Consortium (INICC) Multidimensional Hand Hygiene Approach (IMHHA), which includes administrative support, availability of supplies, education and training, reminders, process surveillance, and performance feedback. Previous studies have reported significant improvement in adherence to hand hygiene with the implementation of the IMHHA in ICUs in various countries [17–23].

Nursing students are regarded as healthcare workers in training. Because these students have direct contact with patients during their tour of duty, they can also be vehicles of cross-contamination within the hospital. Various studies have been conducted regarding hand hygiene practices of nursing students. It has been reported that nursing students have a low level of knowledge of infection control and poor application of such knowledge to their clinical practice [24]. Low knowledge, understanding, and skills regarding hand hygiene were reported to have a negative effect on the students' compliance with hand hygiene practice [25]. Studies on infection control, including predictors of hand hygiene among undergraduate nursing students, are lacking in the literature [24,25]. Hand hygiene practices also vary depending on the individual, institution, culture, and many other factors. It has also been suggested that further studies investigate the factors that modify hand washing among professional groups [15]. There have been a limited number of studies conducted in Saudi Arabia that focus on this topic [26]. It is therefore difficult to draw a clear picture of hand hygiene practices and the factors that tend to influence compliance with hand hygiene among nursing students in the Kingdom of Saudi Arabia. This study was conducted to examine the predictors of hand hygiene practice among Saudi nursing students.

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