



Validity and reliability assessment of the Compliance with Standard Precautions Scale Arabic version in Saudi nursing students

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Summary Strict compliance with standard precautions (SPs) is warranted to ensure the safety of patients in healthcare facilities. Nursing students (NSs), who are regarded as nurses in training, potentially play a role in cross-contamination in the hospital. NSs are also at high risk of acquiring infections in cases of ineffective compliance with SPs. Thus, an assessment of NSs' compliance with SPs should be conducted on a regular basis, which necessitates a valid and reliable tool. This study was conducted to assess the validity and reliability of the Compliance with Standard Precautions Scale Arabic version (CSPS-A) in Saudi NSs. A convenient sample of 230 respondents (158 NSs and 72 staff nurses) was included in this descriptive, cross-sectional study. The CSPS English version was translated into the Arabic language following a recommended guideline from cross-cultural adaptation and translation instruments. The Cronbach's alpha, the intraclass correlation coefficient (ICC) of the test–retest scores, and the item–total correlations (ITC) were computed to establish the reliability. Content validity and construct validity by the known-groups method and hypothesis testing method were performed. The CSPS-A exhibited good internal consistency and reliability (Cronbach's alpha, 0.89; ICC, 0.88; ITCs, 0.325–0.728). A satisfactory content and construct validity was also

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reported. The CSPS-A is a valid and reliable tool that can measure the compliance to SPs among NSs in Saudi Arabia.

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Introduction

Nursing students (NSs) are often exposed to blood and other bodily fluids during their hospital clinical rotations. They are required to provide care to patients who are admitted regardless of the latter's disease status and overall condition. NSs perform invasive and non-invasive nursing interventions that, if improperly executed, may cause them injury, such as a needle stick and other sharps-related injuries, mucocutaneous injury and non-intact skin contact with blood [1]. In a previous study, a total of 239 cases of injury exposures were reported by 2514 NSs (3.15 incidence/100,000 clinical training days). Among the injury exposures, 187 NSs reported being contaminated by body fluids (92.5% by blood and 7.5% by urine, saliva and others) [2]. Because of this, nursing students, like any other healthcare worker (HCW), are at a high risk of acquiring infections if proper protection has not been instituted. In particular, NSs are at high risk of acquiring blood infections, such as viral hepatitis [3] and Human Immunodeficiency Virus (HIV) infection [4], as well as other infectious diseases, such as tuberculosis [5]. Because NSs are often in contact with contaminated articles while assuming their responsibilities in their respective areas, they can also become a vehicle for transmitting pathogens that can cause healthcare-associated infections (HAIs) to the patients. Nursing interventions often require touching the patients, which can facilitate cross-contamination if NSs fail to comply with proper infection prevention guidelines [6]. Hence, NSs must strictly adhere to infection prevention practices at all times [7].

Standard precautions (SPs) are the most recent guidelines for infection control. They consist of basic infection control precautions that are intended to decrease the risk of transmission of blood-borne pathogens and other disease-causing microorganisms within healthcare settings. SPs should be considered as the minimum level of precautions that all HCWs are required to observe when rendering care to every patient. SPs include performance of hand hygiene using personal protective equipment (PPE), such as gloves, gowns, masks, face and eye shields, guided by risk assessment and the extent of anticipated contact; respiratory hygiene and cough etiquette;

environmental cleaning; proper handling, transporting and processing of used linens; proper sharps and waste disposal; and proper handling of patient care equipment [8,9]. Compliance with SPs has been shown to decrease the risk of exposure to blood and body fluids [10] as well as to reduce the incidence of HAIs [11].

Compliance with SPs among HCWs, including NSs, has been the focus of various studies in the past [7,12–14], which is an indication of the paramount importance given to strict compliance with SPs among HCWs in healthcare facilities. Interest in this topic is also growing in Saudi Arabia among various groups of HCWs [15–17]. A previous study evaluated the level of knowledge and the practices of HCWs with regard to exposure to blood-borne pathogens in a tertiary hospital in Saudi Arabia. Among the 466 HCWs who were surveyed, 27.9% and 51.9% had experienced blood/body fluid splashing in the eyes or mouth and a needle stick or sharps injury, respectively [18]. Nonetheless, studies have shown a high non-compliance rate with infection control components, such as hand hygiene and gloving practices, among HCWs in Saudi Arabia [6,16,19–21]. Moreover, only a modest proportion of HCWs are aware of the correct actions to be observed following exposure to possible infectious agents [18].

With the growing concern regarding ensuring stringent compliance with infection prevention, more studies are warranted among nurses and NSs in the Kingdom. Compliance with SPs of NSs should be regularly assessed to ensure strict adherence. Given this premise, a valid and reliable tool is needed to measure the competence of NSs regarding SPs. The Compliance with Standard Precautions Scale (CSPS) is an instrument that was developed to measure the self-reported compliance to SPs among nurses and NSs. The CSPS assesses compliance with the major dimensions of SPs and was comprehensively constructed to describe the daily routine of nurses in performing infection control practices in their work [13]. Unlike other tools that were used in previous related studies that employed the concept of universal precautions in measuring compliance with the current infection control practices of nurses [10,22], the CSPS is more precise in measuring the current compliance of nurses to SPs [13]. Furthermore, the CSPS has shown satisfactory results based on international

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