

KNOWLEDGE AND ATTITUDES REGARDING STANDARD ISOLATION PRECAUTIONS AMONG REGISTERED NURSES AT AYUB TEACHING HOSPITAL: A CROSS-SECTIONAL STUDY

Maria Bushra^{*1}, Muhammad Younas², Nasir Khan³, Muhammad Nisar⁴, Sughra Bibi⁵,
Ayesha Shoukat⁶, Irsa Waheed⁷

^{*1}Assistant Professor, Principal, Abbottabad College of Nursing & Allied Health Sciences, Abbottabad

²Post RN BSN Student, Abbottabad College of Nursing & Allied Health Sciences, Abbottabad

^{*1}mariabushra88@gmail.com, ²muhammadyounis1223@gmail.com, ³nasirkhanrn450@gmail.com,

⁴nisarmmkhan8888@gmail.com, ⁵sughrab982@gmail.com, ⁶ayeshashaukat99786@gmail.com,

⁷irsaw211@gmail.com

DOI: <https://doi.org/10.5281/zenodo.18690854>

Keywords

Standard precautions; infection control; nurses; healthcare-associated infections; attitudes; knowledge; Pakistan

Article History

Received: 17 December 2025

Accepted: 01 February 2026

Published: 19 February 2026

Copyright @Author

Corresponding Author: *

Maria Bushra

Abstract

Background: Standard isolation precautions constitute the foundation of infection prevention and control in healthcare settings. Despite established international guidelines, variability persists in nurses' knowledge and attitudes, potentially compromising patient and occupational safety.

Objective: To assess the level of knowledge and attitudes regarding standard isolation precautions among registered nurses working at a tertiary care hospital in Abbottabad, Pakistan.

Methods: A quantitative descriptive cross-sectional study was conducted among 59 registered nurses using a structured, adapted questionnaire measuring knowledge (10 items) and attitudes (10 Likert-scale items). Data were analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations).

Results: Fifty-five percent of nurses demonstrated adequate knowledge of standard isolation precautions, while 45% exhibited knowledge deficits, particularly regarding needle-stick injury management and specific personal protective equipment (PPE) indications. Despite relatively high participation in infection control training, 57% of respondents expressed negative attitudes toward strict implementation of isolation precautions. Only 20.9% demonstrated a positive attitudinal orientation.

Conclusion: Although foundational knowledge was moderately adequate, substantial attitudinal resistance was identified. Interventions should therefore extend beyond information dissemination to address behavioral determinants and institutional safety culture.

INTRODUCTION

Background

Healthcare-associated infections (HAIs) remain a major global public health challenge. The World Health Organization has consistently emphasized the importance of standard precautions—including hand hygiene, use of PPE, safe injection practices, and environmental hygiene—as universal measures applicable to all

patients regardless of diagnosis (World Health Organization [WHO], 2016).

Nurses occupy a central role in implementing these precautions due to their continuous patient contact. Empirical evidence demonstrates that compliance with infection prevention measures is influenced not only by knowledge but also by attitudinal and organizational determinants (Efsthathiou et al.,

2011). The risk of occupational exposure to blood-borne pathogens, including hepatitis B, hepatitis C, and human immunodeficiency virus (HIV), underscores the importance of strict adherence (Prüss-Ustün et al., 2003).

Despite established guidelines from the Centers for Disease Control and Prevention, implementation remains inconsistent in many low- and middle-income settings. Studies from South Asia indicate a recurring discrepancy between theoretical knowledge and practical commitment, suggesting a “knowledge–attitude gap” in infection control behaviors (Faryad et al., 2018).

Problem Statement

In tertiary care hospitals, where patient acuity is high, insufficient adherence to standard precautions increases the risk of HAIs. While protocols are formally available, their effectiveness depends on healthcare workers’ knowledge and professional orientation. There is limited contemporary evidence examining both cognitive and attitudinal dimensions simultaneously within this institutional context.

Objectives

1. To assess nurses’ knowledge regarding standard isolation precautions.
2. To evaluate nurses’ attitudes toward the implementation of these precautions.

METHODS

Study Design and Setting

A descriptive cross-sectional design was employed at Ayub Teaching Hospital, a tertiary care facility affiliated with Khyber Medical University.

Participants and Sampling

The study included 59 registered nurses selected through convenience sampling. Inclusion criteria comprised active clinical engagement in patient care. Administrative-only staff were excluded.

Instrumentation

Data were collected via a structured questionnaire adapted from Faryad et al. (2018). The instrument included:

- **Knowledge section (10 items):** Dichotomous responses assessing understanding of standard precautions.
- **Attitude section (10 items):** Five-point Likert scale ranging from strongly disagree to strongly agree.

Operational definitions were based on mean score thresholds.

Data Collection and Analysis

Data were collected electronically over one month. Descriptive statistics were computed using SPSS Version 22. Given the exploratory scope and small sample size, inferential analyses were not performed.

Ethical Considerations

Institutional approval was obtained. Participation was voluntary, and anonymity was ensured.

RESULTS

This section presents the findings derived from the analysis of data collected from 59 registered nurses at Ayub Teaching Hospital. Results are organized into three subsections: (a) sociodemographic characteristics, (b) knowledge regarding standard isolation precautions, and (c) attitudes toward these precautions.

Sociodemographic Characteristics

A total of 59 nurses participated in the study. The majority were male (86.4%, $n = 51$), while females constituted 13.6% ($n = 8$). Most respondents were aged 20–30 years (78%, $n = 46$), followed by 31–40 years (16.9%, $n = 10$) and 41–50 years (5.1%, $n = 3$).

Regarding marital status, 57.6% ($n = 34$) were unmarried and 42.4% ($n = 25$) were married. In terms of educational attainment, 81.4% ($n = 48$) held a Bachelor of Science in Nursing degree, whereas 18.6% ($n = 11$) held a diploma in nursing.

Professional experience was predominantly limited to early-career stages: 57.6% ($n = 34$) reported 1–5 years of experience, 27.1% ($n = 16$) had less than one year, and 15.3% ($n = 9$) had more than six years of experience. Additionally, 79.7% ($n = 47$) reported having received prior training on isolation precautions, and 86.4% (n

= 51) had participated in formal infection control programs.

Knowledge Regarding Standard Isolation Precautions

Knowledge scores were categorized based on the operational definition established in the methodology. Participants scoring at or above the mean were classified as having adequate knowledge, whereas those scoring below the mean were categorized as having inadequate knowledge.

Overall, 55% ($n = 32$) demonstrated adequate knowledge of standard isolation precautions, while 45% ($n = 27$) demonstrated inadequate knowledge.

Item-level analysis revealed that:

- A majority correctly identified the importance of hand hygiene as a universal precaution.
- Most participants understood the general purpose of personal protective equipment (PPE).
- Knowledge deficits were observed in more technical areas, including:
 - Appropriate management following needle-stick injuries.
 - Correct disposal procedures for sharps.
 - Specific indications for different types of PPE in varied clinical scenarios.

These findings indicate a moderate level of foundational knowledge with notable gaps in procedural specificity.

Attitudes toward Standard Isolation Precautions

Attitudinal responses were measured using a five-point Likert scale (strongly disagree to strongly agree).

Analysis showed that 57% ($n = 34$) of participants expressed negative attitudes (strongly disagree or disagree) toward strict implementation of isolation precautions. Only 20.9% ($n = 12$) expressed positive attitudes (agree or strongly agree), while 7.9% ($n = 5$) selected neutral responses.

The highest mean score was observed in the “strongly disagree” category, indicating a prevailing perception that strict adherence to

isolation precautions may not be essential in all clinical contexts.

Despite relatively high exposure to infection control training, the distribution of responses suggests that attitudinal acceptance of standard precautions remains limited.

Summary of Key Findings

1. The majority of participants were young, early-career nurses with formal academic preparation.
2. Slightly more than half demonstrated adequate knowledge of standard isolation precautions.
3. Substantial knowledge gaps were identified in technical and post-exposure management areas.
4. A majority of nurses exhibited negative attitudes toward strict implementation of isolation precautions.

Collectively, the results reveal a divergence between moderate cognitive understanding and predominantly unfavorable attitudinal orientation toward infection prevention measures.

DISCUSSION

The findings reveal moderate knowledge levels but pronounced attitudinal deficits. Compared with Faryad et al. (2018), who reported higher knowledge (81.8%) and moderately positive attitudes (37%), this sample demonstrates comparatively weaker attitudinal commitment. The discrepancy may be interpreted using the Knowledge-Attitude-Practice (KAP) framework, which posits that knowledge alone does not guarantee behavioral compliance. Institutional culture, perceived workload, and leadership modeling significantly influence attitudinal internalization (Efsthathiou et al., 2011).

The predominance of younger nurses with limited clinical experience may also contribute to reduced confidence in applying protocols, potentially shaping negative perceptions.

Importantly, high training participation did not translate into positive attitudes, suggesting that current educational approaches may emphasize cognitive acquisition without addressing motivational or cultural determinants.

Implications for Practice

1. Integrate behavioral-change models into infection control training.
2. Establish mentorship programs reinforcing safety culture.
3. Conduct periodic competency-based assessments.
4. Implement institutional recognition systems for adherence excellence.

Limitations

- Small, single-site sample limits generalizability.
- Convenience sampling introduces selection bias.
- Self-reported responses may be subject to social desirability bias.
- Absence of inferential analysis limits causal interpretation.

Conclusion

This study identified a moderate level of knowledge but substantial attitudinal resistance toward standard isolation precautions among nurses in a tertiary care hospital. Effective infection prevention strategies must address

cognitive, psychological, and organizational dimensions simultaneously. Strengthening safety culture is essential to translate theoretical understanding into consistent practice.

REFERENCES

- Efstathiou, G., Papastavrou, E., Raftopoulos, V., & Merkouris, A. (2011). Factors influencing nurses' compliance with standard precautions. *BMC Nursing*, 10(1), 1–12.
- Faryad, S., Inayat, S., Afzal, M., & Hussain, M. (2018). Knowledge and attitude of standard isolation precautions among registered nurses. *International Journal of Graduate Research and Review*, 4(2), 46–50.
- Prüss-Ustün, A., Rapiti, E., & Hutin, Y. (2003). *Sharps injuries: Global burden of disease from sharps injuries to health-care workers*. World Health Organization.
- World Health Organization. (2016). *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level*. WHO.