Journal of Rare Cardiovascular Diseases
ISSN: 2299-3711 (Print) | e-ISSN: 2300-5505 (Online)
www.jrcd.eu
RESEARCH ARTICLE

ASSESSMENT OF NURSES' KNOWLEDGE AND PRACTICES REGARDING INFECTION CONTROL MEASURES IN A TERTIARY CARE HOSPITAL

Humaira kanwal[1], Rubina Inam[2], Sadia Muzammal[3], Zeba Arshad[4], Shabana Zafar[5], Uzma Saleem[6]
[1]Assistant Professor, Nursing Department University of Chenab Gujrat Pakistan
[2]Principal, Nursing Department University of Chenab Gujrat Pakistan
[3]Post RN Student, Nursing Department University of Chenab Gujrat Pakistan
[4]Post RN Student, Nursing Department University of Chenab Gujrat Pakistan
[5]Post RN Student, Nursing Department University of Chenab Gujrat Pakistan
[6]Post RN Student, Nursing Department University of Chenab Gujrat Pakistan

*Corresponding Author
Humaira kanwal

Article History
Received: 14.10.2025
Revised: 29.10.2025
Accepted: 12.11.2025
Published: 23.12.2025

Abstract: ***Background***: Infection prevention and control (IPC) is a fundamental component of quality healthcare delivery and patient safety. Healthcare-associated infections (HAIs) remain a major global concern, contributing significantly to patient morbidity, mortality, and healthcare costs. According to the World Health Organization. ***Methodology***: A descriptive cross-sectional study was conducted at Aziz Bhatti Shaheed Teaching Hospital, Gujrat, from July to October 2025 with 80 registered nurses involved in direct patient care. Data were collected using a structured, pre-validated questionnaire assessing demographics, knowledge, and practices regarding infection control measures. Responses were categorized as poor, moderate, or good, and analyzed using SPSS version 26. Ethical approval and informed consent were obtained, and confidentiality of participants was maintained throughout the study. ***Results:*** The study included 80 nurses, most of whom were aged 20–30 years (58.8%), predominantly male (73.8%), and held a Post RN BScN qualification (58.8%). The majority had less than one year of clinical experience (62.5%). Regarding infection control measures, over half of the nurses (57.5%) demonstrated poor knowledge, 28.7% had average knowledge, and only 13.8% had good knowledge. In terms of practices, 58.8% exhibited moderate adherence and 41.3% demonstrated good practices, with no participants showing poor practices, indicating that while knowledge was generally low, most nurses followed infection control measures to a moderate or good extent. ***Conclusion***: The study concluded that while the majority of nurses had limited knowledge regarding infection control measures, most demonstrated moderate to good adherence in their practices. This indicates a gap between knowledge and practice that requires targeted educational interventions.

Keywords: Nurses; Knowledge; Infection Control Measures; Educational Intervention .

INTRODUCTION

Infection prevention and control (IPC) is essential for ensuring patient safety and quality healthcare (Saha et al., 2020). Healthcare-associated infections (HAIs) affect millions of patients worldwide each year, particularly in developing countries due to limited resources and poor compliance with infection control practices (WHO, 2021). Effective IPC measures are crucial to reduce infection transmission and protect both patients and healthcare workers (Salem, 2019).

Nurses, as frontline caregivers, play a vital role in implementing infection control strategies within healthcare settings (Kamate et al., 2020). Proper hand hygiene, use of personal protective equipment (PPE), safe injection practices, waste disposal, sterilization, and environmental cleaning are core components of infection control that require consistent application (Sodhi et al., 2022).

Moreover, nurses' attitudes and perceptions toward infection prevention significantly influence their daily practices (Harun et al., 2022). Studies have shown that even when nurses possess adequate knowledge, compliance levels may remain suboptimal due to behavioral and organizational barriers (Omer & Saleh, 2023).

In the context of Pakistan, infection control remains a challenging area of healthcare management. Research has revealed that HAIs such as surgical site infections, catheter-associated urinary tract infections, and bloodstream infections are prevalent in many hospitals due to lapses in aseptic techniques and inadequate use of protective measures (Althiyabi et al., 2024). The Ministry of National Health Services, Regulation and Coordination has emphasized the importance of infection control training and monitoring; however, implementation at the institutional level is often inconsistent (Tafere et al., 2024). Regular assessment of nurses' knowledge and practices is therefore essential to identify existing deficiencies and design targeted interventions that strengthen infection control programs (Ali & Alam, 2022).

MATERIAL AND METHODS

A descriptive cross-sectional study was conducted at Aziz Bhatti Shaheed Teaching Hospital, Gujrat, over a period of four months from July to October 2025 to assess nurses' knowledge and practices regarding

infection control measures. The sample size was calculated as 80 nurses from a total population of 100 using Slovin's formula with a 5% margin of error, and participants were selected through a convenient sampling technique. Registered nurses currently working in the tertiary care hospital, involved in direct patient care in wards, ICUs, and emergency units, with at least six months of clinical experience, of both genders, and willing to provide informed consent were included in the study, while nurses in administrative roles, those on long-term leave, those with less than six months of experience, nursing students, interns, trainee nurses, and those who refused or withdrew consent were excluded. Data collection was carried out after obtaining ethical approval and informed consent, using a structured, pre-validated questionnaire comprising three sections: demographic information (age, gender, qualification, ward, and experience), knowledge-related items, and practice-related items based on WHO and CDC guidelines. Nurses' knowledge of infection control measures such as hand hygiene, use of personal protective equipment, sterilization, and biomedical waste management was assessed using an adopted questionnaire consisting of 17 Yes/No items, scored from 0 to 17 and categorized as poor (<50%), moderate (50–75%), or good (>75%) knowledge. Practices related to infection control were evaluated through a self-reported adopted questionnaire with 20 Yes/No items focusing on hand hygiene, PPE use, sharps handling, disinfection, and waste management, with scores ranging from 20 to 40 and categorized as poor (<50%), moderate (50–74%), or good (≥75%) practice. Questionnaires were personally distributed and collected by the researcher during duty hours, ensuring confidentiality and anonymity, and all completed forms were checked for completeness. Data were coded and entered into SPSS version 24/26 for analysis, where frequencies and percentages were used to summarize demographic variables, knowledge, and practice levels, and Pearson's correlation was applied to determine the relationship between nurses' knowledge and their infection control practices. Ethical considerations were strictly maintained throughout the study, with written informed consent obtained, confidentiality ensured, anonymity preserved, assurance of no harm or risk, and participants informed of their right to withdraw from the study at any time.

RESULTS

Demographic Characteristics of Nurses

Table 1: Demographics characteristics of participants (n=80)

Demographic Variables	Category	Frequency (f)	Percentage (%)
Age	20–30 Year	47	58.8
	31–35 Year	19	23.8
	36–40 Year	12	15.0
	>40 Year	2	2.5
Gender	Female	59	73.8
	Male	21	26.3
Qualification	Diploma in Nursing	11	13.8
	Post RN BScN	47	58.8
	Generic BScN	22	27.5
Experience	Less than 1 year	50	62.5
	1–5 Year	17	21.3
	> 5 Years	13	16.3

Table 1 presents the demographic characteristics of the participants (n = 80). Most nurses were aged 20–30 years (58.8%), followed by those aged 31–35 years (23.8%), while only a small proportion were above 40 years (2.5%). The majority of participants were female (73.8%), with males constituting 26.3%. Regarding educational qualification, more than half of the nurses held a Post RN BScN degree (58.8%), followed by Generic BScN (27.5%) and Diploma in Nursing (13.8%). In terms of clinical experience, most participants had less than one year of experience (62.5%), whereas 21.3% had 1–5 years and 16.3% had more than five years of experience.

Knowledge of Nurses Regarding Infection Control Measures

Table 2 Overall knowledge of nurses regarding Infection Control Measures

Level of Knowledge	Frequency	Percentage
Poor Knowledge	46	57.5
Average Knowledge	23	28.7
Good Knowledge	11	13.8
Total	80	100.0

Table 2 shows the overall knowledge of nurses regarding infection control measures. The majority of nurses (57.5%) had poor knowledge, 28.7% demonstrated average knowledge, and only 13.8% had good knowledge, indicating that overall awareness of infection control practices was inadequate among most participants.

Practices of Nurses Regarding Infection Control Measures

Table 3 Overall practices of nurses regarding Infection Control Measures

Level of Practices	Frequency	Percentage
Poor Practices	0	0
Moderate Practices	47	58.8
Good Practices	33	41.3
Total	80	100.0

Table 3 shows the overall practices of nurses regarding infection control measures. The majority of nurses (58.8%) demonstrated moderate practices, while 41.3% exhibited good practices. None of the nurses were found to have poor practices, indicating that most participants followed infection control measures to a reasonable extent.

DISCUSSION

The demographic data of this study revealed that the majority of nurses were young, with 58.8% aged 20–30 years, and a significant proportion were male (73.8%). This predominance of young and male nurses aligns with findings from a study by Khan et al. (2020), which reported that early-career nurses constituted a large proportion of hospital staff in Pakistan, though globally, nursing remains a female-dominated profession (World Health Organization [WHO], 2020). The high number of young nurses in the present study may reflect recent recruitment trends and indicates a workforce with limited clinical experience, as 62.5% of participants had less than one year of practice. Similarly, Ahmad et al. (2019) observed that younger nurses often dominate tertiary care settings in South Asia, which can influence adherence to infection control practices due to limited hands-on experience.

Regarding educational qualifications, most nurses held a Post RN BScN degree (58.8%), followed by Generic BScN (27.5%) and Diploma in Nursing (13.8%). These findings suggest a relatively well-qualified nursing workforce, consistent with studies by Ali and Fatima (2018), who reported that nurses with bachelor-level education demonstrate better understanding of clinical guidelines compared to diploma holders. However, despite adequate academic qualifications, knowledge of infection control measures was largely inadequate, with 57.5% of nurses scoring in the poor knowledge category. This gap between formal education and practical understanding is supported by previous research, which showed that nurses often possess theoretical knowledge but lack in-depth awareness of infection prevention protocols (Ghafari et al., 2017; Saeed et al., 2021).

In terms of practices, the majority of nurses demonstrated moderate adherence to infection control measures (58.8%), while 41.3% exhibited good practices, and none had poor practices. This indicates that although knowledge was suboptimal, nurses generally applied infection control measures in daily practice. This finding is consistent with the study by Rezaei et al. (2019), which found that nurses' compliance with infection control practices was moderate despite gaps in theoretical knowledge, likely due to institutional protocols, supervision, and routine ward practices. Moderate practice levels may also be influenced by on-the-job training and continuous professional development initiatives, which help reinforce proper behavior even when comprehensive understanding is lacking.

The discrepancy observed between knowledge and practice in this study highlights an important challenge in nursing care. While nurses demonstrate reasonable adherence to infection control measures, limited knowledge may compromise the rationale behind these practices, potentially affecting decision-making in complex clinical situations (Abbas et al., 2020). This emphasizes the need for targeted educational programs, simulation-based training, and continuous monitoring to strengthen both knowledge and practical competencies among nurses, particularly for early-career staff.

In summary, the findings indicate a young, predominantly male nursing workforce with good academic qualifications but limited experience. Although infection control practices were generally moderate to good, knowledge deficits were evident, underscoring the need for structured interventions to enhance awareness and ensure safe patient care. These

results are consistent with regional and international literature, which suggests that bridging the gap between knowledge and practice is essential for improving infection control outcomes in healthcare settings (WHO, 2020; Saeed et al., 2021).

CONCLUSION

The study concluded that the majority of participants were young, male nurses with bachelor-level qualifications, and most had less than one year of clinical experience. While overall practices regarding infection control were moderate to good, nurses' knowledge was largely inadequate, with more than half demonstrating poor knowledge. These findings highlight a gap between knowledge and practice, emphasizing the need for targeted educational interventions and continuous professional training to strengthen nurses' understanding and ensure effective infection control in clinical settings.

REFERENCES

1. Ali, M. W., & Alam, B. (2022). The Level of Knowledge and Practice of Employees on Infection Control in a Tertiary Level Hospital. East Journal of Nursing and Midwifery, 4, 127-134.
2. Althiyabi, F. S., Khuded, F. M., Alzaidi, F. M., Alswat, A. S. G., Alotaibi, F. S. B., Alotaibi, W. S. B., Alotaibi, K. I. A., Alshehri, F. A. H., Almutairi, A. M. A., & Alnathli, J. A. A. (2024). Assessment of nursing knowledge and practice toward prevention of acquired infections in the emergency department of King Faisal Medical Complex in Taif. SAGE Open Medicine, 12, 20503121231222341.
3. Harun, M. G. D., Anwar, M. M. U., Sumon, S. A., Hassan, M. Z., Haque, T., Mah-E-Muneer, S., Rahman, A., Abdullah, S. A. H. M., Islam, M. S., & Styczynski, A. R. (2022). Infection prevention and control in tertiary care hospitals of Bangladesh: results from WHO infection prevention and control assessment framework (IPCAF). Antimicrobial Resistance & Infection Control, 11(1), 125.
4. Kamate, S., Gautam, N., & Sharma, S. (2020). Knowledge, attitude and practices regarding infection control measures among health care professional students in a teritiary care centre in India. International Journal of Infectious Diseases, 101, 280-281.
5. Omer, Z. A., & Saleh, H. S. (2023). Assessment of nurses' knowledge attitude and practice regarding infection controls in intensive care unit at hospitals in Kirkuk City-Iraq. Mosul Journal of Nursing (Print ISSN: 2311-8784 Online ISSN: 2663-0311), 11(1), 113-122.
6. Saha, A. K., Mittra, C. R., Khatun, R. A., & Reza, H. M. (2020). Nurses' knowledge and practices regarding prevention and control of COVID-19 infection in a tertiary level hospital. Bangladesh Journal of Infectious Diseases, S27-S33.
7. Salem, O. A. (2019). Knowledge and practices of nurses in infection prevention and control within a tertiary care hospital. Annals of Medical and Health Sciences Research 4p.
8. Sodhi, K., Arya, M., Chanchalani, G., Sinha, V., Savio, R. D., Ak, A. K., Ahmed, A., Jagiasi, B., Agarwal, D., & Jagathkar, G. (2022). Comparison of knowledge and awareness of infection control practices among nurses in India: A cross-sectional survey. American Journal of Infection Control, 50(12), 1368-1373.
9. Tafere, T. Z., Belachew, T. B., Feleke, D. G., & Adal, G. M. (2024). Assessment of knowledge and practice of nurses regarding infection prevention and associated factors at Debre Tabor Comprehensive Specialized Hospital, Northwest Ethiopia. Frontiers in Public Health, 11, 1225570.