

ORIGINAL ARTICLE

Nurses' perceptions of infection prevention and control practices in Ishaka-Bushenyi municipality, Uganda: A mixed-methods study**¹Emelonye, A. D., ²Otwine, A.T., ³ Tumwebaze, M., ⁴Ogbe, A.**^{1,2,3} Department of Public Health and Biomedical Sciences, Faculty of Health Sciences, Bishop Stuart University, Mbarara, Uganda⁴Department of Human Anatomy, Kampala International University, Western Campus, Uganda**ABSTRACT**

Background: Infection prevention and control (IPC) practices are essential for reducing healthcare-associated infections (HAIs) and promoting patient safety. Nurses play a key role in IPC implementation, and their perceptions may influence adherence to recommended practices. In Uganda, IPC practices are affected by limited resources, staffing shortages, infrastructure constraints, and inconsistent monitoring, highlighting the need to understand nurses' perceptions within local healthcare settings. Objective: The study assessed nurses' perceptions towards IPC practices and explored contextual factors affecting IPC implementation in healthcare facilities in Ishaka–Bushenyi Municipality. Methods: A quantitative-dominant embedded mixed-methods cross-sectional study was conducted among 133 nurses. Data were collected using a structured self-administered questionnaire. Quantitative data were analysed using descriptive statistics, independent-samples t-tests, ANOVA, Pearson correlation, and multiple linear regression. Open-ended responses were analysed thematically. Conclusion: Nurses had favourable perceptions towards IPC, but workplace conditions may hinder effective implementation. Strengthening IPC requires continuous training, reliable resources, and supportive healthcare systems.

Keywords: Infection prevention and control, Nurses, Perceptions, Healthcare-associated infections, Uganda***Corresponding Author**

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Introduction

Healthcare-associated infections (HAIs) continue to represent a major global patient-safety challenge, contributing to increased morbidity and mortality, prolonged hospitalisation, antimicrobial resistance, and increased healthcare costs. HAIs affect patients and healthcare systems across all income settings, although the burden is particularly high in low- and middle-income countries (LMICs) [1–3]. Preventing avoidable infections requires effective infection prevention and control (IPC) measures, including hand hygiene, appropriate use of personal protective equipment (PPE), environmental cleaning, safe injection practices, healthcare waste management, sterilisation and disinfection, and adherence to standard precautions [1–3]. According to the World Health Organization (WHO), approximately 7% of patients in high-income countries and up to 15% of patients in LMICs acquire at least one HAI during their hospital stay [1,4].

In LMICs, inadequate infrastructure, water, sanitation, and hygiene (WASH) services, IPC resources, surveillance systems, and staffing may hinder effective infection prevention [1–3]. These challenges are particularly relevant in sub-Saharan Africa, where evidence indicates that positive IPC knowledge and attitudes do not always translate into consistent practice [10–13]. Inadequate PPE and other supplies, staff shortages, heavy workloads, limited training, and insufficient organisational support have also been identified as barriers to IPC implementation [7,9,14–16]. Nurses are central to IPC because of their frequent and direct contact with patients and their continuous involvement in patient care. The extent to which nurses adhere to IPC measures may be influenced by their knowledge and training, availability of essential supplies, workload, supervision, and working conditions [6–9].

However, perceptions are distinct from knowledge and practice because they reflect how nurses understand, value, and interpret

IPC requirements. Such perceptions may influence the priority nurses give to IPC during routine clinical activities. This perspective is compatible with the Theory of Planned Behaviour (TPB), which proposes that behaviour is influenced by attitudes, subjective norms, and perceived behavioural control, which in turn contribute to behavioural intentions and behaviour [17].

In Uganda, national IPC guidelines provide a framework for standard precautions, healthcare-worker education and training, monitoring and supervision, provision of appropriate resources, and healthcare waste management [18]. However, implementation may be constrained by inadequate supplies, staffing shortages, heavy workloads, limited training, and inconsistent organisational support. Evidence from Uganda has similarly identified barriers related to training opportunities, workload, availability of IPC supplies, and management support [14,15]. These challenges may vary across healthcare facilities according to their level of care, staffing, workload, infrastructure, and resource availability.

Despite the importance of IPC, limited evidence has examined nurses' perceptions across different levels of healthcare delivery in Ishaka–Bushenyi Municipality. This setting includes hospitals and lower-level health centres that may differ in resources, staffing, workload, and institutional capacity. Therefore, this study assessed nurses' perceptions towards IPC practices and examined factors associated with these perceptions among nurses working in selected healthcare facilities in Ishaka–Bushenyi Municipality, Uganda. The findings may provide context-specific evidence to inform IPC training, supervision, resource provision, and strategies for strengthening infection prevention and patient safety.

Materials and Methods

Study Design and Setting

The study employed a quantitative-dominant embedded mixed-methods cross-sectional approach (QUAN→qual) among nurses working in selected healthcare facilities in

Ishaka–Bushenyi Municipality, Bushenyi District, Uganda. Quantitative data constituted the main component and were used to assess nurses' perceptions of IPC practices, while the qualitative component provided additional contextual understanding of the findings. Participants were recruited from facilities representing different levels of healthcare delivery, namely hospitals and Health Centres IV, III, and II.

Study Population and Sampling

The target population consisted of registered and enrolled nurses who were directly involved in patient care across five selected healthcare facilities. The facilities were purposively selected to represent different levels of healthcare delivery and ownership categories, including hospitals and lower-level health centres. Eligible participants were stratified according to their respective healthcare facilities to ensure representation from each facility, followed by proportionate allocation based on the number of eligible participants in each facility. The accessible population was 182 nurses. The sample size was determined using Yamane's formula ($n = N/[1+N(e^2)]$), at a 5% margin of error, giving 125 participants. A 10% non-response allowance was added, resulting in a target sample of 138 participants. In facilities with larger numbers of nurses, eligible participants were selected through simple random sampling, ensuring equal selection opportunities. Census sampling was applied in facilities with smaller nursing populations because all eligible nurses could be included. Of the 138 participants approached, 133 provided complete responses, giving a response rate of 96.4%. Five incomplete questionnaires were excluded from the final analysis.

Data Collection and Study Variables

Data were obtained using a structured self-completion questionnaire informed by the study objectives, WHO IPC guidelines, CDC recommendations, and findings from previous IPC research. The questionnaire covered socio-demographic characteristics, IPC compliance, personal and institutional

factors, nurses' perceptions, and open-ended questions. Nurses' perceptions were assessed using ten Likert-scale items (PNT1–PNT10). PNT2 and PNT3 were negatively worded and reverse-coded so that higher scores indicated more favourable perceptions. Before the main data collection, the questionnaire was piloted among 20 nurses from a facility that was excluded from the study to evaluate its clarity and relevance. Appropriate revisions were subsequently made. In the main study, the ten-item perception scale showed good internal reliability, with a Cronbach's alpha coefficient of 0.835. The open-ended questions explored challenges, barriers, and suggestions related to IPC practices. As these were embedded in the quantitative survey, no separate qualitative sampling or saturation procedure was undertaken. Responses were analysed thematically and used to complement the quantitative findings.

Data Management and Analysis

All returned questionnaires were reviewed to ensure that the responses were complete and internally consistent. The collected data were coded and entered into Microsoft Excel before being checked for missing information, inconsistencies, and data-entry errors. The cleaned dataset was subsequently analysed using Stata version 14.2. Descriptive statistics included frequencies, percentages, means, and standard deviations. Inferential analyses included independent-samples t-test, ANOVA, Pearson correlation, and multiple linear regression. Regression assumptions, including normality, were assessed before analysis. Statistical significance was set at $p < 0.05$. Responses to the open-ended questions were examined using Braun and Clarke's six-phase thematic analysis, and the resulting themes were considered alongside the quantitative findings during interpretation.

Ethical Considerations

Ethical approval was obtained from the Bishop Stuart University Research Ethics Committee. Permission was obtained from participating healthcare facilities, and written informed consent was obtained from all participants. The study was conducted in

accordance with the principles of the Declaration of Helsinki (1975, as amended). Confidentiality and anonymity were maintained throughout the study.

Results

Socio-Demographic Characteristics of Participants

Table 1: Females constituted the larger proportion of participants, with 75 nurses (56.4%), compared with 58 males (43.6%). Participants aged 28–37 years formed the largest age group, comprising 69 nurses (51.9%), followed by those aged 18–27 years, who accounted for 60 (45.1%). Only a small proportion were aged 38 years or older. Regarding marital status, 69 (51.9%) participants were single, while 64 (48.1%) were married. Most participants identified as Christians, 107 (80.5%), while 24 (18.0%) were Muslims and 2 (1.5%) belonged to other religions. Diploma-qualified nurses formed the largest educational group, 66 (49.6%), followed by certificate holders, 52 (39.1%). Meanwhile, 14 (10.5%) had bachelor's degrees, and one participant (0.8%) had a postgraduate qualification. Most participants worked in hospitals, 120 (90.2%), while the remaining nurses worked in Health Centre IV, 7 (5.3%), Health Centre III 4 (3.0%), and Health Centre II 2 (1.5%). Regarding professional experience, almost half of the participants had worked for less than five years, 66 (49.6%), followed by those with 5–9 years of experience, 55 (41.4%).

Nurses' Perceptions Towards IPC Practices

Overall, nurses demonstrated positive perceptions towards infection prevention and control (IPC) practices (Table 2), with an overall mean perception score of 3.92 (SD = 0.43, 95% CI: 3.85–3.99). The highest proportion of participants who strongly agreed was observed for the statement that IPC practices help protect patients and reduce healthcare-associated infections, with 102 (76.7%) strongly agreeing and 22 (16.5%) agreeing. Similarly, 93 (69.9%) strongly agreed that IPC practices improve the quality of care, with 89 (66.9%) strongly agreeing

that adherence to IPC practices is part of professional nursing practice. Most participants also recognized the important role of nurses in preventing infection transmission, with 84 (63.2%) strongly agreeing that nurses play an important role in preventing infection transmission. The negatively worded statements on workload and lack of supplies received high levels of disagreement, with 58 (43.6%) disagreeing and 48 (36.1%) strongly disagreeing that heavy workload makes it difficult to follow IPC practices, while 37 (27.8%) disagreed and 78 (58.6%) strongly disagreed that lack of supplies affects IPC compliance. Compared with the other positively worded statements, management support for IPC adherence received relatively lower levels of strong agreement, with 59 (44.4%) strongly agreeing and 46 (34.6%) agreeing.

Comparison of IPC Perception Scores by Gender

Table 3 findings show that female nurses had a higher mean total IPC perception score (44.93 ± 4.17) compared with male nurses (42.90 ± 7.13). The difference in perception scores by gender was statistically significant ($t = -2.062$, $p = 0.041$), with female nurses recording higher mean total IPC perception scores than male nurses.

IPC Perception Scores by Healthcare Facility Category

One-way ANOVA was performed to determine whether nurses' IPC perception scores varied according to healthcare facility category. (Table 4). The analysis showed no significant variation in IPC perception scores across hospitals, Health Centre IV, Health Centre III, and Health Centre II facilities. ($F(3,129) = 0.43$, $p = 0.731$).

Relationship Between IPC Perception Scores, Age, and Years of Experience

Pearson's correlation analysis was used to determine whether IPC perception scores were related to participants' age and duration of professional experience. (Table 5). IPC perception scores did not demonstrate a statistically significant relationship with age.

($r = 0.040$, $p = 0.648$). Likewise, professional experience showed no statistically significant association with IPC perception scores. ($r = -0.001$, $p = 0.988$)

Factors Associated with Nurses' IPC Perception Scores

Multiple linear regression was performed to identify factors independently associated with nurses' overall IPC perception scores. The regression model did not reach statistical significance, $F(6,126) = 1.04$, $p = 0.3998$, and accounted for 4.7% of the variability in nurses' total IPC perception scores. Among the variables included in the model, gender was the only statistically significant predictor of IPC perception scores. Female nurses had, on average, 2.15 points higher total perception scores than male nurses ($\beta = 2.148$, $p = 0.038$), after controlling for age, years of professional experience, and type of health facility. Age ($\beta = 0.834$, $p = 0.405$), years of professional experience ($\beta = -0.486$, $p = 0.553$), and type of health facility (all $p > 0.05$) were not significantly associated with IPC perception scores.

Qualitative Findings

All 133 nurses responded to the open-ended questions included in the same questionnaire. Since the qualitative component was embedded within the quantitative survey, all participants contributed both quantitative and qualitative data, and no separate qualitative sample was required. The responses were analysed thematically and generated three main themes.

Theme 1: IPC as Essential for Patient and Healthcare Worker Safety

Participants viewed IPC as essential for protecting patients and healthcare workers from infections, occupational exposure, and cross-infection. One participant stated, *"IPC helps protect both the patient and the healthcare worker because we can also be exposed while providing care."*

Theme 2: Resource, Workload and Staffing Constraints

Participants identified shortages of PPE, hand hygiene materials, disinfectants, clean water,

and waste disposal supplies as barriers to IPC implementation. Heavy workload, inadequate staffing, long working hours, and high patient numbers also affected adherence. One participant noted, *"Sometimes we know what should be done, but the materials are not always available."*

Theme 3: Continuous IPC Training and Institutional Support

Participants emphasized regular IPC training, supervision, feedback, staff motivation, and management support as important for improving IPC adherence. One participant stated, *"Regular training reminds us of the correct procedures and helps us improve our practice."*

Discussion

Socio-demographic Factors Associated with Nurses' IPC Perceptions

The study found that female nurses had more favourable perceptions towards infection prevention and control (IPC) practices than male nurses. Gender was the only socio-demographic characteristic significantly associated with perceptions, while age, professional experience, and healthcare facility category were not. Although gender emerged as the only statistically significant characteristic, the regression model explained only a small proportion of the variance in perception scores ($R^2 = 0.047$), indicating weak overall explanatory power. Therefore, the observed gender difference should be interpreted cautiously, as other individual, behavioural, and organisational factors that were not measured in this study may contribute more substantially to nurses' IPC perceptions [2,17].

The finding differs from evidence from Ethiopia, where infection prevention knowledge and practice have been associated with factors related to healthcare workers and their working environment [10,12]. Similarly, studies from Nigeria have reported variation in infection prevention knowledge and practices according to selected individual and professional characteristics [11,13]. These differences suggest that relationships between demographic characteristics and IPC-related

outcomes may vary across populations, healthcare systems, and study settings. The absence of significant differences by age, professional experience, and facility category suggests relatively consistent IPC perceptions among the nurses studied. Although healthcare facilities may differ in staffing, workload, infrastructure, and IPC resources, common professional expectations and national IPC standards may contribute to relatively similar perceptions [2,18]. Given the weak explanatory power of the model, interventions should focus less on demographic characteristics and more on modifiable factors such as continuing professional development, availability of IPC supplies, supportive supervision, workload, staffing, monitoring, and institutional commitment [2,14–16,18]. Future research should therefore examine additional individual, organisational, and environmental factors that may better explain differences in nurses' IPC perceptions.

Nurses' Perceptions Towards Infection Prevention and Control Practices

Overall, the nurses expressed favourable perceptions towards IPC practices. Participants viewed IPC as an important component of protecting patients and healthcare workers, promoting quality care, and fulfilling their professional responsibilities as nurses. This finding is consistent with evidence from African healthcare settings showing generally favourable attitudes towards infection prevention among healthcare workers [11–13]. Evidence from Ethiopia is particularly supportive. A recent systematic review and meta-analysis involving 5,650 healthcare workers found that approximately 66.7% had positive attitudes towards IPC, although only 55.2% demonstrated good IPC practice [13]. This finding supports the importance of distinguishing between what healthcare workers believe or value and what they are consistently able to implement in clinical practice.

The favourable perceptions observed in this study provide an important foundation for

IPC implementation. Nurses' recognition of IPC as part of patient safety and quality healthcare indicates that they understand its importance within routine clinical practice. This observation is consistent with WHO guidance, which identifies IPC as an essential component of safe and quality healthcare and emphasises its contribution to reducing HAIs and antimicrobial resistance [1,2]. Standard precautions and hand hygiene are also fundamental components of infection prevention in healthcare settings [2,5]. Nevertheless, positive perceptions of IPC do not necessarily mean that recommended practices will always be implemented consistently. Previous studies in African healthcare settings have demonstrated that favourable knowledge and attitudes may coexist with shortcomings in infection prevention practices [11–13]. For example, the Ethiopian systematic review found that although knowledge and attitudes were generally favourable, good IPC practice was less common [13]. Similarly, Ogoina et al. reported high levels of knowledge and positive attitudes towards standard precautions among hospital workers in Nigeria, while practice remained less consistent [11]. These findings reinforce the distinction between perceptions and actual implementation.

Findings from the open-ended responses provide further insight into this difference. Although nurses recognised IPC as important for patient and healthcare-worker safety, participants described practical barriers that could interfere with implementation. These included shortages of gloves, masks, and other PPE, inadequate hand-hygiene materials, disinfectants, clean water, and waste-disposal materials. Participants also described heavy workloads, inadequate staffing, long working hours, and high patient numbers as challenges during busy clinical periods. These findings indicate that positive perceptions may encourage nurses to value IPC, but sustained implementation also depends on whether the workplace provides adequate conditions and resources to support recommended practices.

The perception of institutional support is particularly important in this regard. Nurses may recognise the importance of IPC while experiencing limitations in the organisational support available to facilitate its implementation. WHO identifies leadership commitment, education and training, monitoring and feedback, surveillance, adequate staffing, workload management, and appropriate infrastructure and resources as important components of effective IPC programmes [2,3]. Evidence from Uganda also demonstrates that training opportunities, workload, availability of supplies, and organisational support can influence IPC implementation [14,15]. Therefore, favourable perceptions alone are unlikely to be sufficient when workplace conditions create barriers to implementation. Strengthening IPC requires attention not only to nurses' knowledge and attitudes but also to resources, staffing, workload, supervision, training, monitoring, and institutional support [2,3,14–16,18].

Organisational Factors Affecting IPC Implementation

The findings indicate that IPC implementation is substantially influenced by the environment in which nurses provide care. Participants identified shortages of IPC supplies, heavy workload, staffing limitations, and inadequate institutional support as important challenges. These qualitative findings help explain why positive perceptions towards IPC may not always translate into consistent implementation. IPC should therefore be understood as both an individual and a system-level responsibility because healthcare workers require adequate resources and appropriate working conditions to follow recommended measures [2,3,14–16].

Access to essential IPC resources emerged repeatedly as a concern among participants. Nurses reported shortages of gloves, masks, other PPE, hand-hygiene materials, disinfectants, clean water, and appropriate waste-disposal containers. These findings are consistent with evidence from resource-

limited settings where inadequate infrastructure, supplies, and other system-level constraints have been identified as barriers to effective IPC [7,9,14,15]. WHO identifies built infrastructure, materials and equipment as a core component of effective IPC programmes [2]. Consequently, efforts to strengthen nurses' knowledge and perceptions may have limited effect when essential IPC supplies and resources are not consistently available.

Participants also identified workload and staffing conditions as important challenges. Nurses reported managing large numbers of patients alongside staff shortages, extended working hours, and multiple competing clinical responsibilities. These findings are consistent with WHO guidance, which identifies workload, staffing, and bed occupancy as important considerations in IPC implementation [2]. Evidence also indicates that adherence to standard precautions may be influenced by workload, training, knowledge, and other contextual factors [6,7]. When workloads are high, nurses may experience difficulty allocating sufficient time to IPC activities, particularly when essential materials are also unavailable. Although hand hygiene is a fundamental IPC measure, consistent adherence remains challenging in many healthcare settings. A systematic review of studies on hand-hygiene compliance identified substantial non-compliance among healthcare workers and highlighted the importance of factors within the healthcare environment [5]. WHO therefore recommends multimodal approaches that combine system change, education and training, monitoring and feedback, reminders and communication, and an institutional safety climate to improve hand hygiene [2,8].

The findings also pointed to the need for stronger institutional support. Participants highlighted the importance of regular supervision, monitoring, constructive feedback, staff motivation, and active management involvement in supporting IPC implementation. These findings are consistent

with WHO recommendations that emphasise leadership commitment, education and training, monitoring and feedback, surveillance, staffing, and adequate resources as important components of effective IPC programmes [2,3]. Evidence from Uganda similarly indicates that management support, staff training, availability of supplies, and workload are relevant to IPC compliance [14,15].

Overall, the findings highlight the importance of creating an environment that enables nurses to act on their favourable IPC perceptions. Reliable supplies, adequate staffing, manageable workloads, supportive supervision, monitoring, and sustained management commitment may strengthen consistent IPC implementation [2,3,14–16,18]. IPC adherence should therefore be viewed not only as an individual responsibility but also as a shared institutional responsibility.

Continuous Professional Development and IPC Awareness

Participants stressed that ongoing IPC education, refresher sessions, and continuing professional development are important for maintaining awareness of recommended infection prevention procedures. They viewed training as an opportunity to reinforce correct practices and improve confidence in IPC. This finding is consistent with evidence that education and training are important components of IPC programmes and may contribute to adherence to standard precautions [2,6,9,10]. WHO identifies IPC education and training as a core component of effective IPC programmes and recommends training appropriate to healthcare workers' roles and responsibilities [2]. Evidence from nursing studies also supports the importance of training. Donati et al. found that participation in at least one training course on standard precautions was associated with better compliance among clinical nurses [9]. Luo et al. also identified factors related to knowledge and training among those associated with compliance with standard precautions among nurses [6]. Evidence from

Ethiopia and Nigeria further demonstrates variation in IPC knowledge, attitudes, and practices, supporting the need for continuing education and reinforcement of IPC recommendations [10–13].

Refresher training conducted periodically may therefore provide greater benefit than relying exclusively on initial staff orientation. However, the findings from this study suggest that training alone may not be sufficient to achieve sustained IPC implementation. Participants also identified inadequate supplies, high workloads, staffing shortages, and insufficient institutional support as factors that may hinder implementation. This is consistent with evidence showing that favourable knowledge and attitudes do not necessarily translate into good IPC practice [13]. WHO therefore recommends integrating education and training with leadership, monitoring, adequate infrastructure, resources, staffing, and appropriate workload conditions [2,3]. The findings support incorporating practical and repeated IPC refresher training into routine professional development and quality-improvement activities. Training should address challenges encountered in daily clinical practice and be accompanied by adequate supplies, supportive supervision, manageable workloads, appropriate staffing, monitoring, and management commitment [2,3,14–16,18,19]. Such a combined approach may help translate nurses' positive perceptions and awareness into sustained IPC practice.

Overall, the findings show that nurses largely regarded IPC as fundamental to patient safety, quality care, and the fulfilment of their professional nursing responsibilities. However, the qualitative findings showed that implementation occurs within contexts of inconsistent resources, workload and staffing pressures, and limited institutional support. Improving IPC should therefore involve more than strengthening individual knowledge and perceptions; it should also encompass ongoing professional development, adequate staffing and supplies, effective supervision, monitoring, and committed institutional leadership [2,3,14–16,18,19].

Conclusion

Nurses in selected healthcare facilities in Ishaka–Bushenyi Municipality generally had favourable perceptions towards IPC practices. Gender was the only significant socio-demographic factor, although the regression model explained only 4.7% of the variation, indicating that other factors are important. Qualitative findings identified shortages of IPC supplies, workload and staffing constraints, and limited training and institutional support as key challenges. Improving IPC in Ishaka–Bushenyi therefore requires reliable supplies, adequate staffing, regular refresher training, supportive supervision, and stronger management commitment.

Recommendations

Policy and Practice:

Strengthen IPC resources and support: Healthcare facilities should ensure consistent availability of essential IPC supplies and strengthen supervision and monitoring.

Provide continuous IPC training: Regular refresher IPC training should be incorporated into nurses' continuing professional development.

Improve staffing and workload management: Health authorities should strengthen staffing and workload management to support consistent IPC implementation.

Future Research

Explore additional factors: Future studies should examine other individual, organisational, and contextual factors influencing IPC implementation.

Use observational methods: Future research should include observational approaches to assess actual IPC practices alongside self-reported measures.

Limitations of the Study

First, the cross-sectional design captured information at one point in time, so causal relationships between the factors studied and IPC compliance could not be established.

Second, some information was self-reported, which may have introduced recall or social

desirability bias. Nurses may have reported better IPC practices than those routinely performed.

Third, the study was conducted in healthcare facilities in Ishaka–Bushenyi Municipality. Therefore, the findings may not be fully generalizable to healthcare facilities in other parts of Uganda.

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Author Contributions

The author conceived and designed the study, developed the research instrument, collected and analysed the data, interpreted the findings, and prepared the manuscript. The supervisors provided guidance throughout the study, including methodological input, review of the research work, interpretation of findings, and critical review and revision of the manuscript. All contributors reviewed and approved the final manuscript.

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Tables

Table 1: Socio-Demographic Characteristics of Participants

Variables	Category	Frequency (n=133)	Percentage (%) =100
Gender	Female	75	56.4
	Male	58	43.6
Age	18-27	60	45.1
	28-37	69	51
	38-47	3	2.3
	48 years or more	1	0.8
Marital Status	Single	69	51.9
	Married	64	48.1
Religious Affiliation	Christianity	107	80.5
	Islam	24	18.0
	Atheist	2	1.5
Educational Level	Certificate	52	39.1
	Diploma	66	49.6
	Bachelor	14	10.5
	Postgraduate	1	0.8
Type of health facility	HCII	2	1.5
	HCIII	4	3.0
	HCIV	7	5.3
	Hospital	120	90.2
Years of Experience	<5 years	66	49.6
	5–9 years	55	41.4
	10–14 years	9	6.8
	15 years or more	3	2.3

Table 2: Nurses' Perceptions Towards IPC Practices

Questions	SA n(%)	A n(%)	N n(%)	SD n(%)	D n(%)
Nurses are at risk when IPC practices are not followed (PNT1),	91 (68.4)	23 (17.3)	11 (8.3)	3 (2.3)	5 (3.8)
Heavy workload makes it difficult to follow IPC practices. (PNT2),	4 (3.0)	7 (5.3)	16 (12.0)	58 (43.6)	48 (36.1)
Lack of supplies affects IPC compliance. (PNT3),	4 (3.0)	2 (1.5)	12 (9.0)	37 (27.8)	78 (58.6)
IPC practices help protect patients and reduce healthcare-associated infections (PNT4),	102 (76.7)	22 (16.5)	6 (4.5)	1 (0.8)	2 (1.5)
IPC practices improve the quality of care (PNT5),	93 (69.9)	33 (24.8)	3 (2.3)	1 (0.8)	3 (2.3)
Following IPC is part of professional nursing practice (PNT6),	89 (66.9)	34 (25.6)	7 (5.3)	2 (1.5)	1 (0.8)
IPC practices should be prioritized even during staff shortages. (PNT7),	80 (60.2)	34 (25.6)	12 (9.0)	3 (2.3)	4 (3.0)
Nurses play an important role in preventing infection transmission (PNT8),	84 (63.2)	31 (23.3)	14 (10.5)	2 (1.5)	2 (1.5)
Non-compliance with IPC practices places patients at risk. (PNT9),	81 (60.9)	39 (29.3)	7 (5.3)	3 (2.3)	3 (2.3)
Management supports and values staff who adhere to IPC practices (PNT10),	59 (44.4)	46 (34.6)	16 (12.0)	5 (3.8)	7 (5.3)

SA=Strongly Agree, S= Agree, N=Neutral, SD= Strongly Agree, D=Disagree

Table 3: Comparison of Perception Scores by Gender

Gender	N	Mean ($\bar{x}$)	Std. Dev.	t-value	p-value
Male	58	42.90	7.13	-2.062	0.041*
Female	75	44.93	4.17		

*p < 0.05.

Table 4: IPC Perception Scores by Type of Health Facility

Source	SS	df	MS	F	p-value
Between Groups	42.94	3	14.31	0.43	0.731
Within Groups	4274.79	129	33.14		
Total	4317.73	132			

Table 5: Relationship Between IPC Perception Scores, Age, and Years of Experience

Variables	Pearson r	p-value	Significance
Total Perception vs. Age	0.040	0.648	Not Significant
Total Perception vs. Years of Experience	-0.001	0.988	Not Significant

Table 6: Factors Associated with Nurses' IPC Perception Scores

Factors	Coefficient (β)	Std. Error	t-value	p-value
Gender (Female vs. Male)	2.148	1.022	2.10	0.038*
Age	0.834	0.999	0.84	0.405
Years of Experience	-0.486	0.816	-0.60	0.553
THF (Category 2)	4.979	5.097	0.98	0.331
THF (Category 3)	5.530	4.738	1.17	0.245
THF (Category 4)	3.531	4.178	0.85	0.400
Constant	38,669	4.550	8.50.	0.000

*p < 0.05.