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Original Article

Determinants of Missed Nursing Care in Infection Control and Their Underlying Causes in Iranian Hospitals: A Cross-Sectional Analysis

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Abstract

Background and aims: Healthcare-acquired infections (HAIs) continue to pose a significant challenge for healthcare organizations globally. Missed nursing care (MNC) has been associated with an increased risk of hospital-acquired infections and is recognized as a potential threat to patient safety. However, there is a paucity of information regarding the relationship between MNC and infection prevention and control (IPC), as well as the factors that contribute to its occurrence in Iranian hospitals. Consequently, this study aims to investigate the relationship between MNC-IPC and its contributing factors among nurses employed in Iranian hospitals.

Methods: This cross-sectional study was conducted among 300 nurses from various departments in three teaching hospitals located in central Iran. Data were collected using a self-administered questionnaire that included sections on demographic information (age, gender, education, years of experience, marital status) and occupational details (unit, job title, role in infection control, training courses attended, overtime hours, and years of employment). The questionnaire also incorporated measures related to MNC-IPC. Data analysis was performed using descriptive and inferential statistics in Stata 14, which included t-tests, ANOVA, Kruskal-Wallis tests, and Pearson correlation analyses, with a significance level set at 0.05.

Results: Significant correlations were identified between MNC-IPC and several variables, including gender ($P=0.019$), unit ($P=0.048$), role in infection control ($P=0.006$), and participation in training courses ($P=0.028$). Furthermore, MNC-IPC demonstrated positive correlations with environmental factors ($r=0.262$, $P<0.001$) and individual factors ($r=0.223$, $P<0.001$). However, no statistically significant correlation was observed between MNC-IPC and systemic factors ($r=0.102$, $P=0.075$).

Conclusion: The findings indicate that MNC-IPC is significantly associated with nurses' gender, work unit, involvement in infection control, and prior training. Additionally, both individual and environmental factors were positively correlated with MNC-IPC, whereas systemic factors did not show a significant relationship. These results highlight the necessity for targeted strategies, including staff education and the establishment of supportive work environments, to mitigate MNC and improve infection control outcomes.

Keywords: Missed nursing care, Hospital-acquired infections, Infection control, Nurses, Patient safety

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Introduction

Missed nursing care (MNC) contributes to healthcare-acquired infections (HAIs) and poses a significant threat to patient safety; however, the factors influencing this phenomenon in Iranian hospitals remain inadequately explored. Over recent decades, research has consistently demonstrated a strong relationship between the quality of nursing care and critical patient outcomes, including mortality rates and the length of hospital stays (1). Nurses serve as the primary point of contact for patients within the healthcare system, fulfilling various roles such as coordinator, provider, planner, and evaluator of care. Given

the diverse and demanding nature of their responsibilities, nurses may not always be able to fully adhere to established care standards for a multitude of reasons (2). In a fast-paced and unpredictable clinical environment, the management of multiple responsibilities alongside limited resources often compels nurses to forgo non-essential tasks (3). In their efforts to deliver appropriate care, nurses are frequently required to prioritize certain activities over others. However, excessive workloads and staffing shortages can result in specific aspects of care being overlooked (4).

MNC refers to any aspect of patient care that is partially or completely omitted or delayed (5). The prevalence of MNC has emerged as a significant concern for healthcare systems globally, resulting in adverse consequences for patients, nurses, and healthcare institutions (6). Over the past two decades, researchers worldwide have increasingly focused on studying MNC and its related concepts. One study conducted in Iran found that 72.1% of nurses reported omitting at least one critical component of nursing care during each shift (2). MNC negatively impacts various dimensions of patient safety, contributing to the occurrence of pressure ulcers, hospital readmissions, medication errors, and urinary tract infections (5). Additionally, it has been associated with an elevated risk of bloodstream infections, pneumonia, and other HAIs (7).

Constraints in healthcare resources, prolonged use of antibiotics, and the emergence of drug-resistant pathogens have further intensified concerns regarding HAIs (8). These infections are associated with significant challenges, increased mortality, and rising healthcare costs (7). The occurrence of MNC is closely linked to the incidence of hospital-acquired infections. The impact of these infections on patient safety is well-documented and correlates with increased mortality rates. Non-compliance with infection prevention and control (IPC) practices by healthcare personnel constitutes a key factor contributing to the prevalence of such infections (9). Research indicates that many HAIs are preventable through the implementation of appropriate precautionary measures. Findings by Henderson et al suggest that unplanned increases in nurses' workloads and time constraints are associated with reduced adherence to infection control protocols (10). Similarly, a review by McCauley et al highlighted the importance of factors such as access to personal protective equipment (PPE) and adequate staffing in effective IPC, and it called for further research into the reasons why nurses may neglect IPC practices (11).

Identifying the factors that contribute to care omissions is essential for reducing MNC and enhancing the delivery of safe, high-quality patient care (3). Understanding the factors influencing MNC may be even more critical than merely identifying what care is missed, as effective decision-making relies on a comprehensive and accurate understanding of the underlying causes (12). A significant portion of deficiencies in infection control practices also arises from inadequate awareness of IPC measures (10). However, there is limited evidence regarding which specific aspects of infection control may be overlooked by nursing staff (13).

Although MNC has been reported globally, its prevalence varies significantly depending on healthcare conditions and the financial and human resources available across different countries (2). Additionally, the omission of care is influenced by various factors, including cultural norms, workplace environments, financial constraints, and staffing patterns, as well as the presence of local protocols and guidelines (6). Based on the existing literature, there has been no prior study specifically addressing MNC in the context of IPC in Iranian hospitals. Therefore, this study aims to investigate the prevalence of MNC-IPC among nurses in Iran and to identify key factors associated with MNC in infection control. These factors include gender, department, roles in infection control, and training. Furthermore, the study seeks to highlight significant correlations with both environmental and individual factors.

Materials and Methods

Study Design and Setting

This descriptive cross-sectional multicenter study was conducted from September to December 2023 across three educational and therapeutic centers in Arak, Iran.

Study Sample

Participants in this study were nurses working in five departments—Neurology, Surgery, Internal Medicine, Emergency, and Orthopedics—across three educational and therapeutic centers affiliated with Arak University of Medical Sciences. These wards were selected due to their high patient turnover and elevated risk of infection. Sampling was conducted proportionally within each ward based on the number of eligible nurses, utilizing a convenience sampling method. Inclusion criteria for participants included having at least one year of experience in the current unit, full-time employment status, a minimum of a bachelor's degree, and a willingness to participate. Nurses who were on leave during the study period or who submitted incomplete questionnaires were excluded from the study. A review of existing literature did not identify similar studies conducted in Iran, which prompted the researchers to perform a pilot study with 30 nurses who met the inclusion criteria. The pilot study revealed a proportion (p) of 0.25. With a desired statistical power of 90% and a Type I error rate of 0.05, the required sample size was calculated to be 288 participants. To account for a potential 10% dropout rate, the final sample size was adjusted to 317.

Research Instrument

Data for this study were collected using two primary instruments: a demographic and occupational information form, and the MNC in IPC survey questionnaire.

Demographic and Occupational Information Form

The demographic and occupational information form collected comprehensive data on participants, including age, gender, education, marital status, and years of experience. Additionally, the form included details related to the participants' work environment, such as unit, hospital, and job title. Further information was gathered on overtime hours, weekly working hours, and role in infection control.

MNC in IPC Survey

The MNC in IPC survey, developed by McCauley et al (11), is a structured instrument consisting of three sections: A, B, and C.

- **Section A**: This section collects demographic information about the participants.
- **Section B**: This section includes 37 items that assess the type and frequency of MNC related to infection prevention. Respondents rate each item on a 5-point Likert scale, where 1 indicates "never missed" and 5 indicates "always missed." Importantly, a "not appropriate/undecided" option was excluded from the analysis to ensure clarity and focus on the specific responses.
- **Section C**: This section comprises 24 items exploring the reasons for MNC, rated on a 4-point Likert scale (1: not a reason, 4: significant reason). Similar to Section B, the "not appropriate/cannot answer" option was excluded from the analysis. Additionally, this section includes two open-ended questions to gather further insights from participants.

For analytical purposes, the items in Section C were grouped into three domains:

1. **Individual Factors**: Such as limited knowledge of infection control.
2. **Environmental Factors**: Including issues like patient overcrowding and inadequate facilities.
3. **Organizational/Systemic Factors**: Encompassing challenges such as staffing shortages, lack of managerial support, and poor communication.

In the study by Henderson et al, the reliability of the MNC-IPC was assessed using Rasch analysis, demonstrating excellent fit measures, with item reliability at 0.97 and response reliability at 0.95 (10).

To validate the Persian version of the MNC-IPC, the questionnaire underwent a process of translation, cultural adaptation, and psychometric evaluation. After obtaining permission from the original developer, the translation was performed by an independent bilingual expert. Content validity was assessed by 14 faculty members from Arak University of Medical Sciences, resulting in a Content Validity Index (CVI) of 0.90, indicating excellent validity.

Reliability was further evaluated through test-retest and internal consistency methods. The test-retest correlation coefficient was $r = 0.82$, while Cronbach's alpha was calculated at 0.86 for Section C and 0.80 for Section B, confirming acceptable reliability.

Data Collection

Data collection for the study commenced following the receipt of ethical approval from the relevant authorities. The researchers conducted visits to each of the participating hospitals, where they obtained permission from the hospital management to proceed with the study. Through the nursing office, the researchers were introduced to the nurses working in the relevant departments. During these introductions, the researchers explained the objectives of the study to the nursing staff, ensuring that they understood the purpose and importance of the research. Subsequently, written informed consent was obtained from each participant, affirming their willingness to take part in the study. To facilitate data collection, self-administered questionnaires were distributed to the nurses during non-clinical periods. This approach was carefully planned to ensure that the data collection process did not interfere with patient care or the nurses' clinical responsibilities.

Data Analysis

Following the completion of data collection for this study, data analysis was conducted using Stata software, version 14. To assess the normality of the data, the Kolmogorov-Smirnov test was applied. This test helped determine whether the data followed a normal distribution, which is essential for selecting appropriate statistical methods for further analysis. The demographic and occupational characteristics of the participating nurses were summarized using descriptive statistics, including mean, standard deviation, and percentage. These statistics provided a clear overview of the participants' profiles. For the inferential statistical analysis, various tests were employed like Independent t-tests, Analysis of Variance (ANOVA), Kruskal-Wallis test, and Pearson correlation. A significance level of 0.05 was established, indicating that p-values below this threshold would be considered statistically significant.

Results

A total of 300 nurses participated in this study, providing a robust sample for analysis. The demographic profile of the participants revealed that the majority were female (76.33%) and held a bachelor's degree (96.67%). Most participants worked as staff nurses (94%) and represented various hospital units, with the highest proportions coming from the Surgery department (37.33%) and the Emergency department (19%).

The mean age of the nurses was 33.89 years, with a standard deviation of 6.94. Notably, nearly one-quarter of the participants (23.67%) held roles related to infection control. A significant portion of the nurses reported working substantial overtime, with 81.67% indicating they worked between 50 and 100 hours of overtime. Additionally, 25.67% of the participants had over 10 years of work experience (Table 1).

Statistical analysis indicated significant correlations between the MNC-IPC scores and several demographic

Table 1. Descriptive statistics and comparisons for MNC and reasons for missed care by demographic and job-related characteristics

Characteristics			Missed Nursing Care in Infection Prevention and Control Survey (MNC-IPC)		Reasons for MNC in IPC	
		N (%)	Mean ± SD	*P* value	Mean ± SD	*P* value
Gender	Male	71 (23.67%)	75.90 ± 19.96	0.019	60.31 ± 10.68	0.843
	Female	229 (76.33%)	82.20 ± 18.22		60.59 ± 8.89	
Age	≤30 years	120 (40%)	81.88 ± 19.94	0.379	59.6 ± 11.48	0.283
	≥31 years	180 (60%)	79.93 ± 18.03		60.9 ± 9.38	
Unit	Surgery	112 (37.33%)	77.14 ± 18.51	0.048	59.81 ± 10.71	0.799
	Internal	50 (16.67%)	81.42 ± 17.14		61.42 ± 11.80	
	Neurology	42 (14%)	79.64 ± 21.21		59.28 ± 10.95	
	Emergency	57 (19%)	84.07 ± 18.86		60.91 ± 7.40	
	Orthopedic	39 (13%)	86.30 ± 17.43		61.07 ± 10.04	
Education	Bachelor	290 (96.67%)	80.71 ± 18.90	0.984	60.25 ± 10.13	0.271
	Master	10 (3.33%)	80.6 ± 16.81		63.9 ± 10.87	
Job title	Nurse	282 (94%)	80.39 ± 18.51	0.414	60.30 ± 10.47	0.818
	Shift manager	15 (5%)	87 ± 23.40		62 ± 5.91	
	Head nurse	3 (1%)	79.66 ± 25.32		59.66 ± 9.60	
Role infection control	Yes	71 (23.67%)	80.04 ± 22.70	0.006	61.77 ± 11.57	0.191
	No	229 (76.33%)	79.06 ± 17.15		59.94 ± 9.79	
Course training	Yes	283 (94.33%)	81.29 ± 18.31	0.028	60.59 ± 9.80	0.357
	No	17 (5.67%)	71 ± 24.29		56.82 ± 16.25	
Work in years	<2 years	73 (24.33%)	81.80 ± 19.41	0.702	61.53 ± 11.07	0.277
	2-5 years	80 (26.67%)	80.62 ± 19.03		59.37 ± 10.68	
	5-10 years	70 (23.33%)	81.9 ± 18.26		59.04 ± 10.64	
	>10 years	77 (25.67%)	78.68 ± 18.66		61.54 ± 8.50	
Overtime hours	10-40	17 (5.67%)	78.94 ± 27.47	0.271	61.82 ± 8.18	0.773
	50-100	245 (81.67%)	80.85 ± 16.68		60.42 ± 9.76	
	110	29 (9.67%)	84.96 ± 24.37		59.62 ± 12.67	
	Not	9 (3%)	66.44 ± 29.09		59.0 ± 18.19	

factors: gender ($P = 0.019$), work unit ($P = 0.048$), role in infection control ($P = 0.006$), and participation in training courses ($P = 0.028$). However, no significant associations were found between the reasons for MNC and other demographic variables (Table 2).

Further analysis revealed a positive and significant correlation between the MNC-IPC scores and environmental factors, including staffing shortages, patient overcrowding, and inadequate supplies ($r = 0.262$, $P < 0.001$). Additionally, a significant correlation was identified with individual factors, such as nurses' knowledge and understanding of precautions ($r = 0.223$, $P < 0.001$). Conversely, a weak, non-significant correlation was observed with systemic factors, including a lack of management support and insufficient infection control infrastructure ($r = 0.102$, $P = 0.075$) (Table 3).

Discussion

This study aimed to explore the perceptions of Iranian nurses regarding MNC and the factors influencing its occurrence. The findings indicated that nurses in infection control roles reported higher levels of MNC in IPC. Notably, no significant correlation was found between participants' age or work experience and MNC-IPC in the present study. This contrasts with previous research that identified unit characteristics and nurses' age as predictors of MNC (14). Similarly, a scoping review linked age and clinical experience with the incidence of MNC (12). These discrepancies may be attributed to variations in study design, sample characteristics, and contextual factors, such as organizational culture or workload distribution across units. Additionally, differences in the definitions and measurements of MNC across studies may have influenced the outcomes.

In our study, the incidence of MNC-IPC was associated with specific inpatient units, with the orthopedic and emergency departments reporting the highest occurrences. Ball et al (15) conducted a study in Sweden that found 74% of MNC cases occurred in general and surgical units. Similarly, another study conducted in Iceland (14) reported higher rates of MNC in surgical and medical units compared to intensive care units. Variations in study outcomes may arise from differences in sample sizes and environmental conditions across countries. Our

Table 2. Comparison of means and standard deviations for infection control staff and other nursing staff regarding the likelihood of missing an infection control activity

Items	Infection control role	No infection control role	All respondents
	Mean ± SD	Mean ± SD	Mean ± SD
Hand hygiene is performed before touching the patient.	2.38 ± 1.42	2.34 ± 0.08	2.35 ± 1.35
Hand hygiene is completed before performing a procedure for the patient.	2.50 ± 1.13	2.24 ± 1.13	2.31 ± 1.13
Hand hygiene is performed after completing a procedure.	1.66 ± 0.69	1.52 ± 0.65	1.56 ± 0.66
Hand hygiene is completed after touching the patient.	1.76 ± 0.80	1.58 ± 0.70	1.62 ± 0.72
Hand hygiene is completed before administering medication.	2.83 ± 1.66	2.82 ± 1.45	2.83 ± 1.50
Equipment is cleaned before contact with any patient.	2.49 ± 1.22	2.03 ± 1.05	2.14 ± 1.11
Appropriate PPE (such as gloves and gowns) is used when providing direct care to patients with a transmissible disease.	2.28 ± 1.13	2.10 ± 1.04	2.15 ± 1.06
The correct order for using PPE is followed: for example, put on the gown first and then the gloves to ensure that the gown cuffs are covered, leaving no skin exposed.	2.07 ± 1.04	1.85 ± 0.91	1.90 ± 0.94
Gloves are changed when staff move from a contaminated/dirty area (e.g., a wound) to a clean area.	2.39 ± 1.16	2.26 ± 1.15	2.29 ± 1.15
"Touch contamination" is avoided, for example, not scratching your nose or adjusting your glasses when your hands have been in contact with the patient or surfaces contaminated in the patient's room.	2.05 ± 1.02	1.85 ± 0.94	1.9 ± 0.96
Gloves are removed before undressing the gown.	1.63 ± 0.81	1.72 ± 0.87	1.70 ± 0.85
Hand hygiene is performed after removing the gown.	2.02 ± 0.98	1.81 ± 0.94	1.86 ± 0.95
Face equipment is removed before washing hands.	2.33 ± 1.15	2.08 ± 1.05	2.14 ± 1.08
When caring for a patient with respiratory/droplet precautions, always use goggles and a mask or face shield.	2.04 ± 1.10	1.93 ± 1.01	1.96 ± 1.03
Screening for methicillin resistance is performed for all new admissions.	2.64 ± 1.92	2.57 ± 1.95	2.59 ± 1.94
Appropriate signs notify staff and visitors about the need for transmission-based precautions (when managing a patient with methicillin resistance).	3.05 ± 1.91	2.39 ± 1.94	2.55 ± 1.95
After using a urinary catheter or bedpan, patients are invited or assisted to perform hand hygiene.	2.61 ± 1.86	2.60 ± 1.71	2.61 ± 1.75
The patient takes a shower before surgery.	2.71 ± 1.34	2.39 ± 1.25	2.47 ± 1.28
Toilet catheter care (TDS) is performed every 8 hours.	2.57 ± 1.43	2.55 ± 1.49	2.55 ± 1.48
The mouth/teeth are cleaned at least daily.	2.73 ± 1.72	2.60 ± 1.60	2.63 ± 1.63
The site of intravenous cannulas is sprayed with alcohol for 15 seconds and allowed to dry for 15 seconds before washing or administering medication.	2.25 ± 1.17	2.11 ± 1.12	2.14 ± 1.13
Gloves are always used when preparing and administering all antibiotics.	2.83 ± 1.55	2.62 ± 1.48	2.67 ± 1.49
If the patient shows signs of infection (e.g., increased temperature, new swelling, or pus), the nurse follows up with the doctor or senior nurse.	1.76 ± 0.88	1.59 ± 0.72	1.63 ± 0.76
Healthcare organization documents the patient's status with or without methicillin resistance upon admission.	2.63 ± 1.99	2.26 ± 1.83	2.35 ± 1.87
Documentation regarding the patient's methicillin resistance status is completed after patient discharge.	2.90 ± 1.68	2.44 ± 1.74	2.55 ± 1.73
Nurses use documentation to report follow-up tests/pathology results (e.g., wound swab, methicillin resistance).	2.0 ± 1.18	1.70 ± 1.00	1.77 ± 1.05
At handover, nurses provide information about the patient's methicillin resistance/infection status.	3.50 ± 5.21	2.53 ± 1.69	2.76 ± 2.95
Nurses communicate the patient's methicillin resistance/infection status when transferring the patient to a new department, such as radiology, theater, or another ward.	2.63 ± 1.96	2.66 ± 1.68	2.66 ± 1.68
Cleaners/support staff use appropriate PPE.	2.42 ± 1.21	2.27 ± 1.16	2.31 ± 1.17
Cleaning/support staff adhere to posted signs for transmission-based precautions.	3.36 ± 6.57	2.96 ± 2.04	3.06 ± 3.65
Cleaning/support staff thoroughly clean rooms between different patient flows from bed units.	1.98 ± 1.17	2.02 ± 1.11	2.01 ± 1.12
Cleaning/support staff thoroughly clean rooms after discharging/transferring an infected patient (with methicillin resistance).	2.0 ± 1.08	2.00 ± 1.16	2.00 ± 1.14
The patient's bedside table is cleaned before they receive a meal tray.	2. 0 ± 1.14	1.99 ± 1.09	1.99 ± 1.10
Staff properly disinfect blood and other bodily fluids (e.g., vomit, urine).	1.81 ± 0.94	1.78 ± 0.86	1.79 ± 0.88
Sterile instruments and packaged equipment are properly stored to ensure sterility before patient use.	1.80 ± 0.88	1.55 ± 0.69	1.61 ± 0.75
Hand hygiene is performed after exposure to bodily fluids.	1.67 ± 0.84	1.52 ± 0.58	1.56 ± 0.65
Hand hygiene is completed after administering medication.	1.61 ± 0.81	1.63 ± 0.71	1.63 ± 0.73

Table 3. Correlations among factors affecting MNC in infection control

Items	MNC-IPC Total	Environment Factor	Personal Factor	Organizational Factor	Systemic Factor
MNC-IPC Total	1.00				
Environment Factor	r=0.262 *P*<0.001	1.00			
Personal Factor	r=0.223 *P*<0.001	r=0.350 *P*<0.001	1.00		
Organizational Factor	r=-0.021 *P*=0.710	r=0.252 *P*<0.001	r=0.130 *P*=0.023	1.00	
Systemic Factor	r=0.102 *P*=0.075	r=0.176 *P*=0.002	r=0.092 *P*=0.109	r=0.144 *P*=0.012	1.00

study focused specifically on assessing the prevalence of MNC using a dedicated tool for infection control and prevention, whereas previous studies generally examined MNC more broadly. The limited existing evidence necessitates further research and development in IPC practices. Most prior studies linking MNC with HAIs have primarily treated these outcomes as consequences of MNC occurrences. Few studies have directly addressed MNC-IPC, underscoring the pivotal role of MNC in infection development. For example, Nelson et al identified seven categories of MNC that are directly associated with an increased incidence of urinary tract infections among the elderly (16).

In this study, we utilized the MNC-IPC tool, initially developed by Sax et al This tool highlights various situations in which hand hygiene is particularly critical. The World Health Organization (WHO) also underscores the importance of hand hygiene in infection prevention through its "Five Moments for Hand Hygiene" framework (17). Hand hygiene remains one of the most effective measures to reduce infection transmission (18). Blackman et al identified handwashing as the most frequently missed aspect of midwifery care among Australian midwives (19). Variations in missed hand hygiene practices across hospital wards may be influenced by differences in staffing levels, patient acuity, and workload intensity. For instance, high-pressure environments, such as emergency departments, often experience understaffing and rapid patient turnover, which can compromise adherence to infection control protocols. In contrast, units with more stable staffing and lower patient flow may allow for better compliance.

Based on these findings, it is recommended that healthcare workers receive regular training on proper hand hygiene and the use of PPE. Assigning dedicated personnel to monitor compliance and provide ongoing feedback to clinical teams and infection control units may further enhance adherence. Involving patients in reminding staff about hand hygiene could also serve as an effective strategy.

In our study, the rate of MNC in IPC was found to be higher among nurses with infection control roles. Henderson et al attributed this finding to the greater awareness of national compliance rates among infection control nurses compared to their peers in other nursing roles (10). Bragadóttir et al reported a significant difference in the perception of MNC between Practical Nurses and Registered Nurses, with Registered Nurses indicating higher levels of missed care (14).

However, a qualitative study focusing on infection prevention revealed that respondents attributed MNC in this context to a lack of knowledge, inadequate application of existing knowledge, and insufficient understanding of guidelines (8). Given that surveillance systems are essential for reducing antimicrobial resistance and preventing infections (13), there is a pressing need to enhance nurses' awareness of the negative consequences associated with MNC-IPC.

To address these issues, nursing managers and administrators should assess the frequency and types of MNCs occurring within their units and develop targeted strategies to ensure safe and high-quality care processes in healthcare settings. Additionally, implementing regular and periodic educational programs on MNC-IPC can be an effective approach to raise awareness and improve compliance among nursing staff.

In our study, a significant correlation was identified between environmental and individual factors and the implementation of IPC measures in MNC-IPC. Similarly, findings by Wendt et al regarding infection prevention in home nursing care indicate that high workloads, solitary working conditions, and inadequate time allocation for knowledge transfer constitute significant barriers to adherence to guidelines (18). A review study conducted by researchers identified five key factors contributing to MNC-IPC: Workplace Environment, Nursing Care Context, Individual Nurse Factors, Managerial and Interprofessional Relationships, and Organization of Nursing Staff and Resources. Adams et al demonstrated that access to infection prevention resources is directly associated with adherence to these practices (20). It is evident that the timely execution of nursing care and appropriate time allocation are linked to reductions in hospital-acquired infections, wound infections, and bloodstream infections (21). Therefore, healthcare centers are encouraged to develop a knowledge infrastructure aimed at identifying and mitigating factors that influence MNC-IPC. Furthermore, monitoring the incidence and prevalence of HAIs is essential. Implementing changes in operational practices and reviewing infection prevention measures can serve as foundational steps toward

enhancing the quality of healthcare services.

Implications for Practice

Targeted training, environmental improvements, and the strategic involvement of infection control nurses are essential for minimizing MNC, enhancing patient safety, and reducing HAIs.

Limitations of the Study

This study has several limitations. The study design does not permit causal inferences between the research variables. Additionally, data collection relied on self-reporting through the MNC-IPC tool, which presents another limitation. Participants' concerns regarding potential repercussions for reporting missed care may have influenced their responses. It is recommended that future studies employ methodologies such as direct observation of staff adherence to infection control and prevention protocols, as well as the analysis of healthcare-associated infection rates and hospital-acquired infections.

Conclusion

The study offers valuable insights into the factors associated with MNC in IPC. By employing a validated and culturally adapted instrument, the research addresses a critical yet underexplored area within nursing practice. The results indicate that individual characteristics, environmental conditions, and organizational support significantly influence the delivery of infection-related care. Based on these findings, interventions such as targeted staff training, adequate resource allocation, and enhanced managerial support are recommended to mitigate missed care. Future studies should investigate the implementation and effectiveness of these strategies across diverse clinical settings.

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Competing Interests

The authors declare that there are no conflicts of interest to disclose.

Ethical Approval

Ethical approval was granted by the Ethics Committee at Arak University of Medical Sciences, under the approval number IR.ARAKMU.REC.1401.086. Prior to participation, all individuals were informed of the study's objectives and provided their informed consent by signing a consent form. Participants were assured that all collected data would be treated as anonymous and confidential, and they were informed of their right to withdraw from the study at any stage should they choose to do so.

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