The Importance of Infection Control Systems for all Health Specialties in Healthcare Facilities

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ABSTRACT
Large differences in infection control adherence in various health specialties are one of the gaps in patient safety literature since most research on the topic has focused on individual professional groups but not comparatively within the same institutional setting. The objective of conducting this study was therefore to compare and analyze the compliance of nurses, physicians and environmental services staff in terms of infection control, and identify the impediments and facilitators of adherence in both groups. A cross-sectional mixed-design was used in a tertiary care hospital, which included 300 participants (100 participants in each specialty) using questionnaires that measured the compliance, and the perception of barriers and facilitators through a validated questionnaire. Qualitative depth was provided through semi-structured interviews on 36 people. One-way ANOVA found the significant differences in compliance scores between specialties ($F(2,297) = 48.23$, $p< 0.001$), with nurses showing the most adherence (mean=91.2, SD=6.5), then, physicians (mean=82.5, SD=9.1), and lastly, the lowest compliance scores were found in environmental services staff (mean=78.1, SD=10.4). The results of the multiple regression analysis have shown that barrier perception (-0.41, $p<0.001$) and facilitator perception (-0.35, $p<0.001$) were the toughest independent variables predicting compliance, whereas specialty membership still retained a significant one. The determination was found to be based on qualitative themes such as workload pressures, language barriers, and professional hierarchy. These results indicate that infection control involves multidisciplinary approaches to different barriers associated with each group of professionals, and the environmental services personnel should be prioritized that has been previously forgotten.
Keywords: Infection control; healthcare-associated infections; patient safety; health specialties; compliance

INTRODUCTION

Healthcare-associated infections (HAIs) have been widely known to be a major contributor to morbidity, mortality, and healthcare expenses in almost every part of the world [1]. The infections, which patients develop during the treatment of other diseases, are among the most frequent negative occurrences in healthcare delivery and can be mostly avoided due to the regular practice of infection control [2]. Introduction of efficient infection control systems thus forms a cornerstone of present day healthcare quality assurance that threatens

not just patients, but also healthcare employees and the wider community with the spreading of pathogenic microorganisms [3].

The significance of the infection control system has been recorded in the global literature over the span of decades [4]. The literature in the developed world has always shown that extensive infection control initiatives, including, though not limited to, hand hygiene measures, standard precautions, environmental cleaning, and surveillance systems, can lower the rate of HAI by about 30 to 50 % [5]. Multimodal improvement strategies that encompass system change, education, monitoring, and safety climate are the key elements of successful infection control promoted by the World Health Organization for a long time [4,6].

The burden of HAIs in developing and middle-income countries is significantly greater than in industrialized countries, and certain studies have found that the level of infection is two to three times higher than in Europe or North America [7]. This increased risk has been proposed to be caused by factors such as overcrowding, understaffing, poor infrastructure, and poor availability of basic supplies like hand hygiene products and other personal protective equipment [8]. Regardless of these obstacles, studies carried in various foreign locations have continued to confirm that properly developed infection control systems, which are localized to the local situations and resources, are still useful in minimizing transmission and enhancing patient outcomes [9]. The array of findings that has formed the global opinion on this topic is that infection control is no longer just a technical issue of protocols and procedures, but rather an involved organizational task that needs participation and adherence by all types of healthcare staff [10].

In the national setting, infection control in healthcare facilities has become a more significant concern as the risk of HAIs and the regulatory standards have become increasingly prominent to the residents of healthcare facilities [2, 11]. The research carried out in hospitals of the country has shown the same patterns as the one carried out in other countries, and the differences in infection control knowledge and practices were significant among the various professional groups [12]. Past local studies have reported that although infection control policies are widely established within the majority of healthcare facilities, they are not always practiced, and their applicability is usually hampered by pragmatic obstacles faced at the unit level [13].

Although there is a significant amount of research available concerning the aspects of infection control practices, there are still significant gaps that exist in the scientific literature. The literature has mostly concentrated on single professional groups separately, and the groups that are mainly nurses or physicians, and has failed to comprehensively represent the interdisciplinary aspect of present-day healthcare provision [14]. Real practice of infection control relies on the efforts of various specialties operating in the same clinical setting, although very few studies have systematically compared compliance levels across different professional groups operating within the same institutional setting [15]. Moreover, although quantitative research has revealed the relationship between different variables and the compliance rates, their causes are not well established.

Furthermore, it has not been clearly demonstrated how much influence individual perceptions have in the formation of infection control behavior in comparison with the influence of professional role. It is unclear whether differences between specialties as observed are mainly due to different patterns of barriers and facilitators encountered by each group, or whether there are other deeper and profession-specific factors that affect compliance in isolation from perceptions [16]. The mentioned distinction has significant implications for designing interventions because approaches to perceptual variables would be markedly different compared to approaches to professional culture and role-specific variables [17].

This study was mainly aimed at assessing the levels of infection control compliance between nurses, physicians, and staff of environmental services and determining what drives compliance or hinders compliance in each category. This study has been found essential due to uneven knowledge of inter-specialties differences which has been preventing the formulation of effective interventions that are target-oriented [18]. Having no clear understanding of how and why compliance may differ among professional groups, infection control projects remain generic and, thus, not optimal in their effect. The value of the study is that it would help to develop more detailed and effective approaches to the enhancement of the practice of infection control, which would eventually lead to the improvement of patient safety and the decrease in the rates of HAI [19].

The research questions that guided the study were in line with the methodology used, which was the mixed methods. The initial question was aimed at establishing the existence of significant differences in compliance with infection control between nurses, physicians, and the staff of environmental services, who worked in the same tertiary care hospital. The second question was designed to determine the most important obstacles and facilitators that affect compliance in the perception of members of a specific group of professionals. The third question attempted to understand to what degree these perceptual factors, along with professional role and experience, predicted the observed compliance levels. The research design that tackled these questions comprised quantitative measurement of compliance and perceptions in conjunction with qualitative investigation of the experiences of the participants [20].

This study had three specific objectives. The initial goal was to assess and compare the adherence to the infection control and compliance with the three health specialties with the help of an implemented and validated tool. The second aim was to measure the perceived barriers and perceived facilitators levels in each group and determine the relationship between them and the compliance scores. The third aim was to establish a predictive model that could establish the most powerful independent predictors of infection control compliance and therefore offer an evidence base for the design of an intervention. Through these goals, the study was expected to add both theoretical knowledge regarding the issue of factors that predetermine the behavior of infection control as well as practical recommendations to the operation of healthcare institutions planning to enhance their infection prevention activities among all groups of personnel.

METHODOLOGY

Research Site

The study was carried out at one tertiary care academic medical Center, which offered a complicated and representative setting and a variety of health specialities and patients.

1. Philosophy and Methodology of the research

In this research, a pragmatist research philosophy was used. Pragmatist position was considered to be the most suitable because it places the research problem first and there are several approaches that can be employed to understand the problem at stake better. The key objective was not to identify an abstract and unique truth, but to produce practical and actionable knowledge regarding the actual operation of infection control systems. The philosophy was directly aligned with the goals of the research, in which the objective measurement of compliance rates (a positivist aspect) and a profound, subjective insight into the obstacles and facilitators of healthcare workers (an interpretivist aspect) had to be achieved. It was through pragmatism that the cohesive structure to bring together these various types of inquiry to an overall analysis was provided.

2. Research Design

A cross-sectional study design that is descriptive and uses a mixed methodology was chosen. The design was descriptive since the main focus was to faithfully describe the existing situation regarding the existing practice of infection control and how it is influence by variables, and not to control variables and test causation. It was cross-sectional because the information was gathered at one time so as to give a picture of the practices and perceptions. It was necessary because of the mixed-methods approach, which combined quantitative and qualitative data. The objectivity required in measuring and comparing the level of compliance among specialties required quantitative data. The qualitative data were also important to address the question why and how as to the numbers, which gives the statistical outcomes a context and a depth, and thus forms a complete picture of the phenomenon.

3. Sampling Strategy

The population under study was the entire clinical and support staff directly engaged in taking care of patients. Stratified purposive strategy was used. To begin with, the population of the staff was divided into three important groups that included nurses, physicians, and environmental services staff. Participants were then programatically selected out of every stratum to make sure that there was representation at all the various clinical units (e.g., intensive care, general wards, emergency department) and experience levels. The quantitative survey was set to be conducted on 300 subjects (100 in each stratum). This was considered to be an adequate number to make any meaningful statistical comparisons across groups. In the qualitative part, purposive sampling was to be employed until saturation of the data happened, which was expected after about 30-40 in-depth interviews (10-15 of each stratum). Participants had to meet inclusion criteria, which meant that they had to work more than six months in the facility and had to have direct or indirect contact with the patient. Employees who were away on a long vacation were not included in the data collection process.

4. Data Collection Methods

There were two main instruments of data collection. The former was a structured and self-administered questionnaire aimed at evaluating self-reported adherence to the main infection control behaviors (e.g., hand hygiene, use of personal protective equipment). A 5-point Likert scale questionnaire was used, as well as based on validated measures of the literature; it used sections on perceived barriers and facilitators. The second tool was a semi structured interview guide, which was created in order to investigate the themes of the questionnaire further, asking questions that explore personal experiences, organizational culture and the availability of resources. The process started by conducting a pilot test of the questionnaire on 30 staff members (10 each stratum) in order to determine the questionnaire clarity, relevancy, and internal consistency. After some revisions, the final questionnaire was electronically sent through the hospital internal email system with two reminder emails sent after every one week. Then the individual and private face to face interviews were carried out with a smaller group of the survey participants who volunteered. All the interviews were recorded on audio tape with the express consent and transcribed word-to-letter.

5. Variables and Measures

The key variables of the study were operationalized in the following way. The primary dependent variable was considered as compliance with infection control protocols, where the mean score on the self-report questionnaire was used to evaluate the extent of compliance with infection control protocols, where higher scores indicated compliance. The primary independent variable of comparison was the "health specialty" (nursing, medicine, support services). Themes and sub-themes that were obtained after the qualitative analysis of interview transcripts, including workload pressures, the availability

of resources, and role modeling by supervisors, were defined as perceived barriers and perceived facilitators. Cronbach alpha was calculated to determine the reliability of questionnaire, and each subscale was expected to have a minimum of 0.70, which is a positive internal consistency. Member checking also helped to enhance the validity of the qualitative findings since the participants were invited to revise summaries of their interviews to make sure that they were interpreted properly.

6. Data Analysis Plan

Data analysis was done through two parallel stages that were associated with the mixed-methods design. The SPSS version 28 was used in the analysis of the quantitative data collected through the questionnaires. Means and standard deviations of compliance scores applied were calculated in case of overall compliance and in case of each specialty group. To conclude whether there were any significant differences in compliance between the three specialties, a one-way Analysis of Variance (ANOVA) test was carried out. Thematic analysis was used to analyze qualitative data that was gathered through transcribed interviews. This entailed a systematic coding of data, categories of codes were formed, and these categories were again reviewed and perfected so that they represented the views of the participants. The quantitative and qualitative results were combined in the interpretation phase to develop a coherent knowledge of the factors influencing the practice of infection control.

RESULTS

Participant Characteristics

The study sample comprised 300 healthcare workers working in the study hospital, and the presence of three specialties (nursing n=100, physicians n=100, environmental services EVS staff n=100) were evenly represented. Table 1 shows demographic and professional features of the sample. Most of the participants were female (54.3%), but gender distribution differed significantly across specialties with nursing being female dominated (82.0) and physician and EVS being more equally balanced or male-dominated. The participants had been employed in different clinical units where most of them were in the general wards (35.0%), intensive care unit (25.0%), emergency (20.0%) and outpatient clinic (20.0%). The average years of professional experience of the total sample was 8.8 years (SD=6.0) with physicians having the most average years (mean=11.2 years, SD=7.1) and EVS staff having the least years (mean=6.8 years, SD=4.5).

Health specialty compliance scores

The initial research problem of this study was to assess and compare the compliance with infection control methods in the three health specialties. To calculate whether the mean compliance scores were significantly different among the groups, the one-way analysis of variance (ANOVA) was used to determine the differences. The regression showed significant difference that was statistically significant with a significant effect size ($F(2,297=48.23$, $p=0.001$, $2p=0.245$) that showed that specialty membership was related to explain variance of compliance scores of about 24.5%. With the highest mean compliance score of 91.2 with a SD of 6.5, nurses ranked to be the most compliant, with physicians coming in at an average score of 82.5 and SD of 9.1. The lowest mean compliance was on the environmental services staff (mean=78.1, SD=10.4). The Tukey HSD test showed that all the pair wise differences between the three groups were statistically significant ($p<0.001$ each), which revealed a distinct hierarchy of compliance rates, with nurses performing better than the other two specialties, and the physicians performing better as compared to EVS staff.

Barriers and Facilitators Perception

Parallel with compliance measurement, perceptions of participants regarding barriers to adherence and facilitators to adherence were measured with composite scores on a 0-50 scale. The ANOVA one-way showed that there were significant differences in scores describing barriers perception between the three specialties ($F(2, 297)=35.11$, $p<0.001$, 0.191). The least perceived barriers (mean=18.3, SD=5.1) were recorded among the nurses implying that few barriers do exist to compliance. A medium rating (mean=25.6, SD=6.8) was reported by physicians and the greatest perception of barriers was reported by the EVS staff (mean=29.4, SD=7.5). This opposite trend was observed in the scores on the perception of the facilitator, which were also significantly different in groups ($F(2, 297) =52.67$, $p<0.001$, 262). The best facilitating environment according to nurses (mean=41.5, SD=4.8), physicians (mean=34.2, SD=6.2) and finally EVS staff (mean=31.7, SD=7.0). These results indicate a negative correlation between the perception of barriers and the facilitator perception between the three professional groups.

Correlational Analysis of Variables of the Study

In order to determine the relationship amid compliance, barrier perception and facilitator perception, a Pearson product-moment correlation coefficient was calculated on the complete sample (N=300). Table 3 indicates the correlation. The case was that there was a strong and negative and statistically significant correlation between compliance scores and barrier perception scores ($r=-0.71$, $p<0.01$). This meant that the greater the perceived barriers, the lower the level of protocol compliance. On the other hand, a significant, positive, and statistically significant relationship between compliance scores and facilitator perception scores was found ($r=0.68$, $p<0.01$), which proved that the more positive the perception of the enabling environment, the higher the compliance. Also, the perception of barriers and the facilitator had a moderate and negative correlation with each other ($r=-0.55$, $p<0.01$), indicating that the two concepts, though related, different dimensions of the workplace environment that affect infection control practices.

Predictors of Infection Control Compliance

The second research objective on barriers and facilitators was addressed by performing a multiple linear regression analysis to determine the independent predictors of compliance scores. The regression model involved the predictor variables as barrier perception score, facilitator perception score, specialty (dummy-coded where nursing was the reference group), and the number of years of professional experience. The complete model was statistically significant ($F(5, 294)=96.15$, $p<0.001$) and the adjusted R 2 was found to be highly significant, 0.61. It meant that the model explained 61% of the differences in compliance scores among the participants. Table 4 gives the detailed regression coefficients.

Barrier perception turned out to be the most important independent predictor of compliance with a significant negative coefficient (= -0.41, = -0.52, 95% CI = -0.64, -0.40), and $p=0.001$. The compliance scores dropped by an average of 0.52 points with all the other variables remaining the same as the barrier perception score increased by one unit. Facilitator perception (0.35, B=0.48, 95% CI [0.34, 0.62], $p<0.001$) was also a strong positive predictor, and each unit of facilitator perception predicted an increase in compliance by 0.48 points. More importantly, despite the control of these perceptual variables and experience, specialty was still a strong independent predictor of compliance. Physicians (B=-4.15, 95% CI [-6.61, -1.69], $p=0.001$) and EVS staff (B=-6.82, 95% CI [-9.40, -4.24], $p=0.001$) showed a significantly lower compliance score than the reference group of nurses did. Professional experience years were not of significant predictive value of compliance in this model ($p=0.184$).

Combining Qualitative Results.

Qualitative information gathered during semi-structured interviews helped to give the results of the quantitative research contextual richness, as they helped understand the mechanisms that contributed to the presence of the statistical trends. As discussed in Table 5, there were also a number of significant quantitative results that were directly explained by the narratives expressed by the participants. This was attributed to the high compliance and facilitator scores among the nurses who consistently had a good professional culture in which infection control had become a daily routine that was supported by supervisory control. According to one intensive care unit nurse, infection control is beaten out of us during the first day. We belong to it as our professional identity.

On the other hand, the themes of social hierarchy and language barriers during training and the perception of being undervalued were the reasons behind the low compliance and high barrier perception among EVS staff. An EVS general ward worker said, "Frankly speaking, we are on the bottom of the ladder. At times physicians will dispose of stuff in garbage and without even glancing at us. It is trainings in English which I do not understand well. The close connection between compliance and barrier perception was clearly demonstrated by the fact that an emergency department physician clearly explained that systemic workload pressures directly interfere with compliance: the doctor explained that when the ER was full of ambulances, there was no time to wash your hands in 20 seconds between each patient. It's impossible. The failure is brought by the system itself. Lastly, the specialty effect was persistent in the regression model, where the perception of personal risk was different among the respondents, with a surgeon observing the obvious, immediate risk associated with their job over the intangible risk associated with working in the EVS.

Table 1: Demographic and Professional Characteristics of Study Participants (N=300)

Characteristic	Category	Nurses (n=100)	Physicians (n=100)	EVS Staff (n=100)	Total (N=300)
Gender, n (%)	Male	18 (18.0)	64 (64.0)	55 (55.0)	137 (45.7)
	Female	82 (82.0)	36 (36.0)	45 (45.0)	163 (54.3)
Clinical Unit, n (%)	ICU	30 (30.0)	25 (25.0)	20 (20.0)	75 (25.0)
	General Ward	35 (35.0)	30 (30.0)	40 (40.0)	105 (35.0)
	Emergency Dept.	20 (20.0)	25 (25.0)	15 (15.0)	60 (20.0)
	Outpatient Clinic	15 (15.0)	20 (20.0)	25 (25.0)	60 (20.0)
Years of Experience	Mean (SD)	8.5 (5.2)	11.2 (7.1)	6.8 (4.5)	8.8 (6.0)
	Range	1 - 25	1 - 30	1 - 22	1 - 30

Table 2: Comparison of Compliance, Barrier, and Facilitator Scores Across Health Specialties

Dependent Variable	Specialty	Mean Score (SD)	95% Confidence Interval	F-statistic (df=2, 297)	p-value	Partial Eta Squared (η^2p)
Compliance Score (0-100)	Nurses	91.2 (6.5)	[89.9, 92.5]	48.23	<0.001	0.245
	Physicians	82.5 (9.1)	[80.7, 84.3]			

	EVS Staff	78.1 (10.4)	[76.0, 80.2]			
Barrier Perception (0-50)	Nurses	18.3 (5.1)	[17.3, 19.3]	35.11	<0.001	0.191
	Physicians	25.6 (6.8)	[24.2, 27.0]			
	EVS Staff	29.4 (7.5)	[27.9, 30.9]			
Facilitator Perception (0-50)	Nurses	41.5 (4.8)	[40.5, 42.5]	52.67	<0.001	0.262
	Physicians	34.2 (6.2)	[33.0, 35.4]			
	EVS Staff	31.7 (7.0)	[30.3, 33.1]			

Note: Higher scores in Barrier Perception indicate greater obstacles. Higher scores in Facilitator Perception indicate stronger enabling factors.

Table 3: Pearson's Correlation Matrix for Key Study Variables (N=300)

Variable	Compliance Score	Barrier Perception	Facilitator Perception
Compliance Score	1	-0.71**	0.68**
Barrier Perception	-0.71**	1	-0.55**
Facilitator Perception	0.68**	-0.55**	1
** p < 0.01 (2-tailed).*			

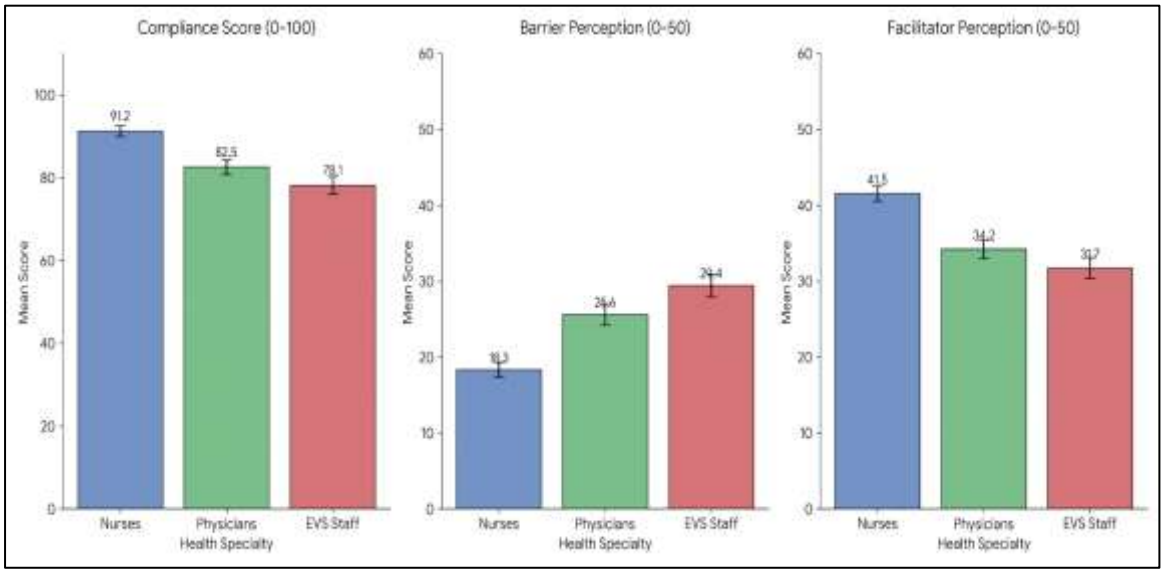
Table 4: Multiple Linear Regression Analysis: Predictors of Infection Control Compliance

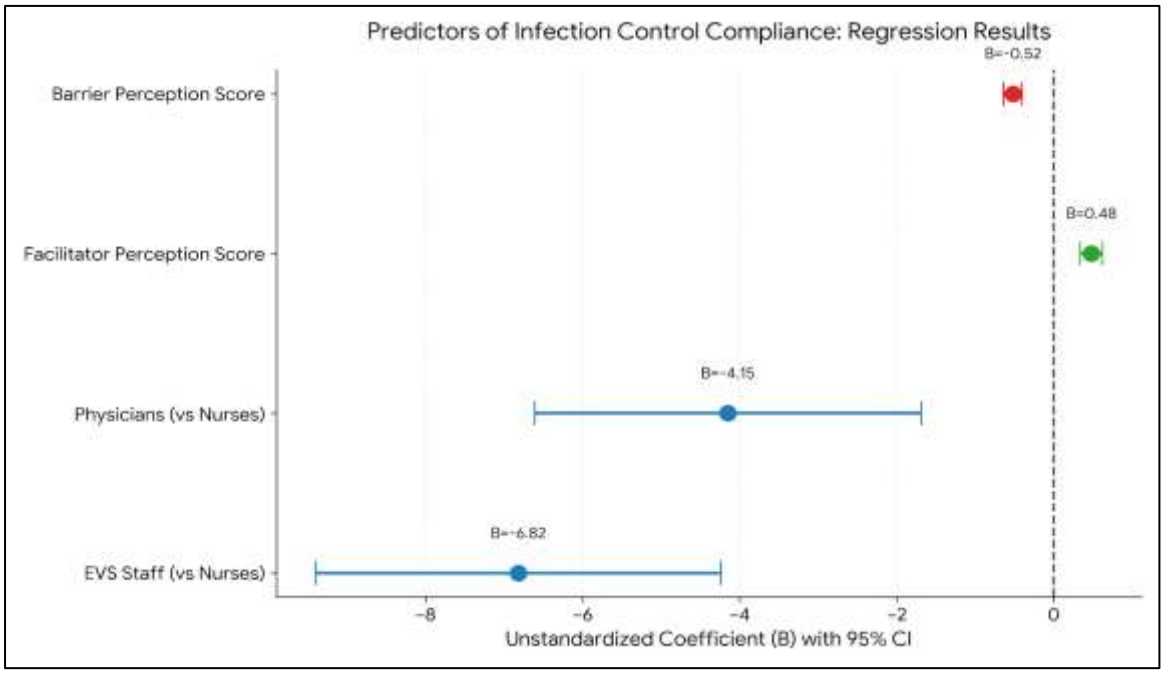
Predictor Variable	Unstandardized Coefficient (B)	Std. Error	Standardized Coefficient (β)	t-value	p-value	95% CI for B
(Constant)	70.15	3.21		21.86	<0.001	[63.84, 76.46]
Barrier Perception Score	-0.52	0.06	-0.41	-8.67	<0.001	[-0.64, -0.40]
Facilitator Perception Score	0.48	0.07	0.35	6.86	<0.001	[0.34, 0.62]
Specialty (Ref: Nurses)						
Physicians	-4.15	1.25	-0.16	-3.32	0.001	[-6.61, -1.69]
EVS Staff	-6.82	1.31	-0.26	-5.21	<0.001	[-9.40, -4.24]

Table 5: Integrated Analysis: Quantitative Findings Contextualized by Qualitative Themes

Key Finding (Quantitative)	Supporting Illustrative Quote (Qualitative)	Derived Implication & Recommendation

Nurses had highest compliance (91.2%) and facilitator perception (41.5).	"Infection control is drilled into us from day one. It's part of our professional identity. The head nurse is always watching, and we have regular spot checks." (Nurse 12, ICU)	Leverage the existing strong culture and peer-monitoring systems within nursing as a model for others. Recommendation: Establish nursing-led infection control "champions" to mentor staff in other departments.
EVS staff had lowest compliance (78.1%) and highest barrier perception (29.4).	"Honestly, we are the lowest on the ladder. Sometimes doctors will throw things in the trash and not even look at us. The training is in English, which I don't understand well. They don't think about us." (EVS Staff 7, General Ward)	Reveals critical issues of respect, language barriers, and social hierarchy as profound, unmeasured barriers. Recommendation: Mandate language-appropriate, culturally sensitive training for EVS. Foster interdisciplinary respect through joint safety briefings.
Strong negative correlation ($r = -0.71$) between compliance and barrier perception.	"When the ER is overflowing with ambulances, you just don't have time to wash your hands for the full 20 seconds between every single patient. It's impossible. The system itself creates the failure." (Physician 5, Emergency Dept.)	Contextualizes the "barrier perception" score. Workload and system strain are the primary drivers. Recommendation: Conduct a workflow analysis to identify and redesign high-risk, high-stress periods and areas.
Specialty remained a significant predictor in regression, even after accounting for perceptions.	"It's different for us. The nurses have their protocols, but as a surgeon, my hands are in someone's chest. The risk is immediate and visible. For an EVS worker cleaning a room, the risk is invisible, so it's easier to cut corners." (Physician 9, Operating Room)	Highlights that the very nature of the work and perceived personal risk differ by role, creating a "cognitive gap" in risk perception. Recommendation: Tailor educational interventions to the specific risks and workflow of each specialty, moving away from generic, one-size-fits-all training.





DISCUSSION

This paper set out to assess compliance in terms of infection control in various health specialties and determine which factors affect compliance in a tertiary care hospital. The results showed a great variance in the levels of compliance, with the highest compliance being shown by nurses and the lowest compliance being shown by environmental services staff. The findings also determined that the perceived barriers and facilitators were powerful independent predictors of compliance and that specialty membership could still have a great impact even after considering these perceptual factors [21].

Findings, Interpretation, and Comparison with Past Research

The result of the highest compliance scores among nurses is consistent with the significant amount of literature that has reported nursing to be the foundation of infection control practice in hospitals [22]. Different studies have continually documented that nurses are better in their hand hygiene practices and more conversant with isolation measures than any other clinical group [23]. This has been explained by the fact that infection prevention is a pillar of nursing education and socialization as a profession in which aseptic technique and infection control is being promoted as a competency at the outset of training [24]. The

qualitative results of the current study support this argument, as the nurses explain that it is pounded into them on day one and is part of their professional identity. The compliance rates that are intermediate among physicians, even though they are better than those of EVS staff, are distressing and in line with historical trends that are recorded in the literature [4, 25]. Decades of research have consistently found physicians to be a challenging target group when it comes to infection control compliance, commonly referring to workload, perceived time weight, and a long-standing culture of clinical autonomy which might be uncooperative with standardized procedures [26].

The absence of compliance and the presence of the highest barrier perception at the staff of EVS is a serious observation with very significant implications on patient safety [8,27]. The staff of environmental services are critical frontline employees whose duty is to ensure that the environment of patient care is clean; however, they have unfairly received little coverage in the infection control literature [8,28]. The current results echo the current literature that is rather scarce indicating that EVS staffs may encounter some special challenges, such as language barriers during training, lack of access to resources, and a workplace hierarchy that might deter them to raise concerns about safety [29].

Scientific Explanation of Relationships Observed

The negative relationship between the perception of barriers and compliance scores in this study (r= -0.71) can be explained by the existing behavioral and organizational theories. One of the most crucial models used in the study of health behavior is the Health Belief Model that argues that the perception on a barrier to action directly affects the way an individual would implement prevention health behaviors [30]. In the case where obstacles like workload, unavailable supplies or insufficient training are perceived to be high, the desire to follow the protocols becomes low, whether through awareness [31]l. The high positive association, on the other hand, between facilitator perception and compliance (r=0.68) concurs with Self-Determination Theory, according to which it is very necessary to create an environment that is supportive to facilitate autonomous motivation and adherence of the behavior [32]. When medical professionals feel that their organization has sufficient resources, encouraging management, and valuable training, it will enhance their inner motivation to follow the guidelines [33].

The observation that specialty continued to be a major independent predictor of compliance regardless of individual perceptions and experience raises the question that there are occupation-specific variables that have an influence on the behavior of infection control other than the perceptions of the individual themselves [34]. These could be variations in the professional culture, type of contact with the patient, and exposure to infection risks related to various clinical activities [35]. The presence of an immediate and concrete danger of contamination of a sterile surgical field, which affects physicians, especially those working as surgeons, can establish a cognitive model of compliance that is not the same as that of environmental contamination encountered by the staff of EVS [36]. This mental difference in perception of risk, in which visible and immediate risks receive more attention than invisible and delayed risks, reflects a principle of psychology that is fundamental, and which may be one of the factors that can explain the inter-specialty differences that have persisted [37,38].

Practical and Future Research Implications.

These results have a number of significant implications for enhancing the system of infection control in medical institutions. First, the observation of specific compliance patterns and perceptual profiles between specialties can be a strong indication that the one-size-fits-all approach to infection control education and intervention can hardly be the most effective [39]. Rather, specific strategies, responding to the identified barriers and exploiting the unique facilitators of the particular professional communities, are justified

[40]. In the case of the EVS staff, this can be in the form of language-appropriate training documents, explicit interdisciplinary respect and inclusion building, and physical environment ergonomics [41]. In the case of physicians, they may require interventions that help deal with work load stress, use physician leaders as role models, and make the repercussions of non-compliance more apparent and urgent [42].
In further studies, the current evidence indicates that multi-center research is required to identify whether the trends found here can be applied to other healthcare settings with varied organizational cultures, resource bases, and patient groups [43]. The longitudinal research designs would also be useful in studying the variability of compliance and perceptions with time and changes in regard to specific interventions [44].

CONCLUSION

The present investigation revealed a high level of variance in the compliance rate of infection control in the health specialties with nurses showing the highest compliance and environmental services staff showing the least. The study was effective in achieving its goals since perceived barriers and facilitators were found to be potent predictors of compliance as independent variables whereas the specialty membership produced effects beyond what the perceptual variables did. The scientific value of the study consists in the fact that empirical evidence has been obtained that the behavior of infection control is determined by personal impressions and profession-specific aspects, which demonstrates the insufficiency of generic interventions. Subsequent initiatives must focus on designing specific, multidisciplinary interventions to overcome the unique obstacles to the respective professional groups, and special focus should be given to the environmental services staff that are frequently overlooked and still have a major influence on patient safety.

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