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*Research Article*

# Infection prevention and control practices among healthcare providers in level 1 hospitals in Rinconada

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**ABSTRACT**

Hospital-associated infections (HAIs) pose a serious problem, threatening the health and safety of patients and healthcare providers and causing substantial morbidity and mortality every year in different healthcare settings worldwide. Despite the known risk, and the ease and transparency of infection prevention and control guidelines, still, non-adherence is observed. The descriptive correlational method was used involving a questionnaire as the main instrument in data gathering. To determine the infection prevention and control practices among healthcare providers in Level I hospitals in Rinconada. The majority of the respondents are within the age range of 26 – 35; females and nurses. However, only a few of them have undergone formal continuing education and attended relevant training on IPC. Healthcare providers always practice all components of infection prevention and control along with standard precautions, namely, hand hygiene, use of PPE, and prevention of needlesticks and sharp injuries. Overall, organizational factors significantly affect healthcare providers' infection prevention and control practices compared to the individual factors that affect them moderately. The healthcare providers' age, sex, profession, and profile influence the infection prevention and control practices in Level I hospitals in Rinconada. There are good infection prevention and control practices among healthcare providers though they sometimes fail to follow specific measures.

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## INTRODUCTION

Provides more details about the paper's rationale, motivation, significance, scope and limitations, and the setting of the study. Both the Abstract and Introduction should be relatively nontechnical yet clear enough for an informed reader to understand the manuscript's contribution. Health is considered to be perceived individually, but there is always objective evidence of health and well-being among individuals. It is seen in one's physical and emotional state; in the absence of infections, diseases, and illnesses; in one's capacity to adjust and adapt to changes and life events.

Good health depends partly on a safe environment and specific practices or techniques that control or prevent transmission of infection which help to protect individuals – especially patients and healthcare workers – from disease. Healthcare providers consider health both a concern and a goal for every patient. Thus, it is a prime concern to provide a clean and safe environment for every patient in the hospital.

Nosocomial infection (hospital-acquired infection) at present is recognized as a major problem for healthcare workers since it is associated with increased morbidity and mortality, especially in developing countries (Vergeire-Dalmacion, Rafols, & Baja, 2016). It is the most common complication of hospital care, occurring in approximately 1 in every 10 patients while receiving care (World Health Organization, 2011). This infection affects the quality of medical care and increases medical care costs. Although medical knowledge and public health have advanced a lot over the past years, new or emerging infections and healthcare-associated infections (HAIs) are important issues for contemporary healthcare. As the emergence of novel infectious diseases and their ability for cross-infection has escalated, the healthcare community has been challenged by an increased risk of exposure to infectious diseases (Liu, 2013).

Hospital-associated infections (HAIs) are infections that arise within the hospital environment. They pose a serious problem, threatening the health and safety of patients and healthcare workers, and cause considerable morbidity and mortality annually in different healthcare settings worldwide. According to the World Health Organization, out of every 100 in-patients at any given time, 10 in developing and 7 in developed countries will acquire at least one healthcare-associated infection. And at any given time, the prevalence of HAI varies between 5.7% and 19.1% in low- and middle-income countries. Moreover, HAIs account for an estimated 1.7 million infections and 99,000 associated deaths each year in American hospitals alone, as reported by the Centers for Disease Control (CDC). Leading among these healthcare-acquired infections is the urinary tract infections (32%); followed by surgical site infections (22%); then pneumonia (lung infections) (15%), and bloodstream infections (14%) (Patient Care Link, 2019).

Conversely, in the Philippine setting, of the 51 DOH general hospitals, 37% had a 0.0% infection and 63% had a net infection rate below 1%. The net infection rate reflects hospital-acquired infection that occurred beyond 72 hours during the hospital stay and the ideal rate is 0.0% (Bontile, 2013). The overall HAI prevalence among 30,032 pediatric patients at risk for HAIs and admitted to Philippine General Hospital from January 2011 to December 2014 was 11.37% (9.14% - 13.65%) which is comparable to those seen in developing countries (Garcia, Makalinaw, & Manipon, 2015). Meanwhile, one hospital in Albay reported a net infection rate of 2.00 % (Gogola, 2010). And in Rinconada, it was noted that the most common nosocomial infection in one of the private hospitals in the district was catheter-associated infection followed by ventilator-associated pneumonia and reported a net infection rate of 4.79%. And an increase in antimicrobial resistance (Villanueva & Zapanta, 2022)

At present time, the coronavirus disease 2019 (COVID-19) pandemic has drastically overburdened the healthcare systems globally. According to the International Council of Nurses (ICN), there are about 230,000 health workers who have contracted the novel coronavirus globally. On the other hand, the healthcare workers infected with coronavirus now in the Philippines are 2,606 as reported by the Department of Health. And as of August 2020, the total number of COVID-19 cases worldwide has already reached about 22 million (NDRRMC, 2020). This widespread transmission would overwhelm the capacity of healthcare facilities, and access to specialized services particularly in densely populated areas (Villanueva, Surtida, & Sabando, 2022)

Considering these dreadful statistics, there is a vast necessity for improving infection control in healthcare facilities. The emergence of life-threatening infections and re-emerging infections have highlighted the need for a well-organized infection prevention and control program implementation in all healthcare settings and competence building for healthcare workers. And it is, therefore, necessary for all healthcare workers to strictly adhere to the infection prevention and control guidelines to provide a safe environment, and effective care and maintain patients' health; most importantly to those who are in areas with limited resources, like rural hospitals, since they are the one who faced special challenges when it comes to infection control practices and the most serious consequences attributable to this, is that mortality can range from 3 to 75.1% (Victor, 2019).

To address this serious healthcare related problem, certain policies and guidelines were mandated by the different agencies throughout the world in order to safeguard the welfare and safety of the HCW and most importantly the patients: to wit: the Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Healthcare Facility Level which aims to strengthen member states' capacity to develop and implement successful technical solutions and behavior modifying interventions on Infection Prevention and Control, and the Minimum Requirements for Infection Prevention and Control (IPC) Programmes which represent the starting point for undertaking the journey to build strong and effective IPC programs at the national and facility level, both issued by the World Health Organization on November 2019 and November 2016 respectively; and in the Philippines, the Department of Health issued a revised edition of the National Standards on Infection Control for Healthcare Facilities last 2009 which aims to strengthen the infection control programs nationwide to enhance preparedness of the healthcare workers to be able to respond to the threats of outbreaks of highly transmissible infectious diseases and more importantly, to prevent and reduce occurrence of healthcare-associated infections among patients, and the Administrative Order No. 2016-002: National Policy on Infection Prevention and Control in Healthcare Facilities enabling all healthcare facilities to implement IPC in mandatory considering the development and spread of antimicrobial resistant organisms and the emergence of new infectious agents.

During the COVID-19 pandemic, these health agencies had been formulated, issued, and continuously updated the infection prevention and control recommendations and guidelines during healthcare to help combat and mitigate the spread of this infection. Even locally, the Philippine Government through the Inter-Agency Task Force chaired by the Department of Health set policies, resolutions, and guidelines for the Management of Emerging Infectious Diseases that include minimum infection prevention and control measures, such as the use of facemasks and face shields, frequent hand hygiene, and the like, which help to prevent the wide-spread transmission of COVID-19 infection. Furthermore, the Department of Interior and Local Government (DILG) issued Memorandum Circular No. 2020-18 entitled Guides to Action Against "Coronavirus" to enjoin all local government units to effectively intensify information education campaign against Coronavirus and implements program, projects, and services that will promote the health and well-being of every Filipino (DILG, 2020).

The significance of having in-depth knowledge of infection control principles cannot be overemphasized. Clients entering a certain healthcare facility are at the risk of acquiring nosocomial infection because of a decreased immune response, either as a result of the client's underlying disease or as a result of a specific treatment. Other factors may include increased exposure to vast numbers and types of disease-causing microorganisms and certain invasive procedures to be done. Infection prevention and control programs are designed to avert the spread of infection from patients, healthcare providers, or significant others, and are vital in every procedure the professional performs. Therefore, the healthcare provider shall be the first line of defense against the transmission of diseases. (Hoffman, Harland, & Warren, 2012).

Healthcare providers play a significant role in ensuring that appropriate practices are in place to meet the infection control standards of their institution. Therefore, competency in infection control is a crucial component for implementing the best practice for them to ensure patient safety and provide high-quality care (Liu, 2013). Moreover, knowledge of the basic principles of infection prevention and control will enable healthcare providers to apply them to various hospital policies and procedures. Identifying the problems in the implementation of these practices and looking for solutions could help the staff improve their delivery of services to the patients. The World Health Organization and other health agencies had formulated, devised, and issued a set of guidelines and policies to prevent exposure and minimize – or even eradicate – nosocomial infections; unfortunately, despite the simplicity and clarity of these guidelines, compliance among healthcare providers is reported to be low. Notwithstanding, a high incidence of occupational exposure to microorganisms is observed among all healthcare professionals. (Efstathiou, Papastavrou, Raftopoulos & Merkouris, 2011). As a future physician, the researcher is aware that healthcare providers are often exposed to a variety of microorganisms that cause serious or even life-threatening diseases. Despite the known risk and the ease and transparency of infection prevention and control guidelines, still, non-adherence is observed.

## Objectives

This study aimed to determine the infection prevention and control practices among healthcare providers in Level I hospitals in Rinconada. Specifically, it sought to answer the following questions:

1. What is the demographic profile of the respondents in terms of:
    1.1 Age
    1.2 Sex
    1.3 Profession
    1.4 Training attended relevant to infection prevention and control
2. What are the infection prevention and control practices among health- care providers along with standard precautions and infection prevention?
3. What are the factors that affect infection prevention and control practices among healthcare providers along:
    3.1 Individual factors
    3.2 Organizational factors
4. Is there any significant relationship between the respondents' profile and the infection prevention and control practices among healthcare providers?

## METHODS

The researcher utilized the descriptive-correlational method using a questionnaire checklist as the data gathering instrument. A descriptive research method is concerned with gathering, classifying,

presenting, tabulation, and summarizing the result to describe group characteristics of the data. It focuses on the present condition to find new truth, valuable in providing facts on which scientific judgments may be based. This method also plays a large part in the development of instruments to measure many things, instruments that are employed in all types of quantitative research (Fitzpatrick & Kazer, 2012). The descriptive-correlational method was used to determine the respondent's profile, the infection prevention and control practices and the factors affecting thereof among healthcare providers in Level 1 hospitals in Rinconada, and the proposed measures to enhance the infection prevention and control practices in their respective institutions. The use of correlation determined the degree of relation between the profile of the respondents and the infection prevention and control practices.

## Population and Sampling Technique

The respondents of the study are 15 physicians (primarily residents on duty) and 32 nursing aides; and 144 nurses assigned to the Emergency Room, General Ward, and Private Ward of the Level 1 hospitals in Rinconada: namely, Rinconada Medical Center - Medical Mission Group, Villanueva - Tanchuling Maternity and General Hospital, Our Lady Mediatrix Hospital, Sta. Maria Josefa Foundation Hospital and Lourdes Hospital were selected using stratified random sampling.

## Data Collection

The researcher utilized a questionnaire to gather the necessary data. The questionnaire is the main instrument employed in this study containing the areas evaluated using the Likert scale to obtain the data and information from the respondents. The researcher crafted a questionnaire after reading and scanning different related studies and literature connected or related to the present study in the data gathering. The questionnaire is composed of three parts: Part I aimed to establish the respondents' profile in terms of age, gender, profession, and training attended; Part II determined the respondents' infection prevention and control practices, and Part III assessed the factors affecting the infection prevention and control practices of the respondents. A rating scale was used and treated with utmost care to get the accurate data needed. Indicators for the different researchers' pre-identified factors, particularly those concerning healthcare providers, were prepared to be relevant in gauging the factors affecting infection prevention and control practices. The first draft of the questionnaire was presented to the adviser, and a dry-run was administered to the two hospitals in Legazpi City, that are not part of this study. To test its reliability, the Kuder Richardson Formula 21 was utilized and produced a reliability of 0.98, sufficient to retain the questions. The researcher sought a permit from the Hospital Administrator to conduct the study Administrator of each hospital in Rinconada. Upon approval, the researcher personally administered and retrieved the questionnaires. The researcher conducted an onsite observation of the healthcare providers' infection prevention and control practices in retrieving the questionnaires.

## RESULTS AND DISCUSSION

This the portion includes the presentation, analysis, and interpretation of data gathered relevant to this study. The discussion consists of the profile of the respondents, the infection prevention and control practices, and the factors that affect the infection prevention and control practices.

*Profile of the respondents.* The profile of the respondents in terms of age, sex, profession, and training attended is relevant to infection prevention and control.

*Age.* As shown in Table 1, out of 191 respondents, 50 or 26.18 % belonged to the age bracket of 18-25 years old; 103, or 53.93 % were aged 26-35 years; 22, or 11.52 % belonged to the age range of 36-45 years; 11 or 5.76 % were 46-55 years, and only 5 or 2.62 % were 56-65 years old. The preceding data shows that most of the respondents are 26-35 years old and are at the peak of

building their careers as healthcare providers. This generation is more knowledgeable in infection control and prevention since they have already acquired related experiences and specific skills in their day-to-day work. Some attained it through continuing professional growth and development.

**Table 1.** Age distribution of the respondents

| Profile | Frequency | Percentage |
|---|---|---|
| 18 – 25 | 50 | 26.18 |
| 26 – 35 | 103 | 53.93 |
| 36 – 45 | 22 | 11.52 |
| 46 – 55 | 11 | 5.76 |
| 56 – 65 | 5 | 2.62 |
| Total | 191 | 100.00% |

As shown in Table 2, of the 191 respondents, 58 or 30.37 % were males, while 133, or 69.63 % were females. This implies that most healthcare providers are females, which can be attributed to the number of nurses since nursing is a female-dominated profession. And this also confirms the analysis made by the World Health Organization that 70% of health and social sector workers are women.

**Table 2.** Sex distribution of the respondents

| Profile | Frequency | Percentage |
|---|---|---|
| Male | 58 | 30.37 |
| Female | 133 | 69.63 |
| Total | 191 | 100.00% |

As shown in Table 3, of the 191 respondents, 15 or 7.85 % were physicians; 144, or 75.39 % were nurses, and 32, or 16.75 % were nursing aides. This data suggest that nurses are the main frontline providers of primary care.

**Table 3.** Profession of the respondents

| Profile | Frequency | Percentage |
|---|---|---|
| Physician | 15 | 7.85 |
| Nurse | 144 | 75.39 |
| Nursing Aid | 32 | 16.75 |
| Total | 191 | 100.00% |

As presented in Table 4, 180 of the 191 respondents, or 94.24 %, are without training in infection prevention and control, while only eleven, or 5.76 % had undergone related training. This data implies that almost all healthcare providers identify as the frontlines of patient care received no training on infection prevention and control measures. Nevertheless, their basis for the said aspect is the knowledge gained while in schooling.

**Table 4.** Trainings attended relevant to IPC program

| Profile | Frequency | Percentage |
|---|---|---|
| Without Training | 190 | 94.24 |
| With Trainings | 11 | 5.76 |
| Total | 191 | 100.00% |

However, hospitals usually send their top-level managers to attend training on different matters, which can help improve their medical and nursing care protocols to save time, money, and effort. Therefore, these top-level managers must cascade the knowledge and skills they had learned from those training to the rest of the hospital staff, thus, teaching them the proper implementation of infection prevention and control protocols. This gap is the lack of continued information dissemination to the staff regarding what methods they could apply to minimize hospital-acquired infections.

*Infection prevention and control practices*

The infection prevention and control practices concerning standard precaution in Level I hospitals in Rinconada were divided and presented into three key components: namely, hand hygiene, use of personal protective equipment (PPE), and prevention of needlestick and sharp injury.

*Hand hygiene*

As shown in Table 5, most of the indicators concerning hand hygiene were interpreted as "always," and the average weighted mean was 2.74. The top three rated by the respondents were performing hand washing after handling any blood, body fluids, secretions, and contaminated items with a weighted mean of 2.5 as rank 1; 2nd was using antimicrobial agents, such as an alcoholic hand rub or waterless antiseptic agent (2.90); and perform hand washing before and after handling the patient and practice hand hygiene between tasks and procedures on the similar patient to prevent cross-contamination, 2.82 as rank 3.5. On the other hand, there were two indicators in which respondents interpreted "sometimes." Educate patients regarding the importance of hand washing to health and well-being with a weighted mean of 2.49, which ranked eighth, and practice hand hygiene between contacts with different patients with a weighted mean of 2.48, which ranked last. Based on the data, it can be deduced that healthcare providers are following hand hygiene practices protocol in their respective institutions; however, sometimes they failed to follow specific measures, it might be due to some factors, which might not only put them at risk of acquiring hospital-acquired infection but also the patients they cared for. Moreover, information dissemination regarding proper hand washing should be stressed for this is the most cost-effective way to inhibit the spread of infection.

**Table 5.** Infection prevention and control practices along hand hygiene

| Indicators | Weighted Mean | Interpretation | Rank |
|---|---|---|---|
| 1. Perform hand washing before and after handling the patient. | 2.82 | Always | 3.5 |
| 2. Perform hand washing after handling any blood, body fluids, secretions, excretions and contaminated items. | 2.95 | Always | 1 |
| 3. Practice hand hygiene between contacts with different patients. | 2.48 | Sometimes | 9 |
| 4. Practice hand hygiene between tasks and procedures on similar patient to prevent cross contamination. | 2.82 | Always | 3.5 |
| 5. Practice hand hygiene immediately after removing gloves. | 2.80 | Always | 5 |
| 6. Use a plain soap while performing hand washing. | 2.77 | Always | 6 |
| 7. Use antimicrobial agents, such as an alcoholic hand-rub or waterless antiseptic agent. | 2.90 | Always | 2 |
| 8. Following the standard technique of hand washing and | 2.61 | Always | 7 |

| | | | | |
|---|---|---|---|---|
| | performing it for at least 15 seconds. | | | |
| 9. | Educate patients regarding the importance of hand washing to health and well-being. | 2.49 | Sometimes | 8 |
| | Average Weighted Mean | 2.74 | Always | |

*Use of Personal Protective Equipment (PPE)*

Table 6 presents this essential aspect of standard precaution and infection prevention. The respondents rated the use of PPE with an average weighted mean of 2.66, which is interpreted as "always." A weighted mean of 2.92 is the most practiced use of PPE for the respondents wearing a mask to protect the oral and nasal mucous membranes from accidental splashes of blood, body fluids, secretions, or excretions when undertaking procedures (Rank 1). Tied as 2nd with a weighted mean of 2.86 were removing and discarding gloves immediately after use and before attending to another patient, and disposable gloves are not being reused, but instead, they are being disposed of according to the healthcare facility protocol. Next in rank is wearing gloves (clean, non-sterile) when handling blood, body fluids, secretions, excretions, or touching mucous membranes with a weighted mean of 2.85.

And on the bottom three, all indicators were interpreted as "sometimes." These include not allowing the mask to hang or dangle around the neck with a weighted mean of 2.47, which ranked 8; and tied on the last rank were wearing protective eyewear like goggles/visors/face shields to protect the eyes when conducting procedures that are likely to produce splashes of blood, body fluids, secretions or excretions and protective eyewear like goggles/visors/face shields are not being reused. Still, instead, they are being disposed of according to the healthcare facility protocol with a weighted mean of 2.29. These results reflect a good implementation of standard precaution and infection control measures regarding the use of PPE. Nonetheless, the Hospital Infection Control Committee should reinforce the importance of the proper use of PPE and the importance of not reusing it to prevent cross-contamination.

**Table 6.** Infection prevention and control practices along use of Personal Protective Equipment (PPE)

| | Indicators | Weighted Mean | Interpretation | Rank |
|---|---|---|---|---|
| 1. | Wear gloves (clean, non-sterile) when handling blood, body fluids, secretions, excretions or touching mucous membranes. | 2.85 | Always | 4 |
| 2. | Change gloves between contacts with different patients. | 2.67 | Always | 6 |
| 3. | Change gloves between tasks/procedures on similar patient to prevent cross-contamination. | 2.69 | Always | 5 |
| 4. | Remove and discard gloves immediately after use and before attending to another patient. | 2.86 | Always | 2.5 |
| 5. | Disposable gloves are not being reused but instead they are being disposed according to the healthcare facility protocol. | 2.86 | Always | 2.5 |
| 6. | Wear a mask to protect oral and nasal mucous membranes from accidental splashes of blood, body fluids, secretions or excretions when undertaking procedures | 2.92 | Always | 1 |
| 7. | Do not allow mask to hang or dangle around the neck. | 2.47 | Sometimes | 8 |
| 8. | Change mask whenever it becomes wet/soiled. | 2.66 | Always | 7 |

| | | | | |
|---|---|---|---|---|
| 9. | Wear protective eyewear like goggles/ visors/face shields to protect the eyes when conducting procedures that are likely to produce splashes of blood, body fluids, secretions or excretions. | 2.29 | Sometimes | 9.5 |
| 10. | Protective eyewear like goggles/visors/face shields are not being reused but instead they are being disposed according to the healthcare facility protocol. | 2.29 | Sometimes | 9.5 |
| | Average Weighted Mean | 2.66 | Always | |

*Prevention of needlestick and sharp injury*

Table 7 shows the infection prevention and control practice of the healthcare providers along with the prevention of needlesticks and sharp injuries. It is evident from the table that the healthcare providers gave an average weighted mean of 2.68 for this aspect and interpreted "always." The top indicator for this area was taking extra precautions when cleaning sharp reusable instruments or equipment, which rated with a weighted mean of 2.90; followed by observing measures to prevent injuries using needles and other sharp instruments or equipment with a weighted mean of 2.89. On the contrary, never recapping or bending needles and using safety-engineered medical devices such as needleless devices ranked 4th and 5th with a weighted mean of 2.46 and 2.33, respectively. This implies that healthcare providers are at risk of exposure to hazardous drugs or infectious biological agents because of unsafe practices like recapping needles. And the use of safely engineered medical devices such as needleless devices will be a great help in this matter.

**Table 7.** Infection prevention and control practices along prevention of needlestick and sharp injury

| | Indicators | Weighted Mean | Interpretation | Rank |
|---|---|---|---|---|
| 1. | Observe measures to prevent injuries when using needles, scalpels and other sharp instruments or equipment. | 2.89 | Always | 2 |
| 2. | Properly dispose syringes and needles, scalpel blades and other sharp materials in a puncture-resistant container with led cover and is located near the area where the item is used. | 2.83 | Always | 3 |
| 3. | Take extra precaution when cleaning sharp reusable instruments or equipment. | 2.90 | Always | 1 |
| 4. | Never recap or bend needles. | 2.46 | Sometimes | 4 |
| 5. | Use safety-engineered medical devices such as needleless devices. | 2.33 | Sometimes | 5 |
| | Average Weighted Mean | 2.68 | Always | |

*Factors that affect the infection prevention and control practices among healthcare providers*

The factors affecting the infection prevention and control practices among healthcare providers in Level I hospitals in Rinconada were further divided into two categories. These are individual factors and organizational factors.

Individual factors

Table 8 presents the respondents' factors that can affect infection prevention and control practices. The table shows that the individual factors moderately affect infection prevention and

control practices by having an average weighted mean of 2.47. The top three factors in this category that significantly affect the respondents emerged to be knowledge and skills on infection prevention and control (IPC), personal experience on IPC, and conflict between knowing what you should do and knowing what you do or what to do, having weighted means of 2.61, 2.59, 2.58, 2.57, and 2.54 respectively. On the other hand, the top three factors which were interpreted as "moderately affect" were personality and attitudes with a weighted mean of 2.46; task-oriented rather than patient-centered and rationalized belief having a weighted mean of 2.45; and stress with a weighted mean of 2.43. This result is congruent with the study of Nofal, Subih, and Al-Kalaldeh (2017), wherein they also found that more excellent knowledge and positive attitudes influence ICPs. And to address these factors, changing current behavior requires knowledge of the factors affecting standard precautions and practices. This knowledge will then facilitate programs and preventive actions that contribute to infection prevention and control.

**Table 8.** Individual factors that affect the infection prevention and control practices

| Indicators | Weighted Mean | Interpretation | Rank |
|---|---|---|---|
| 1. Conflict between knowing what you should do and knowing what you actually do or what to do. | 2.58 | Greatly affect | 3 |
| 2. Task-oriented rather than patient-centred. | 2.45 | Moderately affect | 7.5 |
| 3. Unrealistic optimism. | 2.42 | Moderately affect | 10 |
| 4. Personal experience on infection prevention and control (IPC) | 2.59 | Greatly affect | 2 |
| 5. Knowledge and skills on IPC | 2.61 | Greatly affect | 1 |
| 6. Stress | 2.43 | Moderately affect | 9 |
| 7. Stereotyping. | 2.34 | Moderately affect | 11 |
| 8. Rationalized belief. | 2.45 | Moderately affect | 7.5 |
| 9. Sense of purpose and confidence in IPC | 2.57 | Greatly affect | 4 |
| 10. Perceived workload | 2.54 | Greatly affect | 5 |
| 11. Personality and Attitudes | 2.46 | Moderately affect | 6 |
| 12. Discomfort in wearing PPE. | 2.24 | Moderately affect | 12 |
| Average Weighted Mean | 2.47 | Moderately affect | |

*Organizational factors*

Since a hospital is an institution, it needs to have an organization of employees to facilitate the proper implementation of different required protocols. Managerial work is therefore paramount to the adherence of the staff. Table 10 shows that overall organizational factors significantly affect the infection prevention and control practices of healthcare providers. The number one factor in this category was understaffing, rated with a weighted mean of 2.63. Following were ineffective communication and problems with information dissemination about IPC; and collaboration problems with other departments regarding IPC with a weighted mean of 2.57. And third, the organizational factor was the high workload which had a weighted mean of 2.56. Conversely, lack/insufficient budget allocation in infection prevention and control, no existing Infection Prevention and Control policy and legal framework, and lack of support from hospital management with weighted means of 2.49, 2.48, and 2.47 were interpreted as "moderately affect." This study proves Evgheni's (2012) work, which stated that administrative measures on infection control have an impact on how it would be implemented and how the staff would comply with them. Moreover,

explicit communication and collaboration within the institution can improve safety and deliver infection prevention and control services. Another issue concerning the implementation of infection prevention and control is understaffing, which is the top indicator for this category. Indeed, it has a tremendous impact, for it causes excessive workload on the part of the healthcare providers, which may compromise infection prevention and control practices and surveillance activities intended to identify signs and symptoms of infection. Likewise, this may negatively influence healthcare providers' health and well-being, as well as patient care.

**Table 9.** Organizational factors that affect the infection prevention and control practice

| Indicators | Weighted Mean | Interpretation | Rank |
|---|---|---|---|
| 1. No existing Infection Prevention and Control policy and legal framework. | 2.48 | Moderately affect | 8 |
| 2. Absence of IPC Committee/ surveillance team for hospital associated infection. | 2.42 | Moderately affect | 11 |
| 3. Inadequate IPC program and inconsistent implementation. | 2.44 | Moderately affect | 10 |
| 4. Lack of support from hospital management. | 2.47 | Moderately affect | 9 |
| 5. Lack/insufficient budget allocation in infection prevention and control. | 2.49 | Moderately affect | 7 |
| 6. Culture of safety in the working area. | 2.52 | Greatly affect | 6 |
| 7. High workload | 2.56 | Greatly affect | 4 |
| 8. Understaffing | 2.63 | Greatly affect | 1 |
| 9. Lack of trainings and professional updates on IPC among nursing personnel. | 2.55 | Greatly affect | 5 |
| 10. Ineffective communication and problems with information disseminations about IPC. | 2.57 | Greatly affect | 2.5 |
| 11. Collaboration problems with other departments with regards to IPC. | 2.57 | Greatly affect | 2.5 |
| Average Weighted Mean | 2.52 | Greatly affect | |

*Relationship between the profile of the respondents and the infection prevention and control practices*

The researcher used the Spearman Rank Correlation Coefficient for profiles with two variables and Kendall's Coefficient of Concordance for profiles with three or more variables, thus giving a more discreet and substantial presentation of the data gathered.

**Table 10.** Relationship between Infection Prevention and Control Practices of the Health providers when group according to profile

| Profile | df | Computed R Value | Computed P Value | Decision In $H_0$ | Interpretation |
|---|---|---|---|---|---|
| Age | 23 | 0.8986 | < 0.0001 | Rejected | Significant |
| Sex | 23 | 0.8992 | < 0.0001 | Rejected | Significant |
| Profession | 23 | 0.9173 | < 0.0001 | Rejected | Significant |

Table 10 shows the relationship between infection prevention and control practices of the healthcare providers when grouped according to profile. Based on the data, the computed R values

for age, sex, and profession were 0.8986, 0.8992, and 0.9173, respectively, at < 0.001 level of significance. Thus, the null hypothesis is rejected. There is a significant relationship between the profile age, sex, and profession, and the healthcare providers' infection prevention and control practices. This implies that healthcare providers ages 26 – 35 are more receptive to changes in protocols than their age counterparts due to a more optimistic view. Women are more careful about things that they do, including procedures requiring asepsis. And being the leading frontline providers of primary care, nurses are still open to changes in infection prevention and control practices no matter how long they work in the hospital. This is good since the majority complies with such practices even if there are changes to the routine procedure they usually do before. Training is essential, however, in the study, it seems that the importance is not so evident.

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