

Examining the Performance of Nursing and Midwifery Students Regarding the Control of Hospital Infections

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ABSTRACT

Introduction: Hospital infections are one of the problems of hospitals in all countries. Nosocomial infections occur as a result of the patient's stay in the hospital and are among the most important causes of medical, social, and economic problems in different countries. As one of the members of the health care team, the nurse has a vital role in controlling and preventing these infections, so this study aims to investigate the performance of nursing students regarding the control of hospital infections at Shahid Beheshti School of Nursing and Midwifery in the year 2021 was done.

Methods: This cross-sectional analytical study was conducted with the aim of investigating the performance of nursing students in controlling hospital infections in Shahid Beheshti School of Nursing and Midwifery in 2021. The research population included undergraduate nursing students. An available random sampling method was used. The tool for collecting information was a researcher-made questionnaire. After completing the sampling, the data were analyzed using SPSS version 21 statistical software and descriptive and inferential statistical tests using independent t-tests, analysis of variance, and chi-square.

Results: In this study, the performance of 160 nursing students (33% male and 67% female) in the field of hospital infection control was investigated using a questionnaire. The average performance score of the students was at a good level and the performance score was almost good (Table 1). There was no statistically significant difference between the average grades of students in different age groups ($P > 0.05$).

Conclusion: In line with the aim of the study, students' performance in hospital infection control, the results showed that the average scores of students' performance were in three levels: poor, average, and good.

Keywords: Iran, Infection Control, Student Nursing.

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Introduction

Hospital infections are one of the leading causes of death worldwide. According to the American Institute of Preventable Medical Complications, 42,000 to 98,000 deaths per year in the United States are due to hospital-acquired infections, and each year they cost between 17-29 billion dollars.¹ In definitions, an infection that occurs at least 48 to 72 hours after the patient is admitted to the hospital, and at the time of admission, the person should not have obvious symptoms of the related infection and the disease is not in its incubation period, is called a hospital infection.² Nosocomial infections are one of the major problems of modern medicine, which is related to the quality of healthcare provision in hospitals. Its level is one of the important indicators of the quality and safety of hospital services.³ The control and prevention of this problem are not limited to a specific place and geographical region.⁴

These infections are one of the main causes of death and increased complications in hospitalized patients.⁵ In addition, by increasing the hospitalization time, they add a high amount to the cost of treatment.⁶ This disease is transmitted not only to patients but to every person who comes in contact with patients, including employees, visitors, workers, etc. Also, sometimes the signs and symptoms of the disease do not appear when the patient is discharged, and some patients carry pathogenic pathogens with them, thus causing infectious diseases in society.⁷

The most common type of infection is related to the urinary tract and the most common type of microorganism is *Escherichia coli*. The highest rate of nosocomial infection is related to special care, internal and hematology departments, and suction was the most important risk factor for nosocomial infection.⁸

Among the factors that cause the increase in hospital infection, we can reduce the immunity of patients, increase the variety of medical procedures, increase the variety of invasive procedures, transmission of drug-resistant bacteria, underlying diseases such as liver cirrhosis, diabetes mellitus, chronic lung diseases,

He mentioned kidney failure, cancer, and neutropenia, immunodeficiency of patients, excessive or inappropriate use of antibiotics during hospitalization, the health status of the hospital environment, the level of awareness, attitude, and performance of the personnel. If hospitals perform poorly in terms of infection control methods, this possibility increases.^{6,9}

Undoubtedly, the most effective, least expensive, and most desirable method of dealing with infection is prevention.¹⁰ The responsibility of preventing nosocomial infections rests with all the people who work in the hospital environment, but nurses are in direct contact with patients and can potentially be one of the most effective elements in reducing nosocomial infections.¹¹ It seems that there is a significant relationship between knowledge and performance with age, sex, work experience, and education among nursing staff.⁴ Marcel (1993) in his research observed a significant relationship between people's performance level, age, work experience, position, education, and workplace.¹² The performance of nursing students is weaker than that of nurses, and both groups need to receive managed training regarding the prevention and control of hospital infections during their studies and during service.¹³

In line with the importance of the role of students and nurses in the field of hospital infection control, this study was conducted with the aim of investigating the performance of nursing students regarding the control of hospital infections at Shahid Beheshti School of Nursing and Midwifery Medical Sciences in 2021.

Method

This cross-sectional analytical study was conducted with the aim of investigating the performance of nursing students in controlling hospital infections in Shahid Beheshti School of Nursing and Midwifery in 2021. The research population included undergraduate nursing students. An available random sampling method was used. Necessary information about the study was given to the participants and the informed

consent forms were signed. Completing at least 3 academic semesters was required as a criterion for students to enter.

The data collection tool was a researcher-made questionnaire designed by Yousefi et al.¹⁴ The first part included demographic information such as age and gender. The second part included a performance questionnaire in five representative daily nursing procedures, including 1) before doing any work, 2) bandaging, 3) placing a peripheral vein catheter, 4) intravenous injection, and 5) suction. A Likert scale scoring system was used, including always (3), sometimes (2), and never (1). The performance measurement criteria were divided into three levels based on the compliance or non-compliance of each standard, and after summarizing the scores, the performance scores were classified as poor (1-58), average (59-116), and good (117-174). After completing the sampling, the data were analyzed using SPSS version 21 statistical software and descriptive and inferential statistical tests using

independent t-tests, analysis of variance, and chi-square.

Results

In this study, the performance of 160 nursing students (33% male and 67% female) in the field of hospital infection control was investigated using a questionnaire.

The average performance score of the students was at a good level and the performance score was almost good (Table 1). There was no statistically significant difference between the average grades of students in different age groups ($P>0.05$). It can be said that there was no relationship between age and performance and there was no statistically significant difference between the performance scores of students in terms of gender.

| Number | | Mean \pm Standard Deviation | P-Value |
|---------|-----|-------------------------------|---------|
| Student | 160 | 158 \pm 13.6 | 0.08 |

Table 1: Performance of Nursing Student in Nosocomial Infection Control.

| Age | Mean \pm Standard Deviation |
|---------|-------------------------------|
| 19-29 | 157.3 \pm 13.2 |
| 30-39 | 146.8 \pm 16.6 |
| 40-59 | - |
| P value | 0.43 |
| Gender | |
| Male | 147 \pm 13.1 |
| Female | 156.7 \pm 12.1 |
| P value | 0.077 |

Table 2: Performance of Nursing Students in Nosocomial Infection Control in Terms of Age and Gender.

Discussion and Conclusion

In line with the aim of the study, students' performance in hospital infection control, the results showed that the average scores of students' performance were in three levels: poor, average, and good. This is with the results of most studies, including Dirawad et al.¹⁵, Ghali¹⁶, and Sharif et al.¹⁷, corresponds. However it is not consistent with the studies of Yaqoubi et al., and Ghanbari et al.^{18,19}

In this study, students' performance was at a good level. In addition, based on these findings, it can be concluded that nurses of different educational levels, with different demographic characteristics, perform well in controlling infections. This is a strength in nursing.

It is believed that in order to create the desired effects, all three areas of knowledge, attitude, and performance should be strengthened. Just having awareness does not lead to good performance, but attitudes must also change. In fact, measures should be taken so that, in addition to improving the level of awareness and knowledge of nurses, a positive attitude is created in them, and this

attitude can lead to a favorable and appropriate performance in the field of infection control and ultimately improve the patient's safety and satisfaction.

The results of most research in the field of hospital infection control indicate that despite being aware of the necessity and importance of hand washing before and after patient care and having positive attitudes in this regard, nurses and other medical personnel do not perform well in some areas. that it is necessary to consider written programs in order to improve their performance.

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