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Research Article

A Descriptive Study to assess the Knowledge and Practice of Nursing Officers working in COVID-restricted Areas of SKIMS, Soura regarding the Importance of PPE Kits

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I N F O

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A B S T R A C T

Introduction: Personnel protection equipment is one of the most important requirements to care for any patient suffering from a communicable disease. These protect a nursing professional from diseases and patients from cross-infections. The main aim of the study was to gain information regarding the knowledge and practice level of nursing officers working in COVID-19-restricted areas of SKIMS, Soura about the importance of PPE kits.

Materials and Methods: This research was conducted on nursing officers working in COVID-19-restricted areas of SKIMS, Soura. The non-probability purposive-convenience sampling was done and 80 nursing officers were included in the study. The tools were prepared as per the objectives in the form of a self-structured questionnaire and a checklist.

Results: The study showed that 40% of study subjects belonged to the age group of greater than 35 years, 32.5% were in the age group of 31-35 years, and 27.5% of study subjects were in the age group of 25-30 years. 68% of nursing officers were females and 32.5% were males. 70% of the study subjects had BSc Nursing and 20% had GNM as their educational qualifications, and only 10% had done MSc Nursing. It was revealed in the study that 37.5% had more than 9 years of experience, followed by 27.5% of study subjects with 7-9 years of experience, 22.5% with 4-6 years of experience, and 12.5% with 1-3 years of experience. The study results revealed that 80% of subjects had good knowledge, 20% had average knowledge, and none had poor knowledge regarding PPE. Most of the study subjects (55%) had average practice, 25% had poor practice, and 20% had good practice regarding PPE.

Conclusion: Majority of the study subjects had good knowledge but maximum number of study subjects had average practice regarding the importance of PPE.

Keywords: PPE, Knowledge, Practice, Nursing Officers, COVID-restricted Area

Introduction

Personal Protective Equipment (PPE) protects a healthcare worker from nosocomial infections/ communicable diseases, and also from health hazards and workplace injuries. It includes masks, head gears, gloves, goggles/ eye shields, gowns, and shoe covers.[1] When we adopt standard precautions and use PPE kits, we can avoid transmission of various hazardous hospital infections.[2] Thus we can say that in order to avoid direct contact with blood, urine, and other body fluids, it is necessary to make use of barrier nursing; using PPE kits as available. These fluids include all bodily secretions and excretions that may be transmitted from direct contact with a patient or patient's environment, including infectious airborne particles.[3] These also help in the prevention of possible transportation and transmission of microorganisms from healthcare professionals to patients receiving healthcare in hospitals or health institutions.

Microorganisms are those agents that are usually present in healthcare settings and lead to the initiation of diseases or illnesses in patients who act as their hosts.[4] A gradual development in the understanding of how these microorganisms are transmitted has led to a refinement in the knowledge, and eventually, better personal protection equipment kits were devised so as to provide protection to healthcare staff and patients against diseases.[5]

It was in the 1970s when the United States Center for Disease Control and Prevention (CDC) came up with the guidelines to practice donning and doffing these kits for the benefit of patients.[6] However, it was only in the 1980s that these kits were widely supported after the outbreak and spread of the human immunodeficiency virus.[7]

It was again in 2003 that the use of personal protection equipment was widely emphasised during the outbreak of severe acute respiratory syndrome outbreaking which 20% of the healthcare staff was affected. There was yet another outbreak in West Africa in the year 2015 in the form of Ebola virus disease. There were many more casualties and deaths of healthcare workers due to this outbreak as there was no certified vaccine present at that time that could have been effective against the disease or any effective antiviral therapy or prophylactic agents that could have saved the healthcare workers. It was found that the need of the hour was to use other personnel production equipment kits and rely on them for the prevention of the spread of these diseases among human beings.[8] It is a well-known fact that personal protection equipment kits are essentially made in order to prevent contact of healthcare workers with the pathogen. When the PPE kits get contaminated with pathogens, they can be discarded safely in the areas meant for their disposal, so that the potential sources of transmission or sources having pathogens in them like bodily fluids can be disposed of safely.[9]

Pandey et al. conducted a study to assess the knowledge, attitude and practice regarding wearing and removing personal protection equipment kits among 205 health workers in a tertiary care hospital in Nepal. The result of the study depicted that almost 80% of subjects had satisfactory knowledge and 75.6% of the study subjects had satisfactory practice scores.[10]

Rathor and Lawrence conducted pre-experimental research in order to assess the effectiveness of STP on the knowledge and practice of 50 nursing professionals regarding donning and doffing of PPE kits in a bachelor's college of nursing, New Delhi. The results of their study showed that 96% of study subjects had good knowledge, 4% had moderate knowledge and there was none who had poor knowledge regarding personal protection equipment kits and their use.[11]

Alao et al. conducted a research study on the knowledge and use of personal protection equipment for the prevention of coronavirus disease infection among 272 health workers. The study was conducted in Southwest and Northwest Nigeria using a self-structured knowledge questionnaire. The results revealed that 25.7% of participants had average knowledge and 56% had no knowledge regarding the use of PPE.[12]

Kuriakose et al. conducted a non-experimental descriptive study to assess the level of practice on the usage of PPE among 200 healthcare workers at a tertiary hospital in Bengaluru by using a checklist. The results revealed that 72% of healthcare workers had good practice, 60% had average practice and 6% had poor practice. There was a significant association between practice scores on the usage of PPE with selected demographic variables i.e., healthcare worker's age, educational qualification, and years of working experience.[13]

Need for the Study

Personal protection equipment protects healthcare workers from exposure to pathogens or microorganisms that are harmful to human beings and have the potential to cause diseases. Thus they can prevent disease transmission in hospitals where healthcare staff comes in direct contact with patients while caring for them.[10]

Nursing officers must know the correct steps and ways to put on and take off PPE. These steps will minimise exposure to infectious agents in healthcare settings like nursing homes, hospitals, or clinics.

Close contact of the staff nurses with patients while performing procedures like administering medications, indwelling catheterisation, nasogastric tube feeding, oxygen administration, nebulisation, etc can lead to the transmission of infection/ infectious organisms to

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nursing professionals.[14] The World Health Organization has mentioned that 2.5% of human immunodeficiency virus or AIDS cases and 40% of hepatitis B and C cases are seen because of occupational exposure. Nurses are at high risk of bloodborne infections. Hence correct knowledge and practice of personal protective equipment are essential for healthcare providers.

A research study was conducted by Hossain et al. on 393 healthcare workers at Ibn Sina Medical College, Bangladesh to assess the knowledge and practice regarding PPE for the prevention of COVID-19 by using a self-structured questionnaire and checklist. Results revealed that 99.5% of study subjects had good knowledge regarding PPE and 51.7% had good practice regarding PPE kits and their use.[15]

PPE kits are widely used in ICU, OT, respiratory wards, and isolated wards but nowadays, they are used in all healthcare settings due to COVID-19. In this pandemic, a healthcare worker, especially a staff nurse has come in direct contact with every patient and is at high risk of contracting COVID-19. The use of PPE can reduce the chances of the transmission of this infection. These points made the need for the study of PPE kits an important, urgent, and first-priority issue.

To minimise the risk of infection, nurses should have adequate knowledge regarding PPE and should follow the appropriate practice to control the transmission of infection. Keeping in view the above studies and incidences, and according to the researchers' experiences, the researchers felt the need to assess the knowledge and practice regarding PPE among staff nurses.

Objectives of the Study

- To assess the knowledge level of nursing officers working in COVID-restricted areas of SKIMS, Soura
- To assess the practice level of nursing officers working in COVID-restricted areas of SKIMS, Soura

Assumptions

- Nursing officers have some knowledge regarding the use of PPE.
- Knowledge regarding the hazards associated with the work environment will encourage them to use PPE more effectively.
- Nursing officers who do not practice PPE use have more chances to get an infection.
- Nursing officers having knowledge regarding PPE will practice its use more efficiently.

Delimitation

The study was delimited to COVID-restricted areas of SKIMS, Soura only.

Methodology

Research Approach

In our study, a quantitative approach was used for conducting the research.

Research Design

The research design in this study was univariant descriptive design. The population for the present study included nursing officers working at SKIMS, Soura.

In the present study, the sampling size was 80 and the sampling technique was purposive convenience sampling technique, which is itself a type of non-probability sampling. The setting for the present study included the COVID-19-restricted areas of SKIMS, Soura. Ethical approval for the study was obtained from the Institutional Ethics Committee and informed consent was obtained from all participants.

Sample Selection Criteria

Inclusion Criteria

- Nursing officers known to the researchers who were present at the time of data collection
- Nursing officers who were willing to participate in the study
- Nursing officers who were working in COVID-19-restricted areas of SKIMS, Soura

Exclusion Criteria

- Nursing officers who weren't present at the time of data collection
- Nursing officers who weren't willing to participate in the study
- Nursing officers who weren't working in selected areas of SKIMS, Soura

Variables

The variables included in our study were:

Demographic Variables

Age, gender, professional qualification, and working experience

Research Variables

Knowledge and Practice.

Statistical Analysis

Descriptive statistics were used in order to analyse the data collected by the researchers and draw conclusions in the form of results.

Results

In order to collect data, the researchers prepared a self-structured questionnaire and practice checklist.

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Table 1.Frequency and Percentage of Study Subjects as per their Demographic Variables (N=80)

Variables	Options	Frequency (Percentage)
Age (years)	25-30	22 (27.5)
	31-35	26 (32.5)
	> 35	32 (40)
Gender	Male	26 (32.5)
	Female	54 (67.5)
Professional qualification	GNM	16 (20)
	BSc Nursing	56 (70)
	MSc Nursing	8 (10)
Professional experience (years)	1-3	10 (12.5)
	4-6	18 (22.5)
	7-9	22 (27.5)
	> 9	30 (37.5)

Table 2.Frequency and Percentage Distribution of Study Subjects according to Knowledge Levels (N = 80)

Knowledge Levels	Frequency (Percentage)
Poor (0-10)	0 (0)
Average (11-20)	16 (20)
Good (> 21)	64 (80)
Total	80 (100)

Table 3.Frequency and Percentage Distribution of Study Subjects according to Practice Level (N = 80)

Practice Levels	Frequency (Percentage)
Poor (1-8)	20 (25)
Average (9-15)	44 (55)
Good (> 15)	16 (20)
Total	80 (100)

Table 4.Descriptive Statistics of Knowledge and Practice Levels of Nursing Officers regarding Importance of PPE

Descriptive Statistics	N	Minimum	Maximum	Mean	Std Deviation
Knowledge	80	16	29	23.1	2.826
Practice	80	15	22	17.85	1.979

Table 1 shows that 40% of study subjects were in the age group of more than 35 years, 32.5% belonged to the age group of 31-35 years, and 27.5% belonged to the age group of 25-30 years. 67.5% of the study subjects were female.

While analysing the professional qualification, it was seen that 70% of respondents had BSc Nursing, 20% had GNM, and only 10% had MSc Nursing qualification. Moreover, while analysing professional experience, most of the study subjects (37.5%) had greater than 9 years of experience, followed by 27.5% with 7-9 years of experience, 22.5% with 4-6 years of experience, and 12.5% with 1-3 years of experience.

Table 2 depicts that 80% of study subjects had good knowledge level regarding PPE, 20% had average knowledge level, and none had poor knowledge level regarding PPE.

Table 3 shows that 55% of study subjects had average practice level, 20% had good practice level, and 25% had poor practice level regarding PPE.

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Table 4 shows the descriptive statistics of the practice and knowledge levels of participants regarding the importance of PPE.

Discussion

The study results depicted that 80% of the study subjects had good knowledge level regarding PPE, 20% had average knowledge level, and none had poor knowledge level regarding PPE. 55% of study subjects had average practice level, 20% had good practice level, and 25% had poor practice regarding PPE.

In terms of knowledge levels, the findings of this study are supported by a cross-sectional study conducted by Hossain et al. among 393 healthcare workers at Ibn Sina Medical College, Bangladesh. The study revealed that 99.5% of the subjects had good knowledge regarding PPE kits and their use.[15]

In terms of practice levels, our study is supported by a descriptive study conducted by Kuriakose et al. among 200 healthcare workers in a tertiary hospital in Bengaluru regarding the assessment of practice on the usage of PPE by using a self-structured checklist. The results of their study revealed that 72% of healthcare workers had good practice, 60% had average practice, and 6% had poor practice regarding the use of PPE kits.[13]

Implications

The results of the present study had their own implications in the field of nursing and can be utilised in various aspects like nursing education, nursing practice, nursing research, or administration. These implications are discussed as follows:

Nursing Education

The curriculum developers need to give more emphasis on the prevention of various healthcare-associated infections in the curriculum of basic nursing education. The student nurses should be motivated to raise their interest in research so as to keep themselves abreast with updated knowledge. Independent research by nursing officers should be reinforced and their efforts should be hailed and recognised. Due weightage should be given to research while considering them for higher posts, be it in the clinical or the educational side.

Nursing Research

The findings of the research studies need to be disseminated in order to base the practice of nursing on research evidence. Nursing personnel should be made aware of the various hospital infection control measures. More frequent research on other infections, prevention of infections, and other components need to be addressed. Nursing officers working in different healthcare institutions should work on comparative studies on the same topic.

Nursing Practice

Knowledge regarding nosocomial infection is absolutely essential for safe nursing practice. This knowledge will help the staff nurses to protect themselves, their colleagues, subordinates, and patients from various infections. In-service training programmes regarding the prevention of nosocomial infection should be introduced in hospitals on a regular basis.

Nursing Administration

Nursing administrators should be a source of inspiration and must motivate other health workers to update their knowledge and skills regarding the prevention of nosocomial infections by providing in-service educational programmes at regular intervals.

They should ensure an adequate supply of personal protective equipment for safe practice and should highlight their importance. They should develop prevention protocols, procedures, and competency-based evaluation tests for students and novice staff members.

Limitations

- The study was limited to a small size which imposes limitations on generalisation.
- The study was limited to nursing officers who were available at the time of data collection in SKIMS, Soura.

Conclusion

PPE kits are extremely important for healthcare workers. Hence they should be made aware of its usefulness and its use should be encouraged.

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Conflict of Interest: None

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