ISSN: 2704-4777 Diverse Journal of Multidisciplinary Research (DJMR)
Volume 2, Issue 1, January 2020

Knowledge and Practice of Standard Precautions of Infection Control Among Nurses at Tertiary Care Hospitals in Peshawar of Khyber Pakhtunkhwa

Irfan Ullah Khattak[1], Shaheen Ghani[2] and Tania Zaman[3]

[1]*RN Officer, Main Rashid Hussain Shaheed Memorial Hospital Pabbi, District Nowshera, Khyber Pakhtunkhwa, Pakistan*

[2]*Nursing Director, Medical Teaching Institute, Lady Reading Hospital*

[3]*Charge Nurse, Lady Reading Hospital, Peshawar, Khyber Pakhtunkhwa, Pakistan*

Email: [1]irfank40@gmail.com, [2]shaheen_ghani2002@yahoo.com, [3]taniazaman612@gmail.com

Corresponding author: irfank40@gmail.com

[**Cite as:** Khattak, I. U., Ghani, S., and Zaman, T. (2020). Knowledge and Practice of Standard Precautions of Infection Control Among Nurses at Tertiary Care Hospitals in Peshawar of Khyber Pakhtunkhwa. *Diverse Journal of Multidisciplinary Research*, Vol. 2, Issue 1, Pages 10-15.]

Abstract - *Standard Precautions (SPs) are prevention practices used to lessen the prevalence of infection in any healthcare system. SPs apply to all healthcare units where patients are treated. Nursing staff are more prone to the transfer of infection because they deal more with the patients as compared to other healthcare personnel. A Cross-sectional study was carried out in Peshawar's three tertiary care hospitals. Overall, 300 nurses were used in the study. Data were collected using a questionnaire. Majority (76%) of the study respondents had knowledge regarding standard precautions. More than half of the respondents reported that standard precautions are only used for infected patients. Around quarter (26%) of nursing staff stated that standard precautions are not necessary for HCV positive patients. More than half (71%) nurses wash their hands after contacting infected patients. The findings of the study revealed that nurses had enough knowledge regarding SPS of infection control. The role of healthcare setups is very important for good practice and improvement of nurse's knowledge regarding SPs of infection control.*

Keywords: *infection control, knowledge, nurses, standard precautions*

1. INTRODUCTION

Standard Precautions (SPs) are preventive practices to reduce the transfer of infection in any healthcare system [1]. Healthcare workers, especially nurses are potentially more exposed to infectious agents by touching the infected body parts of the patients. The nurses usually contact more with the patients as compared to the other healthcare workers [2]. The World Health Organization (WHO) estimated the commonness of healthcare-related infection in the advanced world differs between 3.5% and 12% [3]. Infections in hospitals and healthcare settings are a major problem of concern throughout the world and one in ten patients each year infected due to healthcare infections [4].

The understanding of healthcare workers concerning SPs of infection control is very important. It is estimated that 50% of healthcare professionals have good knowledge regarding SPs of infection control [5]. In the same context, the results of another study revealed that 63% of nurses had unsatisfactory knowledge regarding SPs [6]. Similarly, 66% nurses in India were unaware regarding the correct measures of SPs [7]. Infective waste products of patients play an important role in spreading of infection. Infective wastes are the main source of infection transfer in healthcare setups. It is estimated that, only 18.6% nurses are aware regarding the management of infectious waste products of the patients following standard precautions [8].

A research study in Lahore estimated that, nurses in Pakistan had inadequate knowledge regarding SPs of infection. Nurses are not fully aware how to deal with patients with infection and how to prevent infection transmission [9]. The current study therefore designed to explore the knowledge and practice of nurses with regards to SPs of infection control.

2. MATERIALS AND METHODS

A cross-sectional survey was carried out in Peshawar. Data was collected in three tertiary care hospitals in Peshawar of Khyber Pakhtunkhwa. Respondents were recruited during June 2017 to August 2017 from Hayatabad Medical Complex, Lady Reading Hospital, and Khyber Teaching Hospital. The respondents were nursing staff and were selected from different nursing departments like operation room, emergency room, medical and surgical wards and intensive care units. Nursing staff fulfilling inclusion criteria were included in the study. Student nurses, nurses on management side and outpatient department nursing staff were excluded.

With 95% confidence interval, 5% margin error and an anticipated population proportion of 41% the required sample size estimated were 303. Eventually, a sample size of 300 nurses was selected. Multi-stage sampling procedure was employed to choose one hundred nurses from each hospital.

The respondents were assessed in different duty shifts. Data was collected using a structured questionnaire. The questionnaire was translated into Urdu for better understanding. Informed permission was sought from all the respondents before filling the questionnaires. Privacy of the respondents was maintained during data collection. Ethical approvals were also taken from all the three hospitals ethical boards. Data was analyzed using SPSS version 20.

3. RESULTS

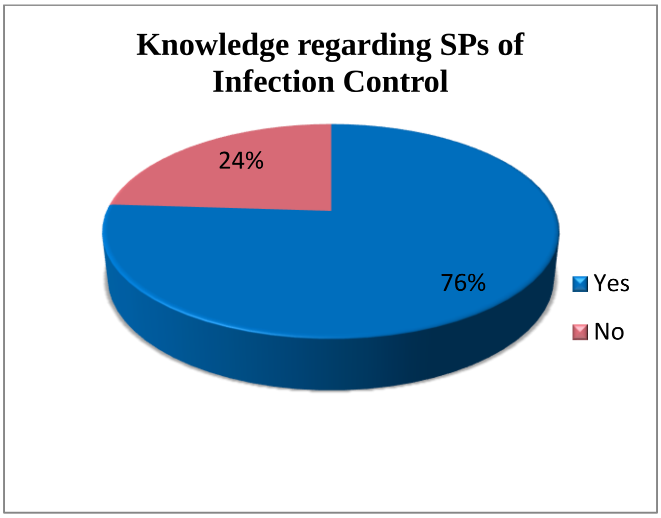
A total of 300 respondents were involved in the study. The mean age of the respondents was 28±3 years. More than half (58.3%) of the respondents were in age between 25-29 years. 12.3% of the respondents were male and 87.6% female. 15.3% of the respondents were BSc Nursing/Post RN Nursing degree holders while the rest 84% were holding General Nursing Diploma. Nearly half (45%) of the respondents were below five years while 3% of the nursing staff were above 20 years of job experience. More than half (54%) of the nursing staff were working in different Wards, 15% in Intensive Care Units, 22% Operation Room and 32% Emergency Room were working respectively (Table 1).

Table 1: Socio-demographic profile of the study population (*n*= 300)

Demographic Variables	Nursing Staff by Hospitals (*n*=300)			Total f (%) (*n*=300)
	LRH (*n*=100)	KTH (*n*=100)	HMC (*n*=100)	
Age (Years)				
Less than 24	14	9	8	31(10.3%)
25-29	64	54	57	175(58.3%)
30-39	27	22	24	73(24.3%)
More than 40	09	06	06	21(7%)
Gender				
Male	12	14	11	37(12.3%)
Female	88	94	81	263(87.6%)
Qualification				
BSc Nursing/Post RN	18	15	13	46(15.3%)
Diploma Nursing	87	93	74	254(84.6%)
Experience				
Less than 5 years	56	48	33	137(45.6%)
6-10 years	32	29	37	98(32%)
11-20 years	17	19	19	55(18.3%)
More than 20 years	03	04	03	10(3%)
Departments				
Intensive care unit	20	13	12	45(15%)
Ward	52	61	51	164(54%)
Operation Room	13	09	16	38(22%)
Emergency	15	17	21	53(32%)

Source: Field Survey, 2017

76% of the respondents reported that they have enough knowledge regarding SPs of infection control whiles 24% stated otherwise as indicated in figure 1 below.



Source: Field Survey, 2017

Figure 1: Respondent's knowledge regarding standard precautions of infection control

Table 2: Knowledge of Respondents regarding Standard Precautions of infection control (*n*=300)

Frequency of respondent's knowledge regarding standard precau (*n*=300)		
Standard Precautions are only used for infected patients		
	Yes	*55%*
	No	*45%*
Washing hands is necessary after contact with different patients		
	Yes	*71%*
	No	*29%*
Need of standard precautions while caring HCV positive patient		
	Yes	*74%*
	No	*26%*
Standard precautions are not needed for oral care of the patients		
	Yes	*41%*
	No	*59%*
Main goal of standard precautions is to protect Medical Staff from infections		
	Yes	*65%*
	No	*35%*

Source: Field Survey, 2017

More than half (55%) respondents reported that SPs are only used for infected patients. Majority (71%) respondents reported hand wash after contacting patients. 74% staff nurses reported that there is need of standard precautions caring HCV positive patient whereas 26 % reported that there is no need of standard precautions caring HCV positive patient. More than half (59%) respondents reported no need of considering SPs while providing oral care to the patient. Majority (65%) respondents reported that the application of SPs in the healthcare system protects medical staff from infections as shown in table 2.

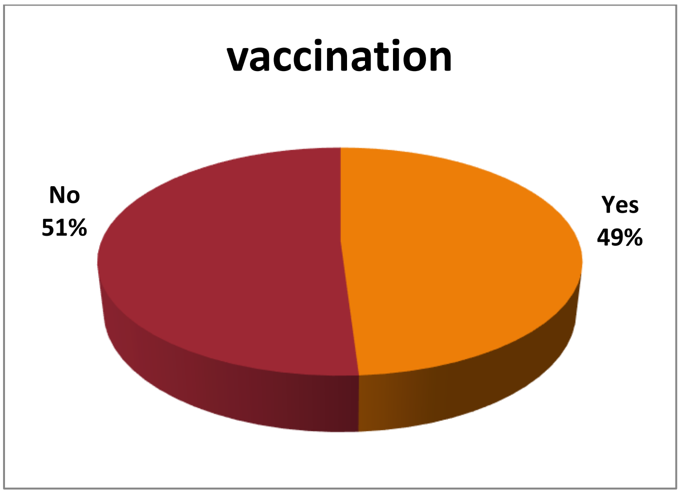
Table 3: Practices of the respondent's regarding standard precautions of infection control.

Percentages of Respondents Follow Standard Precautions Infection Control		
Hand wash after contacting blood fluids		
	Always	81%
Putting on gloves during blood collecting		
	Always	75%
Putting on gloves before stool and urine disposal		
	Always	72%
Putting on gloves during contacting with the mucosa of the patients		
	Always	37%
Putting on gloves at the time of intravenous cannulation		
	Always	67%
Wearing face-mask at the time of operation		
	Always	88%
Wearing protective eye goggle at the time of operation		
	Always	68%
Wearing protective cap and shoes at the time of operation		
	Always	55%
If skin is injured with polluted sharps, would you clean that area and report to the infection control department?		
	Always	61%

Source: Field Survey, 2017

Majority (81%) respondents reported hand wash after contacting the body fluids of the patients. 75% respondents reported the use of gloves as a protective measure during collecting blood sample from patients. 72% respondents put on gloves at the time of stool and urine disposal. Similarly, 37% always, 26% usually, 19% sometimes and 18% respondents never use gloves during contacting the mucosa of the patients. Majority (67%) respondents always while 13% sometimes put on gloves at the time of intravenous cannulation. 88% study population always wears face-mask during operating procedure. More than half (55%) respondents reported wearing of protective caps and shoes at the time of operation. 61% of study respondents reported that when they injured with any sharp object they clean the affected area and report to the infection control department of the hospital as shown in table 3.

More than half (51%) of the study respondents are not vaccinated against various infectious diseases while 49% vaccinated against various infectious diseases. This is illustrated in figure 2.



Source: Field Survey, 2017

Figure 2: Vaccination status of the respondents

Majority (75%) respondents were agreed that the hospital provides enough resources regarding infection control such as gloves, mask, hand sanitizer, apron, and shoe covers. More than half (56%) respondents had done training and refresher courses regarding SPs of infection control. 82% respondents reported a hand wash area in different units of the hospital.

4. DISCUSSION

It is very necessary for each and every nursing staff to have enough knowledge regarding SPs of infection control; in the current study 24% respondents had no knowledge regarding SPs. Nurses in Iran had inadequate knowledge regarding SPs of infection control as compared to nurses in Pakistan. The findings of the study conducted in Iran revealed 43% of nurses had poor knowledge concerning SPs of infection control [10].

In the current study, only 26% respondents reported no need of following SPs of infection control in handling a patient with Hepatitis C. SPs is very important for healthcare providers while caring a patient with hepatitis C. The main source of spread of hepatitis C is blood and body fluids. The chain of transmitting of hepatitis C cannot be broken without SPs. Personal protective equipment's use is very essential in handling a patient with HCV. The healthcare professionals ought to be very conscious regarding the transmission of HCV. It is reported that HCV is much more prevalent in healthcare provider's especially nursing staff [11].

In the current study, 81% study respondents wash their hands after contacting with the body fluids of the patients. Hand wash is the first and the most practice the nurse should perform in breaking the chain of infection control. Infection control departments' emphasis on hand washing and literature suggests that hand washing prevent and control healthcare associated infections [12]. One other study also suggests that proper hand washing by the healthcare provider, especially nurses decrease the rate of nosocomial infections [13]. In the current study, 61% study population reported cleaning the injured are with polluted sharp object and report to the infection control department of the hospital. According to one of the studies in Rawalpindi, Pakistan 73% healthcare nursing staff that got injured with sharp objects report and take proper treatment [14]. To prevent the cause of infection from any polluted sharp object in a healthcare setting, Proper management is needed soon after injury. The incident should be reported to the infection control department and proper treatment for the healthcare staff is needed [15].

From the findings of the current study, 27% of nursing staff never use shoe covers and only 12% sometimes wear face masks while performing some invasive procedure or working in operation theater. To ensure the safety of the healthcare professionals, the use of personal protective equipment is very important. The priority of healthcare staff must be their own safety. Personal protective equipment not only protects the staff from infection, but also break the chain of infection transmitting. The performance of nurses is totally based on their practices according to the standard guidelines of SPs [16]. Personal protective equipment is necessary for each and every nurse to avert the spread of infection in the healthcare setup. It is not only useful for the protection of the patients but also for the protection of healthcare professionals.

Half of our study population has been vaccinated. Nurses contact the patients with different diseases and infections. To prevent the nurses from infections and some communicable disease, vaccination of the nursing staff is very important. According to Centers for Disease Control and Prevention, healthcare professionals are at high risk of exposure to severe infections and communicable diseases. Working with patients or dealing with infective materials increase the chances of infection spread. Vaccination reduces the spread of vaccine-preventable diseases. Vaccination not only protects the healthcare professional, but it also protects the family and other patients [17].

Our study estimated that 52% nursing staff had refresher courses and training regarding SPs of infection control. It is almost half of the sample. SPs are very important to follow by the healthcare providers, especially nurses because they stay more with patients. It not only protects the patients but also protect the medical staff from infectious diseases. According to one of the studies, every staff should be trained regarding SPs. Providing course and training is the main responsibility of every hospital [18]. In the current study, majority (86%) nurses showed their desire for training and refresher courses. The healthcare system should provide opportunities for nurses regarding different training and courses. The findings of different studies revealed that the healthcare system in Pakistan is not enough up to date to provide opportunities for nurses regarding ongoing courses and training on SPs [19]. 75% of the study respondents reported enough resources regarding infection control in healthcare units such as gloves, mask, hand sanitizer, apron, and shoe covers. The expectations are very high from the tertiary care government hospitals. There should be infection control department in every hospital setting, where they monitor the infection spread and control statistics. Providing good health to the patients and healthcare professionals is the main responsibility of the hospital administration [20]. Majority of the nurses reported hand washing areas in their units. The availability of hand washing area boosts the nursing interest for washing hands. Hand hygiene is very important for the healthcare professionals, hand washing is the first line of defense against infection and plays an important role in breaking the chain of infection spread [21].

The authors face some difficulties during data collection. Majority of the nursing staff were afraid that these reports will affect their job. There were some other hospitals which were not included in the study. The study would be better if the data were collected from all the hospitals of district Peshawar. Beside all these limitations, the study has some strength like the involvement of the hospitals' nursing departments.

5. CONCLUSION

The study revealed that 76% nursing staff has knowledge regarding SPs. The knowledge and practice of nurses regarding the SPs of infection control was not up to the international guidelines. Majority of the nurses did not know about the SPs of infection control. Vaccination status of the nurses was not good since half of the nurses were not properly vaccinated.

6. RECOMMENDATIONS

The role of hospital administration and nursing department is very important in educating the nurses regarding SPs. There should be regular refresher courses for the nurses regarding infection control. Infection control department should improve their work in recognizing the weakness of staff nurses regarding infection control.

7. REFERENCES

[1] "Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care | HAI | CDC." [Online]. Available: http://www.cdc.gov/hai/settings/outpatient/outpatient-care-guidelines.html.

[2] J. Sreedharan, J. Muttappillymyalil, and M. Venkatramana, "Knowledge about standard precautions among university hospital nurses in the United Arab Emirates.," *East. Mediterr. Health J.*, vol. 17, no. November 2014, pp. 331–4, 2011.

[3] World Health Organization, "Healthcare-associated infections Fact sheet," *World Heal. Organ.*, p. 4, 2015.

[4] "Hospital eTool: Healthcare Wide Hazards - (Lack of) Universal Precautions." [Online]. Available: https://www.osha.gov/SLTC/etools/hospital/hazards/univprec/univ.html.

[5] T. E. Alice, A. Danny, and O. Ikponwonsa, "Knowledge and practice of infection control among health workers in a tertiary hospital in Edo state ," *Direct Res. J. Heal. Pharmacol.*, vol. 1, no. November, pp. 20–27, 2013.

[6] H. G. Eskander, W. Y. M. Morsy, and H. A. A. Elfeky, "Intensive Care Nurses ' Knowledge & Practices regarding Infection Control Standard Precautions at a Selected Egyptian Cancer Hospital," *J. Educ. Pract.*, vol. 4, no. 19, pp. 160–174, 2013.

[7] P. Solanky, H. Baria, A. Nerulkar, and N. Chavda, "Knowledge and practice of universal precautions among nursing staff at a tertiary care hospital in South Gujarat , India," vol. 3, no. 9, pp. 2373–2376, 2016.

[8] H. V. Saroji, "Awareness and Practice of Standard Precautions Among Kerala State Health Services Personnel in Neyyatinkara Taluk," no. October, 2014.

[9] M. Afzal, "Knowledge and Attitudes of Nurses towards Healthcare Associated Infections in Lahore, Pakistan," *TEXILA Int. J. Nurs.*, vol. 2, no. 1, pp. 1–8, Jul. 2016.

[10] H. Sarani, A. Balouchi, N. Masinaeinezhad, and E. Ebrahimitabas, "Knowledge, Attitude and Practice of Nurses about Standard Precautions for Hospital-Acquired Infection in Teaching Hospitals Affiliated to Zabol University of Medical Sciences (2014)," *Glob J Heal. Sci*, vol. 8, no. 3, pp. 193–198, 2016.

[11] A. Bianco, F. Bova, C. G. A. Nobile, C. Pileggi, and M. Pavia, "Healthcare workers and prevention of hepatitis C virus transmission: exploring knowledge, attitudes and evidence-based practices in hemodialysis units in Italy.," *BMC Infect. Dis.*, vol. 13, no. 1, p. 76, 2013.

[12] "Mathai E, Allegranzi B, Kipatrick C, Pittet D. Prevention and control of healthcare associated infections through improved hand hygiene. Indian J Med Microbiol. 2010;28:100–6."

[13] "Larson EL, Early E, Cloonan P, Sugrue S, Parides M. An organizational climate intervention associated with increased handwashing and decreased nosocomial infections. Behav Med. 2000;26:14–22."

[14] A. Sultana, A. Kulsoom, and R. Iqbal, "Needle Stick/Sharp Injuries in Healthcare Workers," *J. Rawalpindi Med. Coll.*, vol. 18, no. 1, pp. 133–135, 2014.

[15] N. T. Sharew, G. B. Mulu, T. D. Habtewold, and K. D. Gizachew, "Occupational exposure to sharps injury among healthcare providers in Ethiopia regional hospitals," *Ann. Occup. Environ. Med.*, vol. 29, no. 1, pp. 1–7, 2017.

[16] "Personal Protective Equipment for Operating Room." [Online]. Available: http://www.halyardhealth.com.au/products/surgical-solutions/personal-protective-equipment-for-operating-room.aspx. [Accessed: 26-Aug-2017].

[17] "Recommended Vaccines for Healthcare Workers | CDC." [Online]. Available: https://www.cdc.gov/vaccines/adults/rec-vac/hcw.html. [Accessed: 26-Aug-2017].

[18] A. T. Jha, G. P. Jacob, M. Ramireddy, Y. K. K, and G. P. Jacob, "Awareness and practices regarding standard precautions for infection control among the hospital support staff in a tertiary care hospital in South India : a cross sectional study," vol. 4, no. 8, pp. 2690–2695, 2017.

[19] R. Punjwani, A. Khatoon, F. Ds, and A. Ahmed, "Medical Safety & Global Health Practices and Policies of Infection Control and Prevention , Pakistan - A Review for Patient Safety," vol. 5, no. 1, pp. 1–3, 2016.

[20] WHO, "Hospital Hygiene and Infection Control," *Safe Manag. wastes from Heal. Act.*, pp. 148–158.

[21] "Hand Hygiene in Healthcare Settings | Hand Hygiene | CDC." [Online]. Available: https://www.cdc.gov/handhygiene/index.html. [Accessed: 26-Aug-2017].