

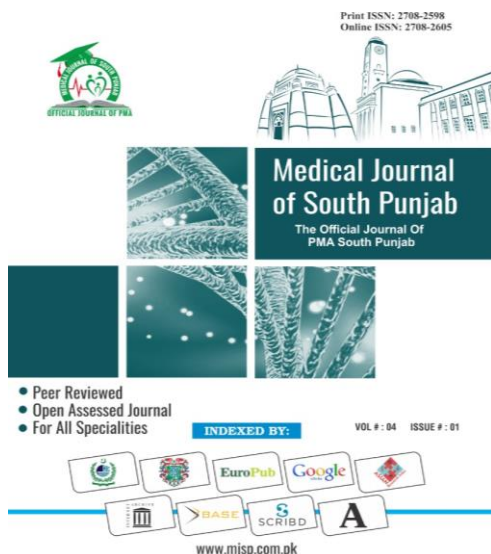
ISSN (E): 2708-2601

ISSN (P): 2708-2598

## Medical Journal of South Punjab

Article DOI:10.61581/MJSP.VOL05/01/02

Volume 5, Issue 1, 2024



### Assessment of hand hygiene knowledge and practice among undergraduate students of nursing at a Public Sector Nursing College, Jamshoro

#### Publication History

Received: Oct, 12 2023

Revised: Nov 16, 2023

Accepted: Nov 21, 2023

Published: Mar 30, 2024

#### Authors and Affiliation:

Farzana Perveen<sup>1\*</sup>, Tasleem Bibi<sup>2</sup>, Altaf Hussain<sup>3</sup>, Sabiha Sarwar<sup>4</sup>, Irum Qureshi<sup>5</sup>, Hafsa Bibi<sup>6</sup>

<sup>1</sup>LUMHS Jamshoro Sindh, Pakistan

<sup>2</sup>Liquat Collage of Nursing, Jamshoro, Pakistan, Pakistan

<sup>3</sup>Memon Institute Hospital Karachi, Pakistan, Pakistan

<sup>4</sup>People's Nursing School, LUMHS, Jamshoro, Pakistan

<sup>5</sup>Ch. Pervaiz Ellahi Institute of Cardiology, Multan, Pakistan

<sup>6</sup>PNS, LUMHS, Pakistan

\*Corresponding Author Email:

[siyalfarzana90@gmail.com](mailto:siyalfarzana90@gmail.com)

#### Copyright & Licensing:



Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under a [Creative Commons Attribution \(CC-BY\) 4.0 License](https://creativecommons.org/licenses/by/4.0/) that allows others to share the work with an acknowledgment of the work's authorship and initial publication in this journal.

#### Conflict of Interest:

Author(s) declared no conflict of interest.

#### Acknowledgment:

No Funding received.

**Citation:** Parveen F, Bibi T, Hussain A, Sarwar A, Qureshi I, Bibi H. Assessment of Hand Hygiene Knowledge and Practice among Undergraduate Students of Nursing at a Public Sector Nursing College Jamshoro. Medical Journal of South Punjab. 2024 March 30; 5(1):6-13.

Please scan me to access online.



An official publication of  
**Medteach Private Limited, Multan, Pakistan.**

Email: [farman@mjsp.com.pk](mailto:farman@mjsp.com.pk), Website: <https://mjsp.com.pk/index.php/mjsp>



## Assessment of Hand Hygiene Knowledge and Practice among Undergraduate Students of Nursing at a Public Sector Nursing College Jamshoro

Farzana Perveen<sup>1\*</sup>, Tasleem Bibi<sup>2</sup>, Altaf Hussain<sup>3</sup>, Sabiha Sarwar<sup>4</sup>, Irum Qureshi<sup>5</sup>, Hafsa Bibi<sup>6</sup>

<sup>1</sup>LUMHS Jamshoro Sindh, Pakistan

<sup>2</sup>Liquat Collage of Nursing, Jamshoro, Pakistan, Pakistan

<sup>3</sup>Memon Institute Hospital Karachi, Pakistan, Pakistan

<sup>4</sup>People's Nursing School, LUMHS, Jamshoro, Pakistan

<sup>5</sup>Ch. Pervaiz Ellahi Institute of Cardiology, Multan, Pakistan

<sup>6</sup>PNS, LUMHS, Pakistan

\*Corresponding Author Email: [siyalfarzana90@gmail.com](mailto:siyalfarzana90@gmail.com)

### ABSTRACT

**Objective:** To assess the knowledge and practice of hand hygiene among undergraduate students of nursing at a Public Sector Nursing College Jamshoro

**Methods:** A Quantitative descriptive cross sectional study was carried out from August to September 2023 at Nursing College Jamshoro. A total of 96 study participants in the study. A non-convenience sampling method was used and data was collected after departmental approval, before collection of data form the participants written informed consent was taken. The data was collected using the WHO "Hand Hygiene Knowledge Questionnaire."

**Results:** The mean age was  $22.9 \pm 1.8$ . Most respondents (71%) were in their third year of study, and most participants (70.4%) were hostel residents. Most of the respondents' source of knowledge for hand hygiene was lectures (68.8%,  $n = 68$ ), and most participants (92.7%) said that hand hygiene is very significant way in prevention of infection. The majority of the participants (89.6%) said that hand rubbing is required prior to administering an injection to a patient. Majority of the responded (89.6%) reported that wearing jewelry increased the risk of colonization of hands with pathogens.

**Conclusion:** The present study reported good knowledge and practice of hand hygiene among nursing undergraduates. It also demonstrated that they had been adequately exposed to information about hand hygiene.

**Keywords:** attitude, hand hygiene, healthcare workers, infection, knowledge, practice.

## 1. INTRODUCTION

Proper Hand Hygiene(HH) practice remains one of the most significant concerns in the world, whereas the chain of infection could be broken by proper hand hygiene compliance and to decrease health-related infections<sup>1</sup>. Many microorganisms are transmitted while dealing with patients unless HH compliance are followed as per recommended guidelines<sup>2</sup>. Morbidity, and treatment expenses increases with Hospital Acquired Infections (HAIs), which could be decreased by following proper HH guidelines<sup>3</sup>. A decrease in infection rates was reported after better HH compliance by health care workers<sup>4</sup>.

A study was conducted in Tukey which showed the highest HAIs prevalence rate (48.7%) in Intensive care unit patients<sup>5</sup>. Whereas surveillance of whole hospital reported highest prevalence rate of HAI in Russia was 15.1%, Ethiopia 14.8% and Tunisia was 14.3 percent<sup>6</sup>. Gravel et al. conducted a study which reported that Prevalence of HAI in Canada was (10.4%)<sup>7</sup>. A Point prevalence carried out in Ireland which showed that higher HAI prevalence rate (4.3%)<sup>8</sup>. A study was conducted in 2019 in 15 different hospitals of Pakistan which showed that the most common HAI infection is surgical site infection is about 40%, whereas by blood stream infection and respiratory tract infections were 21.5% and 14.6% respectively<sup>9</sup>.

Various research surveys carried out in United Kingdom(UK) and Netherland reported that the frequency of HAI varies across inpatients. The range is 4.3% to 6.7%, and 2.6 million new instances of HAI every year emerge<sup>10</sup>. A study was conducted on six studies throughout the intervention time. 8,420 times for HH observation were presented. Overall compliance upgraded 43.3% in 2004, and

95.6% in 2007. The overall compliance of HH practices was statistically associated with the greater use alcohol during hand hygiene<sup>11</sup>.

Another study conducted in 2017 in Iran which reported that pulmonary inhalation of Alcohol during the consumption of Alcohol Based Hand Rub(ABHR), about 24.6% of nurses were worried, whereas 22.7% said absorption of alcohol through the skin would be a problematic, but the mostly said neither inhalation nor absorption would cause a religious conflict<sup>12</sup>.

The most efficient method to prevent infection is proper HH. Also, pathogen can be prevented to spread especially multiple drugs resistant pathogens.

A study was conducted at Karachi about HH practices which showed the 63.1% HH compliance among health care workers(HCW)<sup>13</sup>. Another study was carried out which revealed 12.3% compliance at HCW, while knowledge of “World Health Organization” (WHO) guidelines on HH was 62.7% and 45.75 percent had never attended formal training on HH<sup>14</sup>.

During clinical training of nursing students spend time with patient areas can transmit infection, if not taught and trained, particularly in restricted resources setting, whereas HH standards are taught to prevent hospital acquired infections. To improve the quality of health services can be improved by good compliance of HH practices that will be developed through proper training and surveillance system. aim of the study was to evaluate the knowledge attitude and practice of students of nursing about hand hygiene.

## 2. METHODOLOGY

The quantitative descriptive cross-sectional was conducted at Liaquat University of Health Sciences Jamshoro, Pakistan. The actual calculated sample size was 96; a nonrandom convenience sampling method was used in data collection; All BSN

students of year three and four enrolled at Jamshoro College of Nursing, aged 15 to 35 years were included in the study. Students who were in year one and two of BSN and not willing to take part were excluded from the study.

Data collection was conducted in August. In addition to questionnaire responses, demographic details were collected, including the participant's name, age, occupation of father, education status, semester, and CGPA.

The questionnaire which was used in the study was developed by the “World Health Organization” named as “Five Moments for Hand Hygiene”, which has two parts: the first is about knowledge, and the second is about the practice of hand hygiene.

For data entry and analysis Statistical Package of Social Sciences (SPSS) Version 26 was used. Descriptive analysis Mean, Standard deviation percentage and frequency was used for data analysis.

Departmental ethical permission from the head of the department and was taken and written informed consent was taken from participants before the study.

### 3. RESULTS

The mean age of the participants was 22.9 ±1.8. Most respondents (71%) were in their third year of study, followed by the fourth year (26%). Most participants (70.4%) were hostel residents. The majority of the participants (94%) attended the training of HH. Most of the respondent's source of knowledge for HH was lectures (68.8%). Most participants (87.5%) were aware of the WHO's five movements for HH [able 1].

**Table 1: Sociodemographic Data (n=96)**

Sociodemographic characteristics	Number n (%)
----------------------------------	--------------

<b>Age (years), Mean ± SD</b>	22.9 ± 1.8
<b>GPA, Mean ± SD</b>	3.5±0.3
<b>Year of Study</b>	
3 <sup>rd</sup> Year	71 (74)
4 <sup>th</sup> Year	25(26)
<b>Residence</b>	
Hostler	68 (70.8)
Day scholar	28 (29.2)
<b>Received training of hand hygiene</b>	
Yes	94 (97.9)
No	2 (2.1)
<b>Source of Knowledge about hand hygiene</b>	
Textbook	10 (10.4)
Lectures	68 (68.8)
Clinical Instructor	11 (11.5)
Online resources	7 (7.3)
Research articles	2 (2.1)
<b>Familiar with WHO five movements for hand hygiene</b>	
No	84 (87.5)
Yes	12 (12.5)

(Table 1)

Table 2 shows that most participants (92.7%) responded that most efficient method to prevent the transmission of infection is hand hygiene. Among them, (89.6%) revealed that most efficient way to prevent transmission of germs was hand hygiene than hand washing. The Majority had excellent knowledge of hand hygiene practices. Most participants (89.6%) said that poor hand washing increases the risk of transfer of infection from one patient to another.

**Table 2: Hand Hygiene Knowledge (n = 96)**

Responses of participants for hand hygiene Knowledge	Number n(%)
<b>1. Hand washing is the main method to prevent the transfer of germs</b>	
Yes	89 (92.7)
No	7 (7.3)
<b>2. To prevent the transmission of infection is hand rub than hand washing</b>	
Yes	86 (89.6)
No	10 (10.4)
<b>3. HH is essential after exposure of patient environment</b>	
Yes	89 (92.7)
No	7 (7.3)
<b>4. HH is essential before applying an oxygen</b>	
Yes	92 (95.8)
No	4 (4.2)

<b>5. For alcohol based HH the minimum time required is 20 seconds to kill the germs on hands.</b>	
Yes	89 (92.7)
No	7 (7.3)
<b>6. Hand rubbing is required before giving an injection to a patient.</b>	
Yes	86 (89.6)
No	10 (10.4)
<b>7. HH is mandatory before palpation of the abdomen.</b>	
Yes	80 (82.3)
No	16 (16.7)
<b>8. HH is required after emptying a bedpan.</b>	
Yes	62 (64.6)
No	34 (35.4)
<b>9. Hand rubbing is compulsory after removing examination gloves.</b>	
Yes	87 (90.6)
No	9 (9.4)
<b>10. Hand rubbing is essential after making a patient's bed.</b>	
Yes	84 (87.5)
No	12 (12.5)
<b>11. Hand Washing is essential after visible exposure to blood or blood product.</b>	
Yes	87 (90.6)
No	9 (9.4)
<b>12. Any infections we can get and transfer from poor hand washing.</b>	
Yes	89 (92.7)
No	7 (7.3)
<b>13. Poor hand washing increases the risk of transmission of infection from one to another patient.</b>	
Yes	92(95.8)
No	4 (4.2)
<b>14. Long fingernails increases the risk of colonization of germs on hands.</b>	
Yes	95 (99)
No	1 (1)
<b>15. Wearing jewelry increases the risk of colonization of harmful germs on hands.</b>	
Yes	86 (89.6)
No	10 (10.4)
<b>16. Damaged skin increases the risk of colonization of harmful germs.</b>	
Yes	86 (89.6)
No	10 (10.4)

(Table 2).

Table 3 shows that most of the participants (91.7%) follow to correct hand hygiene (HH) practices, and the majority of the participants (67.7%) follow to HH practices.

**Table 3: Responses of participants to HH Practice**

Responses of participants for HH Practice	Number (%)
<b>1. I use correct HH practice every time.</b>	
Yes	88 (91.7)
No	8 (8.3)
<b>2. I have enough knowledge about HH.</b>	
Yes	85 (88.5)
No	11 (11.5)
<b>3. I have more important things to do than hand hygiene.</b>	
Yes	49 (51.0)
No	47 (49.0)
<b>4. Emergences and other priorities make HH more difficult all times.</b>	
Yes	65 (67.7)
No	31 (32.3)
<b>5. Wearing gloves decrease the need of HH.</b>	
Yes	65 (67.7)
No	31 (32.3)
<b>6. I feel frustrated when I omit HH.</b>	
Yes	68 (70.8)
No	28 (29.2)
<b>7. I am reluctant to ask others to involve in HH.</b>	
Yes	65 (67.7)
No	13 (13.5)
Do not Know	18 (18.8)
<b>8. I cannot follow all protocol of HH.</b>	
Yes	38 (39.9)
No	58 (60.4)
<b>9. I feel guilty if I neglect HH.</b>	
Yes	77 (80.2)
No	19 (19.8)
<b>10. I follow HH practices easily in the current setup.</b>	
Yes	65 (67.7)
No	13 (13.5)
Do not Know	18 (18.8)

(Table 3).

#### 4. DISCUSSION

Studies has shown that better compliance of HH reduces the HAIs<sup>15</sup>. But lack of knowledge of HH, long working hours over burden, attitude towards HH and use of gloves will eliminate the use of HH are

some of the most common factors responsible for poor HH practices<sup>16</sup>.

The present study reported that most participants were good HH practice knowledge, parallel to the outcomes in other studies<sup>17-18</sup>. Overall, most participants had good knowledge about HH which is parallel to the study conducted in Saudi Arabia among nursing students which showed higher knowledge of HH and lower percentage of compliance 29.8%<sup>19</sup>. A review article by Kendall et al. in 2012 showed that amenability of HH practice is low in Canada<sup>20</sup>, which is contradict to the current study. More ever, several other studies were conducted out in Ethiopia, Sri Lanka, and other regions of the world reported that HH compliance varies between 5.53 percent to 87.5 percent in health care workers<sup>13, 21-26</sup>. In the study it showed that the nurses 97.9% student nurses have joined training of HH which is similar to the study conducted in by Mohaithef et.all in Saudi Arabia in 2020 which reported that 77.8% nurses have attended the training program for hand hygiene<sup>27</sup>.

Another study was conducted by Randle *et al.*, in 2006 which reported that the HH compliance in health care professionals can be enhanced by continues training program of health care provider using different methodologies<sup>28</sup>. The study subjects who have good knowledge leads to good practice. Therefore, it is important to have compliance of HH practice. Furthermore, emphasizing on HH in the undergraduate curriculum will enhance knowledge and practices about hand hygiene.

The study limitations were the small sample size, single-center study, and the fact that it would have been more effective if the practice was observed rather than obtained by a

questionnaire; the data, however, have been given for further research studies.

## 5. CONCLUSION

This study showed good HH knowledge and practice among undergraduate nursing students. It also demonstrated that they had been adequately exposed to information on hand hygiene. Despite much information about HH practice being effective in preventing infections and reducing nosocomial infection, HH practice was very good among undergraduate students. Moreover, students' HH compliance behaviour will influence future prevention and reduction of infection.

## REFERENCES

1. Pittet D. Improving adherence to hand hygiene practice: a multidisciplinary approach. *Emerg Infect Dis.* 2001 Mar;7(2):234.
2. Mathur P. Hand hygiene: back to the basics of infection control. *The Indian J Med Res.* 2011 Nov;134(5):611.
3. Irek EO, Amupitan AA, Aboderin AO, Obadare TO. A systematic review of healthcare-associated infections in Africa: An antimicrobial resistance perspective. *African J Lab Med.* 2018 Jun 1;7(2):1-9.
4. Martín-Madrado C, Cañada-Dorado A, Salinero-Fort MA, Abanades-Herranz JC, Arnal-Selfa R, García-Ferradal I et al. Effectiveness of a training programme to improve hand hygiene compliance in primary healthcare. *BMC Public Health.* 2009 Dec;9:1-8.
5. Esen S, Leblebicioglu H, Study Group. Prevalence of nosocomial infections at intensive care units in Turkey: a multicentre 1-day point

- prevalence study. *Scandinavian J Infect Dis.* 2004 Feb 1;36(2):144-8.
6. Yallem WW, Kumie A, Yehuala FM. Point prevalence of hospital-acquired infections in two teaching hospitals of Amhara region in Ethiopia. *Drug, healthcare and patient safety.* 2016 Aug 23;71-6.
  7. Gravel D, Matlow A, Ofner-Agostini M, Loeb M, Johnston L, Bryce E et al. Taylor G, Canadian Nosocomial Infection Surveillance Program. A point prevalence survey of health care-associated infections in pediatric populations in major Canadian acute care hospitals. *Am J Infect Control.* 2007 Apr 1;35(3):157-62.
  8. Roche FM, Donlon S, Burns K. Point prevalence survey of healthcare-associated infections and use of antimicrobials in Irish intellectual disability long-term care facilities: 2013. *J Hospital Infect.* 2016 Aug 1;93(4):410-7.
  9. Saleem Z, Hassali MA, Godman B, Hashmi FK, Saleem F. A multicenter point prevalence survey of healthcare-associated infections in Pakistan: Findings and implications. *Am J Infect Control.* 2019 Apr 1;47(4):421-4.
  10. Price L, MacDonald J, Gozdzielewska L, Howe T, Flowers P, Shepherd L et al. Interventions to improve healthcare workers' hand hygiene compliance: A systematic review of systematic reviews. *Infection Control & Hospital Epidemiology.* 2018 Dec;39(12):1449-56.
  11. Ng WK, Shaban RZ, van de Mortel T. The effect of a hand hygiene program featuring tailored religion-relevant interventions on healthcare workers' hand rubbing compliance and beliefs in the United Arab Emirates: A cohort study. *Infect, Dis & health.* 2019 Aug 1;24(3):115-23.
  12. Nawab T, Mehnaz S, Abedi AJ, Safwi SR, Khalique N, Ansari MA et al. KAP study of hand hygiene among medical and nursing students in a tertiary teaching hospital. *IJSR.* 2015; 2:29-39.
  13. Zia I, Cheema SS, Sheikh NS, Ashraf H. Hand hygiene knowledge, attitudes, and self-reported practices among medical and nursing staff of a tertiary-care military hospital: a cross-sectional study. *Intern J Infect Control.* 2022 May 13;18.
  14. Ahmed J, Malik F, Memon ZA, Bin Arif T, Ali A, Nasim S et al. Compliance and Knowledge of Healthcare Workers Regarding Hand Hygiene and Use of Disinfectants: A Study Based in Karachi. *Cureus.* 2020 Feb 18;12(2):e7036.
  15. Hugonnet S, Perneger TV, Pittet D. Alcohol-based handrub improves compliance with hand hygiene in intensive care units. *Archives of internal medicine.* 2002 May 13;162(9):1037-43.
  16. Al Ghafari Z, Eid Aburuz M. Hand Hygiene Knowledge, Attitude and Barriers among Jordanian Nurses. 2019;24(03):13412051.
  17. Nair SS, Hanumantappa R, Hiremath SG, Siraj MA, Raghunath P. Knowledge, Attitude, and Practice of Hand Hygiene among Medical and Nursing Students at a Tertiary Health Care Centre in Raichur, India. *ISRN Prev Med.* 2014 Feb 6;2014:608927.
  18. Dutta G, Singh TG, Kumar T. Knowledge and practice of hand hygiene among undergraduate students and junior doctors in the Regional Institute of Medical

- Sciences, Imphal. *J Family Med Primary Care*. 2020 Sep;9(9):4741.
19. Cruz JP, Bashtawi MA. Predictors of hand hygiene practice among Saudi nursing students: A cross-sectional self-reported study. *J Infect Public Health*. 2016 Jul 1;9(4):485-93.
  20. Kendall A, Landers T, Kirk J, Young E. Point-of-care hand hygiene: preventing infection behind the curtain. *American journal of infection control*. 2012 May 1;40(4):S3-10.
  21. Aledeilah RD, El-Fetoh NM, Albaker A, Aljabbab AA, Alkhannani SJ, Almahroos TS et al. Assessment of knowledge, attitude and practice of hand hygiene among health care workers in Arar City, Saudi Arabia. *The Egypt J Hospital Med*. 2018 Jan 1;70(3):491-8.
  22. ALSofiani AM, AlOmari F, AlQarny M. Knowledge and practice of hand hygiene among healthcare workers at Armed Forces Military Hospitals, Taif, Saudi Arabia. *Int J Med Sci Public Health*. 2015;5(6):1282-91.
  23. Engdaw GT, Gebrehiwot M, Andualem Z. Hand hygiene compliance and associated factors among health care providers in Central Gondar zone public primary hospitals, Northwest Ethiopia. *Antimicrob Resist Infect Control* 2019; 8: 190.
  24. Jemal S. Knowledge and Practices of Hand Washing among Health Professionals in Dubti Referral Hospital, Dubti, Afar, Northeast Ethiopia *Advances in preventive medicine* 2018; 2018: 5290797.
  25. Goyal L, Kumar A, Goyal T. Knowledge, attitude and practices towards hand hygiene among nursing staff working in a tertiary care setting in north India: a Descriptive cross-sectional study. *Eur J Pharm Med Res* 2018; 5: 255-9.
  26. Sharif A, Arbabisarjou A, Balouchi A, Ahmadidarrehsima S, Kashani HH. Knowledge, Attitude, and Performance of Nurses toward Hand Hygiene in Hospitals. *Glob J Health Sci* 2016; 8(8): 53081.
  27. Mohaithef MA. Assessing hand hygiene practices among nurses in the Kingdom of Saudi Arabia. *The Open Public Health J*. 2020 May 23;13(1).
  28. Randle J, Clarke M, Storr J. Hand hygiene compliance in healthcare workers. *J Hosp Infect* 2006; 64(3): 205-9.