



KNOWLEDGE OF HAND HYGIENE PRACTICES AMONG NURSING STUDENTS

Dr. Uroosa Farooq Allaqband

Senior Resident, Department of Community Medicine, Sher-i- Kashmir Institute of Medical Sciences, Soura, Srinagar, Jammu and Kashmir, India.

Dr. Shamila Hamid

Assistant Professor, Department of Community Medicine, Sher-i- Kashmir Institute of Medical Sciences, Soura, Srinagar, Jammu and Kashmir, India.

Dr. Darakshan Ali*

Assistant Professor, Department of Community Medicine, GMC, Baramulla, Jammu and Kashmir, India.*Corresponding Author

ABSTRACT **Background:** Hand Hygiene (HH) has been recognised as the leading measure for reducing the incidence of HCAI. Despite its simplicity, HH compliance rates vary and remain uniformly low. **Objective:** To assess the knowledge of hand hygiene practices among nursing students. **Methods:** It was cross-sectional study and a pre-structured questionnaire was used to assess knowledge of nursing students regarding hand hygiene. **Results:** 51.3% of participants knew correctly the main route of cross transmission of germs between patients in health care facility, only 16.3% knew correctly about source of germs responsible for health-care associated infections and majority (61.3%) knew correctly about the minimal time needed for alcohol-based hand rub to kill germs. **Conclusion:** Nursing students' knowledge about hand hygiene need to be improved by regular theoretical and practical training sessions.

KEYWORDS : Knowledge, Hand Hygiene, Nursing Student.

INTRODUCTION:

Estimates indicate more than 1.4 million patients worldwide are affected by Health care associated infection (HCAI) at any time. The impact of HCAI implies prolonged hospital stay, long term disability, increased resistance of micro-organisms to anti-microbials, massive additional financial burden, high costs for patients and their families and excess deaths¹. HCAIs thus are a major challenge of modern medicine and a major health concern around the globe². Hand Hygiene (HH) has been recognised as the leading measure for reducing the incidence of HCAI³. Despite its simplicity, HH compliance rates vary and remain uniformly low⁴. Limited studies are available in context to HH awareness of nursing students which are our future front-line workers in health care settings. So the present study was undertaken to assess the knowledge of HH practices among students of a nursing college.

MATERIAL & METHODS:

The study was conducted at Mader-e Meharban Institute of Nursing Sciences & Research, SKIMS, Soura in the month Aug-Sept 2019. Students in their 6th semester were enrolled in this study as by 6th semester, students are regularly posted and are well versed with clinical postings. It was cross-sectional study and all the batches comprising of 80 students of 6th semester were taken in the study after taking verbal consent from all. A pre-structured questionnaire comprising of questions regarding knowledge of Hand hygiene was used as data collection tool. The information so collected was tabulated and analysed using SPSS version 20.

RESULTS:

In our study 65% of study participants were in the age group of 21-23 years followed by 27.5% in the 18-20 years age group. 61.3% were females and majority (95%) had received formal training in hand hygiene in last three years. 51.3% of participants knew correctly the main route of cross transmission of germs between patients in health care facility, only 16.3% knew correctly about source of germs responsible for health-care associated infections and majority (61.3%) knew correctly about the minimal time needed for alcohol-based hand rub to kill germs.

Table 1: Knowledge Regarding Hand Hygiene Actions Which Prevents Transmission of Germs to Patient

Knowledge	Frequency	Percent
Hand hygiene must be done before touching a patient		
Yes	76	95.0
No	4	5.0
Hand hygiene must be done immediately after a risk of body fluid exposure		
Yes	62	77.5
No	18	22.5

Hand hygiene must be done after exposure to immediate surroundings of a patient		
Yes	58	72.5
No	22	27.5
Hand hygiene must be done immediately before a clean aseptic procedure		
Yes	57	71.3
No	23	28.8
Total	80	100.0

Table 1: Majority (95%) of respondents knew that hand hygiene must be done before touching a patient, immediately after a risk of body fluid exposure (77.5%), after exposure to immediate surroundings of a patient (72.5%) and immediately before a clean aseptic procedure (71.3%).

Table 2: Knowledge Regarding Hand Hygiene Actions Which Prevents Transmission of Germs to Healthcare Workers

Knowledge	Frequency	Percent
Hand hygiene must be done after touching a patient		
Yes	78	97.5
No	2	2.5
Hand hygiene must be done immediately after a risk of body fluid exposure		
Yes	61	76.3
No	19	23.8
Hand hygiene must be done after exposure to immediate surroundings of a patient		
Yes	62	77.5
No	18	22.5
Hand hygiene must be done immediately before a clean aseptic procedure		
Yes	56	70.0
No	24	30.0
Total	80	100.0

Table 2 shows that majority (97.5%) of study subjects knew that hand hygiene must be done after touching a patient, immediately after a risk of body fluid exposure (76.3%), after exposure to immediate surroundings of a patient (77.5%) and immediately before a clean aseptic procedure (70.0%).

Table 3: Knowledge Regarding Alcohol-based Hand-rub and Hand washing with Soap and Water

Knowledge	Frequency	Percent
Hand rubbing is more rapid for hand cleaning than hand washing		
True	57	71.3
False	23	28.8

Hand rubbing cause skin dryness more than hand washing		
True	52	65.0
False	28	35.0
Hand rubbing is more effective against germs than hand washing		
True	28	35.0
False	52	65.0
Hand washing and hand rubbing are recommended to be performed in sequence		
Yes	59	73.8
No	21	26.3
Total	80	100.0

71.3% knew that hand rubbing is more rapid for hand cleaning than hand washing, only 35% knew hand washing causes dryness of skin more than hand rubbing and hand rubbing is more effective against germs than hand washing and only 26.3% of participants knew that hand washing and hand rubbing are not recommended to be performed in sequence (Table 3).

Table 4: Knowledge of Participants Regarding Increased colonization of hands with harmful germs

Knowledge	Frequency	Percent
Wearing jewellery can increase colonization of hands with harmful germs		
Yes	66	82.5
No	14	17.5
Damaged skin is associated with colonization of hands with harmful germs		
Yes	67	83.8
No	13	16.3
Artificial finger nails are associated with colonization of hands with harmful germs		
Yes	72	90.0
No	8	10.0
Regular use of a hand cream is associated with increased colonization of hands with harmful germs		
Yes	50	62.5
No	30	37.5
Total	80	100.0

Table 4 shows 82.5% of participants knew that wearing jewellery, damaged skin (83.8%), artificial finger nails (90%) and regular use of hand cream (62.5%) were associated with increased likelihood colonization of hands with harmful germs.

Table 5: Type of Hand Hygiene Required in Various Situations

Type of hand hygiene	Frequency	Percent
Before palpation of abdomen type of hand hygiene		
Rubbing	55	68.8
Washing	20	25.0
None	5	6.3
Before giving an injection type of hand hygiene required		
Rubbing	14	17.5
Washing	65	81.3
None	1	1.3
After emptying a bedpan type of hand hygiene required		
Rubbing	15	18.8
Washing	64	80.0
None	1	1.3
After removing examination gloves type of hand hygiene		
Rubbing	19	23.8
Washing	58	72.5
None	3	3.8
After making a patients bed type of hand hygiene required		
Rubbing	23	28.8
Washing	54	67.5
None	3	3.8
After visible exposure to blood type of hand hygiene required		
Rubbing	17	21.3
Washing	62	77.5
None	1	1.3
Total	80	100.0

Table 5 depicts majority (68.8%) knew the type of hand hygiene required before palpation of abdomen and only 17.5% of participants

knew hand hygiene practice to be performed before giving an injection. Majority 64 (80%) knew that after emptying a bedpan, washing of hand is required. Knowledge that after removing examination gloves and after making a patients bed, rubbing of hands is required was seen only in 23.8% and 28.8% of participants respectively. Majority (77.5%) knew that after visible exposure to blood, hand washing is to be done.

DISCUSSION:

In the present study an attempt has been made to find the knowledge of nursing students regarding hand hygiene. Total study subjects were 80, majority were females (61%), majority (65%) were in age group 21-23 and 95% had received formal training in last 3 years. The results of the study indicate that most of the respondents were having good knowledge about hand hygiene but not sufficient enough to prevent HCAI. In this study only half of the respondents (51.3%) correctly knew that the main route of cross transmission of germs between patients in health care facility is the unclean hands of health care workers. This is in contrast to studies by **Mehmud et al¹** and **Nair et al⁶** where almost 70% had correct knowledge about this. Majority of respondents (83.8%) wrongly opined hospital air as the most frequent source of germs responsible for HCAI. Similar findings were seen in a study by **Mehmud et al¹**. 61.2% of study subjects knew that minimal time needed for alcohol based hand-rub to kill germs was 20 seconds and almost 39% had poor knowledge in this regard which was seen in many other studies as well ^{7,8}. Majority (95%) correctly agreed that hand hygiene must be done before touching a patient and 77.5% agreed that hand hygiene actions immediately after a risk of body fluid exposure prevents transmission of germs to patient. Similar findings were found in previous studies ^{6,9}. Majority (72%) but not all opined that hand hygiene actions after exposure to immediate surroundings prevents transmission of germs to health care worker. However, in a study by **Mehmud et al¹** 100% correct response was found to this query. 71.3% of respondents in our study were of opinion that hand hygiene must be done immediately before a clean aseptic procedure and majority opined that hand hygiene must be done after touching a patient to prevent transmission of germs to health care worker. This is in agreement to the findings in other studies ^{5,9}. Likewise majority (76%) opined that hand hygiene must be done after a risk of body fluid exposure, after exposure to immediate surroundings of patient and immediately after a clean aseptic procedure. A high percentage (82.5%) thought that wearing jewellery can increase colonisation of hands with harmful germs. Similar findings were seen in studies conducted in Bhopal, Raichur, Srilanka and Karad ^{6,9}. Majority (83.8%) correctly opined that damaged skin & artificial nails and regular use of hand cream was associated with increased likelihood of colonisation of hands with harmful germs. Similar findings have been reported by **Mehmud et al¹**.

Majority opined that hand rubbing should be done before palpation of abdomen and hand washing should be done before giving an injection (81.3%). This is in contrast to findings in study by **Mehmud et al¹** where majority opined that no hand hygiene method is needed in these situations. 80% of respondents in our study opined that hand washing should be done after emptying bed pan which is in accordance with the findings in previous studies ^{6,9}. 67% of respondents opined that hand washing should be done after making a patient's bed, after visible exposure to blood and after removing examination gloves (72.5%). This is in agreement with previous studies ^{5,9}. 71.3% of our nursing students were knowing that hand rubbing is more rapid and effective against germs than hand washing as was seen in a study by **Mukesh et al¹⁰**. 73.8% believed that hand hygiene and hand washing are to be performed in sequence.

CONCLUSION:

Though 95% of our study subjects had received formal training in hand hygiene in last 3 years yet the knowledge about the same was not satisfactory. We conclude that nursing students had general awareness about hand hygiene but they lacked specific information especially about type of hand hygiene methods required in different situations. Hence nursing students' knowledge about hand hygiene needs to be improved by regular theoretical and practical training sessions. Regular educational sessions, hands on training, posters/pictorial diagrams at strategic locations, direct observations are some of the steps that can be taken to improve their knowledge and thereafter their attitude and practices.

REFERENCES:

1. WHO Guidelines on Hand Hygiene in Health Care: a Summary © World Health Organization 2009/WHO/IER/PSP/2009.07.
2. Joshi S, Joshi A, Park BJ, Aryal UR. Hand washing practice among health care workers

- in a teaching hospital. *J Nepal Health Res Counc.* 2013; 11(23):1-5.
3. Boyce JM, Pittet D. Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Society for Healthcare Epidemiology of America/ Association for Professionals in Infection Control/ Infectious Diseases Society of America. *MMWR*.
 4. WHO Guidelines on Hand Hygiene in Health Care, 2009. 2014. Sep 11th, Available from: http://www.who.int/publications/2009/9789241597906_en.pdf.
 5. Mahmood SE et al. *Int J Community Med Public Health.* 2015 Nov; 2(4):466-471.
 6. Nair SS, Hanumantappa R, Shashidhar Gurushantswamy Hiremath, Mohammed Asaduddin Siraj, and Pooja Raghunath. Knowledge, Attitude, and Practice of Hand Hygiene among Medical and Nursing Students at a Tertiary Health Care Centre in Raichur, India. *ISRN Preventive Medicine* 2014,14.
 7. Maheshwari V, Kaore NCM, Ramnani VK, Gupta SK, Borle A, Kaushal R. A Study to Assess Knowledge and Attitude Regarding Hand Hygiene amongst Residents and Nursing Staff in a Tertiary Health Care Setting of Bhopal City. *Journal of Clinical and Diagnostic Research.* 2014; 8(8):4-7.
 8. Ariyaratne MHJD, Gunasekara TDCP, Weerasekara MM, Kottahachchi J, Kudavidanage BP, Fernando SSN. Knowledge, attitudes and practices of hand hygiene among final year medical and nursing students at the University of Sri Jayewardenepura. *Sri Lankan Journal of Infectious Diseases.* 2013;3(1):15-25.
 9. Shinde MB, Mohite VR. A Study to assess knowledge, attitude and practices of five moments of hand hygiene among nursing staff and students at a tertiary care hospital at Karad. *International Journal of Science and Research.* 2014; 3(2):311-21.
 10. Mukesh Shukla1, Shantanu Tyagi2, Neeraj Kumar Gupta *International Journal of Health Sciences & Research* (www.ijhsr.org) 22 Vol.6; Issue: 3; March 2016.