



Knowledge, Attitude and Practice regarding hand hygiene among Medical Students and Nurses - A questionnaire based survey in tertiary care hospital

Deepika Kanyal¹, Lata Kanyal Butola*²

¹Department of Hospital Administration, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi, Wardha, Maharashtra, India

²Department of Biochemistry, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi, Wardha, Maharashtra, India

Article History:

Received on: 11 Nov 2020

Revised on: 12 Dec 2020

Accepted on: 17 Dec 2020

Keywords:

Hand Hygiene,
Knowledge,
Attitude and Practice,
Nurses and Medical
Students

ABSTRACT

Hand hygiene is a milestone to control infectious diseases and prevent cross transmission of microorganism and reduces the incidence of healthcare associated infections, improved hand hygiene practice has been recognized as an important public health measure. The study was carried out in a Tertiary care teaching hospital over a period of three months. A total two seventy six (276) students were included in this study. A descriptive approach was adopted, including collection of information through questionnaire based survey. Structured knowledge questionnaires were prepared according to W.H.O. criteria. The present study concluded that the knowledge regarding hand hygiene was found to be average, 186 (67.4%) of the medical students and nurses attending tertiary care hospital, whereas 190 (68.8%) had average score for attitude of hand hygiene and 173 (62.7%) had average score for practice of hand hygiene. So frequent orientation, regular training, workshops, seminars and hand hygiene education should be given mandatory for all the students and staffs for understanding the importance of hand hygiene were improved hand hygiene practice should reduce the healthcare cost which help in preventing hospital acquired infections.



*Corresponding Author

Name: Lata Kanyal Butola

Phone: 7892390212

Email: kanyallata1010@gmail.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL4.4546>

Production and Hosted by

IJRPS | <https://ijrps.com>

© 2020 | All rights reserved.

hand wash or surgical hand antisepsis. (Mohesh and Dandapani, 2014) Hand Hygiene helps in preventing cross-transmission of microorganism and controlling the prevalence of healthcare associated infections. The most appropriate hand hygiene behaviour is considered as the keystone for preventing health care associated infections. (Kamble et al., 2016; Allegranzi and Pittet, 2009) The World Health Organization (W.H.O.) has introduced the concept of "My five moments for Hand hygiene" for Global Patients Safety Challenges, it includes:-

1. Moments before touching a patient
2. Before performing aseptic and clean procedures
3. After being at risk of exposure to body fluids

INTRODUCTION

According to the World Health Organization, Hand hygiene is a common term which is applicable to hand washing, antiseptic hand rub, antiseptic

4. After touching a patient
5. After touching patient and surrounding

So the application and adherence to hand hygiene practices can prevent Healthcare Acquired Infections (HAI). (Shinde and Mohite, 2014) This concept of hand hygiene is used to improve, training, understanding, monitoring and reporting hand hygiene among the Health Care Workers. It is recommended in all National and International Infection Control Guidelines. (Ansari et al., 2015)

The major cause of mortality and morbidity in admitted patients is due to Health care associated infections (HAI) contributing to 7-10% of the total hospital infections. (Arthi et al., 2016) The significance of hand hygiene first identified in 1840s by Dr. Oliver Wendell Holmer to prevent Childbed fever. (Nawab et al., 2015) Later Ignaz Semmelweis introduced the concept of Hand hygiene and antiseptics by demonstration that the contaminated hand cleansing with an antiseptic agents into patient contact reduces the transmission of infectious diseases effectively than just washing hands with plain soap and water. (Paudel et al., 2017)

Table 1: Allocation of the table study subjects according to socio-demographic variables.

Socio-demographic variables (n=276)	(N)	(%)
Age (Years)		
18-25	214	77.5
26-35	49	17.8
>35	13	4.7
Gender		
Male	164	59.4
Female	112	49.6
Profession		
Nurse	102	37.0
Medical Students	174	63.0
Qualification		
Diploma	60	21.7
Bachelors	216	78.3

In 2002, the Centers for Disease and Control and Preventions (CDC), USA and Healthcare Infection Control Practices Advisory Committee published comprehensive guidelines for hand hygiene in health care settings, mainly to overcome the lack of awareness among workers regarding the importance of hand hygiene in preventing the disease transmission.

The recommended duration for hand washing is between 30 seconds to one minute. It is noted that Alcohol based hand antiseptics are used in most of the countries for rapid antimicrobial effects, broad spectrum coverage, better patient tolerability and also ease of application. (Al-Naggar and Jashamy, 2013)

The maximum of health care workers are composed by the nurses which are appraised as “nucleus of the healthcare system”, it is very crucial in preventing the diseases among the hospitalized patients.

Hand hygiene is also used in the prevention of Hospital Acquired Infections or Nosocomial infections; these are obtained during patient hospitalization within 48-72 hours. (D’souza and Urnarani, 2014) For preventing cross infections and Healthcare associated infections, several countries worldwide started their national campaigns to improve hand hygiene as a part of the World Health Organization’s ‘Clean Care is Safer Care’ Campaign. (Allegranzi et al., 2013; Reichardt et al., 2013)

Two types of micro-organism are found over the human skin:-

1. Resident’s flora (organisms that normally inhabited in skin).
2. Transient’s flora (Contaminates).

Transient’s flora causes most hospital acquired infections by cross-transmission, but it can be comfortably removed by hand cleaning. So regular hand washing by doctors and nurses decreases the colonization of skin with transient flora and render safe for next patient’s contact. (Pittet, 2001)

According to the W.H.O., prevalence of nosocomial infections is 19% in developing countries, so the personal hygiene and standard universal safety precautions should be included. W.H.O. estimated that washing hands with soap and water reduces the death caused by diarrhea up to 50%. Hand washing prevents acute respiratory infections by 16%. (Chakraborty et al., 2018)

As per our knowledge, very few community studies have been conducted regarding the awareness of hand hygiene in India. The staff has exposed to a variety of infectious throughout the process of day to day nursing activities and they are at higher risk in contacting infections. Hand hygiene education should be mandatory for all clinical courses.

Hence, present study has undertaken to determine the “Knowledge, Attitude and Practices about hand hygiene among medical students and nurses.

Table 2: Percentage of correct response of nurses and medical students related to knowledge on handhygiene.

Sl. No.	N = 276 Knowledge related ques- tions	Frequency rate Nurses and MBBS students (276)	
		F	(%)
1	When is the World Hand Hygiene Day?		
A.	5th May	220	79.7
B.	15th October	21	7.6
C.	1st May	32	11.6
D.	1st December	3	1.1
2	Which is the best hand hygiene method for killing bacteria?		
A.	Plain water and soap.	231	83.7
B.	Antimicrobial soap and water.	15	5.4
C.	Alcohol based hand.	30	10.9
D.	None	0	0
3	Which of the following is not required to prepare hand rub?		
A.	Ethanol 70%	67	24.3
B.	Isopropyl alcohol 99%	48	17.4
C.	Ethanol 80%	18	6.5
D.	Isopropyl alcohol 70%	143	51.8
4	Which moment of hand hygiene is not captured by electronic monitoring system?		
A.	Moment 1 & 2	179	64.9
B.	Moment 2 & 3	29	10.5
C.	Moment 1 & 4	41	14.9
D.	Moment 3 & 4	27	9.8
5	Gold standard for determining hand hygiene compliance is		
A.	Measurement of product used direct	48	17.4
B.	Observation of HCW's	206	74.6
C.	Observation by patients	19	6.9
D.	Electronic system time	3	1.1
6	5 moments of W.H.O. except?		
A.	Before touching a patient	29	10.5
B.	After body fluid exposure risk	26	9.4

Continued on next page

Table 2 continued

Sl. No.	N = 276 Knowledge related ques- tions	Frequency rate Nurses and MBBS students (276)	
		F	(%)
C.	After touching a patients surrounding	22	8.0
D.	After touching patient	16	5.8
E.	Before touching patient file	183	66.3
7	When is the Global hand washing day?		
A.	5th May	113	40.9
B.	15th October	85	30.8
C.	1st May	29	10.5
D.	1st December	49	17.8
8	What is the minimum time needed to kill germs by alco- hol based hand rub?		
A.	20 sec	88	31.9
B.	1 sec	49	17.8
C.	30 sec	125	45.3
D.	10 sec	14	5.1
9	What is the minimum dura- tion of hand washing to kill germs with soap and water?		
A.	10 sec	62	22.5
B.	20 sec	100	36.2
C.	30 sec	97	35.1
D.	40 sec	17	6.2
10	Which of the following pre- vents transmission of germs to the patients?		
A.	After touching a patient	117	42.4
B.	Immediately after a risk of body fluid exposure	110	39.9
C.	After exposure to imme- diate surroundings of a patient	01	0.4
D.	Immediately before a clean/ aseptic procedure.	48	17.4

Research methodology

The methodology adapted for the study including research settings, design, research approach, population and sampling technique, data collection tools, collection process, analysis technique and operational definitions.

Study period

1 year

Research approach

A descriptive cross sectional study approach had approach.

Research design

The collection of information and data directly from the study through a predesigned and pretested questionnaire scheduled.

Population

The population for this study included the medical students and nurses working in Tertiary teaching hospital of Jawaharlal Nehru Medical College.

Sample size

Sample size of the study is two hundred and seventy six (276), health care workers.

Construction of tool

The tool was a predesigned and pretested questionnaire schedule constructed using review of literature from books, journals and published research studies.

Description of tool

The structured questionnaire had three sections as follows

Section 1

It consists of items related with selected demographic variables such as age, gender, qualification and profession.

Section 2

A structured questionnaire was used to access the awareness. It consists of items related to assess the awareness regarding hand hygiene practice among medical students and nurses in hospital.

Section 3

It consists of items related to source of awareness for students about hand hygiene.

Data collection process

Step-I =The investigator procured permission from respective authority to conduct the study.

Step-II = Investigator introduced herself to the participants and notifies about his\her aim, objectives

and obtains written informed consent from all the study subjects.

Step-III = Conducted survey using structured Per-forma.

Data analysis technique

Variables were tested using chi-square tests and Data analyses were conducted using MS excel and SPSS version 20, $p < 0.05$ was considered statistically significant.

RESULTS

Table 3 showed that 25 (9.1%) subjects had poor knowledge, 186 (67.4%) subjects had average knowledge and 65 (23.6%) subjects had good knowledge regarding hand hygiene.

Table 5 showed that 33 (12.0%) subjects had poor attitude, 190 (68.8%) subjects had average attitude and 53 (19.2%) had good attitude.

Table 7 indicates that 60 (21.7%) subjects had poor practice, 173 (62.7%) subjects had average level of practice, and 43 (15.6%) had good level of practice regarding hand hygiene.

DISCUSSION

The discussion includes

1. Socio-demographic variables of medical students and nurses.
2. Findings related the knowledge, Attitude and Practice of hand hygiene among young medical undergraduates' students and nurses.

Socio-demographic variables of medical students and nurses

In this study, 214 (77%) students age of 18 - 25 years, 49 (17.8%) between 26 - 35 years and 13 (4.7%) were age of above >35 years.

The majority of 164 (59.4%) were males and 117 (49.6%) were females. Where majority of the participants, 174 (102%) were medical students and 63 (37%) were nurses.

The finding is similar to the study is done in Mangalore, in 2014. Hundred (100) nursing students were included in the study, yielding a response rate 94%.

About (95%) of the respondents were between the ages of 20-22 years. Majority (95%) were females and (5%) were males. About (6%) of the respondents had attended seminars and workshop. (Table 1).

Table 3: Allocation of nurses and medical students, regarding the level of knowledge on hand hygiene

Sl. No	Knowledge Level	Frequency	Percentage
1	Poor 0-4	25	9.1%
2	Average 5-7	186	67.4%
3	Good >7	65	23.6%
	Total	276	100%

Table 4: Percentage of correct response of nurses and medical students related to the item pertaining to attitude on Hand hygiene

SL. No	Attitude related questions	Frequency rate MBBS students and nurses (276)	
		F	(%)
1	Hand hygiene forms an important practice to prevent cross infections.		
	Yes	276	100
	No	0	0
2	Hand hygiene practices prevent an individual from getting infections		
	Yes	276	100
	No	0	0
3	Monitoring of hand hygiene compliance in high risk areas should be done at least once in:		
A.	1 Month	35	12.7
	3 Month	66	23.9
C.	6 Month	174	63.0
D.	12 Month	1	0.4
4	What is the reason for healthcare workers to practice good hand hygiene?		
A.	To prevent transfer of bacteria from hospital to home.	76	27.5
B.	To prevent transfer of bacteria from home to hospital.	58	21.0
C.	To remove visible soiling from hands.	16	5.8
D.	To prevent infections that patients acquire in the hospital.	126	45.7
5	Feel secure and safe from any infections.		
	Yes	216	78.3
	No	56	20.3
6	Wearing gloves reduce the need for hand hygiene.		
	Yes	220	79.7
	No	56	20.3

Table 5: Frequency and percentage distribution of nurses and medical students regarding hand hygiene

Sl. No	Attitude Level	Frequency	Percentage
1	Poor (0-3)	33	12.0%
2	Average (4-5)	190	68.8%
3	Good (>6)	53	19.2%
	Total	276	100%

Table 6: Percentage of correct response of nurses and medical students, related to the item pertaining to practice of hand hygiene

Sl. No.	Practice related questions regarding hand hygiene	Frequency (n= 276)	
		F	N (%)
1.	Best method for hand hygiene is		
A	Soap and water	202	73.2
	Alcohol based hand rub	61	22.1
C	Antimicrobial soap	10	3.6
D	Plain water	3	1.1
2.	How long should you rub your hand while washing with soap and water?		
A	5 sec	88	31.9
	10-20 sec	176	63.8
C	20-30 sec	12	4.3
D	40-60 sec	0	0
3.	Frequency of hand washing practice after handling every patient?		
A	Always	276	100
	Sometimes	0	0
C	Don't know	0	0
D	Never	0	0
4.	Follow six steps of hand washing:		
A	Yes	272	98.6
	No	4	1.4
5.	Reason for using items for proper hand washing?		
A	Low cost	103	37.3
	Easy availability	164	60.5
C	Most efficiency	4	1.4
D	Hospital supply	2	0.7
6.	Own a separate hand towel?		
	Yes	92	33.3
	No	184	66.7
7.	How long should you use alcohol based hand rub?		
A	5 sec	2	0.7
	10-20 sec	63	22.8
C	20-30 sec	211	76.4
D	40-60 sec	0	0

Table 7: Allocation of the study regarding the levels of hand hygiene practice

Sl. No	Practice Level	Frequency	Percentage
1	Poor 0-4	60	21.7%
2	Average 5-6	173	62.7%
3	Good >6	43	15.6%
	Total	276	100%

Findings related the knowledge of hand hygiene among medical undergraduates students and nurses

In the present study, majority of participants i.e. 186 (67.4%) had average level of knowledge (5-7) regarding hand hygiene, 25 (9.1%) participants had poor level of knowledge (0-4) and 65 (23.6%) had good level of knowledge (>7). The reason could be that more than half of the respondents had attended the seminars. The mean knowledge score among 276 students, mean was 6.32, median 6, and mode 6, range 6 and standard deviation was 1.40, out of 10 questions.

The finding is similar to the study done at Aligarh, in 2015. About 130 students were included in study 71 (80%) had average knowledge only (7%) had good knowledge regarding hand hygiene. (Table 2).

Findings related to the Attitude of hand hygiene among medical undergraduates and nurses

The present study majority of participants i.e. 33 (12.0%) had poor level of attitude (0-3) regarding HH, 190 (68.8%) participants had average attitude (4-5) and 53(19.2%) had good attitude (>6). The reason could be that more than half of respondents had attended workshops and had good education about it. The mean attitude score among 276 students, mean was 4.66, median 5, mode 5, range 4 and standard deviation 0.944, Out of 6 questions.

The finding is similar to the study done at Raichur, Karnataka, in 2013. About 144 students were included in the study (52.1%) had average attitude only (20%) had good attitude regarding hand hygiene where they had received a formal training. (Table 4)

Findings relate the Practice of hand hygiene among medical undergraduates' and nurses

In the present study majority of participants 173 (62.7%) had a through aware about the practices (5-6), 43 (15.6%) had good practice regarding hand hygiene (>6) and 60 (21.7%) had poor practice (0-4). More of the participants daily practiced the hand hygiene moments and monthly they got the training from the hospital. The mean practice score among 276 participants mean 5.39, median 6, mode 6, range 5 and standard deviation 1.101. Out of given 7 questions. The finding is similar to the study done in Sri Lanka, in 2013. About 289 students were included in the study where (5.53%) had good practice, (26.9%) had average practice and two-third (67%) has low HH practice. (Table 6)

CONCLUSIONS

The present study concludes, in the current study overall level of knowledge in medical students and nurses was average 186 (67.4%), attitude was average 190 (68.8%) and practice was average 173 (62.7%). The knowledge scoring for hand hygiene was found to be average (score 5-7), for attitude the average score was (4-5) and for practice score was average (5-6). The present study concluded that knowledge, attitude and hand hygiene practice among medical students and nurses was found to be adequate among the study group was satisfactory. There is need to continue training program for nurses and medical students on major concept of hand hygiene. Continuous vigilance, assessment and supervision regarding hand hygiene can be a logical solution to improve the KAP among medical students and nurses for awareness.

Conflict of interest

The authors declare that they have no conflict of interest for this study.

Funding support

The authors declare that they have no funding support for this study.

REFERENCES

- Al-Naggar, R. A., Jashamy, K. 2013. Perceptions and barriers of hands hygiene practice among medical science students in a medical school in Malaysia. *IIUM Medical Journal Malaysia*, 12(2).
- Allegranzi, B., Gayet-Ageron, A., et al. 2013. Global implementation of WHO's multimodal strategy for improvement of hand hygiene: a quasi-experimental study.
- Allegranzi, B., Pittet, D. 2009. Role of hand hygiene in healthcare-associated infection prevention. *Journal of Hospital Infection*, 73(4):305-315.
- Ansari, S. K., Gupta, P., et al. 2015. Assessment of the knowledge, attitude and practices regarding hand hygiene amongst the healthcare workers in a tertiary health care centre. *Int J Pharm Res Health Sci*, 3(3):720-726.
- Arthi, E., Abarna, V., et al. 2016. Assessment of knowledge, attitude and practice of hand hygiene among nursing and medical students in a tertiary care hospital in Puducherry. *India. International Journal of Contemporary Medical Research*, 3(4):1203-1206.
- Chakraborty, T., Karmakar, N., et al. 2018. A cross-sectional study regarding Knowledge, Attitude and Practice of hand washing among health care

- providers in a Tertiary Care Hospital of Tripura. *International Journal Of Medical Science And Clinical Invention*, 5(2):3527–3531.
- D'souza, V. P., Urnarani, J. 2014. Awareness of students on prevention of nosocomial infection in pediatric wards. *International journal of pharmacy and biological science- Mangalore*, pages 66–71.
- Kamble, V., Biradar, S., et al. 2016. Knowledge of hand hygiene practices among students of ESIC medical college, Gulbarga, Karnataka, India. *International Journal of Community Medicine and Public Health*, 3(1):94–98.
- Mohesh, G., Dandapani, A. 2014. Knowledge, attitude and practice of hand hygiene among medical students-A questionnaire based survey. *Unique Journal of Medical and Dental Sciences*, 02:127–131.
- Nawab, T., Mehnaz, S., et al. 2015. KAP study of hand hygiene among medical and nursing students in a tertiary teaching hospital. *International Journal of Science and Applied Research*, 2:29–39.
- Paudel, I. S., Ghosh, V., et al. 2017. Knowledge, Attitude and Practice of nursing students regarding hand hygiene in Western region of Nepal. *Journal of College of Medical Sciences-Nepal*, 12(4):169–173.
- Pittet, D. 2001. Improving Adherence to Hand Hygiene Practice: A Multidisciplinary Approach. *Emerging Infectious Diseases*, 7(2):234–240.
- Reichardt, C., Königer, D., et al. 2013. Three years of national hand hygiene campaign in Germany: what are the key conclusions for clinical practice? *Journal of Hospital Infection*, 83:S11–S16.
- Shinde, M. B., Mohite, V. R. 2014. 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 (IJSR)*, 3(2):311–321.