

Knowledge, Attitude, and Practice of Hand Hygiene among Medical students and Nurses at a Tertiary Health Care Centre in Ratlam, Madhya Pradesh

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Background: Hand hygiene is considered the leading measure to prevent cross-transmission of microorganisms. Regarding hospital-acquired infections, compliance with handwashing guidelines seems vital in preventing disease transmission among patients. The objective of this study was to assess the level of knowledge, attitude and practice in various aspects of hand hygiene in medical students and nurses for identifying gaps in hospital infection control adherence and planning for necessary corrective measures. **Methods:** A cross-sectional study was conducted among 70 medical students and 50 nurses in a tertiary medical college in India. Knowledge was assessed using the WHO hand hygiene questionnaire. Attitude and practices were evaluated by using another self-structured questionnaire. **Results:** Both the study groups exhibited moderate levels of knowledge regarding hand hygiene. Nurses were found to exhibit a higher level of attitude and practice than medical students.

Keywords: Hand hygiene, Medical students, Nurses

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Introduction

Hand hygiene is considered the leading measure to prevent cross-transmission of microorganisms. It is one of the critical initiatives put forth by the World Alliance for Global Patient Safety Challenges. Hand hygiene is a simple action, but the lack of compliance among healthcare providers is problematic worldwide [1]. Although Semmelweis demonstrated more than a century ago that only hand washing was sufficient in reducing the incidence of HAIs, the compliance toward handwashing practices remains low [2-4]. Compliance with handwashing guidelines seems vital in preventing disease transmission among patients [5-7]. There is an urgent need for planning & formulation of policies for the implementation of basic infection prevention practices in healthcare setups.

Aim and objective

The aim & objective of this study was to assess the level of knowledge, attitude and practice in various aspects of hand hygiene in medical students and nurses for identifying gaps in hospital infection control adherence and planning for necessary corrective measures.

Material and Method

This cross-sectional study was conducted at Government Medical College Ratlam, India. It is a tertiary care centre located in the tribal belt of western Madhya Pradesh. Study participants were explained the content, nature, aim and objectives of the study. Informed verbal consent was taken from 70 medical students and 50 nurses who volunteered to participate. A self-administered questionnaire containing a set of questions regarding hand-hygiene knowledge, attitudes, and practices was distributed to all participants.

Knowledge was assessed using WHO's hand hygiene questionnaire for health care workers. A total of 25 multiple choice and dichotomous type questions were provided to the participants.

Attitude and hand hygiene practices were assessed using another self-structured questionnaire which consists of 10 & 8 questions, respectively.

Descriptive statistics were used to calculate percentages for each of the responses given.

Result

A total of 120 participants (70 medical students and 50 nurses) were enrolled in the study. The nursing group includes trained nurses posted at various departments, and the medical student's group have 2nd-year MBBS students.

Knowledge on hand hygiene: The overall knowledge of hand hygiene among the participants was moderate (medical students 63.83 %, nursing 64.56%). The percentages of correct responses of the two groups of the individual questions on hand hygiene knowledge are given in table 1.

Attitude to hand hygiene: The participants' response to attitude-based questions revealed that their attitude towards hand hygiene was not satisfactory. But nurses showed a positive attitude towards hand hygiene compared to the medical students (Table 2). The response of the participants to attitude-based questions is given in table 3.

The practice of hand hygiene: On analysis of the hand hygiene practice among the participants, most of them exhibited poor hand hygiene practice (medical students-73%, nursing - 57%), and only a few showed good hand hygiene practice (medical -3%, nursing -5%). On comparing, nurses showed better hand hygiene practice than medical students.

Table 1: Knowledge regarding Hand Hygiene. Refer Page No 252

Table 2: Attitude towards hand washing. Refer Page No 253

Table 3: Practices of health workers. Refer Page No 253

Discussion

Hand hygiene is one of the most important tools in preventing the transmission of Hospital associated infections as the hands of HCWs are the most common mode of transmission of pathogens to patients. As per different studies across the world, factors that contribute to poor adherence to hand hygiene include lack of knowledge among HCWs, poor access

To handwashing facilities (sinks), the time required to perform standard hand washing, irritant contact dermatitis associated with frequent exposure to soap and water, high workloads and the administrative apathy towards prioritizing hand hygiene practices at the institutional level. [8-10].

Our study found out that medical students & nurses had moderate knowledge of hand hygiene. Although this was encouraging, in our view this knowledge gap can be addressed by arranging more regular and frequent training sessions. The attitude of the participants towards hand hygiene was overall poor. Nearly 85.71% of the medical students & 54 % of nurses agreed that they don't adhere to correct hand hygiene practice despite good knowledge of these groups on hand hygiene. The participants decided to various reasons for not adhering to hand hygiene like other works, forgetfulness and emergencies. Such poor attitude was seen more among the medical students than nurses. Nearly 28.57% of medical students and 24% of the nurses had the misconception that wearing gloves obviates the need for practising hand hygiene. 47.14% of medical students & 54 % of nurses in our study felt that following hand hygiene was difficult in the current setup. Nearly 47.14% of the medical students and 38% of the nurses were not satisfied with facilities for hand hygiene. This could be due to the lack of adequate facilities at some places and could be overcome by keeping bedside hand rubs, maintaining the patient to sink ratio & buffering stock of the consumables. The participants also felt that the presence of infection control notice boards in the workplace would positively influence adherence to hand hygiene.

Conclusion

Hand hygiene is one of the simplest and effective practices to prevent infections; knowledge and compliance are still poor. The present study highlights the need for periodical training sessions regarding hand hygiene practices among the health care workers to provide the current knowledge in the area with a behavioural change in attitudes and practices leading to reduction of nosocomial

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Annexure 1

Table 1: Knowledge regarding Hand Hygiene.

S. No	Questions (answers)	Medical Students (n=70)		Nurses (n=50)	
		No.	%	No.	%
1.	Which of the following is the main route of cross-transmission of potentially harmful germs between patients in a healthcare facility? a. Healthcare workers' hands when not clean (Correct) b. Air circulating in the hospital c. Patients' exposure to colonized surfaces (i.e., beds, chairs, tables, floors) d. Sharing non-invasive objects (i.e., stethoscopes, pressure cuffs, etc.) between patients	50	71.43	38	76.00
2.	What is the most frequent source of germs responsible for health care-associated infections? a. The hospital's water system b. The hospital air c. Germs already present on or within the patient (Correct) d. The hospital environment(surfaces)	49	70.00	36	72.00
	Which of the following hand hygiene actions prevents transmission of germs to the patient? (Que for serial no 3-6)				
3.	Before touching a patient (Yes)	47	67.14	34	68.00
4.	Immediately after a risk of body fluid exposure (Yes)	41	58.57	29	58.00
5.	After exposure to the immediate surroundings of a patient (No)	36	51.43	26	52.00
6.	Immediately before a clean/aseptic procedure (Yes)	44	62.86	29	58.00
	Which of the following hand hygiene actions prevents transmission of germs to the healthcare worker? (Que for serial no 7-10)				
7.	After touching a patient (Yes)	43	61.43	28	56.00
8.	Immediately after a risk of body fluid exposure (Yes)	49	70.00	35	70.00
9.	Immediately before a clean/aseptic procedure (No)	46	65.71	34	68.00
10.	After exposure to the immediate surroundings of a patient (Yes)	51	72.86	31	62.00
	Which of the following statements on alcohol-based handrub and handwashing with soap and water are true? (Que for serial no 11-14)				
11.	Handrubbing is more rapid for hand cleansing than handwashing (True)	49	70.00	33	66.00
12.	Handrubbing causes skin dryness more than handwashing (False)	39	55.71	21	42.00
13.	Handrubbing is more effective against germs than handwashing (False)	44	62.86	28	56.00
14.	Handwashing and handrubbing are recommended to be performed in sequence (False)	51	72.86	25	50.00
15.	What is the minimal time needed for alcohol-based handrub to kill most germs on your hands? a. 20 seconds (Correct) b. 3 seconds c. 1 minute d. 10 seconds	39	55.71	34	68.00
	Which type of hand hygiene method is required in the following situations? (Que for serial no 16-21)				
16.	Before palpation of the abdomen a. Rubbing (Correct) b. Washing c. None	44	62.86	35	70.00
17.	Before giving an injection a. Rubbing (Correct) b. Washing c. None	41	58.57	31	62.00
18.	After emptying a bedpan a. Rubbing b. Washing (Correct) c. None	43	61.43	38	76.00
19.	After removing examination gloves a. Rubbing b. Washing (Correct) c. None	38	54.29	37	74.00
20.	After making a patient's bed a. Rubbing (Correct) b. Washing c. Non	40	57.14	38	76.00
21.	After visible exposure to blood a. Rubbing b. Washing (Correct) c. None	44	62.86	33	66.00
	Which of the following should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?				
22.	Wearing jewellery (Yes)	51	72.86	41	82.00
23.	Damaged skin (Yes)	46	65.71	29	58.00
24.	Artificial fingernail (Yes)	53	75.71	38	76.00
25.	Regular use of a hand cream (No)	39	55.71	26	52.00

Table 2: Attitude towards hand washing.

S. No	Statement	Medical Students (n=70)				Nurses (n=50)			
		Agree		Disagree		Agree		Disagree	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)
1.	I adhere to correct hand hygiene practices at all times	60	85.71	10	14.29	27	54.00	23	46.00
2.	I have sufficient knowledge about hand hygiene	43	61.43	27	38.57	32	64.00	18	36.00
3.	Sometimes I have more important things to do than hand hygiene	27	38.57	43	61.43	30	60.00	20	40.00
4.	Emergencies and other priorities make hygiene more difficult at times	50	71.43	20	28.57	20	40.00	30	60.00
5.	Wearing gloves reduces the need for hand hygiene	20	28.57	50	71.43	12	24.00	38	76.00
6.	I feel frustrated when others omit hand hygiene	32	45.71	38	54.29	29	58.00	21	42.00
7.	I am reluctant to ask others to engage in hand hygiene	13	18.57	57	81.43	17	34.00	33	66.00
8.	Newly qualified staff has not been properly instructed in hand hygiene in their training	16	22.86	54	77.14	10	20.00	40	80.00
9.	I feel guilty if I omit hand hygiene	57	81.43	13	18.57	41	82.00	9	18.00
10.	Adhering to hand hygiene practices is easy in the current setup	33	47.14	37	52.86	27	54.00	23	46.00

Table 3: Practices of health workers.

S. No	Practice	Medical Students (n=70)				Nurses (n=50)			
		Agree		Disagree		Agree		Disagree	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)
1.	Sometimes I miss out hand hygiene simply because I forget it	30	42.86	40	57.14	15	30.00	35	70.00
2.	Hand hygiene is no negotiable part of my role	50	71.43	20	28.57	40	80.00	10	20.00
3.	Facilities are adequate for hand hygiene in my area of work	37	52.86	33	47.14	31	62.00	19	38.00
4.	Water & soap/ sanitizers available all the time at the facility.	25	35.71	45	64.29	13	26.00	37	74.00
5.	The frequency of hand hygiene required makes it difficult for me to carry it out as often as necessary	20	28.57	50	71.43	12	24.00	38	76.00
6.	Infection prevention team have a positive influence on my hand hygiene	54	77.14	16	22.86	35	70.00	15	30.00
7.	Infection prevention notice boards remind me to do hand hygiene	24	34.29	46	65.71	10	20.00	40	80.00
8.	It is difficult for me to attend hand hygiene courses due to time pressure	12	17.14	58	82.86	5	10.00	45	90.00