

Research Article

Knowledge of hand hygiene practices among students of ESIC medical college, Gulbarga, Karnataka, India

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ABSTRACT

Background: Hand hygiene prevents cross-transmission of microorganisms and reduces the incidence of health care associated infections. Compliance with hand hygiene among health care providers is as low as 40%. My five moments for hand hygiene by World Health Organization has helped to address the problem to good extent. Hence a study was done to know the medical students knowledge, about hand washing using WHO hand hygiene questionnaire for health care workers so that appropriate measures can be taken to promote hand washing compliance.

Methods: Cross sectional study was carried out on IInd MBBS students. All the students (55) present on the day of data collection were included in the study. Data was collected by using WHO hand hygiene questionnaire and analysed using percentages.

Results: Study showed moderate knowledge about hand hygiene practice among the medical students.

Conclusions: Hand hygiene awareness amongst students can be achieved by conducting awareness programs.

Keywords: Hand hygiene, Rubbing, Washing, Infection, Medical students

INTRODUCTION

Hand hygiene prevents cross-transmission of microorganisms and reduces the incidence of health care associated infections.^{1,2} Compliance with hand hygiene among health care providers is as low as 40%.³⁻⁵ To improve the situation, continuous efforts are being made to identify effective and sustainable strategies. Introduction of an evidence-based concept of “My five moments for hand hygiene” by World Health Organization has helped to address the problem to good extent. These five moments that call for the use of hand hygiene include the moment before touching a patient, before performing aseptic and clean procedures, after being at risk of exposure to body fluids, after touching a patient, and after touching patient surroundings. This concept has been effectively used to improve

understanding, training, monitoring, and reporting hand hygiene among healthcare workers.⁶ In Asia there are few studies exploring this subject, although the prevalence of health care associated infections is high in this region,⁷⁻¹⁰ especially medical and nursing students. The observance of hygiene by medical students is reported as being weak.^{12,13}

Hence this study was done to know the medical students’ knowledge, about hand washing so that appropriate measures can be taken to promote hand washing compliance.

METHODS

This study was conducted at ESIC medical college, Gulbarga. It was a cross sectional study and purposive

sampling method was used to select IInd MBBS (3rd term) students as study subjects. All the students who were willing to participate were included in the study. Those who were not willing to participate were excluded from study. After taking their informed consent total of 55 students present on the day of data collection were included in the study. Data was collected by using WHO hand hygiene questionnaire for health care workers and analyzed using percentages.

RESULTS

It was observed from the study that majority students (85.4%) received formal training in hand washing and 58.18% students were using alcohol based hand rub routinely.

Out of Five moments regarding hand hygiene actions which prevents transmission of germs to the patient, better awareness was seen with respect to practice like before touching a patient (70.9%), immediately after risk of body fluid exposure (67.2%) and immediately before a clean/aseptic procedure (61.8%) whereas only 23.6% were aware about risk of After exposure to immediate surroundings of a patient.

Out of Five moments regarding hand hygiene actions which prevents transmission of germs to the health care worker, better awareness was seen with respect to practice like after touching a patient (72.7%), immediately after risk of body fluid exposure (69.1%) and After exposure to immediate surroundings of a patient (58.2%) whereas only 20% were aware about risk in Immediately before a clean/aseptic procedure

About knowledge regarding alcohol-based hand rub and hand washing with soap and water, 50.9% students agreed that Hand rubbing is more rapid than hand cleansing. 61.8% were aware that hand washing is more effective against germs than Hand rubbing. 36.3% agreed that hand washing causes more skin dryness than Hand rubbing.

Only 21.8% were aware that Hand washing and hand rubbing are not recommended to be performed in sequence. About 38.1% students were aware that minimum 20 seconds time is needed for alcohol-based hand rub to kill most germs on hands.

Students were aware that Hand rubbing is required before palpation of the abdomen (54.5%), before giving an injection (23.6%) and after making a patient's bed (29.1%).

Students were aware that Hand washing is required after emptying a bed pan (80%) and after visible exposure to blood (72.7%). 70.9% students followed rubbing and (29.1%) said washing as method of hand hygiene after removing examination gloves.

Students were aware that Wearing jewellery (45.4%), damaged skin (94.5%) and artificial fingernails (83.6%) is associated with increased likelihood of colonization of hands with harmful germs whereas Regular use of a hand cream (45.4%) is not associated with increased colonization.

DISCUSSION

The WHO five moments concepts has been aptly used to improve understanding, training, monitoring, and reporting hand hygiene among healthcare workers.⁶ In the present study majority (85.45%) medical students had claimed to have received formal training in hand washing which is a good sign of awareness. A study by Sreejith Nair et al, 79% students said they had formal training in hand hygiene whereas Glad Mahesh et al reported only 26.3% medical students had formal training in hand hygiene practices.^{13,14} Hence results of our study were better compared to other studies.

Our study showed more students (58.1%) used alcohol based hand rub routinely compared to study by Debasis Das et al where only 9% used sanitizers.¹⁵

27.2% students answered correctly that the main route of cross transmission was health care workers hand when not clean. In a study by Sreejith Nair et al 75.6% and by Glad Mahesh et al 48.6% medical students were able to acknowledge this fact.^{13,14} The knowledge of our students is poor compared to other studies.

Only 23.6% students answered correctly that frequent source of health care associated infection is germs on/within the patient. These results were similar to study by Shinde et al on nursing students (26%) and by Kudavidnange et al on ICU staff (25%).^{16,17} Whereas Sreejith Nair et al reported that 41.5% medical students, gave correct answer.¹³ Compared to above study, our students had poor knowledge.

Awareness about hand hygiene before touching a patient (70.9%) and immediately after risk of body fluid exposure (67.2%) was slightly less compared to study by Sreejith Nair et al on medical students (91.6% & 82.4%).¹³

In our study 61.8% and 23.6% students had correct knowledge about hand hygiene for clean/aseptic procedure and risk after exposure to immediate surroundings of a patient. These results were better than Glad Mohesh et al study where only 17.5% medical students were aware about this actions.¹⁴

72.7% and 69.1% students were aware about the hand hygiene actions, which prevent transmission of germs to the health care worker like after touching a patient and immediately after a risk of body fluid exposure respectively. The results were better compared to study by Glad Mohesh et al where 49.3% and 22.95% medical students gave right answer.¹⁴

Table 1: Knowledge about hand hygiene practice based on WHO questionnaire.

No.	Questions (answers)	N=55
1	Did you receive formal training in hand hygiene in the last three years?	47(85.4%)
2	Do you routinely use an alcohol-based hand rub for hand hygiene?	32(58.1%)
3	Which of the following is the main route of transmission of potentially harmful germs between patients? (health care workers hands when not clean)	15(27.2%)
4	What is the most frequent source of germs responsible for health care associated infections? (germs already present on or within the patient)	13(23.6%)
5	Which of the following hand hygiene actions prevents transmission of germs to the patient?	
5A	Before touching a patient (yes)	39(70.9%)
5B	Immediately after risk of body fluid exposure (yes)	37(67.2%)
5C	After exposure to immediate surroundings of a patient (no)	13(23.6%)
5D	Immediately before a clean/aseptic procedure (yes)	34(61.8%)
6	Which of the following hand hygiene actions prevents transmission of germs to the health care worker?	
6A	After touching a patient (yes)	40(72.7%)
6B	Immediately after a risk of body fluid exposure (yes)	38(69.1%)
6C	Immediately before a clean/aseptic procedure (no)	11(20%)
6D	After exposure to the immediate surroundings of a patient (yes)	32(58.1%)
7	Which of the following statements on alcohol-based hand rub and hand washing with soap and water is true?	
7A	Hand rubbing is more rapid for hand cleansing than hand washing (true)	28(50.9%)
7B	Hand rubbing causes skin dryness more than hand washing (false)	20(36.3%)
7C	Hand rubbing is more effective against germs than hand washing (false)	34(61.8%)
7D	Hand washing and hand rubbing are recommended to be performed in sequence (false)	12(21.8%)
8	What is the minimal time needed for alcohol-based hand rub to kill most germs on your hands? (20 seconds)	21(38.1%)
9	Which type of hand hygiene method is required in the following situations?	
9A	Before palpation of the abdomen (rubbing)	30(54.5%)
9B	Before giving an injection (rubbing)	13(23.6%)
9C	After emptying a bed pan (washing)	44(80%)
9D	After removing examination gloves (rubbing/washing)	39(70.9%)
9E	After making a patient's bed (rubbing)	16(29.1%)
9F	After visible exposure to blood (washing)	40(72.7%)
10	Which of the following should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?	
10A	Wearing jewelry (yes)	25(45.4%)
10B	Damaged skin (yes)	52(94.5%)
10C	Artificial fingernails (yes)	46(83.6%)
10D	Regular use of a hand cream (no)	25(45.4%)

20% and 58.1% students were aware about hand hygiene actions which prevents transmission of germs to the health care worker like immediately before a clean/aseptic procedure and after exposure to the immediate surroundings of a patient. The results were poor compared to study by Sreejith Nair et al where 80.3% and 71.2% medical students gave right answer.¹³

50.9% students agreed that Hand rubbing is more rapid than washing and 36.3% approved that hand washing causes more skin dryness than Hand rubbing. Our results were almost similar to study by Sreejith Nair et al where

69.6% and 30.2% medical students were aware of this facts.¹³

50.9% students agreed that Hand rubbing is not more effective than washing and 21.8% agreed that hand washing and Hand rubbing should not be performed in sequence. Whereas Sreejith Nair et al reported 45.7% medical students were aware of both these facts.¹³

38.1% students knew that the minimal time needed for alcohol-based hand rub to kill most germs on your hands is 20 seconds. These results were similar to study by Sreejith Nair et al (38.3%).¹³

Students were aware that rubbing is the best method of hand hygiene required in situations like palpation of the abdomen (54.55%), before giving an injection (23.64%) and after making a patient's bed (29.09%). A Study by Sreejith Nair et al reported 27.3%, 25.2% and 30.9% medical students were aware about these facts respectively.¹³

Students were aware that washing is the best method of hand hygiene required in situations like after emptying a bed pan (80%) and after visible exposure to blood (72.73%). A Study by Sreejith Nair et al showed 25.2% and 46.7% medical students were aware about these methods.¹³

70.9% and 29.1% reported rubbing and washing as method of hand hygiene practice after removing examination gloves respectively. Both methods are correct. A Study by Sreejith Nair et al reported 65.6% medical students gave correct answer.¹³

Students were aware that Wearing jewellery (45.4%), damaged skin (94.5%) and artificial fingernails (83.6%) should be avoided, as they are associated with increased likelihood of colonization of hands with harmful germs. Also they agreed that Regular use of a hand cream (45.45%) do not increase the risk. Where as in Study by Sreejith Nair et al students were aware that Wearing jewellery (77.7%), damaged skin (95.3%) and artificial fingernails (80.9%) should be avoided and 54.8% students agreed that Regular use of a hand cream do not increase the risk.¹³

CONCLUSION

From the overall observation, out of total 27 questions, in the present study the medical students had Better knowledge in about 8 questions, Moderate knowledge in 7 questions and Poor knowledge in 12 questions. Hence study showed overall moderate knowledge among the students. If there is no curriculum set with hand hygiene concepts and skills, students might end up by developing faulty hand hygiene practices.¹⁷ Hence hand hygiene training sessions may need to be conducted more frequently for medical students with continuous monitoring and performance feedback to encourage them to follow correct hand hygiene practices. Hand hygiene awareness amongst students can be achieved to 100% just by conducting awareness programs every year by the Infection control committee in the medical college campus.

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