



Original Research Article

Awareness of hand hygiene practices among IInd M.B.B.S students in a tertiary care hospital

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ABSTRACT

Introduction: Proper hand hygiene practices are important to prevent nosocomial infections, cross transmission of microorganisms and to reduce the occupational risk of infectious diseases in a health care setting. Though WHO has given guidelines regarding hand hygiene, their awareness among healthcare professionals particularly among medical students is low. We have conducted a study to know the awareness of Hand hygiene practices among the undergraduate medical students (IInd MBBS – 5th semester).

Materials and Methods: A formal questionnaire on hand hygiene consisting of ten questions was distributed among IInd yr. medical students belonging to 5th semester and the responses were evaluated. A grading was done as according to performance as Excellent (8 – 10 responses correct), Good – Average (4 – 7 responses correct), poor (< / = 3 responses correct).

Results: A total of eighty participants volunteered for study which included 31 males and 49 females. On the whole 20% (16), 52.5% (42), 27.5% (22) were graded as excellent, good –average and poor respectively. Among female students 18% (9), 55.1% (27) and 26.5% (13) were graded as excellent, good –average and poor respectively. Among Male students 22.5% (7), 48.3% (15) and 29% (9) were graded as excellent, good –average and poor respectively.

Conclusion: The above result showed that the awareness about hand hygiene was only at a moderate level. Hence training in hand hygiene practices and their evaluation should be included as a part of undergraduate curriculum to achieve an enhanced outcome in this arena.

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1. Introduction

Hospital acquired infections (HAI) is a global health problem - implicated in causation of unwanted suffering and financial burden to the patient. A Study done by Singh S et al.¹ in 2015 reported that incidence rates of HAI being greater than the Centre for disease control and prevention (CDC) / National Healthcare safety network (NHSN) acceptable limits. Hand hygiene is a basic, most important and cost effective measure in prevention of Hospital acquired infections.² It helps not only in preventing cross infections and nosocomial infections among the patients but also acts as an effective method in minimising the

occupational risk of infectious diseases to the healthcare provider.³ Though being a simple measure in practice the compliance towards this was poor.⁴ To mitigate the above problem WHO has introduced a simple concept of “ My five moments of Hand hygiene” which defines guidelines on when to perform and how to perform an effective hand hygiene.⁵ Proper education and training of health care providers in hand hygiene and constant monitoring for its surveillance might decrease the problem of HAI's. Awareness of indications of hand hygiene, appropriate disinfectants and proper hand hygiene technique is poor among many medical students. Studies done by Snow et al.⁶ and Van De Mortel et al.⁷ Pranav D. Modi et al.³ reported a low incidence of awareness of Hand hygiene practices among medical students. Inculcation knowledge

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and training of these hand hygiene practices among Medical students who are the future health care providers during their training period might show an impact in decreasing the burden of HAI. In the present study we conducted study among IInd M.B.B.S students using a formal questionnaire for which WHO's concept of "My five moments of Hand hygiene" was the basis. The basic theme was to look in to their level of knowledge and understanding about hand hygiene.

2. Materials and Methods

The study was done at Gandhi medical college Secunderabad from Nov – Dec 2019. The study group included students of Second M.B.B.S pursuing their 5th semester. A total number of eighty students including 49 females and 31 males were included in the study. Institutional ethical committee clearance was obtained prior to start of the study. The purpose of the study was explained to the students and the participation in the study was purely on voluntary basis. A formal questionnaire was given to participants which included a total of ten questions covering the aspects of WHO – My Five Moments of Hand hygiene, and few questions on hand wash and hand rub. The response options were qualitative in the form of Yes/ No/ Not sure. The questionnaire was derived from WHO hand hygiene questionnaire for healthcare workers.⁸ A sample questionnaire is given in the Table 1. The filled in questionnaire was valued and the data was analysed. Correct response was given one mark. A sum total of correct responses for each student was calculated and was used to grade the students in to three groups as Excellent (8 – 10 responses correct), Good – Average (4 – 7 responses correct), poor (< / = 3 responses correct). Based on the above same criteria a gender based grading was done. More over each question was analysed for percentage of correct responses. The above exercise gave the level of knowledge of the student as regards Hand hygiene.

3. Results

A total of eighty students participated in the study which included 31 males (38.75%) and 49 females (61.25%) (Figure 1). Of the five moments of hand hygiene a better awareness was observed regarding actions like hand hygiene before touching the patient protects a patient from infection (92.5%, n = 74) and hand hygiene after touching the patient protects the healthcare personnel from infection (97.5%, n = 78). Only few (17.5%, n = 14) were aware that Hand hygiene immediately before performing a clean / aseptic procedure protects a patient rather than the health care provider from infection and 36.25% (n = 29) were not sure in this regard. 67.5% (n = 54) agreed that hand hygiene immediately after body fluid exposure prevents transmission of infection to patient but 30% (n = 24) were not sure about

it. Awareness of the fact that Hand hygiene after exposure to immediate surroundings of the patient prevents infection to health care personnel was present among 78.75% (n = 63) of the students which was appreciable (Table 1, Figure 2).

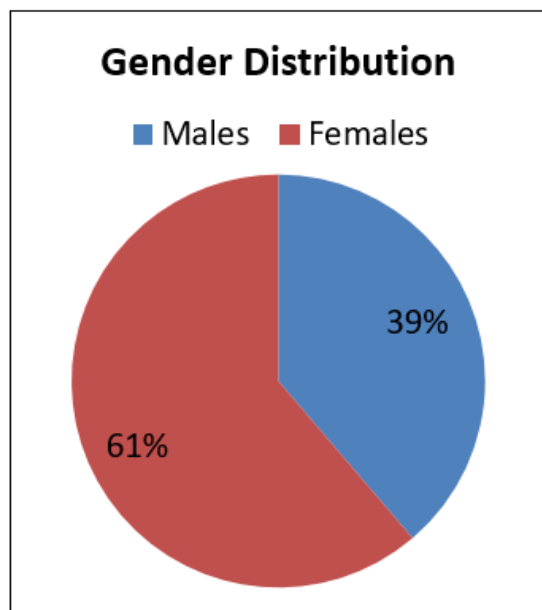


Fig. 1: Gender distribution of students participated in study

As regards the knowledge on techniques hand rub and hand wash – 68.75% (n = 55) were aware that hand washing is required after removing the examination gloves and 28.75% (n = 23) were not sure about it. Appropriate response was poor (26.25%, n = 21) for the fact that hand rub was not contraindicated before administration of injection. 35 (43.75%) of students were not sure and 24 (30%) of students response was wrong in this regard. Only 20% knew that the minimum time for hand rub to kill the germs was twenty seconds and 50% (n = 40) were not sure about it. Only 25% (n = 20) agreed that hand rub causes decreased dryness of skin compared to a hand wash and 36.25% responses and 38.75% responses were wrong and not sure respectively in this regard. 57.5% students agreed that Hand wash is more effective against germs than a hand rub and 33.75% were not sure about it (Table 1, Figure 3)

Only 7.5% (n = 6) responded correctly for all the questions on " My five moments of Hand hygiene." On the whole out of the ten questions 8 or more correct responses were given by 20% (n =16) students and were graded as excellent. 52.5% (n = 42) had given 4 – 7 correct responses and were graded as good – average, 27.5% (22) had given 3 or less correct responses and were graded as poor. As regards the gender among a total of 49 female students 18% (n = 9), 55.1% (n = 27) and 26.5% (n = 13) were graded as excellent, good – average and poor respectively. Among a total of 31 Male students 22.5% (n = 7), 48.3% (n=15) and 29% (n=9) were graded as excellent, good – average and

Table 1: Questionnaire on hand hygiene

S.No.	Question	Correct answer	% Yes	% No	% Not sure
1.	Hand hygiene before touching the patient protects patient from Infection?	Yes	92.5	1.25	6.25
2.	Hand hygiene after touching the patient protects the Health care personnel form infection?	Yes	97.5	0	2.5
3.	Hand hygiene immediately before performing a clean / aseptic procedure protects a health care worker from infection?	No	46.25	17.5	36.25
4.	Hand hygiene immediately after body fluid exposure prevents transmission of infection to patient?	Yes	67.5	2.5	30.0
5.	Hand hygiene after exposure to immediate surroundings of the patient prevents infection to health care personnel?	Yes	78.75	2.5	18.75
6.	Is hand wash is required after the removal of gloves?	Yes	68.75	2.5	28.75
7.	Is Hand rub contraindicated before giving an injection?	No	30.0	26.25	43.75
8.	The minimum amount of time required for a hand rub is 20 seconds	Yes	20.0	30.0	50.0
9.	Does hand rub causes more skin dryness compared to hand wash?	No	36.25	25.0	38.75
10.	Is Hand wash more effective against germs than Hand rub?	Yes	57.5	8.75	33.75

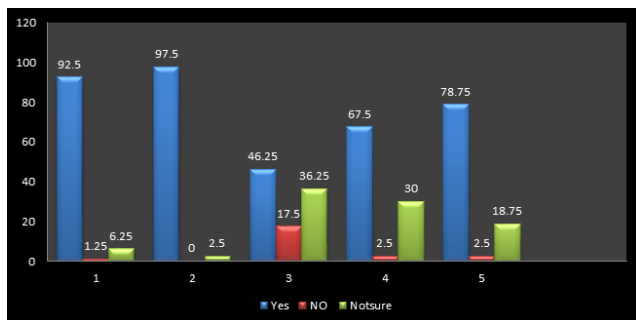


Fig. 2: Percentage of all responses for questionnaire on My five moments of hand hygiene

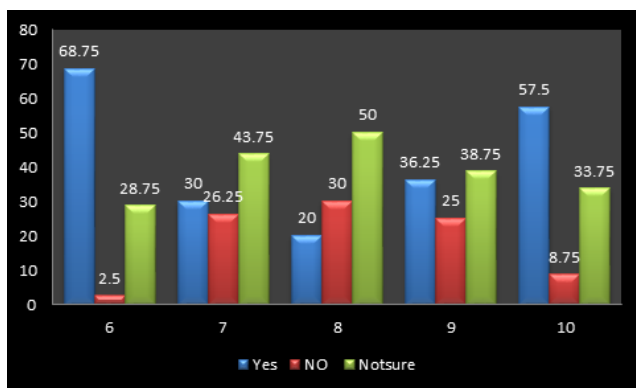


Fig. 3: Percentage of all responses for questionnaire on hand wash and hand rub

poor respectively based on the number of correct responses given to the questionnaire (Figures 4, 5 and 6)

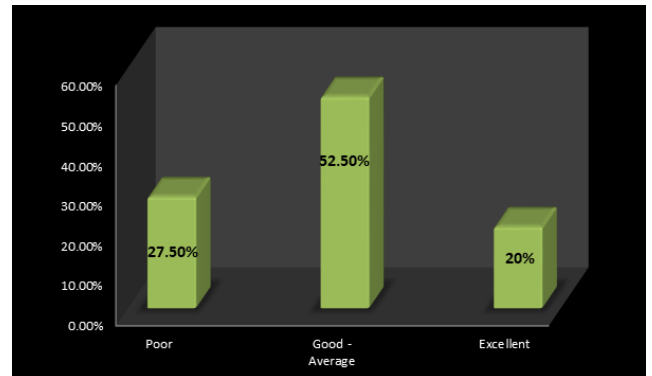


Fig. 4: Overall grading of knowledge on hand hygiene

4. Discussion

Hospital associated infections are one of the commonest complication of hospital stay. WHO estimates reveal that the burden of HAI in hospitalised patients globally ranges from 7 – 12%(9). In developing countries the prevalence is still high and are expected to be above 15%. Transmission of pathogens from one patient to other through the hands of Health care workers is one of the main cause of HAI.⁹ Proper Hand hygiene practices were proven to decrease the HAI hence benefits the patient from unwanted suffering and

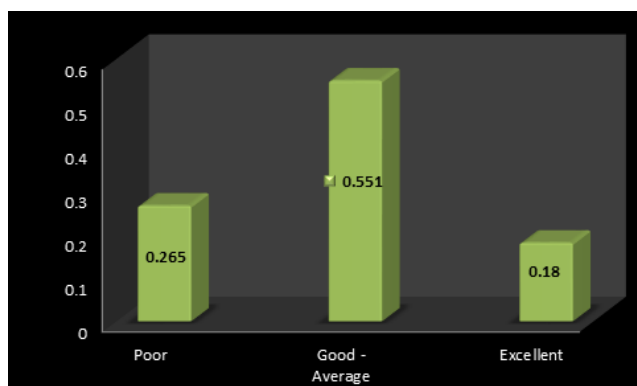


Fig. 5: Grading of knowledge on hand hygiene among females

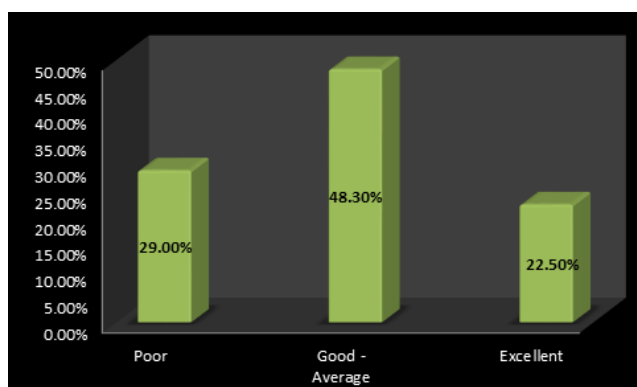


Fig. 6: Grading of knowledge on hand hygiene among males

also decreases the occupational risk to the HCW. A study done by Pittet et al.¹⁰ showed that an increase in compliance to hand hygiene decreased the cross contamination and overall incidence of HAI (especially the MRSA). A study done by Girou E et al.¹¹ showed that increased compliance (from < 60% to 90%) decreased the risk of MRSA acquisition by 24% and also a decreased incidence of Escherichia coli, and carbapenem-resistant Pseudomonas aeruginosa. WHO has made a simple initiative in the form of My five moments of Hand hygiene to improve the hand hygiene practices among HCW hence decreasing the HAI. 5th of May every year is celebrated as world Hand hygiene day. Clean Hands count was another initiative to train the health care providers in Hand hygiene and address some misconceptions related to hand hygiene. Recent studies suggest that the awareness regarding the hand hygiene was low among medical students.^{12,13} In the present study the awareness regarding Hand hygiene among IInd M.B.B.S students belonging to fifth semester was assessed in the form of Questionnaire. The questionnaire included questions on My five moments of Hand hygiene and some questions regarding Hand wash and Hand rub. Majority of students did not receive a formal training in Hand hygiene. Only 7% of students have given correct responses to all the questions

on My moments of hand hygiene. This result was almost similar to study done by Azzam al Kadi et al.¹⁴ and Graf et al.¹⁵ A gradation of knowledge on Hand hygiene was done which showed that only 52.5% had a good – average knowledge, 27.5% had a poor knowledge and only 20% had a excellent knowledge. There was no major difference between female and male students in this regard. Graf et al. studied that the students when promoted from basic phase to clinical phase had a major lack in information regarding proper hand hygiene. Van de Mortal et al.¹⁶ found that the nursing students had a better knowledge and practice of Hand hygiene compared to medical students.

Majority of students didn't know the correct indications of usage of Hand wash and hand rub, this was in accordance with study done by Mann wood et al.¹⁷ where 58% of students did not know the correct indications for use of alcohol hand rub.

Training in Knowledge and proper practice of Hand hygiene to the medical students and constant surveillance for adherence to it is an essential requisite. Mathur et al.² has proposed for inclusion of both theoretical education and practical demonstration of Hand hygiene techniques in the curriculum before the students take on the clinical postings so that they realise the importance of it. Fisher et al.¹⁸ suggested a hands on approach in training on Hand hygiene. Feather et al.¹⁹ suggested that OSCE – can be used as an assessment tool to check the compliance of the students. From the present study we opine that there is a need for incorporation of Hand hygiene practices at an early stage (before students move in to clinical postings) in to the curriculum which will essentially enforce the student to learn this important aspect of patient care. This can be done in the form of a formal training which provides the knowledge and hands – on experience. More over it has to evaluated in the form of an OSCE or other assessment methods. A constant surveillance for adherence should be done where ever necessary. Training the students in this arena at a grass route level results in development of professional medical practice which provides an enhanced outcome in the patient care.

5. Source of Funding

None.

6. Conflict of Interest

None.

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