



Assessment of knowledge on hand hygiene among final year medical undergraduates

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Article History:

Received on: 19 May 2020

Revised on: 25 Jun 2020

Accepted on: 16 Jul 2020

Keywords:

Hand hygiene,
Hospital-acquired
infection,
Inadequate knowledge,
Infection control

ABSTRACT

Inadequate hand hygiene remains one of the main reasons for the spread of hospital-acquired infections, and now it is regarded as a key element of infection control activities. Hand hygiene practices are faulty in most health-care settings. The present study was aimed to determine knowledge on hand hygiene among final year medical undergraduates. This was an institution-based descriptive cross-sectional study. The study was conducted at a tertiary care hospital and medical college in the department of obstetrics and gynaecology after obtaining ethical clearance from the institution. Informed consent was obtained from all the participants. All participants were given self-reporting questionnaires to fill. The questionnaire form contained questions based on hand hygiene knowledge assessment (obtained from the 2009 Global patient safety strategy initiative WHO guidelines). A total of 110 medical undergraduates were included in the study (male, 47 (42.7%), female, 63 (57.3%)). A total of 14 participants scored less than 50% and accounted for 12.7%. Seventy-eight participants scored between 50-74, which accounted for 70.9%. It was noticed that good knowledge (≥ 75) on hand hygiene was least and accounted for 16.4%. In the present study, knowledge on hand hygiene was found to be a moderate level in the majority of final year medical graduates.



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ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11i4.3195>

Production and Hosted by

IJRPS | www.ijrps.com

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INTRODUCTION

Hand-washing with soap and water was deemed a standard of personal health for decades (Rotter,

1999). In 1846, Ignaz Semmelweis noticed that people whose newborns were raised in the First Clinic at Vienna's General Hospital had a higher mortality rate than those whose newborns were delivered by midwives in the Second Clinic (Semmelweis and Semmelweis, 1983).

As per his observation, after having washed their hands with soap and water before joining the room, doctors who went straight from the autopsy suite to the ward had an unpleasant odour on their paws. He postulated that the puerperal fever that affected so many parturient citizens was caused by "cadaverous spores" spread to the obstetrics ward through the hands of the autopsy suite. Contaminated hands of health care workers are the main reason for the transmission of infections which causes around 7-

10% of morbidity and mortality among hospital admissions (Arthi *et al.*, 2016).

Knowledge among health care staff regarding hand hygiene procedures is less as seen in several surveys. Medical and nursing students are exposed to hospital-acquired infections during their training, and they must be aware of hand hygiene (Arthi *et al.*, 2016). Various factors for not practising appropriate hand hygiene are lack of knowledge about guidelines, lack of facilities, insufficient time, patient overload, lack of priority by the institutions (Manasa *et al.*, 2018).

While the number of reported hand hygiene studies has risen dramatically in recent years, several concerns remain unanswered about hand hygiene products and methods to enhance staff commitment to prescribed policies. Researchers have failed to answer numerous questions (Boyce *et al.*, 2009).

The present study was aimed to determine knowledge on hand hygiene among final year medical undergraduates.

MATERIALS AND METHODS

This was an institution-based descriptive cross-sectional study. The present study was conducted at a tertiary care hospital, and medical college in the department of microbiology during November before the students go for study holidays. Informed consent was obtained from all the participants. All participants were given self-reporting questionnaires to fill. The questionnaire form contained questions based on hand hygiene, knowledge assessment (derived from the 2009 Global patient safety strategy initiative WHO guidelines). It consists of 10 main questions with sub-questions. The answers were multiple choices, Yes/No type or a single option, true/false, etc. A single point was given for each right answer and nil for each wrong answer and a maximum of 27 points.

A score of more than 75% was considered good, 50-74% moderate and less than 50% poor.

Inclusion Criteria

All final year medical undergraduates of our hospital

Exclusion Criteria

Who were not interested in participating and not available during the data collection were excluded.

Statistical analysis

With the aid of SPSS 16 tools, the findings obtained were statistically evaluated using the Chi-square method to determine the varied parameters of hand hygiene.

RESULTS AND DISCUSSION

A total of 110 medical undergraduates were included in the study. (male-47 (42.7%), female-63(57.3%). A total of 14 participants scored less than 50% and accounted for 12.7%. Seventy-eight participants scored between 50-74, which accounted for 70.9%. It was noticed that good knowledge (≥ 75) on hand hygiene was least and accounted for 16.4%. (Table 1)

No significant difference was observed between the knowledge of male and female participants (Chi-square value is 3.410, and the p-value is 0.182)

Hospital-acquired infection is a global health concern worldwide, and the most fundamental approach for preventing diseases is to improve hand hygiene. The hand hygiene methods are commonly circulated and easy (Mathur, 2011). Numerous recently published consider the low level of knowledge among medical students about hand hygiene. (Shinde and Mohite, 2014) The present study was aimed to assess undergraduate medical student's awareness of hand hygiene. The main target was students of the final year who often conduct tasks involving good hand hygiene to prevent hampering the safety of the individual.

In the present study, it was observed that 70% of students had a moderate level of knowledge on hand hygiene, and 12.7% of students scored less than 50%. The least number of students had good knowledge of hand hygiene and accounted for 16.4%. Overall no significant difference was noticed between male and female students regarding the understanding of hand hygiene. In our study, responses to the usage of alcohol-based hand rub were 67.3%. As per the survey conducted by Manasa *et al.* 77% of medical students and only 47% of nursing students regularly used alcohol-based hand rub (Manasa *et al.*, 2018). But according to the study conducted by Kamble *et al.* (2016) showed only 58% of students which is less compared to the present study. The smallest number of students (33%) responded correctly regarding the primary route of cross-transmission of pathogenic microbes in hospital setting among patients. But another study by Ariyaratne *et al.* (2015) found 73 % right answers concerning the same question.

According to Nair *et al.* (2014) higher number of participants thought they had adequate knowledge of hand hygiene, but noticed that their real understanding was minimum. Only 25.2 % understood it was essential to wash hands before giving an injection.

In our study basic knowledge regarding the mini-

Table 1: Knowledge on hand hygiene among medical undergraduates

| S.no | Knowledge-based questionnaire | Correct responses | | Correct responses (%) |
|------|---|-------------------|-----------|-----------------------|
| | | Male | Female | |
| 1 | Any formal hand hygiene practice in the last three years? | 38(34.5%) | 45(40.9%) | 75% |
| 2 | Will you consistently use hand washing dependent on alcohol for manual hygiene? | 33(30.0%) | 41(37.3%) | 67.3% |
| 3 | What is the primary route of transmission of potentially dangerous germs in a health-care facility for patients? | 17(15.5%) | 16(14.5%) | 33% |
| 4 | Which is the most prevalent cause of microbes causing infections connected with healthcare? | 17(15.5%) | 21(19.1%) | 34% |
| 5 | Q5Any of the following hand hygiene steps avoids bacteria spread to the patient? | 42(38.2%) | 57(51.8%) | 90% |
| | a) Before a patient is contacted. | 39(35.5%) | 52(47.3%) | 82.7% |
| | b) Immediately after the risk of body fluid exposure | 18(16.4%) | 7(6.4%) | 22.7% |
| | c) After exposure to the immediate surroundings of a patient | 39(35.5%) | 53(48.2%) | 83.6% |
| | d) Immediately before a clean/aseptic procedure | | | |
| 6 | The following hand hygiene steps avoid bacteria transfer to health care staff | 42(38.2%) | 54(49.1%) | 87.3% |
| | a) After touching a patient. | 44(40.0%) | 57(51.8%) | 91.8% |
| | b) Immediately after the risk of body fluid exposure | 16(14.5%) | 15(13.6%) | 31% |
| | c) Immediately before a clean/aseptic procedure | 37(33.6%) | 47(42.7%) | 76% |
| | d) After exposure to the immediate surroundings of a patient | | | |
| 7 | Of the following claims are accurate for hand rubbing dependent on alcohol and handwashing with soap and water. | 40(36.4%) | 51(46.4%) | 82.7% |
| | a) Hand rubbing is faster for hand cleaning than hand washing True False | 20(18.2%) | 32(29.1%) | 47.3% |
| | b) Hand rubbing creates more dry skin than hand washing True False | 20(18.2%) | 26(23.6%) | 41.8% |
| | c) Hand rubbing is better against germs than hand washing True False | 13(11.8%) | 28(25.5%) | 41% |
| | d) Hand brushing and hand cleaning shall be carried out subsequently True False | | | |
| 8 | Total time that alcohol-based hand rubbing takes to remove much of the germs on hands. | 15(13.6%) | 32(29.1%) | 42% |
| 9 | In the following situations which form of hand hygiene procedure is required | 43(39.1%) | 51(46.4%) | 85.5% |
| | a) just before abdominal palpation | 36(32.7%) | 41(37.3%) | 70.0% |
| | b) Before giving an injection | 30(27.3%) | 28(25.5%) | 52.7% |
| | c) Having cleaned a bedpan | 14(12.7%) | 29(26.4%) | 39.1% |
| | d) After removing examination gloves | 17(15.5%) | 26(23.6%) | 39.1% |
| | e) Having made a patient's bed | 42(38.2%) | 57(51.8%) | 90% |
| | f) Upon access to clear blood | | | |
| 10 | Rising of the following should be stopped, when combined with an increased likelihood of hand colonization of dangerous microbes? | 34(30.9%) | 46(41.8%) | 72.7% |
| | a) Wearing jewelry | 43(39.1%) | 58(52.7%) | 91.8% |
| | b) Damaged skin | 46(41.8%) | 61(55.5%) | 97.3% |
| | c) Long fingernails | 37(33.6%) | 45(40.9%) | 74.5% |
| | d) Regular use of a hand cream | | | |

mal contact time required for disinfectant alcohol hand rub to destroy microbes was found to be less, which is accounted for 42%. In the present study, response to correct usage of gloves was noted only in 39.1% participants which is similar to the survey conducted by Mann and Wood (Mann and Wood, 2006).

In most healthcare organisations, commitment to recommended hand-washing procedures remains insufficiently poor, often approaching 40 per cent of situations under which hand-cleanliness is exhibited (Trampuz and Widmer, 2004). Multimodal methods are more successful than single intercessions in enhancing paces of adherence with hand hygiene in HCWs. For the production of hand hygiene, driven, multi-faceted methodologies focused on system improvement, authoritative support, motivation, the usability of alcohol-based hand rubs, planning, and practical training of HCWs and work atmosphere updates is recommended (Magiorakos et al., 2000).

The considerable portion of positive indications for students whose obedience to the bedside mindset of their instructor is undeniably compromised can be used in moulding young medical students' behaviour. A couple of talks in the undergrad educational plan may make preparations understudies to this fundamental need. In an expanded study concentrating on MBBS students, it was noticed that surveying the information, a frame of mind, and practices of final year MBBS students and giving a positive work demonstrating at undergrad level is a decent activity (Feather et al., 2000).

CONCLUSION

Awareness of hand hygiene in the majority of final year medical graduates was found to be a moderate degree in the present study. Adequate awareness of infection prevention and hand hygiene will play a key role in reducing infection transmission when students head out to continue the medical practice.

ACKNOWLEDGEMENT

We would like to thank all the participants for their cooperation.

Funding Support

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

Conflict of interest

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

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