Knowledge and practice of hand hygiene among undergraduate students and junior doctors in the Regional Institute of Medical Sciences, Imphal

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ABSTRACT

Context: Maintenance of proper hand hygiene among treating doctors and nurses is one of the most important measures to curb health-care-associated infections. Hand hygiene can prevent the spread of germs including those that are resistant to antibiotics and are becoming difficult, if not impossible, to treat. There are few published articles on similar topic in different settings in India but not in Manipur. Keeping this in mind, the study was conducted. Aims: To assess the knowledge and practice of hand hygiene among undergraduate students and junior doctors in rims, imphal and its association with the selected variables of interest. Settings and Design: Regional Institute of Medical Sciences (RIMS). Methods and Material: A cross-sectional study was done on 924 participants by using a self-administered questionnaire. The data was analyzed using the software SPSS 21 version. Results: Of the participants, 49.1% had poor knowledge about hand hygiene; 14.3% had average knowledge, and 36.6% had good knowledge. Knowledge was significantly associated with the frequency of washing hands after patient contact or any laboratory procedure or after the removal of hand gloves (P < 0.001) and the frequency of following the six steps of hand washing (P = 0.001). Conclusions: Nearly half (49.1%) of the participants had poor knowledge about hand hygiene; more than one-tenth (14.3%) had average knowledge, and more than one-third (36.6%) had good knowledge.

Keywords: Hand hygiene, handwashing, knowledge, practice

Introduction

Maintenance of proper hand hygiene among treating doctors and nurses is one of the most important measures to curb health-care-associated infections. Hand hygiene is one of the most important healthcare concerns globally and is a single most cost-effective and practical measure to cut down infections and spread of antimicrobial resistance across all settings—from advanced health-care systems to primary health-care centers.[2-4] WHO introduced the “My five moments with hand hygiene” approach for health-care workers and these are before and after touching a patient, before performing aseptic procedures, after exposure to body fluids, and after touching patient surroundings.[5,6] The knowledge and practice of the medical and nursing students reflects the future healthcare community.[7,8] Therefore, this study was conducted. There are few published articles on similar topic in different settings in India but not in Manipur. Keeping this in mind, the study was conducted.
Subjects and Methods

This cross-sectional study was conducted among the undergraduate students (MBBS and B.Sc Nursing students) and junior doctors (MBBS interns and postgraduate students) to assess their knowledge and practice of hand hygiene and its association with the selected variables of interest in RIMS, a tertiary care hospital situated in Imphal, West district of Manipur between July 2016 and October 2018. Students who refused to participate in the study and who could not be contacted even after three consecutive visits were excluded from the study.

The sample size was calculated using similar study result on knowledge on hand hygiene with the prevalence of 9%, 2% allowable error at 95% confidence, a nonresponse rate of 10%, and was found to be 901 approximately. Sampling was not done as it was intended to cover the whole of the study population.

The study variables were age, sex, designation, field of speciality, training in hand hygiene whereas the outcome variables were knowledge and practice of hand hygiene.

A self-administered questionnaire was used for data collection which consisted of three sections, Section A with questions on general profile of the participant, Section B on “WHO Hand Hygiene Knowledge Questionnaire for Health-Care Workers,” and Section C on practice questions on hand hygiene.

There were 25 questions for evaluating the knowledge regarding hand hygiene. A score of 1 was given for each correct response and 0 for no/don’t know/incorrect response and so the maximum score for knowledge was 25 and minimum was 0.

Operational definitions

Knowledge scoring

a) Above and equal to 3rd quartile - Good knowledge, b) between 2nd and 3rd quartile - Average knowledge, and c) equal to or below 2nd quartile - Poor knowledge.

Field of speciality: The various departments of the institute were classified into preclinical, paraclinical, and clinical departments.

Data collection

After explaining the purpose of the survey, an informed verbal consent was taken from all the participants. The participants were assured about their anonymity. The questionnaires were distributed among the participants and the filled questionnaires were collected after 15–20 minutes.

Statistical analysis

Data collected was checked for completeness and consistency. Data were entered in IBM SPSS version 21 for Windows (IBM Inc. Armonk, New York, USA) and were summarized by using descriptive statistics. A Chi square test was employed to test the association between knowledge and practice of hand hygiene with selected variables of interest. A P value of <0.05 was considered as statistically significant.

Ethical issues

The ethical approval was obtained from the Research Ethics Board, RIMS, Imphal before the beginning of the study [A/206/REB-Comm (SP)/RIMS/2015/198/66/2016]. Informed verbal consent was obtained from the respondents. Data were accessible only to the investigator.

Results

Figure 1 shows the flowchart showing participants included in the study. Table 1 shows that majority of the participants were MBBS students (n = 392; 42.4%) followed by postgraduate students (n = 308; 33.3%), nursing students (n = 154; 16.7%), and interns (n = 70; 7.6%); 36.4% (n = 112) were postgraduate students from third year, followed by second year (n = 106; 34.4%) and first year (n = 90, 29.2%). The majority (n = 240; 77.9%) of the postgraduate students were from clinical departments and a majority of the participants (59.4%) did not receive any training for hand hygiene.

Figure 2 shows that almost half of the participants (49.1%) had poor knowledge, followed by good knowledge (36.6%) and average knowledge (14.3%).

Table 2 shows that the postgraduate students (53.6%), second-year postgraduate students (60.4%), and participants who had received any form of training in hand hygiene practices (63.5%) were having statistically significant association with good knowledge. Specialty departments of PG students are not significantly associated with knowledge.

| Table 1: Sociodemographic characteristics of the participants (n=924) |
|---------------------------------------------------------------|
| Sociodemographic characteristics                           | Number n(%) |
|---------------------------------------------------------------|
| 1. Designation                                              |                |
| PG                                                           | 308 (33.3)    |
| Interns                                                     | 70 (7.6)      |
| MBBS students                                               | 392 (42.4)    |
| Nursing students                                            | 154 (16.7)    |
| 2. Year of training of PG students                          |                |
| 1st year                                                    | 90 (29.2)     |
| 2nd year                                                    | 106 (34.4)    |
| 3rd year                                                    | 121 (36.4)    |
| 3. Field of speciality of PG students                       |                |
| Preclinical                                                  | 22 (7.2)      |
| Paraclinical                                                 | 46 (14.9)     |
| Clinical                                                     | 240 (77.9)    |
| 4. Received training for hand hygiene                       |                |
| Yes                                                         | 375 (40.6)    |
| No                                                          | 549 (59.4)    |
Table 3 shows that most of the participants (97.8%) washed hands after patient contact/laboratory procedure. Among them, 76.8% washed their hands always. Regarding hand hygiene after removal of hand gloves, 87.3% used to follow hand hygiene and, out of them, 69.9% used to follow it always.

Figure 3 shows that the commonest reason for not using hand hygiene practices after using gloves were most of the participants (n = 104; 88.9%) thought that gloves obviate the use of hand hygiene and so it was not necessary while the other reasons were busy schedule (n = 9; 7.7%) and forgetfulness (n = 4; 3.4%).

Figure 4 shows that the highest number of participants used personal handkerchief (58%) as drying method after hand wash followed by common towels (40%) and disposable paper towels (33.3%).

Dutta, et al.: Knowledge and practice of hand hygiene among undergraduate students and junior doctors in the RIMS, Imphal

Table 2: Association of knowledge with sociodemographic characteristics of participants

| Characteristics                  | Knowledge n (%) | P     |
|----------------------------------|-----------------|-------|
|                                  | Good  | Average | Poor |       |
| Designation                      |       |         |      |       |
| PG students                      | 165 (53.6) | 44 (14.3) | 99 (32.1) | <0.001 |
| Interns                          | 37 (52.9)  | 6 (8.6)  | 27 (38.6)  |       |
| MBBS students                    | 96 (24.5)  | 53 (13.5) | 243 (62) |       |
| Nursing students                 | 40 (26)    | 29 (18.8) | 85 (55.2) |       |
| Year of training (PG students)   |       |         |      |       |
| 1st                              | 47 (52.2) | 6 (6.7) | 37 (41.1) | 0.002 |
| 2nd                              | 64 (60.4) | 11 (10.4) | 31 (29.2) |       |
| 3rd                              | 54 (48.2) | 27 (24.1) | 31 (27.7) |       |
| Speciality department (PG students) |       |         |      |       |
| Preclinical                      | 7 (31.8)   | 3 (13.6) | 12 (54.5) | 0.194 |
| Paracutial                       | 27 (58.7) | 6 (13) | 13 (28.3) |       |
| Clinical                         | 131 (54.6) | 35 (14.6) | 74 (30.8) |       |
| Prior training on hand hygiene   |       |         |      |       |
| Yes                              | 238 (63.5) | 35 (9.3) | 102 (27.2) | <0.001 |
| No                               | 100 (18.2) | 97 (17.7) | 52 (64.1) |       |

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Table 4 shows that the participants who were postgraduate students, participants who received training in hand hygiene washed hands always after patients’ contact/laboratory procedure, and were found to be statistically significant. It also shows that participants who received training in hand hygiene always used to wash hands after removal of gloves and this result was statistically significant.

Table 5 shows that majority of those participants who occasionally washed hands after patient contact/laboratory procedure/after removal of hand gloves and those participants who tend to forget to follow the six steps of hand washing had poor knowledge and were found to be statistically significant.
Dutta, et al.: Knowledge and practice of hand hygiene among undergraduate students and junior doctors in the RIMS, Imphal

Table 4: Association of designation of participants with how often they wash hands after patient contact/laboratory procedure

| Designation           | How often you wash hands after patient contact/laboratory procedure? n (%) | P     |
|----------------------|--------------------------------------------------------------------------|-------|
|                      | Always                                                                  | Occasionally |
| PG students          | 272 (88.6)                                                              | 35 (11.4) | <0.001 |
| Interns              | 57 (85.1)                                                               | 10 (14.9) |
| MBBS students        | 271 (71.9)                                                              | 106 (28.1) |
| Nursing students     | 94 (61.4)                                                               | 59 (38.6) |
| Received any training in hand hygiene |                                                                  |       |
| Yes                  | 315 (84.9)                                                              | 56 (15.1) | <0.001 |
| No                   | 379 (71.1)                                                              | 154 (28.9) |
| Received any training in hand hygiene | How often you wash hands after removal of hand gloves? |       |
| Yes                  | 268 (78.8)                                                              | 72 (21.2) | <0.001 |
| No                   | 296 (63.4)                                                              | 171 (36.6) |

Figure 2: Distribution of participants according to the type of knowledge (N = 924)

Figure 3: Reasons of not using hand hygiene practices after using gloves (N = 117)

Figure 4: Responses to “What are the hand drying methods you use after hand washing? air dry, cotton swabs, aprons, papers** Percentage might not tally to 100 as multiple choices were allowed

Figure 5: Responses of different groups of participants to “How do you follow the six steps of hand washing?” (N = 924)

Discussion

The present study demonstrated that only 36.6% of the participants were having good knowledge in contrast to findings of other studies,[4,5,9-12] and it was also found that almost half (54.9%) of the participants did not receive any kind of training in hand hygiene unlike the results of the study conducted by Modi PD et al.[13] and Ahmad J.[14]

In this study, majority of the participants washed their hands after patient contact or any laboratory procedure (97.8%) and after the removal of hand gloves (87.3%) which were similar to the findings of other studies.[14-17]

The commonest reason for not using hand hygiene practices after using gloves were most of the participants thought that it was not necessary and gloves obviate the use of hand hygiene and other reasons were busy schedule and forgetfulness. These results were similar to the findings of BaderAldee RM,[20] Anargh V et al.,[19] Ango UM et al.[24] Bushara MOE et al.[21] Participants (40%) used common towels, 58% used personal hankerchief which was not a good practice, 33.3% used disposable paper towels, and 12.4% used other methods of hand drying after hand washing like letting it get dried by itself (air drying), sterile cotton swabs, aprons, curtains, and whatever
Hand hygiene being one of the simplest and effective practice to prevent infections, compliance and knowledge are still poor. Frequent training programs and reminders should be implemented to boost up the knowledge and increase the compliance of this practice.

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Conflicts of interest
There are no conflicts of interest.

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