

## HAND HYGIENE PRACTICES AMONG UNDERGRADUATE MEDICAL STUDENTS.

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### ABSTRACT

**Objective:** To explore the knowledge of, and attitudes towards hand hygiene among clerkship medical students at Basra.

**Methods:** A "cross-sectional study" was executed. The questionnaire includes 10 questions with multiple choice answers (total = 33 answers) Collected data were entered into a database; SPSS Version 22.0 was used for statistical analysis.

**Results:** Two hundred and eight scholars took part in the questionnaire study. Around 45.7% and 54.3% of students were males and females, separately. The larger part, 168 (80.8%) professed to have gotten preparing in hand hygiene. Additionally, the greater part of them 136 (65.4%) was routinely use alcohol based hand rub for hand cleanliness.

**Conclusion:** The results show that the larger part of medical students had good hygiene knowledge and routinely use alcohol based hand rub for hand cleanliness. Alcohol-based hand-rub and handwashing are applied for about 20 seconds; it becomes effective in killing the germs.

**Keywords:** Medical students, Knowledge, Clerkship, Hand hygiene.

### INTRODUCTION

Infections that patients get when receiving health care are known as HealthCare-Associated Infections HCAs (1). HCAs, initially known as nosocomial infections, referred to admission-linked, acute infections. HCAs now include infections that are developed during any stage of health care, i.e., family medicine clinics, home care, and long-term care; infections occur 48 hours after hospitalization or 30 days after getting health care. Healthcare-associated infections include infections caused by methicillin-resistant *staphylococcus aureus*, *Escherichia coli*, and *clostridium difficile* and are mostly spread by contact with contaminated surfaces (2).

Severe illnesses, treatment complexities, and springing up of pathogens that are resistant to many drugs cause significant issues in healthcare-associated infections. HCAs are mostly directly arising from a stay in hospitals, and underdeveloped countries are majorly affected. To reduce HCAs, hand hygiene is essential, practical, and effective (3). WHO had a program to campaign for hand hygiene dubbed, "Clean Care is Safer Care," which was extended by the campaign "SAVE LIVES: Clean Your Hands" in 2009, which was to control infections ensuring reduction of HCAs globally (4-5).

When going to the hospital, one can prevent from acquiring an infection by keeping their hands and bodies clean when they are in hospital. They can also discourage their family members from bringing a lot of gifts and flowers which can bring in bacteria and harbour effective cleaning. They should always wash their hands when getting in and out of medical areas. They should observe regular hygiene, washing their hands before and eating, and after using the washrooms to prevent these infections. Medical staff should also observe hygiene, washing hands and sanitizing to avoid infecting their patients. The nursing and clerical staff should keep their fingernails short and help their patients keep theirs short too; short fingernails prevent the build-up of germs on the nail, which helps in the prevention of infections.

The probability of hospitalized patients contracting infections is 5% to 10%, one in every 20 patients contract HCAs (6-8). Apart from patients, health care staffs and medical students are also at possibility for getting infections. It is, therefore, important that medical students are educated on infection prevention and control, and incorporating professional training of the students.

The key players in any healthcare team are clerkship medical students who are very involved in delivering care for patients. Medical students rotate in floors that are sensitive to infection such as; labour and delivery, operating rooms, intensive care units where there is a requirement of high sterility and infection control when they are being trained. Clerkship students are at a higher risk of contracting HCAs to patients since they don't have knowledge and skills because HCA education on the students has not been reinforced (9). Medical students have limited knowledge concerning HCAs because their learning resources and curricula have an inadequacy in HCA education.

It is important for medical educators to explore how many medical students know about hygiene and their attitudes towards hygiene in identifying curricular needs. Education on hygiene as an infection control measure should be incorporated into pre-clerkship, and clerkship medical curricula—incorporation of knowledge and skills about HCAs expected to reduce the rate of these infections. The medical curricula need to be reviewed to improve clinical and preclinical training and monitoring of the infections to reduce the risks of HCAs in patients significantly. Healthcare students should also have their curricula involve an emphasis on the importance of hand hygiene (10-11). This study aims to explore the knowledge of, and attitudes towards hand hygiene among clerkship medical students at Basra University College of Medicine.

## **MATERIALS & METHODS**

In the year 2019, a “cross-sectional study” was executed, wherein the participants involved in it were medical students who had their names enrolled in Basra University, College of Medicine. This particular group of students was taken into consideration for this study wherein they were asked to complete a questionnaire, which was entirely paper-based, and hence, adequate time was offered to them to fill the same without any biases.

The questionnaire that was offered to the students was formulated with a significant purpose and hence, it was able to examine both their attitude and knowledge of hand hygiene along with their demographical data. In other words, through this study, students' information is attained alongside gaining an understanding of their perspective towards hand hygiene.

Herein, it needs to be noted that the students' knowledge regarding hand hygiene was assessed simply by answering questions with Yes/No format. Besides, the questionnaire completely relied on the literature review (i.e. previous studies that had been published in addition to CDC and WHO guidelines). The requirements also ensured that involved questions in the questionnaire were interpreted efficiently to draw significant inferences.

The questionnaire includes 10 questions with multiple choice answers (total = 33 answers) Collected data were entered into a database prepared using Microsoft Office Excel 2010.

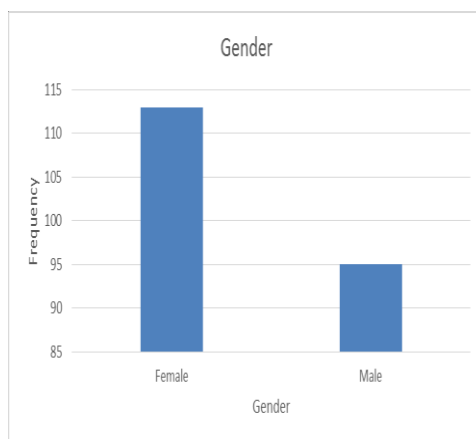
**Statistical Analysis:** SPSS Version 22.0 was used for statistical analysis. Chi square test carried out and value less than 0.05 were considered statistically significant.

## RESULTS

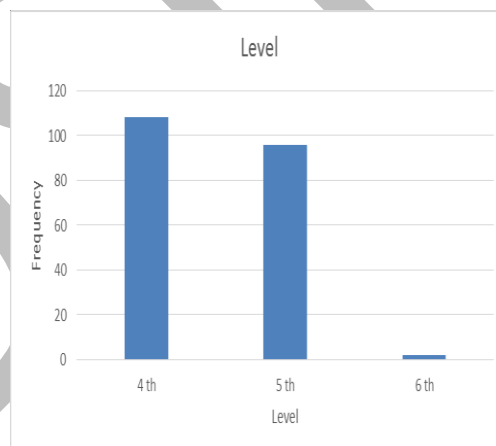
Two hundred and eight scholars took part in the questionnaire study. Around 45.7% and 54.3% of students were males and females, separately. However 108 (51.9 %), 98 (47.1 %), 2(1%) were in level four, five and six of training separately.

**Table 1: Features of the responding students.**

| Features                | Number | Percentage (%) |
|-------------------------|--------|----------------|
| Age:                    |        |                |
| 20-22 years             | 47     | 22.6%          |
| 22-24 years             | 119    | 57.2%          |
| 24-26 years             | 42     | 20.2%          |
| Gender:                 |        |                |
| Female                  | 113    | 54.3%          |
| Male                    | 95     | 45.7%          |
| Year of medical school: |        |                |
| Fourth year             | 108    | 51.9 %         |
| Fifth year              | 98     | 47.1%          |
| Sixth year              | 2      | 1%             |

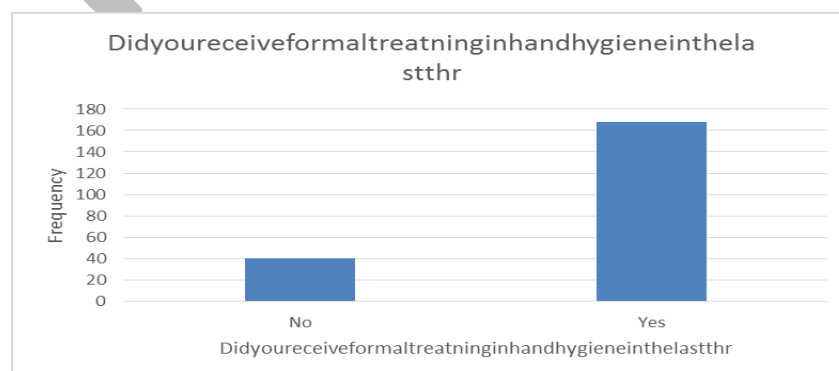


**Fig.1: Study Gender**

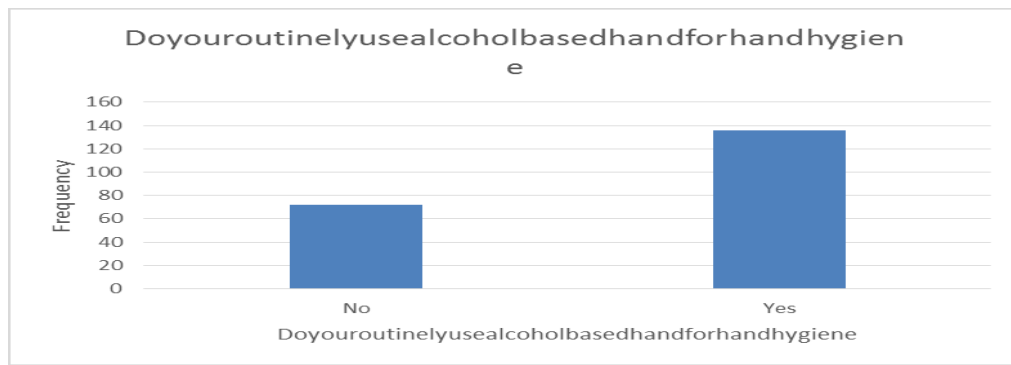


**Fig.2: Study level**

The larger part, 168 (80.8%) professed to have gotten preparing in hand hygiene. Additionally, the greater part of them 136(65.4%) was routinely use alcohol based hand rub for hand cleanliness (Fig 3&4).



**Fig.3 (Q): Did you get formal education in hand hygiene?**



**Fig.4 (Q): Do you usually utilize an alcohol-based hand rub for hand hygiene?**

Generally, the understudies' information had satisfactory information with respect to hand hygiene. (Table 2, 3, 4) exhibit understudies' information of hand hygiene.

**Table 2: Students' Information of Hand Hygiene**

| Knowledge                                                                    | True        | False      |
|------------------------------------------------------------------------------|-------------|------------|
| hgt                                                                          | No.%        | No.%       |
| 1. Hand rubbing is more effective against germs than hand washing            | 178(85.6%)  | 30(14.4%)  |
| 2. Hand rubbing causes skin dryness more than hand washing                   | 74(35.6 %)  | 134(64.4%) |
| 3. Hand rubbing is more rapid for hand cleaning than hand washing            | 133(63.9 %) | 75(36.1%)  |
| 4. Hand washing and hand rubbing are recommended to be performed in sequence | 56(26.9 %)  | 152(73.1%) |

**Table 3: Understudies' Information with respect to route and source for transmission of risky germs to the patients in a health care office:**

| Main route for cross-transmission of germs                                                 | No. (%)      |
|--------------------------------------------------------------------------------------------|--------------|
| a) Health-care workers' hands when not clean                                               | 146 (70.2 %) |
| b) Air circulating in the hospital                                                         | 13 (6.3 %)   |
| c) Patients' exposure to colonized surfaces (i.e., beds, chairs, tables, floors)           | 29 (13.9%)   |
| d) Sharing non-invasive objects between patients                                           | 20 (9.6 %)   |
| Most frequent source of germs for health care associated infection                         |              |
| a) The hospital's water system                                                             | 16 (7.7 %)   |
| b) The hospital air                                                                        | 24 (11.5%)   |
| c) Germs already present on or within the patient                                          | 91 (43.8%)   |
| d) The hospital environment (surfaces)                                                     | 77 (37 %)    |
| What is the minimal time needed for alcohol-based hand rub to kill most germs on your hand |              |
| a) 20 seconds                                                                              | 101 (48.5%)  |
| b) 3 seconds                                                                               | 11 (5.3%)    |
| c) 1 minute                                                                                | 64 (30.8%)   |
| d) 10 seconds                                                                              | 32 (15.4%)   |

**Table 4: Students' Knowledge of Hand Hygiene (best answer format)**

| Knowledge                                                                         | N (%)        | Correct answer |
|-----------------------------------------------------------------------------------|--------------|----------------|
| <b>Which type of hand hygiene method is required in the following situations?</b> |              |                |
| Before palpation of the abdomen                                                   | 125( 61%)    | Rubbing        |
| Before giving an injection                                                        | 96 ( 46.8%)  | Rubbing        |
| After emptying a bedpan                                                           | 61 ( 30.2 %) | Rubbing        |
| After removing examination gloves                                                 | 63 ( 30.9%)  | Rubbing        |
| After visible exposure to blood                                                   | 67 (32.8 %)  | Washing        |

## DISCUSSION

This study involved 208 medical students of Basra University concerning their knowledge regarding hand hygiene. The outcomes, which will be attained from this particular study, will ensure to enhance hand hygiene awareness among the medical students. This, in turn, is a significant factor for the medical students as they are the ones who will have to make sure that hand hygiene is maintained during their further clinical practices(12). Furthermore, hand hygiene is significant to reduce any chances of cross infections in varied hospitals (13-14). It was understood that (hand hygiene) will also decrease the occurrence chances of infections in different hospitals. Based on the present study, the knowledge that the medical students have towards hand hygiene is acceptable.

In the “cross-sectional study” some participants (i.e. about 19%) had precisely mentioned the detail, wherein it is clear that for the past three years they had not attained any kind of formal training regarding hand hygiene and its value in clinical dimension. Moreover, a similar study when conducted in Karnataka’s Gulbarga, it was found that 15% of the participants involved had identified to have not gained any knowledge of hand hygiene. Thus, the immense need of inculcating the needful culture of executing proper training on hand hygiene amidst the medical students and that too in their initial learning period is necessary. Moreover, 65.4% of participants had asserted that they had utilized hand rub based on alcohol, which acted as hand hygiene and corresponding reports had been attained from South India wherein the percentage was about 58%.(15)

There were roughly about 70% of respondents who rendered proper answers about the adverse impacts of unclean hands on the part of health-care workers. This averts the cross-transmission of varied germs, which could be attained from hospitals. Similarly, the study that had been attained from Kolkata depicted 74% of the target population participants to assert proper response regarding the impact of hand hygiene(16).

Nevertheless, the results that had been attained from certain observational studies in Saudi Arabia and varied other places depicted that the variation in information amidst students depends entirely on inadequate knowledge (17-19). Moreover, Nair *et al.* (2014) identified that both nursing and medical students who are studying in a tertiary health care center at Karnataka’s Raichur in India had attained moderate knowledge towards receiving important information on hand hygiene (19).

Additionally, it was observed that there are different beliefs of the participants with regards to the comparison amidst alcohol-based hand-rub and handwashing. This study had confirmed that about 48.5% of the respondents were able to render correct answers concerning the required minimum time for the effectiveness of alcohol-based hand-rub. This has been examined to eliminate all the germs that are likely to be present on hands. Herein, it was found that when these kinds of hand rubs are applied for about 20 seconds, it becomes effective in killing the germs, which was opined by 38% of the students in Karnataka (20).

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