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# Hand Hygiene Perception and Knowledge of Albaha University Medical Students, 2016

Dr. Haitham M El Bingawi[1], Nasser S Alghamdi[2], Saeed A Alghamdi[2], Muath I Alghamdi[2], Nawaf B Alghamdi[2], Ahmed Y Alzahrani[2], Ahmed A Alghamdi[2], Abdullah I Alghamdi[2], Abdulrahman M Alghamdi[2], Ahmed A Alzahrani[2], Ahmed H Alzahrani[2]

[1]*(Associate professor of Internal Medicine, Department of medicine, College of medicine, AlbahaUniversity, Saudi Arabia,* Email; haithambigawi@yahoo.com*)*
[2]*(Medical Intern, College of medicine, AlbahaUniversity, Saudi Arabia*)

**ABSTRACT:**
**BACKGROUND:** Exploring medical students' knowledge of and perceptions toward hand hygiene are important to health policy makers and medical educators. Such exploration will identify the curricular improvement needs. This study explored the knowledge and perception of Albaha medical students on hand hygiene practice.

**MATERIAL AND METIODS:** This observational, cross sectional KAP study was conducted between February and May 2016 among male medical students in the faculty of medicine at Albaha University. Students were requested to complete anonymous paper format questionnaire which was developed from literature review. A pilot study testing the questionnaire was conducted. The questionnaire composed of 26 questions (13 examined the knowledge, 11 reflect perception, 1 reflects practice and one general question). These questions were in form of multiple choices (16), yes/no (6) questions and true/false 4 questions). The questionnaire was analyzed by (SPSS v.17).

**RESULT:** 69 students participated in the study, all were males. Among them, 2 (2.8%), 21 (30.4%), 46(66.7%) were in level one, two and three of training respectively. A majority, 55/67(82.1%) think hand hygiene should be done automatically, 47/69 (68.1%) claimed to have received training in hand hygiene. However, most of them 43/69(62.1%) do not routinely use alcohol based hand rub. Opinion on the effective and the very effective actions which improve their hand hygiene practice as follow: support from seniors and leaders19/69 (28.8%), availability of alcohol based rub 27/66 (40.9%), receiving education on hand hygiene 25/65 (38.4%), visible instructions for hand hygiene 31/66 (47%), receiving feedback on their hand hygiene performance 15/66 (22.7%) and being a good example for their colleagues 30/66 (45.5%). Overall, the students' knowledge scores ranged from 17/69 to 38/69 with mean scores of 27/69. In other word, the majority of the total study population had poor knowledge regarding hand hygiene.

**CONCLUSION:** The knowledge of hand hygiene among the male medical students at Albahawas found to be inadequate. Students had some misconceptions about hand hygiene that reflected their inadequate knowledge and practice in their training. There is a need to improve the current training programs targeting hand hygiene practices among medical students.

**Keywords**-*Albaha, Hand Hygiene, KAP study, Medical Students*

## I. INTRODUCTION

Health care-associated infections (HAIs) affect millions of patients'worldwide [1].It makes the illness more seriousdue to increased microbial drug resistance which will prolong hospital stays, induce long-term disabilities, add high costs to patients and their families contribute to a massive, additional financial burden on the health-care system and often result in tragic loss of life. [1-2]. MultipleStudieshave described hand hygiene as the most important tool in preventing the spread of health care-associated infections

between patients. [1-3-4-5-6-7]. Hand hygiene measures are not only to protect patients, but the healthcare workers as well [8-9-10-11].Medical students are important players in any healthcare providing teams and areinvolved in the delivery of care to patients. Furthermore, during their training, they rotate in infection-sensitive floors, such as:intensive care units, labor and delivery, operating rooms and neonatal intensive care units, and, where sterility and infection control are highly required [12]. In spite of the significant impact of healthcare-associated infections on the safety and cost of healthcare systems, consideration of healthcare-associated infections education in pre-clinic and clinical medical curriculum has to be reinforced [3, 12]. As a result, largely due to weakness in the knowledge and skills, clinical students entering clinical training are at a greater risk of causing healthcare-associated infections to the patients. Hand hygiene is regarded to be the single most central precautionary measure to prevent healthcare-associated infections [4, 10, and 11]. Exploring medical students' knowledge of and attitudes toward hand hygiene are of high importance to public health policy makers and medical educators. Such exploration is expected to identify the curricular needs and, therefore, can be appropriately incorporated into the pre-clinic and clinical medical curriculum to equip students with satisfactory knowledge and skills. Incorporation of hand hygiene training in the curriculumis expected to decrease the rate of nosocomial healthcare-associated infections that could be caused by clinical medical students [10, 11, and 12]. Although there are a number of reports concerning the knowledge of hand hygiene among medical students in many countries, Data from Saudi Arabia is lagging behind in this aspect [11-12].Previous observational study from some medical school in Saudi Arabia have indicated that hand hygiene compliance is below the average [11, 12, 13]. The aim of this study is to exploreAlbaha male medical students' knowledge of, and perception towards, hand hygiene.Result of this study will be used to provide feedback to students and stakeholders as well as improving the curriculum.

## II. MATERIAL AND METIODS

This observational, cross sectional KAP study was conducted between February and May 2016 among male medical students in the faculty of medicine at AlBaha University.Itexplored the knowledge andperceptionof medical students on hand hygiene practice. Albahamedical college was established in 2008 and graduated two patches until now, it is the only medical college in Albaha province. All male medical students at phase 1-3were invited to participate voluntarily in the study, female students were excluded. The aims and objectives of the studywereclearly explained to them.Consentwas taken from both, the college administration and students. Students were requested to complete anonymous paper formal questionnaire. Theywere given the questionnaires and requested to place it in a box left in the lobby of faculty building after they complete it. The questionnaire was developed based on a literature review. A pilot study was conducted and the questions were readjusted. Students who decided to discontinue their participations were allowed to so. The questionnaire explored the KAP of students by total of 26 questions. 13 questions examined the knowledge, 1 question reflect altitude and 1 question reflect practice) in form of (16 multiple choices, 6 yes/no questions and 4 true/false questions). The questionnaire was analyzed by (SPSS v.17). A p value of 0.05 was considered as statistically significant.

## III. RESULT

69 students participated in the questionnaire, all students were males.Among them, 2 (2.8%), 21 (30.4%), 46(66.7%) were in level one, two and three of training respectively (Fig.1). The majority, 55/67(82.1%) think hand hygiene should be done automatically, 47/69 (68.1%) claimed to have received training in hand hygiene. However, most of them 43/69(62.1%) did not routinely use alcohol based hand rub for hand hygiene (Fig 2, 3&4).

## IV. PERCEPTION OF HAND HYGIENE

In regard to students' opinion on theeffective and very effective actions which improve their hand hygiene practice,they responded as follow: support of seniors and leaders19/69 (28.8%) ,consistent availability of alcohol based rub27/66 (40.9%),receiving education on hand hygiene 25/65 (38.4%),instructions for hand hygiene are made visible

31/66 (47%),receiving feedback on their hand hygiene performance 15/66 (22.7%)andbeing a good example for their colleagues 30/66 (45.5%). (Fig. 5, 6, 7, 8 &10)

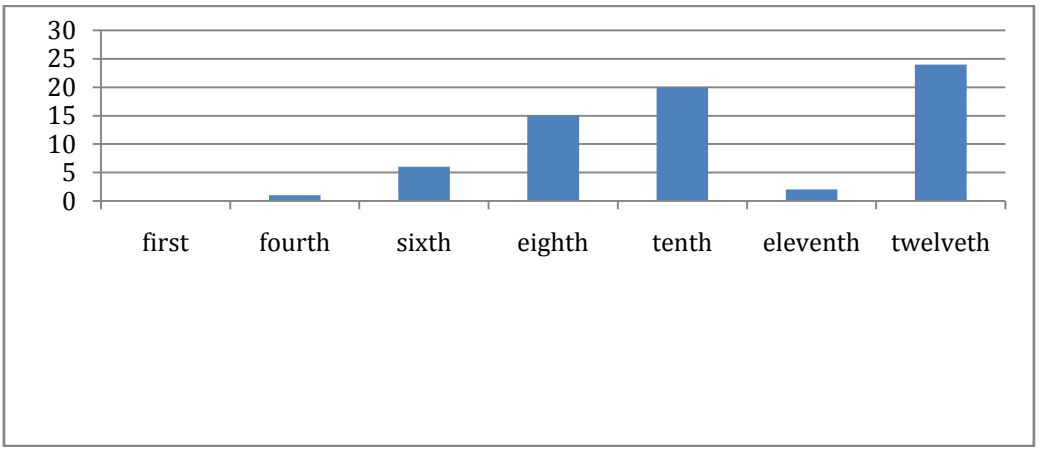


**Fig.1: Study level**

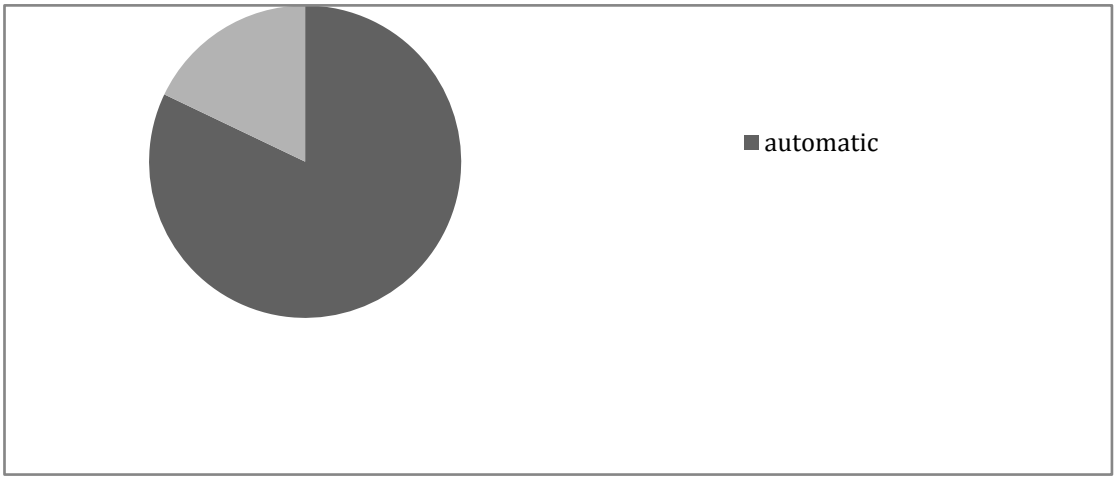


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**Fig.2 (Q): Is hand hygiene automatic or do you need to remember or be reminded to do it?**

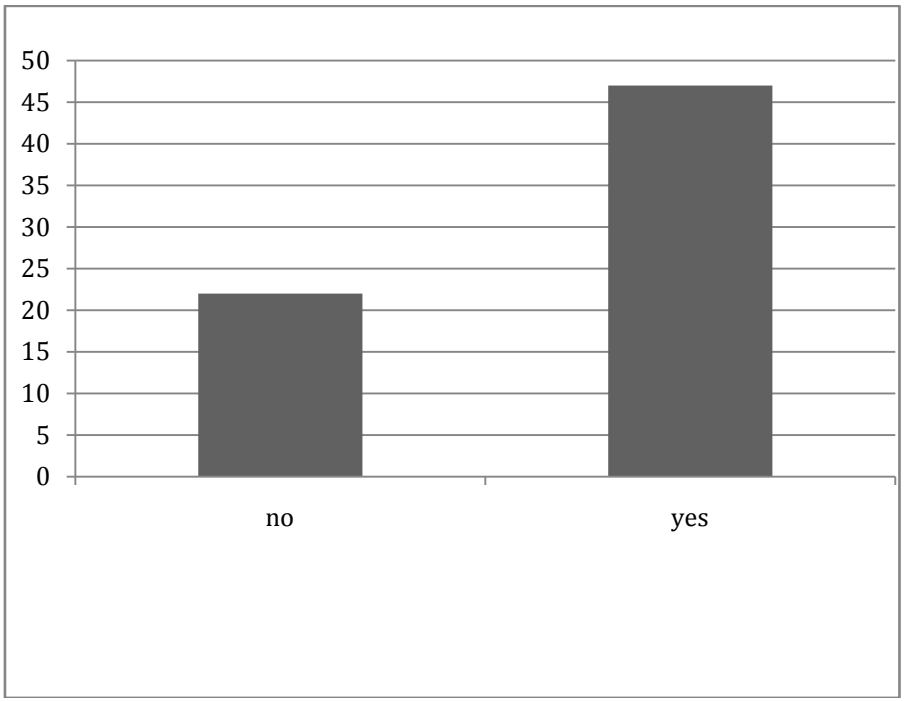


**Fig.3 (Q): Did you receive formal training in hand hygiene?**

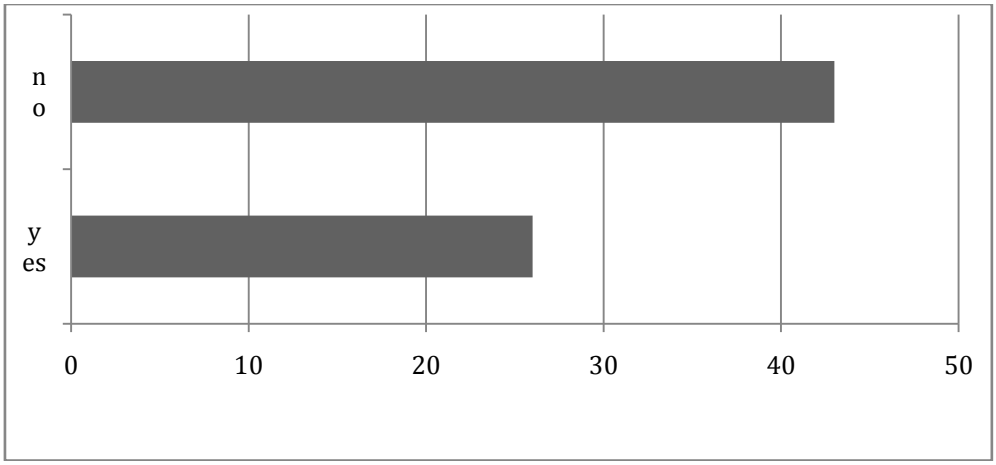


**Fig.4 (Q): Do you routinely use an alcohol-based hand rub for hand hygiene**

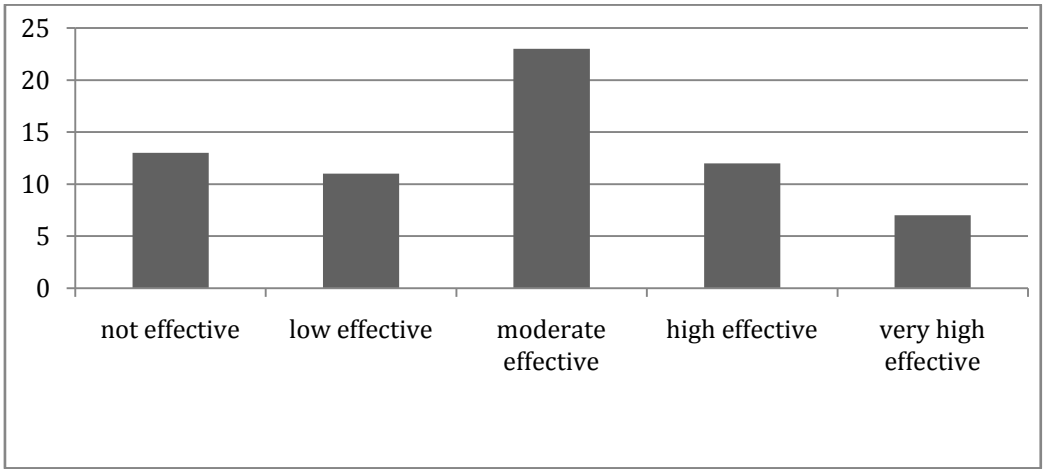


**Fig.5: Leaders and senior manager at your institution support and openly promote hand hygiene**

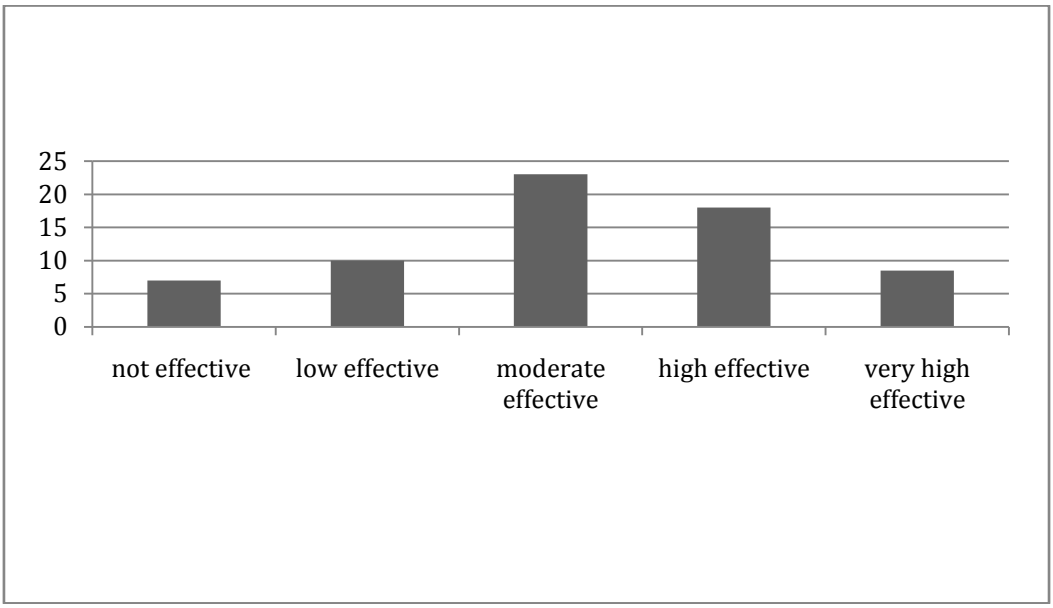


**Fig.6: The health care facility makes makes alcohol-based hand rub always available at each point of care**

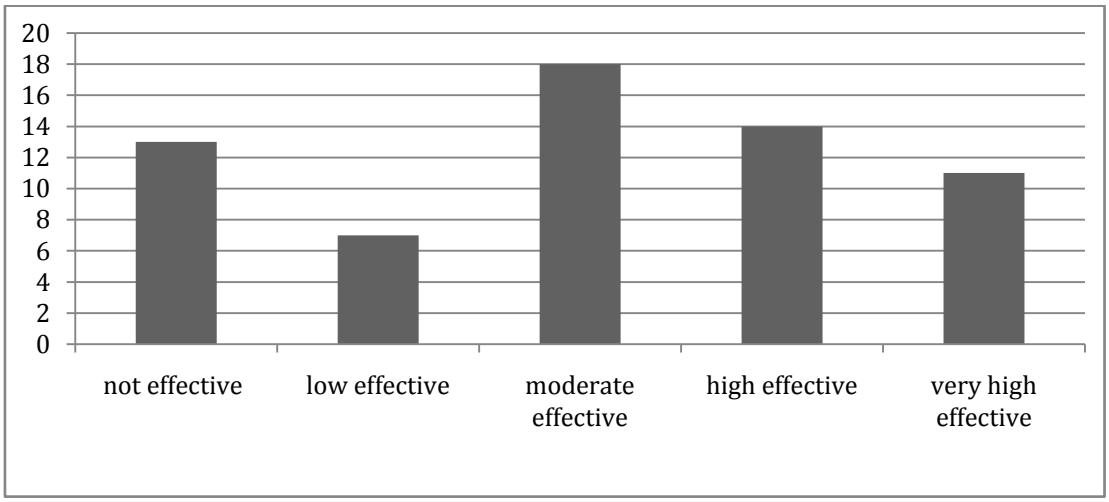


**Fig.7: Each health care worker receive education on hand hygiene**

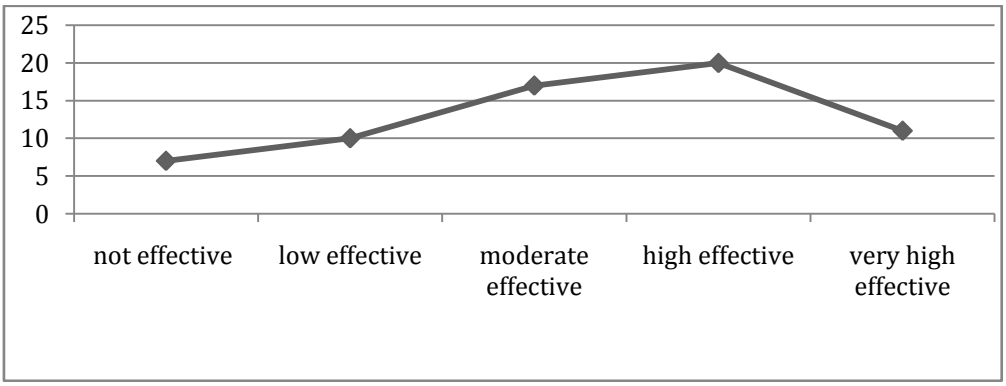


**Fig.8: Clear and simple instructions for hand hygiene are made visible for health care worker**

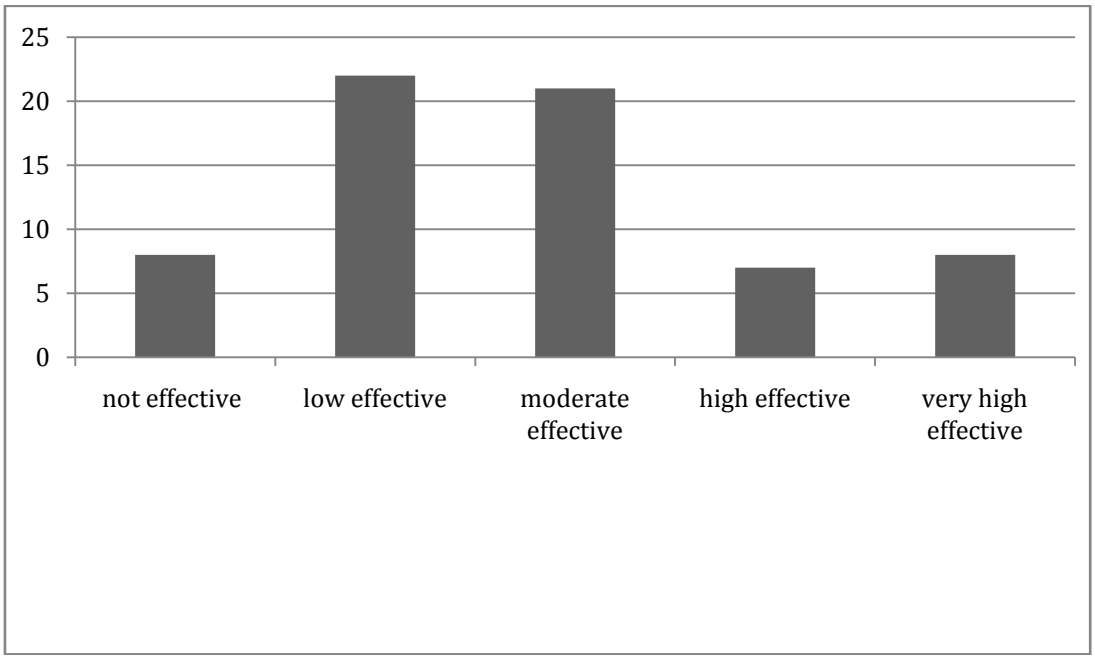


**Fig.9: Health care workers regularly recive feedback on their hand hygiene performance**

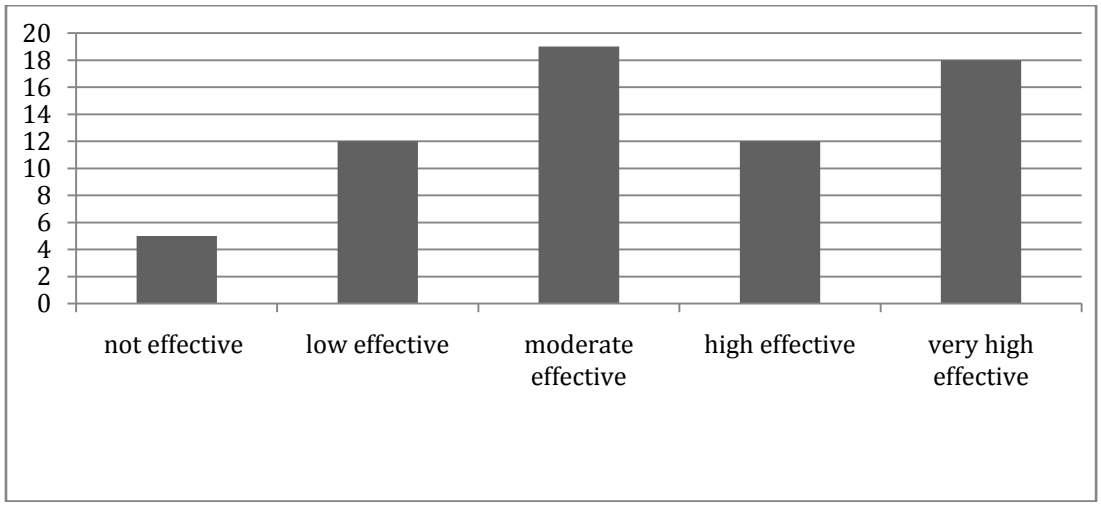


**Fig.10: You always perform hygiene as recommended (being a good example for your colleagues**

## V. KNOWLEDGE ABOUT HAND HYGIENE

Overall, the students' knowledge scores ranged from 17/69 to 38/69 and the mean scores was 27/69. In other word, the majority of the total study population had inadequate knowledge regarding hand hygiene. (Table 1, 2, 3) demonstrate students' knowledge of hand hygiene.

**Table 1:** Students'Knowledge of Hand Hygiene (True/false format)

| Knowledge | **Correct answer** | |
|---|---|---|
| **Q. Which of the following statements on alcohol-based hand rub and hand washing with soap and water is true?** | N (%) | **Correct** Answer |
| 1. Hand rubbing is more rapid for hand cleansing than hand washing | 19/60 (31.7%) | True |
| 2. Hand rubbing causes skin dryness more than hand washing | 32/61 (55.5%) | False |

| | | |
|---|---|---|
| 3. Hand rubbing is more effective against germs than hand washing | 26/62(41.9%) | False |
| 4. Hand washing and hand rubbing are recommended to be performed in sequence | 17/64 (26.6%) | False |

**Table 2:** Students'Knowledge of Hand Hygiene (Expressed as Number of Correct Answers)

| **Knowledge** | **N (%)** | **Correct answer** |
|---|---|---|
| 5. Which of the following is the main route of cross-transmission of potentially harmful germs between patients in a health-care facility? | 38/69(55.1%) | Health-care workers' hands when not clean |
| 6. What is the most frequent source of germs responsible for health care-associated infections? | 22/68(32.4%) | Germs already present on or within the patient |
| 7. What is the minimal time needed for alcohol-based hand-rub to kill most germs on your hands? | 25/69(36.2%) | 20 seconds |

**Table 3:** Students'Knowledge of Hand Hygiene (best answer format)

| **Knowledge** | **N (%)** | **Correct answer** |
|---|---|---|
| **Which type of hand hygiene method is required in the following situations?** | | |
| 8. Before palpation of abdomen | 36/67(53.7%) | Rubbing |
| 9. Before giving an injection | 26/66(39.4%) | Rubbing |
| 10. After emptying a bedpan | 26/67(38.8%) | Rubbing |
| 11. After removing examination gloves | 23/67(34.3%) | Rubbing |
| 12. After making a patient's bed | 26/67(38.8%) | Rubbing |
| 13. After visible exposure to blood | 38/67(56.7%) | Washing |

## VI. DISCUSSION

This study explored the knowledge of, and perception towards hand hygiene among male medical students at Albaha University. Itwas conductedon a sample of 69 students. The result of this study will ultimately be used to increase the awareness among medical students, which is one of the important methods of improving hand hygiene practice[14]. Studies have shown that adherenceof students to good hand hygiene practices is necessary during all aspects of their clinical training as this will prevent cross infection in the hospitals and will play a major role in reducinghospital acquired infections[3, 15]. In the current study, the knowledge of hand hygiene among our medical students is found to beinadequate. In fact, the failure of most of the students to answer the knowledge questions correctly is worrisome.However, this result is similar to other observational studies conducted in Saudi Arabia and elsewhere, which document a variation in knowledge among medical studentsin regard to hand hygiene practice, more toward insufficient knowledge[16, 17, and 18].Erasmus V et al argued about why the translation of guidelines to practice is challenging although they are simple and easy to learn.[19]. This is a very valid question.

Several studies have reportedthat the factors which associate with noncompliance with guidelines and recommendations are multifactorial. They involve the individual, the group to which he or she belongs and, by extension, to the institution. Therefore, in order to have a good strategy to improve hand hygiene practice it's important to consider all these factors. The strategy should include education, motivation, and system change.[20-21].It's worth noting that, although evidences have demonstrated the negative consequences of health-care associated infections, and emphasized the importance of performing hand hygiene as important measure to prevent them; low hand hygiene compliance rates among all categories of health care professionals continue to prevail in spite of training[22].It's agreed that training in hand hygiene will result in increased knowledge[22-24].This is against the observations. For instance, according to the finding of this study, 43/69(62.1%) participants are not routinely using alcohol based hand rubs for hand hygiene although they claimed to have received training. Their lack of compliance could be attributed to lack of post training follow up. Studies have pointed to the importance of post training follow-up as a vital method to maintain compliance to

hand hygiene [25-26]. In addition, a number of other factors could also affect compliance with practicing hand hygiene, of them: lack of time, forgetfulness, lacked of adequate facilities, lack of institutional commitment, lack of motivation, and skin irritation to hand hygiene products [26, 27, and 28].Different studies claimed that nursing students have better hand hygiene practice in compare to other health professional students [29, 30]. This could be attributedto their good preclinical skills training program in this aspect and to the good supervision at hospitals during their training.In this study, thestudents' level of perception toward various effective/very effective actions which improve their hand hygiene practicewas as follow: support of seniors and leaders19/69 (28.8%), consistent availability of alcohol based rub 27/66 (40.9%), receiving education on hand hygiene 25/65 (38.4%), instructions for hand hygiene are made visible 31/66 (47%), receiving feedback on their hand hygiene performance 15/66 (22.7%) and being a good example for their colleagues 30/66 (45.5%).This is an unexpected finding.Perhaps, the most logical explanation for this is their misunderstanding or confusion about the questions.Or,it could be due to students just going down the line answering the questions without really reading and understanding what the questions are asking.Almost half of students answered the question about route of cross contamination correctly. However, when they were asked about the most frequent source of germs responsible for healthcare-associated infections, or the minimum time needed for alcohol-based hand rub to kill most germs, the majority of them answered incorrectly. Similarly, incorrect answers were observed in most of the knowledge questions. This may be due to a deficiency of knowledge or due to answering the questions without really reading and understanding what the questions are asking.

## VII. CONCLUSION

The knowledge of hand hygiene among the medical students at Albahawas found to be inadequate. Students had some misconceptions about hand hygiene that reflected their inadequate knowledge and practice in their training. There is a need to improve the current training programs targeting hand hygiene practices among them.Furthermore, mentoring is required for post training follow-up and supervision during clinical training.

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