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RESEARCH ARTICLE

HAND HYGIENE KNOWLEDGE AND PRACTICE AMONG MEDICAL STUDENTS IN KING ABDULAZIZ UNIVERSITY HOSPITAL.

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Key words:-

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Abstract

Background: Hand hygiene (HH) is considered the most beneficial method to reduce the incidence of Hospital-Acquired Infections. However, compliance to HH by healthcare workers are reportedly poor with a compliance rate of 40%. In spite of the reports concerning the knowledge of HH among medical students in many countries, Saudi Arabia has greatly lagged behind in this aspect.

Aim: This study aims to evaluate HH knowledge and practice among first and last clinical years; (i.e. fourth and sixth year respectively) at King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia.

Methods: A cross-sectional study was conducted on 261 medical students of fourth and sixth year, at KAUH in Jeddah, Saudi Arabia. A covert observation was used to assess the practice and a 5-point Likert scale questionnaire was used for evaluating the students' knowledge. Both were based on the WHO five moments of HH. A consent was obtained from all participants. Data analysis was done using SPSS version 21 and Pearson's Chi-Square was used for association.

Results: Medical students included in the study were fourth and sixth year students accounting as 157 (60%), and 104 (40%) respectively. Practice among sixth year students was found to be better than fourth year students ($p = 0.004$). As for the knowledge between fourth year and sixth year students it was found to be similar and markedly high ($p = 0.5$), ranging between strongly agree and agree in the questionnaire.

Conclusion: Strict protocols are needed for the implementation of HH practice among students.

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Introduction:-

Hospital-acquired infections (HAIs) otherwise called nosocomial infections are one of the most common preventable medical complications due to unsafe clinical practice¹⁻⁴. They increase the length of hospital stay, morbidity and mortality and are also associated with higher microbial drug resistance. In addition, HAIs impose a huge burden on healthcare systems^{1,2,5,6}. Over 1.4 million people around the world have been affected by HAIs. It was estimated that developing countries have a two to 20 times more increased risk of healthcare related infections in comparison with that of the developed countries^{7,8}.

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Healthcare workers' hands continuously become colonized with commensal flora which are replaced by pathogenic organisms that cause transmission of nosocomial infections⁹⁻¹¹. Thus, hand hygiene (HH) is considered the single most beneficial and cost-effective method to decrease the incidence of HAIs^{2,12-14}. However, compliance to HH guidelines by healthcare workers are reportedly poor with an average compliance of 40%^{5,9,12,14-16}.

Studies showed that healthcare workers' compliance to HH is generally low^{4,5}. Twenty-three percent of clinicians and medical students adhere to HH practice¹⁷. Another study conducted among medical students have shown that their average awareness of HH was 56%, twenty nine percent of them were able to identify the World Health Organization (WHO) five moments of HH while only 17% practiced HH during observation¹⁴. However, forgetfulness, negligence and unavailability of sanitizers were the top three reasons for not disinfecting their hands¹⁷.

Medical students play an essential role in delivering healthcare to the patients. Therefore, it is crucially important to evaluate their knowledge and practice of HH^{6,10}. Moreover, adherence to HH between medical student contribute to the reduction of HAIs rates². Hence, constant efforts are established to recognize efficient and sustainable methods to address this problem^{1,12}. One of these efforts was introduced by the WHO which was the (My five Moments for Hand Hygiene) approach. These five moments include the following: before touching a patient, the moment before performing an aseptic or clean procedure, following exposure to body fluids, after touching a patient, and after touching any of the patient surroundings^{1,12}.

Even though frequent reports about the knowledge of HH among medical students in different countries have been found, Saudi Arabia has greatly fallen behind in this field⁶. Such studies are of great value as students fill a large number in healthcare facilities during their training phase and may contribute to the transmission of infections. Moreover, their training attitude towards HH will reflect on their future infection control practice¹⁶.

Accordingly, we aimed for evaluating hand hygiene knowledge and practice between first and last clinical years; (i.e. fourth and sixth year medical students, respectively) at King Abdulaziz University, Jeddah, Saudi Arabia.

Materials and Methods:-

Study design

A questionnaire based, cross-sectional study with a single blinded (covert) observation.

Study period and duration:-

The study was undertaken from April to December 2015; a period of eight months.

Study setting and population:-

The study was conducted at King Abdulaziz University Hospital (KAUH) in Jeddah, Saudi Arabia on 261 medical students from the fourth and sixth year. Fourth year medical students were chosen because it is the first clinical year being exposed to patients, and they have already completed their Microbiology course which included a lecture about HH. On the other hand, sixth year medical students are in their graduation year and are expected to practice HH effectively, also they took a practical session about HH.

Data collection process:-

The study is comprised of two parts: covert observation and a questionnaire which was self-administered. First, observation was among 22 groups, each group consisted of about ten to 13 students. It was done by a single student from each group who wasn't included in the study and was willingly accepting to observe his/her fellow group members, and was trained to blindly observe the practice of HH in his group members according to the WHO five Moments of Hand hygiene.

On the observation form, observers recorded where observation took place, the gender and clinical year of students observed, number of students in each ward, facilities available and the opportunities of hand hygiene the students encountered. Then a questionnaire was filled out by each student that has been observed earlier after obtaining an informed written consent. The questionnaire was designed according to WHO five moments of hand hygiene to estimate their knowledge using a five-points Likert scale ranging from strongly agree to strongly disagree. It also explored the participant's demographic data with no identifying data recorded other than the clinical year and the gender of the student to protect the student's confidentiality.

Statistical analysis:-

SPSS version 21 was used for all data entry and analysis. The association was tested by using Pearson's Chi-Square. Any p value less than 0.05 was considered statistically significant.

Ethical consideration:-

The ethical approval for the study was obtained from the Ministry of Higher Education, King Abdulaziz University, Faculty of Medicine Research Ethics Committee.

Results:-

Most of the medical students included in the study were fourth year students accounting as 157 students (60%), and 104 students were sixth year (40%). Male students were 162 (62%) and female students were 99 (38%).

HH practice among fourth and sixth year medical students

Practice among sixth year medical students was found to be better than fourth year medical students ($p = 0.004$). The number of sixth year medical students who applied HH was 60 (58%), while 44 (42%) did not apply HH. On the other hand, fourth year medical students who applied HH were 61 (39%), while 96 (61%) did not apply HH. As shown in (Figure 1)

HH knowledge among fourth and sixth year medical students

The knowledge between fourth and sixth year medical students was similar and found to be high ($p = 0.5$), ranging between strongly agree and agree in the questionnaire. Among sixth year students, 76 students (75%) chose strongly agree and 25 students (25%) chose agree. On the other hand, fourth year students who chose strongly agree were 120 (80%) and 30 (20%) chose agree. (Figure 2)

The influence of role models' practice of HH on fourth and sixth year medical students

The performance of HH by the role models (i.e., physicians) strongly influenced the students' HH practice ($p < 0.001$). When the role model applied HH, 64 students (40%) applied HH as well. Meanwhile, when they did not apply HH 50 students (31%) did the same. (Figure 3)

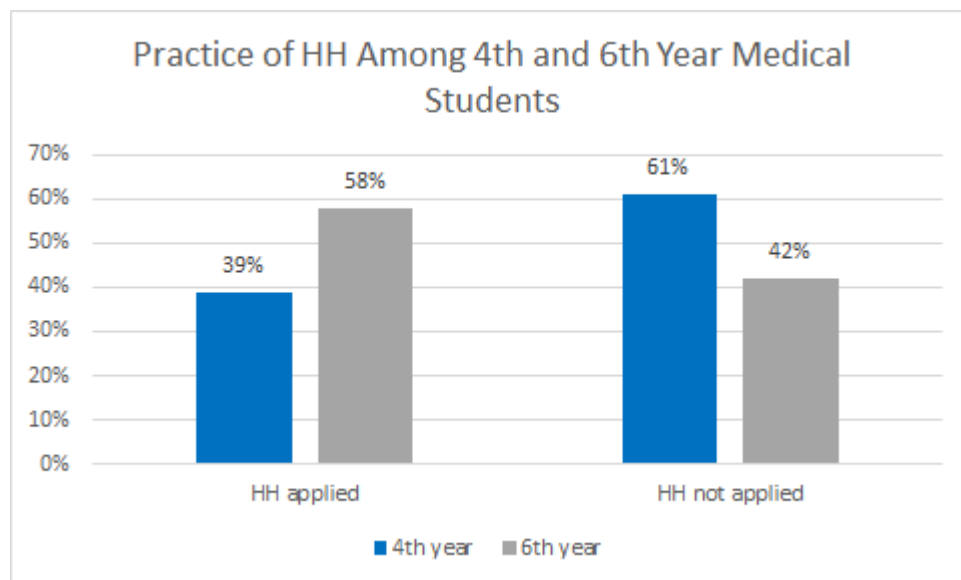


Figure 1

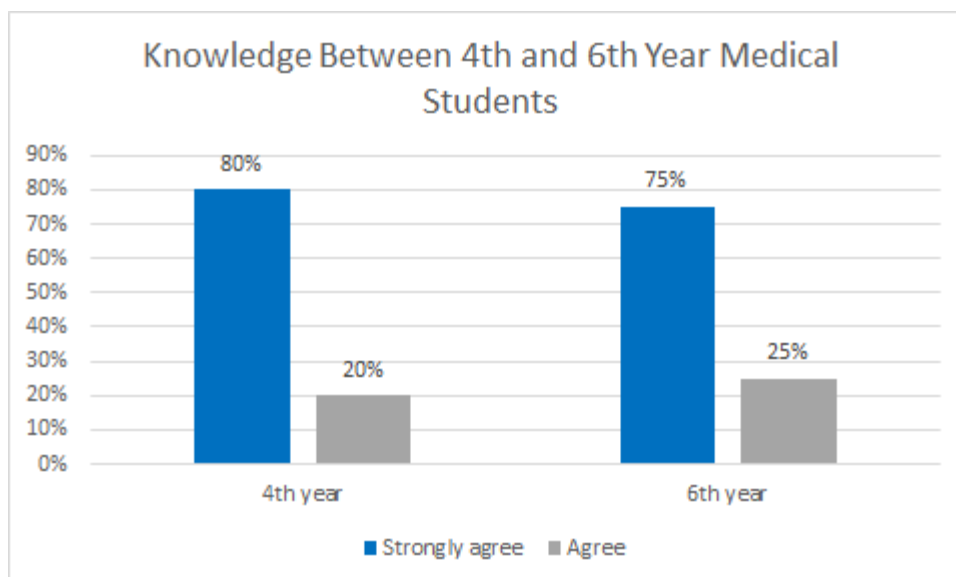


Figure 2

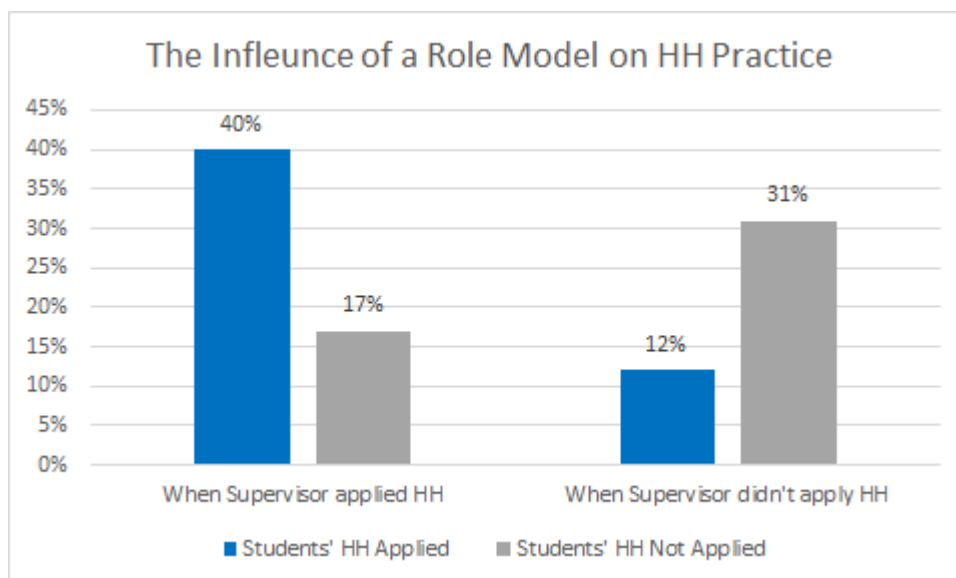


Figure 3

Discussion:-

Hand hygiene is an effortless measure to prevent hospital acquired infections. 'Clean Care is Safer Care' Was the earliest international challenge of the Union for Patient Safety of WHO¹⁸. Studies about HH knowledge and compliance have been deficient in the western province of Saudi Arabia. This study surveyed the knowledge about HH among fourth and sixth year medical students as well as their practice. Consistent with other studies, the knowledge level was found to be high among sixth and fourth year medical students^{13,19}. As Van de Mortel et al. and Polacco et al, described that the many of medical students recognized the correct indications of HH and its importance^{1,20}. The fact that both clinical years had similar results in terms of high knowledge could be attributed to them sharing the same curriculum which teaches the WHO five moments of HH in the preclinical year. A study accredited the high knowledge of their students to the fact that they have community medicine in their curriculum. In addition, there are many posters distributed among KAUH wards, hallways and patients' rooms which help in promoting the five moments of HH. On the contrary, some studies showed that students had below average HH knowledge particularly regarding the WHO five moments of HH¹⁶.

Regarding the compliance of HH, students from sixth year were found to have better compliance than fourth year students. Which might be attributed to their better knowledge of infectious diseases including HAIs. Although, A study conducted on medical students and residents showed that the students were those who had the higher HH compliance²¹. Another study reported that HH compliance declined among physicians as they reached higher levels in the medical hierarchy, in the opinion of medical students²².

Other than knowledge which could be a factor influencing compliance, sixth year students are given a practical session that teaches the correct HH practice as part of their curriculum in the patient safety rotation. A study done in Germany by Stock et al. supports the importance of practical sessions in which their study showed that HH compliance was significantly improved after attending hands-on training sessions in the skills lab²³. Sessions and activities for HH may also increase medical students' knowledge rather than just their compliance to HH as suggested by Kaur et al.²⁴.

A study in Nepal described that the lack of role models for infection control and formal training of HH could be considered as possible barriers to apply correct HH measures²⁵.

Accordingly, throughout our study, it was found that students' practice of HH was affected by the performance of their role models which was comparable to the findings of Hamadah et al. in which they stated that students lack proper HH practice in the absence of living examples (physicians, residents)⁶. The majority of students in a study conducted in Australia, felt that acting as role models for HH in regards to other healthcare workers was considered as their responsibility²⁷. In addition, The practice of HH among superior mentors was described as the the main predictor of HH compliance among students²⁶. Polacco et al. suggested that students and interns are less probably to perform HH if it wasn't applied by their faculty physicians¹.

Limitations:-

Throughout the study, the significant limitation we faced was that the sample size of requirement was not fulfilled since several students were not willing to participate. Additionally, data collectors were not included in the study accounting as twenty-six students.

Conclusion:-

Strict protocols are needed for implementation of HH practice among students. As this study aimed for evaluating the knowledge about HH as well as the practice among fourth and sixth year medical students and showed that sixth year students have better practice of HH than fourth year students. Meanwhile, their knowledge level was found to be similar.

Recommendations:-

Several strategies can be done to improve the HH knowledge and practice on the behalf of medical students. Frequent training sessions need to be implemented earlier in the curriculum to enhance HH practice of medical students to have a better HH practice and therefore better infection control. Furthermore, these sessions should be associated with continuous assessment of the students' performance. It is also recommended that further research need to be undertaken to assess the proper technique and effectiveness of HH. Not to mention evaluating HH on other healthcare providers.

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