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Original Research Article

A Cross-Sectional Study on the Hygienic Practices among Medical and Nursing Students at the University of Hail, Kingdom of Saudi Arabia

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Abstract

General and hand hygienic practices are cost-effective methods to prevent the transmission of nosocomial infections. Hand hygiene practices are faulty in most healthcare settings. This study is designed to assess the general and hand hygiene practices among medical and nursing students of the University of Hail in the Kingdom of Saudi Arabia. This is a cross-sectional study conducted among medical and nursing students. A detailed questionnaire was prepared and piloted before the final interview. The participation of students was voluntary and the questionnaires were kept anonymous. The majority of the medical and nursing students, who participated in this study, were males (88%), with 94% in the college of medicine and 82% in the college of nursing. The majority of both medical and nursing students had good hygienic and good hand washing practices. Hand washing practices were almost similar ($p>0.05$) in both male and female students. This study showed a higher percentage of general and handwashing hygienic practices among medical and nursing students. However, multifaceted and dedicated efforts must be undertaken to rectify this practice from early on.

Keywords: Hygienic practices, Handwashing practices, Medical students, Nursing Students.

INTRODUCTION

Healthcare-associated infections (HCAIs) are a cause of severe concern across the globe in primary and advanced healthcare settings. These infections not only pose a serious threat to the patients' lives but also add an extra financial burden to the governments and the healthcare service providers [1, 2]. Multidrug resistance pathogens, such as methicillin-resistant *Staphylococcus aureus* (MRSA) further make these HCAIs more dangerous, which are sometimes very difficult to treat [3]. These healthcare-associated pathogens can be transmitted either through direct or indirect contact between patients and healthcare workers (HCWs), and contamination through hands is the most common route of transmission among all. These HCAIs can be prevented by strictly following the established infection control guidelines [4-6], in which hand hygiene is considered to be the most significant practice for the prevention of nosocomial infections [7].

The practice of hand hygiene by HCWs, through the use of either soap/water or an alcohol-based hand sanitizer, is widely considered to be the most important and effective means of protecting and preventing transmission from the HCAIs. Though a very simple and easy technique, several studies have shown that compliance with hand hygiene among healthcare providers is as low as less than 40% [7-10]. In a questionnaire- and observational-based study, authors found a low overall rate of hand hygiene among 60 nursing students, and that their hand hygiene practices were significantly better when their mentor attempted hand hygiene practices [11]. In another study, Van De Mortel *et al.*, reported that nursing students' hand hygiene knowledge and self-protection practices were significantly better than that of medical students [12]. Studies have been conducted in the Kingdom of Saudi Arabia (KSA) to monitor hand hygiene practices in certified healthcare providers [13, 14]. However, only one significant study has been undertaken where medical students were also evaluated [15].

Among all HCWs, nurses form a larger group and play a central role in any healthcare setting. Since providing patients' care is one of their direct tasks, nurses should be properly trained, and their compliance with the hand hygiene guidelines is pivotal in protecting the patients and preventing the transmission of HCAIs [16, 17]. According to the World Health Organization (WHO), the prevalence of nosocomial infections is as high as 19% in developing countries, posing a challenge to healthcare providers. For proper training, basic awareness about handwashing guidelines among the hospital personnel is required to reduce this burden of nosocomial infections. Hand washing by water and soap for 20-30 seconds could be life-saving especially for HCWs. The importance of hand hygiene and washing are brewing high importance due to the spreading of many contagious diseases, such as severe acute respiratory syndrome (SARS), MRSA, Middle East respiratory syndrome (MERS), and the recent COVID-19 pandemic as reported by WHO. Keeping the importance of handwashing in controlling the spread of nosocomial infections, the present study is performed to assess the general and hand hygiene practices among the medical and nursing students of the University of Hail, KSA.

Procedure

The present study is a quasi-experimental, cross-sectional, questionnaire-based study, conducted over three months among medical and nursing students of the University of Hail of KSA. A detailed questionnaire, consisting of thirty (30) questions, focusing on general and hand hygiene practices, was prepared and piloted before the final interview. The questions focused mainly on general and hand hygiene practices. A total of 100 medical (n=50) and nursing (n=50) students were included in the study. Out of these, 88 were males and 12 were females. The study was conducted after approval from the Ethics committee, college of medicine, University of Hail, KSA.

Before participation, the purpose of this study was explained to each student as per the ethical guidelines of the college. Students were requested to answer the questionnaires after assuring them of the fact that the results of this survey had no impact on their final grades in examinations. The participation of students was voluntary and the questionnaires were kept anonymous. However, the identifying data of students who opted not to respond to the questionnaire were recorded to exclude them from the assessment of compliance. The total number of responses was collected and data was processed and analyzed using SPSS (version 20.0) and Microsoft Excel software.

RESULTS

The present study is conducted on students from medical and nursing colleges. The majority of the respondents were male from either medical (94%) or nursing (82%) colleges, while the number of female respondents was only 6% and 18% respectively (Figure-1).

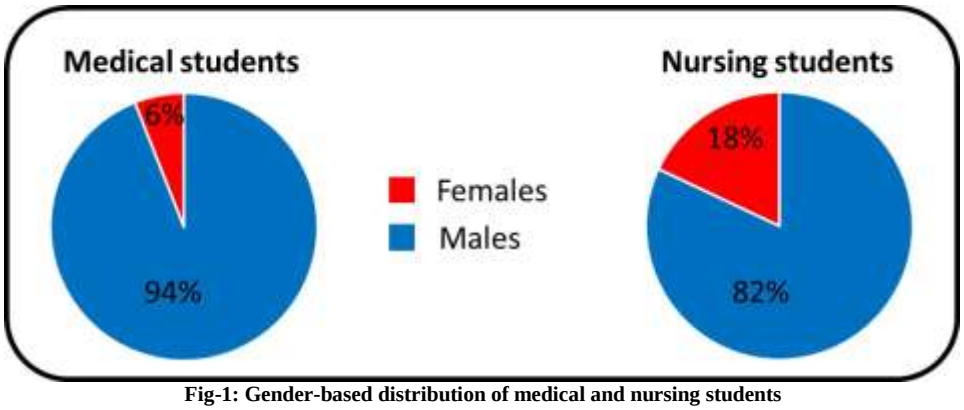

Fig-1: Gender-based distribution of medical and nursing students

Daily bathing and change of clothes practices were among all the medical students (100%), while the corresponding number was 96% among nursing students. Fingernails cleaning practice was also among all the medical students (100%), while 98% among nursing students. Overall, the majority of both medical and nursing students had good hygienic practices. There was no significant ($p>0.05$) difference in the hygienic practices between medical and nursing students. The majority of both medical and nursing students had good hand washing practices. Using soap to wash hands before meal practice was higher among nursing students (64%) than medical students (42%) with significant ($p=0.02$) association (Table-1).

Table-1: Comparison of hygienic practices between medical and nursing students

Hygienic practices#	Medical (n=50)		Nursing (n=50)		p-value[1]
	No.	%	No.	%	
Daily bathing and change of clothes	50	100.0	48	96.0	0.15
Fingernails cleaning	50	100.0	49	98.0	0.31
Fingernails trimming	47	94.0	48	96.0	0.64
Use of hand tissue while coughing and sneezing	47	94.0	47	94.0	1.00
Combing of hairs	49	98.0	49	98.0	1.00
Cleaning of ears and eyes	43	86.0	48	96.0	0.08
Nail-biting	19	38.0	24	48.0	0.31
Washing socks daily	29	58.0	35	70.0	0.21
Eating in clean place	50	100.0	50	100.0	-
Washing of hands, legs, and face after playing	50	100.0	50	100.0	-
Washing hands using water	48	98.0	47	94.0	0.30
Washing hands using soap	39	78.0	44	88.0	0.18
Washing hands before meal	39	78.0	43	86.0	0.10
Using soap to wash hands before a meal	21	42.0	32	64.0	**0.02***
Hand washing after going to the toilet	47	94.0	43	86.0	0.18
Using soap to wash hands after going to the toilet	35	70.0	42	84.0	0.09

#Multiple responses, [1]Chi-square test, *Significant

There was no significant difference (p>0.05) in the hygienic practices between male and female students except for the combing of hair practice. Nail-biting was higher among males (44.3%) than females (33.3%). However, washing socks daily was found to be higher among female (83.3%) students compared to male (61.4%) students. Hand washing practices were almost similar (p>0.05) in both male and female students (Table-2).

Table-2: Comparison of hygienic practices between male and female students

Hygienic practices#	Male (n=88)		Female (n=12)		p-value[1]
	No.	%	No.	%	
Daily bathing and change of clothes	86	97.7	12	100.0	0.59
Fingernails cleaning	87	98.9	12	100.0	0.71
Fingernails trimmed	84	95.5	11	91.7	0.57
Use of hand tissue while coughing and sneezing	84	95.5	10	83.3	0.09
Combing of hairs	88	100.0	10	83.3	**0.0001***
Cleaning of ears and eyes	79	89.8	12	100.0	0.24
Nail-biting	39	44.3	4	33.3	0.47
Washing socks daily	54	61.4	10	83.3	0.13
Eating in clean place	88	100.0	12	100.0	-
Washing of hands, legs, and face after playing	88	100.0	12	100.0	-
Washing hands using water	84	95.5	12	100.0	0.45
Washing hands using soap	73	83.0	10	83.3	0.97
Washing hands before meal	73	83.0	9	75.0	0.59
Using soap to wash hands before a meal	45	51.1	8	66.7	0.31
Washing hands after going to the toilet	80	90.9	10	83.3	0.41
Using soap to wash hands after going to the toilet	66	75.0	11	91.7	0.19

#Multiple responses, [1]Chi-square test, *Significant

DISCUSSION

Healthcare-associated infection is a very important health issue globally, and hand hygiene is an effective method of infection control. Though the methods of hand hygiene are widely publicized and simple [10], several studies have found low awareness level regarding hand hygiene among medical students and certified healthcare providers [13, 14]. Students are bound to develop faulty hand hygiene practices if the curriculum was not enforced with hand hygiene concepts and skills. One such series is reported by Anwar et al (2009) from a leading medical training center in Pakistan where only 17% of interns and postgraduate medical students were aware of WHO recommendations on hand hygiene and only 4.7% reported observing correct hygiene before having direct contact with the patients [18]. It is for this valid reason

that the Hygiene Liaison Group, UK strongly advocates teaching elementary hygiene practices at medical schools [19].

In the present study, the majority of the medical and nursing students were males (88%) either in medical college (94%) or in nursing college (82%). On the contrary, Mahmood *et al.*, reported that the majority of the healthcare workers were females (72.0%) in their study [20]. This discrepancy could be attributed to the distribution of the questionnaire. In this study, the majority of both medical and nursing students had good hygienic practices. Similar findings were reported by Maheshwari *et al.*, among staff nurses in a tertiary care hospital in Bhopal [21]. While washing practices were almost similar ($p>0.05$), the results of this study showed no significant difference in the hygienic practices between male and female students except for the combing of hair ($p>0.001$). Kukanich *et al.*, conducted a study in two outpatient healthcare clinics and reported that the frequency of hand hygiene was poor at baseline (11% and 21%) but improved significantly after an intervention (36% and 54%) and through the follow-up period (32% and 51%) [22].

CONCLUSION

This study showed a higher percentage of general and handwashing hygienic practices among medical and nursing students at the University of Hail, KSA. However, multifaceted and dedicated efforts must be undertaken to rectify this practice from early on. As the world is facing dramatic changes due to the spreading of life-threatening infections such as Ebola, MERS, SARS, and recent pandemic COVID-19, protocols of hand hygiene and washing guidelines should take priority in hospitals and healthcare facilities among HCWs to control and prevent infections.

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