

HAND SANITATION PRACTICES WITHIN CLINICAL SETTINGS: ITS KNOWLEDGE AND PRACTICE AMONG STUDENTS OF PESHAWAR MEDICAL COLLEGE (PMC)

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ABSTRACT

Introduction: Healthcare-associated infection is a major cause of morbidity and mortality. Hand hygiene is regarded as the most effective method of prevention but is poorly performed by health workers. Maintaining adequate hand hygiene remains amongst the three requisites of good health. This study was conducted to assess the knowledge regarding different hand sanitation techniques and various factors responsible for non-compliance among students of Peshawar Medical College.

Material and Methods: It was a cross-sectional survey based on self-administered questionnaire carried out at Peshawar Medical College. Self-designed questionnaire was distributed and responses obtained from students after their informed consents. SPSS 15 was used for analyzing data.

Results: Response rate of the students was 51.6%. In total 87(56.1%) students were male and 68(43.9%) were female. Prevention in transmission of resistant microbes among patients in clinical settings was reported negative by the students (65.8%), the seven standardized steps were known by 42.6% of the students whereas 39.6% students applied it in clinical settings.

Conclusion: Awareness about standardized steps of hand sanitation was not adequate among these medical students in the clinical settings; using soap and water for hand sanitation was found to be an effective tool for reducing surface tension between dirt and skin. Non-availability of hand sanitizers and careless attitude to medical students was considered as one of poor compliances. Findings may be considered important in controlling various factors responsible for poor adherence to different hand hygiene practices among medical students in clinical settings.

Keywords: Hand sanitization; Hygiene; Infections; Nosocomial infections; Hand washing.

INTRODUCTION

Hand hygiene is considered to be the most effective strategy to combat hospital-associated infection, with a reduction in infection rates reported after improved compliance with hand hygiene. Maintaining adequate hand hygiene remains amongst the prerequisites of good health. Not only does it protect oneself from getting infected by various pathogenic microorganisms present in the environment, it also helps in preventing person to person transmission of such infectious microbes. In clinical settings, this rather simple practice serves as an important and effective measure in

reducing risk of nosocomial infections (1, 2). In this regard, substantial amount of literature is available worldwide, highlighting an important temporal association between hand sanitation practices and decreased infection rates in health care settings (3-8). Moreover, a number of surveys conducted in schools or at community level, around the globe have supported the significance of hand hygiene in preventing various infections and their cross transmission within general population (9-15). This study aims at accessing the knowledge and various factors responsible for non-compliance among medical students, regarding different hand sanitation techniques.

MATERIAL & METHODS

This study is an observational cross-sectional study. The study population was selected via convenient sampling and consisted of students from Peshawar Medical College (PMC). All medical students from Year 3 to Year 5, currently enrolled in the above mentioned medical college were included in the study. Medical students who were presently in Year 1 or Year 2 or those who had given their Year 5 final examination but had still not graduated were excluded from the study.

Data collection process approximately lasted for a period of two weeks. The investigator individually approached these medical students during working hours i.e. 9 am to 1 pm, from Mondays through Fridays. Each student was given an explanation about the rationale of this study and before recruiting them for the study, permission was taken through obtaining their signature on an informed consent.

Since this study is a pilot study, no literature was available in Peshawar regarding the current study. Therefore, it was anticipated that 50% of the medical students would have sufficient knowledge and adequate adherence to various hand hygiene practices in clinical settings. Using confidence level of 95%, relative precision of 10% and after determining that the total population of medical students fulfilling the inclusion criteria came out to be 300, a sample size was calculated by the software '*Sample Size Determination in Health Studies 2.0*', that came out to be 124.20% cases were added to the sample size to include refusals and dropouts. This made a total sample size of 155 medical students.

All the data from questionnaires were entered into a data base designed for this

purpose using Epidata 3.1 program. Statistical Package for Social Sciences (SPSS) v. 17.0 was employed as a tool for data analysis. Descriptive statistics for the sample was estimated using frequencies and expressed as percentages to demonstrate their prevalence. PubMed database and Google Scholar were employed as tools for literature search. All references were cited using Endnote X1 library and are presented in the manuscript using Vancouver style.

RESULTS

One hundred and fifty five (155) students completed the questionnaire; of those 56.1% (n=87) were male and 43.9% (n=68) female. The students of age <22 years were 31% (n=48), age 22 years were 36.1% (56) and the students above age 22 were 32.9% (n=51). The total number of medical students from year 3 were 60 (38.7%), year 4 were 63 (40.6%) and year 5 were 32 (20.6%). The medical students having experience <1 year in the clinical settings were 41.3% (n=64), experience between 1-2 years were 31% (n=48) and students having experience >2 years were 27.7% (n=43) as displayed in Table 1.

When asked the future doctors about their knowledge of 7 steps of hand sanitation, n=66 (42.6%) replied with a positive answer while shockingly n=89 (57.4%) gave a negative response (Figure 1).

Out of these 66 med students, when asked about application of these 7 steps in clinical, n=17 (11%) did not apply these 7 steps while n=49 (31.6%) applied them and n=89 (57.4%) students didn't give any answer (Table2).

Table 1. Demographic data of medical students (n=155)

Variable	Frequency (n)	Percentage (%)
Age	<22	48
	22	56
	>22	51
Gender	Male	87
	Female	68
Year in Medical College	Year 3	60
	Year 4	63
	Year 5	32
Experience in Clinical Settings	<1 year	64
	1-2 years	48
	>2 years	43

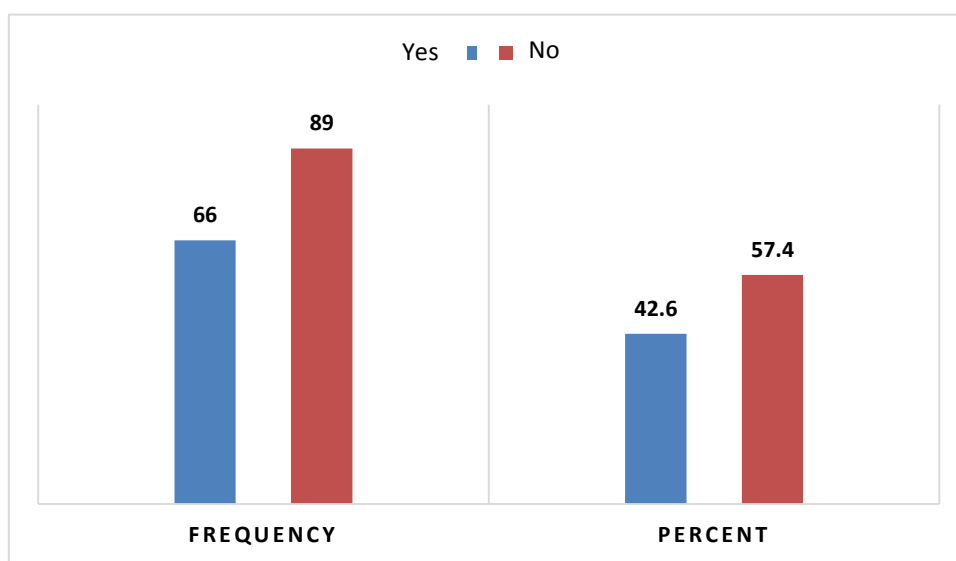


Figure 1: Awareness of medical students about the seven steps of hand washing (n=155)

Table 2.: Students' responses to application of hand washing practices in clinical settings (n=155)

	Responses	Frequency (n)	Percentage (%)
If yes, do you apply it in clinical settings?	Yes	49	31.6
	No	17	11.0
	Don't Know	89	57.4

When asked about the importance of hand sanitation practices in clinical setting, n=151 (97.4%) students had a positive opinion while only n=4 (2.6%) replied in negative.

Overall, 89 considered hand sanitation practices important in reducing the risk of nosocomial infections while n=53 regarded them as an important tool in preventing transmission

of resistant microbes amongst patients in clinical settings. When asked for accomplishing proper hand hygiene within clinical settings n=88 (56.8) students replied that traditional hand washing techniques of soap and water should be

used, n=65 (41.9%) suggested the use of alcohol based sensitizer while n=88 (56.8%) students recommended washing hands with antiseptic solution (Table3).

Table 3. Students’ responses to questions relevant to knowledge of hand washing practices (n=155)

Questions	Responses	Frequency (n)	Percentage (%)
Do you think hand sanitation practices are important in clinical setting?	Yes	151	97.4%
	No	4	2.6%
Does it help in reducing the risk of nosocomial infections among patients?	Yes	89	57.4
	No	66	42.6
Does it prevent transmission of resistant microbes among patients in clinical settings?	Yes	53	34.2
	No	102	65.8
Use traditional hand washing technique with soap and water?	Yes	88	56.8
	No	67	43.2
Use Alcohol based sensitizer?	Yes	65	41.9
	No	90	58.1
Wash Hands with antiseptic solution?	Yes	88	56.8
	No	67	43.2

Regarding maintenance of hand hygiene using soap and water, n=83 (53.5) considered that soaps reduces the surface tension between dirt and skin, 50 (32.3%) answered soap softens

the dirt over the skin, 5 (3.2%) answered that soap only provides with fragrances and plays no part in removal of dirt, while 17 (11%) pupil were not sure (Figure 2).

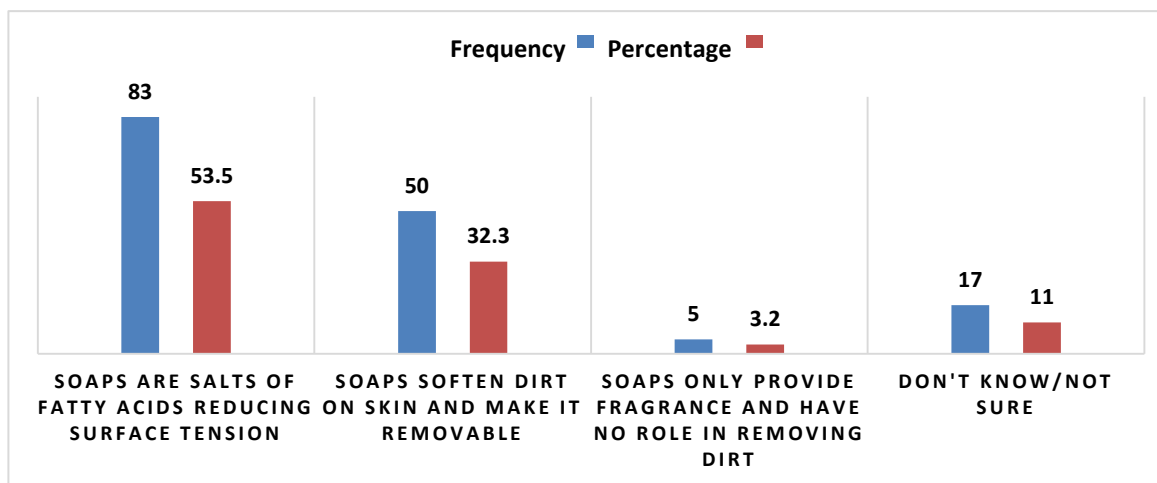


Figure 2. Students’ knowledge regarding soap and water for hand hygiene (n=155)

Finally 155 medical students were asked about their opinion about reasons for poor compliance to hand sanitation practices in clinical settings, n=59 (38.1%) imitated the apprehension among students about possible adverse effects including skin dryness and irritation with use of hand hygiene, n=82 (52.9%) of them considered it to be due to non-availability of hand sanitizers to medical students, n=43 (27.7%) said it is due to

lack of knowledge of hand hygiene, n=48 (31%) of them replied that no proper importance given to hand sanitation practices, n=29 (18.7%) of them replied that importance is given to patients' needs rather than self-hygiene while n=70 (45.2%) considered poor compliance due to careless attitude of medical students towards hand hygiene (Figure 3).

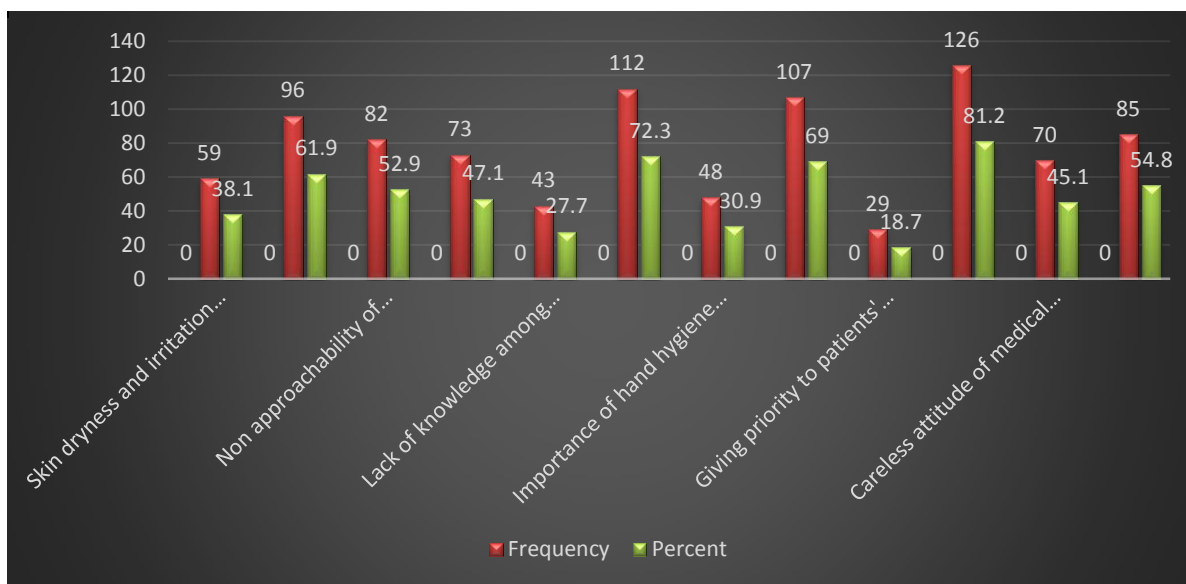


Figure 3. Students' responses for reasons of non-compliance with hand washing practices (n=155)

CONCLUSION

This study is a pilot study and holds its unique value in terms of determining prevalence of hand sanitation practices in Peshawar. Results generated from it would prove to be of immense importance in controlling various factors responsible for poor adherence to different hand

hygiene practices among medical students in clinical settings. The importance of hand sanitation practices awareness was common in majority of medical students. In clinical settings hand sanitation practices were considered unpreventable in transmission of resistant microbes among patients.

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