

**BJMHR**British Journal of Medical and Health Research
Journal home page: www.bjmhr.com

Knowledge, Attitude, and Practice Regarding Hand Hygiene among Healthcare Professionals in a Tertiary Care Hospital

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ABSTRACT

Healthcare-Associated Infections are a global health problem, which are frequently transmitted via the hands of healthcare workers. Hand hygiene (HH) is a simple and effective measure to reduce them. This retrospective cross-sectional study made use of a structured pre-tested and validated questionnaire, comprising three questions to assess knowledge, four to assess practice, and one to assess attitude. The study received 245 responses, grouped into doctors and nursing Staff. It was observed that cumulatively 80.95% of the participants had correct knowledge, 95.92% had the correct attitude, while 47.14% followed correct practices. Individually, more doctors had the correct knowledge (82.54%), right attitude (98.94%), and perform correct practices (53.44%) with respect to hand hygiene, as compared to nursing staff (75.60%, 85.71%, and 25.89%, respectively), which contrasted many other studies. We therefore conclude that while healthcare professionals possess sufficient knowledge, and have the right attitude regarding HH, there is substantial deficit in complying with the five moments of HH. This can be addressed by conducting regular trainings and audits, to improve the HH compliance, thereby reducing the incidence of HAI.

Keywords: Attitude, hand hygiene, healthcare associated infections, knowledge, practice.

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Received 02 March 2024, Accepted 04 April 2024

Please cite this article as: Karyakarte A *et al.*, Knowledge, Attitude, and Practice Regarding Hand Hygiene among Healthcare Professionals in a Tertiary Care Hospital. British Journal of Medical and Health Research 2024.

INTRODUCTION

Healthcare-Associated Infections (HAI) affect millions of patients over the world annually. HAI pose an additional burden of mortality, and increased costs on the already strained healthcare systems in low- and middle-income countries.¹ HAI are defined as infections occurring in patients during healthcare delivery, which was not present or incubating at the time of admission. This includes infections acquired in the healthcare facility, which may also appear after discharge, and occupational infections among the healthcare workers in that facility.² In a meta-analysis conducted in 2021, the World Health Organization reported the pooled prevalence of HAI as 15.5 per 100 patients [95% CI; 12.6–18.9] in low- and middle-income countries, which was almost twice as much as of Europe (7.1 per 100 patients) and more than thrice that of the United States of America (4.5 per 100 patients).³

Hands of healthcare workers are the most common vehicles for transmission of HAI from patient-to-patient, and within the healthcare environment. There is ample literature to emphasize the importance of hand hygiene (HH) as a simple and effective measure to reduce HAI, as first demonstrated by Dr. Ignaz Semmelweis, the Hungarian Physician and father of HH.⁴ To that effect, the World Health Organization, in 2012, has issued guidelines for a multimodal HH improvement strategy.^{2,5-7} Acquiring details about knowledge, attitude, and practice of healthcare professionals in a given healthcare setting will help in developing tools for improving these aspects, including assessment of practices with the help of audits. This is backed by national and international studies, reiterating the need for such tools and the impact of the resulting targeted interventions.^{8,9} Apropos that, the present study was undertaken with the aim to evaluate the knowledge, attitude, and practice (KAP) regarding HH practices among healthcare professionals in a tertiary care hospital.

MATERIALS AND METHOD

This was a retrospective cross-sectional study carried out via convenience sampling, as the study required simple qualitative data to be analyzed in a short duration. Participants included in the study were those that:

- Responded to the questionnaire
- Work in the study institution
- Gave electronic informed consent

Non-responders, and responders who did not consent, were excluded. Care was taken to ensure the participants of their confidentiality, and that the findings would not in any way harm their interests. A structured questionnaire in the form of a Google Form, which was pre-tested and validated by the investigators, was sent out via e-mail and WhatsApp groups on

the occasion of World Hand Hygiene Day, 2022.¹⁰ Only those responses obtained on the same day were considered for evaluation and analysis.

The questionnaire which was sent out comprised of ten questions. First question was a “Required Question” obtaining electronic informed consent from the participant. The second question took the participant’s designation viz. labour staff, nursing staff, intern, resident doctor, or faculty. Eight questions were asked to assess the KAP regarding HH practices. Three questions assessed the participant’s knowledge, four assessed their practice, while one question was put up to assess their attitude. Regarding attitude, it was endeavored to know what, according to the participant, was the major hindrance to proper hand hygiene practice being followed. The options given to choose among were lack of awareness and knowledge among healthcare professionals, lack of enough time to carry out HH, and a lack of materials and facilities for HH. Any of these three answers were considered as acceptable for the purpose of this study. A fourth option stating that HH guidelines are too strict and it is not necessary to follow them meticulously was also given, which being unacceptable, was considered as a wrong answer.

As the knowledge, attitude, and practices of HH are expected to be universal among all healthcare workers, demographic parameters like age and gender were neither considered, nor investigated in the questionnaire. The participants were, however, categorized according to their designation in the institution.

The present study has been approved by the Institutional Ethics Committee vide its approval letter IEC (II)/OUT/14/2023.

Upon approval from the Institutional Ethics Committee, results were downloaded in the form of Google Sheets, and later cleaned and coded in Microsoft Excel 2020. Parameters of knowledge, and practice of HH were assessed according to guidelines issued by the World Health Organization, and Centers for Disease Prevention and Control. Parameter for attitude towards HH was analyzed according to published literature.⁵⁻⁷ Data were tabulated in Microsoft Excel 2020, while the Mann-Whitney-U test of significance was applied using the IBM SPSS v26 (trial) software.

RESULTS AND DISCUSSION

The study received a total of 245 responses which were included in the analysis. A total of five categories (interns, resident doctors, faculty, labor staff, and nursing staff) were grouped into two, which included 189 doctors (77.14%) and 56 nursing staff (22.86%) (Table 1).

With regard to major hindrance to following HH practices, 121 (49.39%) ascribed it to lack of awareness, 81 (31.06%) to lack of enough time, 33 (13.47%) to lack of materials and facilities. 10 (4.08%) respondents, however, stated that HH guidelines are too strict and it is

not necessary to follow them meticulously; these were marked as an incorrect response for this question (Figure 1). Assessment of the other questions showed that 80.95% of the participants had correct knowledge, and 47.14% followed correct practices. Cumulatively, 95.92% of the participants had the correct attitude as well (Table 2).

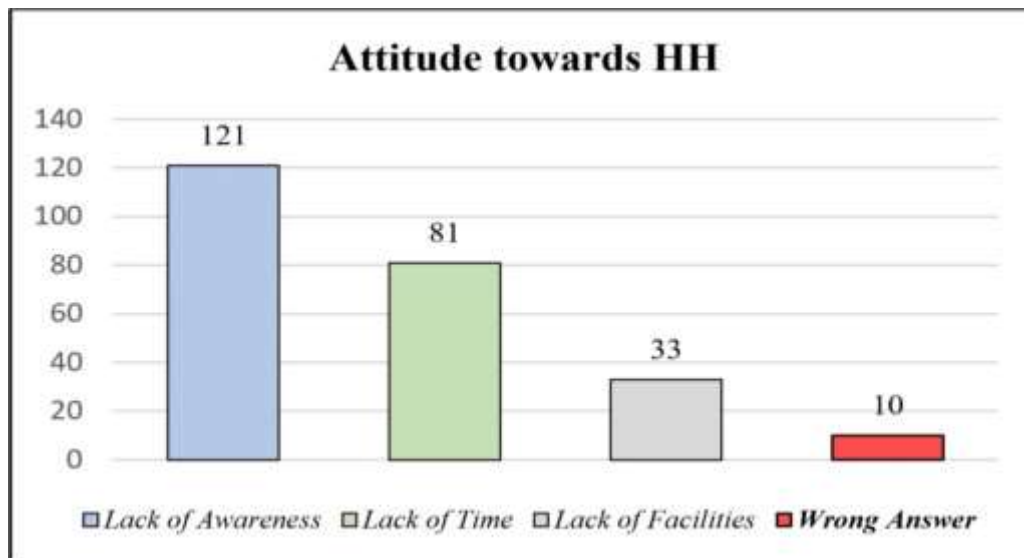


Figure 1: Shows the attitude of the participants regarding hindrance to proper hand hygiene

Mann-Whitney U-Test was applied to assess whether there was any difference between the two participant groups (doctors and nursing staff) as to the correct KAP; p-value <0.05 was considered significant. It was found that 82.54% doctors and 75.60% nursing staff had correct knowledge (difference=6.94%; p=0.102; not significant). Also, 98.94% doctors and 85.71% nursing staff had correct attitude (difference=13.23%; p<0.01; significant). However, only 53.44% doctors performed correct practices, while only 25.89% nursing staff followed them (difference=27.55%; p<0.01; significant) (Table 3).

Hand hygiene is arguably the simplest and most effective measure to reduce HAI. Adherence to proper HH practices leads to a significant reduction in the bacterial counts on hands, thus reducing the risk of cross-transmission between patients.¹¹ The World Health Organization guidelines recommend a six-step technique for HH to ensure complete coverage of the hands. Also put forth is the 'My 5 Moments for Hand Hygiene' concept to determine when HH should be performed during patient care.¹² As found during the ongoing COVID-19 pandemic, alcohol-based hand rubs are as effective as hand washing with soap and water for preventing disease transmission of enveloped viruses, like the coronavirus.¹³ Also, most healthcare settings have strengthened their training and monitoring of HH in view of the pandemic.

In the present study, the cumulative knowledge, attitude, and practice among the participants was 80.95%, 95.92%, and 47.14%, respectively. These findings were found to be

significantly better than other similar studies conducted nationally and internationally. A study in southern India (2014) found the cumulative knowledge, attitude, and practice among the participants to be 74%, 32.50%, and 40.85%, respectively.¹⁴ A similar study conducted in Iran (2015) found dismal results, with the cumulative knowledge, attitude, and practice among the participants was only 65.70%, 20%, and 5.30%, respectively.¹⁵

In a study from southern India (2014), Nair *et al* compared the knowledge, attitude, and practice about hand hygiene among 46 nursing and 98 medical students. They found that 82.28% nursing students and 74.43% medical students had correct knowledge about hand hygiene; the difference was statistically significant. Also, 52.10% nursing students and only 12.9% medical students had the correct attitude regarding hand hygiene; this difference also being statistically significant. Similarly, 62.10% of nursing students, and only 19.60% medical students followed correct hand hygiene practices; this difference was also statistically significant.¹⁴ The fact that KAP among students was much less as compared to professionals, as found in the present study, helps strengthen the empirical assumption that trained healthcare professionals have a better KAP regarding HH. At the same time, proper training and monitoring of HH practices, since the students of today become healthcare professionals of tomorrow.

More recently, in a study conducted in Egypt (2018), Aledeliah *et al* compared the knowledge, attitude, and practice about hand hygiene among 32 resident doctors and 96 nurses. They found that 75.80% residents and 70.02% nurses had correct knowledge. Additionally, 81.14% nurses and 74.79% doctors showed correct attitude about hand hygiene. Furthermore, 84.87% nurses and 79.85% doctors followed correct hand hygiene practices. None of these differences, however, were statistically significant.¹⁶

The present study reports that more doctors have correct knowledge about hand hygiene compared to nursing staff (statistically not significant). Also, more doctors have the right attitude, and perform correct practices with respect to hand hygiene, as compared to nursing staff (both statistically significant). (Table III).

Figure 1: Shows the attitude of the participants regarding hindrance to proper hand hygiene

Table 1: Showing the distribution of participants

Group	Designation	Participants	
		Frequency	Percentage
Doctors	Intern	70	28.57 %
	Resident Doctor	74	30.20 %
	Faculty	45	18.37 %
Nursing staff		55	22.45 %
TOTAL		245	100 %

Table 2: Showing the distribution of questions with respect to KAP, and their evaluation

	Questions	Responses Received	Correct Answers	
			Frequency	Percentage
Knowledge	3	735	595	80.95 %
Attitude	1	245	235	95.92 %
Practice	4	980	462	47.14 %
TOTAL	8	1960	1292	65.92 %

Table 3: Difference between Knowledge, Attitude, and Practice among Doctors and Nursing Staff

Parameters	Doctor			Nursing Staff			p-value
	N	%	Median(IQR*)	N	%	Median(IQR*)	
Correct Knowledge	468	82.54	3 (2-3)	127	75.60	2 (2-3)	0.102
Incorrect Knowledge	99	17.46		41	24.40		
Correct Attitude	187	98.94	2 (1-3)	48	85.71	1 (0-2)	<0.001
Incorrect Attitude	2	1.06		8	14.29		
Correct Practices	404	53.44	1 (0-1)	58	25.89	1 (0-1)	<0.001
Incorrect Practices	352	46.56		166	74.11		

*IQR = Inter-Quartile Range

CONCLUSION:

To conclude, this study finds that while healthcare professionals possess sufficient knowledge, and have the right attitude regarding HH, there is substantial deficit in following proper HH practices. This can be addressed by conducting regular trainings and audits, so as to improve the HH compliance, thereby reducing the incidence of HAI. This study also had a few limitations. The use of online questionnaire led to selection bias. Since only those responses only on a particular day were included, the included participants did not represent a cross-section of the entire study population. The use of convenience sampling led the results to be non-generalizable. The authors would finally like to recommend that as is the case with most ground-level processes, the culture of change starts with the leaders. Thus, unit in-charges and heads of departments in clinical areas are expected to take initiative in proper implementation of HH. Frequent audits by an Infection Control Team which provides actionable results would go a long way in ensuring compliance. As a motivational measure for healthcare workers, non-compliance HH could be labeled as an error in healthcare delivery, which could make them amenable to compliance, rather than introducing penalties for non-compliance.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest in the present study

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