

## KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING HAND WASHING AMONG DENTAL PRACTITIONERS, HOUSE OFFICERS AND STUDENTS OF BAQAI DENTAL COLLEGE

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### ABSTRACT

Hand hygiene is a cost-effective way in inhibiting spread of infection and also considered one of the important control processes of infection transmission in dental practice. The aim and objective of this study was to collect data among healthcare professionals, mainly dentists (practitioners, students and house officers) in a dental teaching hospital. Secondary aim was to measure the awareness of hand hygiene and knowledge regarding hand washing materials and procedures. The assessment of attitudes, knowledge and practice according to age, gender, and occupation was surveyed. A total number of practitioner, students and house officers included in this study were fifty and 100% responses were collected. Among the respondents 34 (68%) were males and 16 (32%) were females with an age ranging from 20-40 years. Dental staff who participated was 18 general practitioner (36%), 15 Students (30%) and 17 house officers were (34%). There was significant difference between two genders and age group. The average awareness regarding adaptation of the type of hand hygiene and positive indication about awareness of hand hygiene was higher when compare with international data. Data suggested that mostly people involve in this study use medicated soap other than alcohol. Smaller number of dental staff was involved in using alcohol-based hand sanitizer. However, it is suggested that multidimensional and enthusiastic efforts must be undertaken to create more awareness and compliance of hand hygiene among practitioners, house officers and students. Dental schools are highly encouraged to adapt and enhance their prospectus in order to improve hand hygiene among the dental staff.

**KEYWORDS:** Hand hygiene, awareness, dental practice, and infections.

### INTRODUCTION

Hygiene of hands is acknowledged as the leading measure to avoid cross-transmission of microorganisms and to stop health care associated infections incident.<sup>[1]</sup> Regardless of relative simple procedure, among health care providers compliance with hand hygiene is as low as 40%.<sup>[2]</sup> Highlighting important healthcare issues globally, hand hygiene is a vital issue and may be a cost-effective together with realistic measure to attenuate the incidence of infections related to healthcare. However, to deal with this issue about lack of awareness of hand hygiene, many efforts are being made to deal with this issue and to spot viable strategies.<sup>[3]</sup> By World Health

Organization, "My five moments for hand hygiene" is one of the effort. These five moments include the moment before touching a patient, before doing aseptic and uncluttered procedures, after being at risk of disclosure to body fluids, after touching a patient, after touching patient surroundings. This approach has been timely and appropriately used for the advancement of hand hygiene concepts among workers of health care.<sup>[4]</sup> Healthcare associated infections are considered a substantial reason for morbidity and mortality worldwide among hospitalized patients.<sup>[5]</sup> In 1988 and 1995, hand washing and hand antisepsis guidelines were published by APIC (Association of Professionals in Infection

Control). Approaches at hand hygiene has been proven effective.<sup>[6]</sup> Dentistry has an accountability to follow scientifically accepted principles which is evidence based for infection control. Hand hygiene is taken into account one amongst the foremost vital parts in dentistry for the control of infection process and also considered to attenuate the chance of microorganism transmission to patient from provider For rapidly reducing bacterial counts, one in every of the fundamental principal approvals of hand hygiene guidelines was to use waterless, alcohol-based hand rubs.

Protective gloves are considered as standard precaution. Together with protection it also provides moist environment during which proliferation of organisms can occur.<sup>[7]</sup> Various studies have been conducted to clarify the hygiene of hands in nursing, dentistry, medicine and physicians in several countries. They accomplished that compliance with hand hygiene is as low as <40% in health care providers with a baseline varying from 5% to 89%.<sup>[3,8]</sup> Multiple studies are conducted among dental practitioners. Guidelines regarding hand hygiene were published >10 years ago, because of this dentists are alert about appropriate alcohol-based sanitizers. However, data on hand hygiene for dentist’s awareness are available in many countries as an example Nigeria<sup>[7]</sup> Iran<sup>[9]</sup> United Kingdom<sup>[10]</sup> and United states<sup>[11]</sup> However, majority of the authors and studies concluded that there’s lack of awareness among dentists concerning the use of correct agents. Yet, no comparable data is out there from France. The aim and objective of this study was to gather data among healthcare professionals, mainly dentists (practitioners, students and house officers) in a dental teaching hospital. Secondary aim was to measure the awareness of hand hygiene and knowledge regarding hand washing materials and procedures. The assessment of attitudes, knowledge and practice according to age, gender, and occupation was surveyed.

**MATERIALS AND METHOD**

A cross-sectional and questionnaire-based study was undertaken among practitioner, students and house officers of Baqai Dental College, Karachi, Pakistan. The study was carried out in 2019 November and December. Ethical clearance was obtained from the ethical committee of the Baqai Dental Hospital, Karachi. Verbally, the participants were informed about the aim and objective of the study. The practitioners, students and house officers were requested to fill the questionnaires. However, the participation was voluntary, the participants were requested to complete and return the survey questionnaire immediately.

**The hand hygiene Questionnaire**

A self- designed questionnaire was used for the assessment of hand hygiene awareness. The questionnaire was in English. Study includes practitioners, students and house officers. The details recorded included: age, gender, and category of working.

Questions related to hand hygiene were included in two-paged questionnaire. We asked total 8 questions, four of them had an option of “yes” and “no” where as the remaining four questions had 3 different options for each question.

**Statistical Method**

KnoAll the data was entered into a database on Microsoft Excel. However, to generate the tables and graphs, Microsoft Excel and Microsoft Word have been used. Using SPSS software version 20 did analysis of data.

**RESULTS**

A total number of practitioner, students and house officers included in this study were fifty and 100% responses were collected. Among the respondents 34 (68%) were males and 16 (32%) were females with an age ranging from 20-40 years. Dental staff who participated was 18 general practitioner (36%), 15 Students (30%) and 17 house officers were (34%) as shown in table 1,2 and 4. There was significant difference between two genders and age group. The data regarding age and gender was statistically analyzed as shown in table 3.

**Table 1: Demographic characteristics including age of practitioners, students and house officers.**

	Age	
	Frequency	Percentage
20-30 years	38	76%
30-40 years	12	24%
Total	50	100%

**Table 2: Demographic characteristics including distribution of genders of practitioners, students and house officers.**

	Gender	
	Frequency	Percentage
Males	34	68%
Females	16	32%
Total	50	100%

**Table 3: Statistical calculations of age and gender.**

Statistics		
	AGE	GENDER
Valid	50	50
Missing	0	0
Mean	1.2400	1.3200
Median	1.0000	1.0000
Mode	1.00	1.00
Std. Deviation	.43142	.47121

**Table 4: Demographic characteristics including distribution of practitioners, students and house officers.**

Dental Staff	Frequency (n)	Percentage (%)
Practitioner	18	36%
Student	15	30%
House officer	17	34%
Total	50	100%

The responses of dental staff in Yes or NO on awareness and adaptation of hand hygiene in dental practice was recorded, such as hand wash among the dental staff before examining the patient came out to be 84% and 16% responded reluctant.

68% responded positive on awareness of specific hand washing techniques while 32% were unaware of proper techniques. 92% of dental staff knew the significance of hand wash in preventing cross infection. 94% of dental staff reported to wash their hands after using rest room.

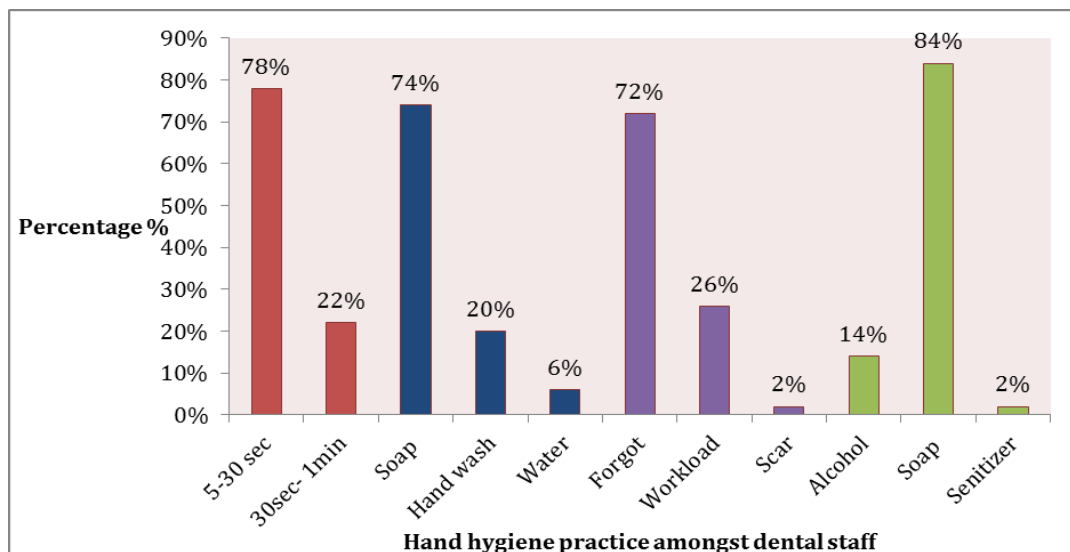
**Table 5: Percentage of an adaptation of the type of hand hygiene by the respondents in dental practice.**

Question	Response	Frequency (n)	Percentage (%)
Hand wash before examining patient	Yes	42	84%
	No	8	16%
Awareness on hand washing techniques	Yes	34	68%
	No	16	32%
Awareness on preventing cross infection	Yes	46	92%
	No	4	8%
Hand wash after using rest room	Yes	47	94%
	No	3	6%

Illustrates the detailed bar chart on the basic hand hygiene practice among the dental staff, which includes the minimum and maximum duration for hand washing which came out to be 78% of staff took 5-30 seconds and only 22% spent 30 seconds to 1 minute.

wash and simple water respectively. The main reason for skipping hand washing reported by the staff was that they simply forgot (72%) and workload and scar came out to be the least. The best material according to survey reported by the staff being aware was soap up to 84% as shown in Figure 1.

74 % of staff used soap bars as the common medium for hand washing while 20% and 6% of staff used hand



**Figure 1: Awareness, methods, duration and reasons for skipping hand hygiene. Bar chart demonstrating (a) Time spent on hand washing (b) Material used for hand washing (c) Reasons for skipping hand wash and (d) Awareness in best material for hand wash.**

Figure 2 shows the adequate awareness and practice in dental staff and Doughnut chart display the data in rings, where each ring represents a data series in percentages, which proves the general awareness of hand hygiene.

The P-value is 0.213309; the result is not significant at  $p < 0.05$  when chi square test being applied between the percentages of adequate and inadequate awareness among the dental staff.

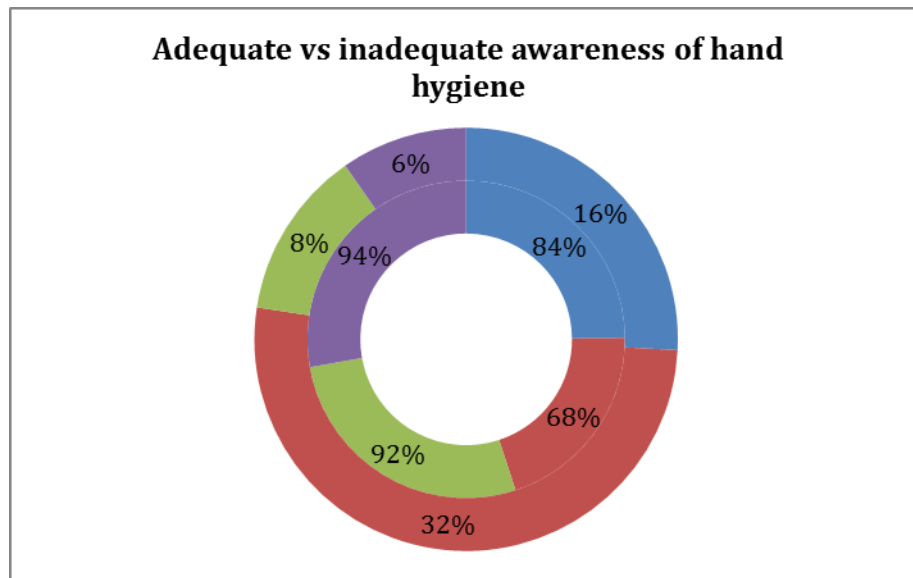


Figure 2: Doughnut chart demonstrating adequate VS inadequate awareness of hand hygiene.

## DISCUSSION

It is a responsibility of dentistry to follow evidence-based principles regarding infection control.<sup>[12]</sup> Globally, Infections associated with health care is very significant issue of health and hand hygiene is an applicable technique to control infection, the methods of hand hygiene were extensively published, however, regarding awareness of hand hygiene, low alertness level have been found among medical students, dental students and certified healthcare providers in recent studies.<sup>[13,14]</sup> It is recorded that in Middle East, practice of hand hygiene have not been carefully studied or explained to medical students (trainees), though few studies have been commenced on healthcare providers.<sup>[3]</sup> The present study designed to evaluate the awareness and importance of hand washing in dental staff such as practitioner, students and house officers of Baqai Dental College. A total number of practitioner, students and house officers included in this study were fifty and 100% responses were collected. Among the respondents 34 (68%) were males and 16 (32%) were females with an age ranging from 20-40 years. Dental staff who participated was 18 general practitioner (36%), 15 Students (30%) and 17 house officers were (34%).

The responses of dental staff on awareness and adaptation of hand hygiene in dental practice was recorded in YES or NO, such as hand wash among the dental staff before examining the patient came out to be 84% and 16% responded reluctant, comparing it with Feather et al.<sup>[13]</sup> study conducted at the Royal London Hospital School of Medicine and Dentistry in UK, and discovered only 8.5% of applicants washed their hand before examining the patient. Highlighting the awareness of specific hand washing technique, 68% responded positive where as 32% were unaware of proper techniques. 92% of dental staff knew the significance of hand wash in preventing cross infection. Surveys by Cheng et al. in Taiwan.<sup>[15]</sup> Hubner et al. in Germany.<sup>[16]</sup>

and Cleveland et al. in US,<sup>[17]</sup> highlighted the significance of growing knowledge about control of infections. 94% of dental staff reported to wash their hands after using rest room.

In figure 1 the detailed Bar chart demonstrating (a) Time spent on hand washing (b) Material used for hand washing (c) Reasons for skipping hand wash and (d) Awareness in best material for hand wash. Calculating the minimum and maximum duration for hand washing came out to be 78% of staff took 5-30 seconds and only 22% spent 30 seconds to 1 minute. 74 % of staff used medicated soap bars as the common medium for hand washing while 20% and 6% of staff used hand wash and simple water respectively. In today's era the most important antiseptics used are medicated soaps and alcoholic rubs. In contrast of medicated soaps that contain chlorhexidine, alcohols have the speediest antimicrobial effect. The drawbacks of pure alcohol are its drying consequence on the skin and the non-existence of an antimicrobial activity. Increased concentration of glycerin and 70% (v/v) ethanol in forms of gels are preferred. These difficulties are resolute in modern alcoholic hand disinfection (AHD) comprising of different alcohols, further antimicrobial compounds with refastening agents, and residual activity. Though, the choice of AHD may be significant; some agents of alcoholic hand disinfections (especially liquids) take lengthier to be scrubbed onto the skin. Two clinical studies have been proposed to estimate the clinical consequence of different hand antiseptics. The consequences, which preferred chlorhexidine, were based on the spotted nosocomial infection rates.<sup>[18,19]</sup>

Possibly, most dental healthcare professionals are only or more familiar with the guidelines to control dental infections. There was similarity between our and Myers et al.<sup>[11]</sup> soap was the most commonly used medium in the dental practice. Furthermore, washing hand with

plain soap can only eliminate roughly adherent transient flora. Hand washing for 15seconds with plain soap decreases the bacterial amounts on the skin by 0.6-1.1 log<sub>10</sub>, while 30seconds hand washing reduces the amounts by 1.2-2.8 log<sub>10</sub>. In our study soap was the most common medium used where as few studies suggested that using plain soap fails to completely remove pathogens from the hands of dental staff.<sup>[20]</sup> The use of alcohol-based hand sanitizers among dental practitioners accounts low usage.

Figure 2 shows the adequate awareness and practice in dental staff and Doughnut chart display the data in rings, where each ring represents a data series in percentages, which proves the general awareness of hand hygiene. It is observed that the conduct of students is influenced strongly by their teacher's attitude. This has been confirmed in multiple studies in reference to hand hygiene practices.<sup>[21]</sup> After this study, we have suggested to include in our teaching approach and clinical practice the awareness of hand hygiene through workshops, seminars and incorporation of hand hygiene in routine teaching and practice at chair side.

## CONCLUSIONS

The most active method of preventing infections is hand hygiene. Multidimensional and enthusiastic efforts must be undertaken to create more awareness and compliance of hand hygiene among practitioners, house officers and students. Dental schools are highly encouraged to adapt and enhance their prospectus in order to improve hand hygiene among the dental staff. However, developed understanding on infection control and hygiene of hand is expected to play a vital role in curbing disease transmission. Highlighting on awareness of hand hygiene education program would advance the value of behavior. In specific, this hand hygiene awareness program have to be on big scale since the conduct of students is powerfully influenced by teacher's attitude at the unit chair side.

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## CONFLICTS OF INTREST

There are no conflicts on interest.

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