

Knowledge, Attitudes, and Practice of Hand-Washing among Dentists and Dental Students in Riyadh City, Kingdom of Saudi Arabia

Eida Shahin¹, Khawla Al Dubaikhi¹, Najd Al Eissa¹, Latifa Al Olah¹, Abdulrahman Al Saffan^{2*} and Mohammed Abdul Baseer²

¹Dental Intern, Riyadh Colleges of Dentistry and Pharmacy, Riyadh, Saudi Arabia.

²Lecturer in Department of Preventive Dentistry, Riyadh Colleges of Dentistry and Pharmacy, Riyadh, Saudi Arabia.

***Correspondence:**

Abdulrahman Al Saffan, Lecturer in Department of Preventive Dentistry, Riyadh Colleges of Dentistry and Pharmacy, Riyadh, Saudi Arabia, E-mail: a@riyadh.edu.sa.

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Keywords

Hand-washing, Hand-hygiene, Antimicrobial agent.

Introduction

Hands of health care providers have been a major resource of pathogens that may cause clinical infections [1]. The hand considered to be the most infectious part of the body [2], because the blood can be trapped within the finger-nail up to 5 days [3]. Hand hygiene is the most important way to prevent cross-transmission of microorganisms and to reduce the spread of infections [4-6]. In central Europe, alcohol based hand rubs are the first choice because they have been found to achieve a better antimicrobial activity compared to detergent based antiseptics. In contrast, hand washing with medicated soap is practiced most frequently in the United States [7]. Hand rubbing with an alcohol based, waterless hand antiseptic seems to be the best method of increasing compliance with hand hygiene [8]. New studies have shown a significant impact in compliance after the introduction of hand rubbing as a substitution for handwashing with soap and water [9,10].

Fingernail	No recommendations
Education and motivation	No recommendations
Administrative measures	No recommendations

1995	
Indications for hand hygiene	When visibly soiled Before and after patient contact After removing gloves
Products	Plain soap for general patient care Antisepsis before invasive procedures, when persistent activity is desirable, to reduce resident flora.
Surgical hand preparation	Use either antiseptic detergent or alcohol-based preparation
Skin care	Use lotions to prevent skin dryness
Fingernail	Keep nails short
Education and motivation	"Efforts to improve handwashing should be multifaced"
Administrative measures	"Unit clinical and administrative staff should be involved in compliance"

1981	
Indications for hand hygiene	Before invasive procedures, taking care of susceptible patients [11] Before and after touching wounds After hands are contaminated or taking care of infected patient Between patient contacts
Products	Plain soap "unless otherwise indicated" "Antimicrobial handwashing product" before care of newborns, between high-risk patients, before care of immunocompromised patients
Surgical hand preparation	No recommendations
Skin care	No recommendations

2002	
Indications for hand hygiene	When hands are dirty or contaminated. After contact with patient's intact skin, body fluids, non-intact skin, inanimate objects in patient vicinity. If moving from a contaminated to clean body site. Before caring for neutropenic patients, donning sterile gloves, inserting catheters
Products	Plain or antimicrobial soap only if hands are dirty or have proteinaceous material Otherwise, use a waterless antiseptic agent such as alcohol in all other clinical situations
Surgical hand preparation	Use either antiseptic detergent or alcohol-based preparation Avoid use of a brush*

Skin care	Provide lotion or creams
Fingernail	Keep nails short No artificial nails
Education and motivation	Educate personnel regarding rationale, indications, techniques, skin health, expectations of managers, indications and limitations of glove use*
Administrative measures	Make hand hygiene compliance an institutional priority* Implement multidisciplinary program to improve compliance* Provide readily accessible waterless antiseptic

Aim

To analyze and evaluate the knowledge , attitudes and practice toward the correct agents to use and the appropriate time to wash hand among Dentists and Dental students in Riyadh City, Kingdom of Saudi Arabia.

Material and Methods

Ethical Approval

Study proposal was submitted to the research center of RCsDP and ethical approval was obtained.

The study was registered under the registration number: FUGRP/2018/3.

Study Method: Quantitative.

Study Design: A cross sectional paper based questionnaire survey.

Study Population: Dentists and dental students in Riyadh City, Kingdom of Saudi Arabia.

Sample Size: 604 carrying out by using online Raosoft Sample Size Calculator.

Questionnaire: A structured, close-ended, and self-administered questionnaire.

Consist of nine questions: Four questions requesting the respondents' biographic and practice demographic information. Five questions related to their knowledge of proper hand hygiene agents and practices.

Statistical Analysis

The information and data from the study will be entered into an electronic database (SPSS® for windows®V.20).

Frequency Measurement will be calculated, Chi-Square, and Fisher Exact Tests will be performed, and ANOVA test will be use to compare among the groups.

Statistical significance is set at $p < 0.05$.

Results

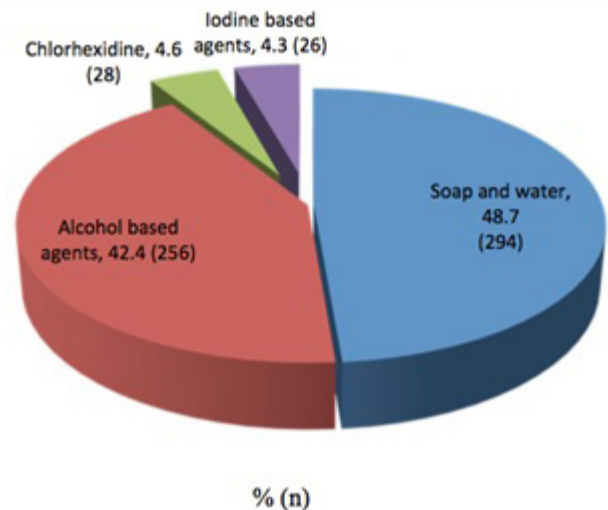
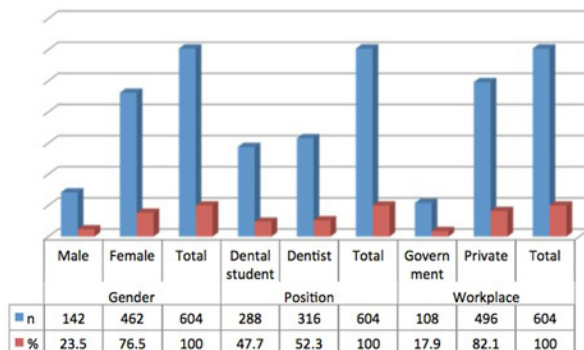


Figure 2: (Q5): which had hygiene agent is most effective in the absence of visible dirt.

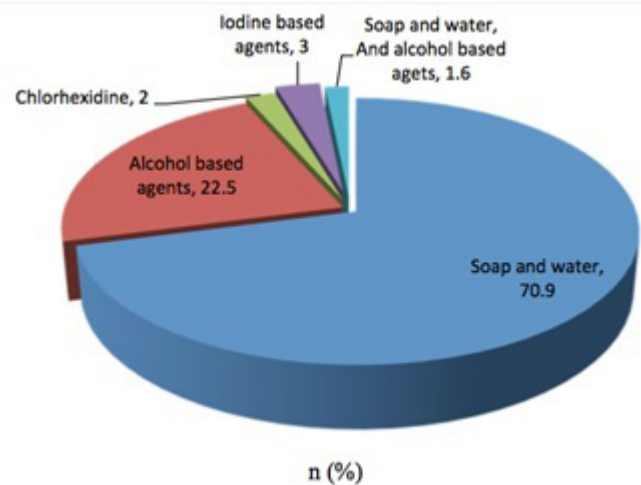


Figure 3: (Q6): Which of the following is the preferred hand hygiene method for visible solid hands?

Questions	Yes	No	Total	
Q7,a: Before contact with patient	n	312	292	604
	%	51.7	48.3	100
Q7,b: Before putting on examination gloves	n	236	368	604
	%	39.1	60.9	100
Q7,c: After contact with patient	n	358	246	604
	%	59.3	40.7	100
Q7,d: After removing examination gloves	n	408	196	604
	%	67.5	32.5	100
Q8: Antimicrobial soap is more effective than plain soap in reducing microbial count	n	542	62	604
	%	89.7	10.3	100
Q9,a: After touching a patient's skin	n	508	96	604
	%	84.1	15.9	100
Q9,b: After touching equipment in immediate vicinity of patients	n	560	44	604
	%	92.7	7.3	100
Q9,c: After completing the patient's record	n	450	154	604
	%	74.5	25.5	100

Table 1: Responses to questions on wearing gloves.

None of the respondents answered all the questions correctly, (42.4%) answered correctly that alcohol based agent are the most effective at killing bacteria in the absence of visible dirt. (70.9%)

answered correctly that soap and water are the best when there is visible dirt. In response to the statement "anti-microbial soap is more effective than plain soap in reducing microbial count" almost all of respondents (98.7%) correctly answered yes.

Discussion

The results of this study indicate that there appears there is general lack of knowledge among general dentists and dental specialist regarding the most effective methods of hand washing to reduce bacteria contamination as well as the appropriate time that hand washing needs to be performed. 256 respondents (42.4%) answered correctly that alcohol based agent are the most effective at killing bacteria in the absence of visible dirt. 428 respondents (70.9 %) answered correctly that soap and water are the best when there is visible dirt. Since the most frequent answer given to the questions regarding which hand hygiene agent was most effective when visible dirt was present or absent was soap and water, if it would indicate that this is probably the method used most commonly in most offices.

However, it has been shown that while this method is best when the hands are visibly dirty, alcohol based rubs are more effective in reducing bacterial counts when the hands are not visibly soiled. To prevent communication from doctor to patient it is important for the hands to be washed prior to patient contact and before putting in the gloves. To prevent contamination from the patient to the doctor or from the doctor to another patient, they must be washed after patient contact and removal of the gloves. In response to the statement "anti-microbial soap is more effective than plain soap in reducing microbial count" almost all of respondents (542 [98.7%]) correctly answered yes.

Conclusion

The result of this study indicates that there is a need for better education of dentist regarding proper hand hygiene. realizing that gloves alone do not guarantee 100% protection for either the doctor or the patient due to possible imperfections, and knowing that the same agent may not be the most effective means of reducing bacterial counts in all instances will help provide the best possible protection for both the patient and the dentist.

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