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Assessment of Hand Hygiene Knowledge and Practices among Private Dental Clinics in Munshiganj, Bangladesh: A Cross-Sectional Study

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ABSTRACT:

Introduction: The study was performed to assess knowledge about infection control through hand-washing practices among dentists and paramedical professionals working at private dental clinics and provide help to identify and overcome obstruction towards proper hand hygiene pattern. **Method:** A questionnaire-based study was supervised at 15 different private dental clinics situated in the Munshiganj district of Bangladesh. Data on handwashing practices and other factors were collected from 60 samples during the months of November and December 2020. Site inspections of and washing facilities were also supervised. The data was analyzed on SPSS-26. **Result:** Majority (78.3%, 50.0% & and 35.0%) of the respondents strongly agreed that hand washing helps to prevent spread of infection to the patients. Less than half (48.3%) of the respondents washed their hands before wearing gloves. 31 doctors claimed that hand washing is done after termination of duty while 10 claims that they wash hands after each examination ($p< 0.001$). And most of the doctors use antibacterial soap ($p=0.004$). **Conclusion:** The study wraps up that most of the health care providers had the education about the advantage of handwashing, but proper technique was not followed. The reasons given for not adopting handwashing practices were shortage of time, being busy with a greater number of patients, a skin reaction, and an unsuitable atmosphere.

KEYWORDS:

Infection control, Hand hygiene, Pattern, Knowledge, Questionnaire, Dental health professionals.

INTRODUCTION:

The WHO Guidelines on hand hygiene in healthcare provide healthcare workers (HCWs), hospital administrators and health authorities with a thorough review of evidence on hand hygiene in health care and specific recommendations to improve practices and reduce the transmission of pathogenic microorganisms to patients and HCWs[1]. Hand washing is the gesture of cleaning the hands with or without the use of water or another liquid, or with the use of soap, for the target of removing chemicals,soil,dirtand/or microorganisms. People can become infected with respiratory illnesses such as covid 19, influenza or the common cold, for example, if they don't wash their hands before touching their eyes, nose or mouth. Indeed, the centers for Disease Control and Prevention (CDC) has stated: "It is well documented that one of the most important measures for preventing the spread of pathogens is effective hand washing"[2].

It is the general practice in our society that dental surgeons frequently skip hand washing between patients because either the hand washing facility is not available,or the procedure is not felt important or is time consuming. Compliance with hand hygiene recommendations is usually estimated to be below 50%, varying between different dental clinics between professional categories of dental healthcare workers and depending on working conditions[3].

The major objective was to assess the current status of hand washing knowledge and practices being adopted in the private dental clinic setups in rural areas, and to assess the hand washing facilities available in the clinics. To give the suggestion to improve the current situation. Studies on hand hygiene have

been conducted on different groups of healh workers including dental professionals in different parts of the world[4-8].

The study is important in this respect that previously all the studies were conducted in the dental clinics of urban areas, but no such work was done in dental clinics of rural areas. Health of the rural community is as important as the urban and according to primary health care model of WHO equity in arrangement of health services is important principle.

METHODOLOGY:

Study design is cross sectional descriptive study with sample size of sixty participants comprising BDS doctors, dental technologists & lab technicians. Purposive Sampling method was used to select the respondents. The clinics having more than 10 patients per day run by BDS doctors were included. The study wasconducted at fifteen dental clinics in Munshiganj, Bangladesh. Clinics with fewer than 10 patients per day and those located outside of Munshiganj were excluded from the study. The principal investigatorvisited each clinic two times a week and interviewed these personnel using a pre coded, pretested questionnaire. The side of interview also filled an observational questionnaire to see the actual obtainability of the facility and practices of the staff.

The questionnaire consisted of 27 multiple choice questions, including some based on a hand washing quality evaluation by Larson and Lusk, which assessed five components: frequency, agent use, appropriateness, duration, and technique. [9]

RESULTS:

The data of 60 individuals was collected from 15 private dental clinic duly owned by a BDS doctor duly registered by Bangladesh medical & dental council. 34 doctors include 20 males & 14 females, 22 were practicing more than 3 years. 15 dental technologist and 11 lab technicians were registered by the State Medical Faculty of Bangladesh.

Table 1: Attitude of the respondents on the prevention of spread of infection by hand washing

Questions	STA	SOA	UNS	SOD	STD	NOR
Hand washing helps to prevent the spread of infection to patients?	47(78.3)	06(10.0)	02(3.3)	3(5.0)	0(0.0)	2(3.3)
Hand washing helps to prevent the spread of infection to family of health worker?	30(50.0)	11(18.3)	10(16.7)	6(10)	2(3.3)	1(6.7)
Hand washing helps to prevent the spread of infection to health worker?	21(35.0)	8(13.33)	18(30.0)	5(8.3)	4(6.6)	4(6.7)
My institution monitors hand washing?	8(13.3)	19(31.7)	21(35.0)	4(6.7)	03(5.0)	5(8.3)

Key to table: STA- Strongly Agree, SOA- Somewhat Agree, UNS- Unsure, SOD- Somewhat Disagree, STD- Strongly disagree, NOR- No Response

Majority (78.3%, 50.0% & 35.0%) of the respondents strongly agreed that hand washing helps to prevent spread of infection to the patients, health workers and family of health workers respectively (table 1). The staff was mostly aware of the diseases and almost most of them responded in positive control of infections by properly using the hand washing techniques.

Table 2: Hand washing practices among the respondents

Practice	Yes	No	No response
Before gloving	29(48.3%)	18(30.0%)	13(21.6%)
After gloving	49(81.6%)	09(10.00%)	02(2.22%)
Torn glove	38(42.22%)	17(30.00%)	5(27.77%)
Before leaving operatory	48(80.0%)	10(16.6%)	02(3.3%)
Contaminated Hand	52(86.6%)	04(6.6%)	04(6.6%)
Visibly soiled hand	55(91.6%)	03(5.0%)	02(3.3%)
Before lunch	51(85%)	04 (6.6%)	05(8.3%)
After using restroom	60(100%)	00(0%)	00(0%)

Less than half (48.3%) of the respondents wash their hands before wearing gloves. Almost all the respondents (91.6%) wash their hands when they are visibly soiled. Less than half (42.2%) wash their hand, after removing torn gloves, before re-gloving (Table 2)

Table 3: Timing of Hand Washing among Dental Health Care Professionals

		Time			
		Joining Duty n=60	Termination of Duty n=60	After Examination n=60	*p*-value
Staff	Dental surgeon	10	31	11	<0.001*
	Technologist	7	9	12	0.448
	Lab technician	3	10	2	0.016*
Total	60	20	50	25	<0.001*

p-value obtained by Chi-square test, *significant

When inquired about the hand washing practices 31 doctors claimed that hand washing is done after termination of duty while 10 claim that they wash hands after each examination ($p<0.001$, Table 3). Dental technologists wash their hands at the start of the duty, while the lab technicians claim to frequently washes hands during the clinical hours.

When inquired about the facilities available for hand washing, majority 62% said that these facilities were not available. While 38% said it is available. The details of the facilities which are not available, no water at 16% sites, detergent was missing at 66% sites and there was no wash basin at 25% sites.

Table 4: Uses of different agents by Health Care Professionals in Hand Washing in Clinical Settings

	Dental Surgeon	Technologist	Lab technician	*p*-value
Only Water	4	2	1	0.946
Ordinary soap	4	6	6	0.008*
Antibacterial soap	16	1	1	0.004*
Antibacterial solution	3	3	1	0.934
Alcohol based	7	3	2	0.985
Total	34	15	11	

p-value obtained by Chi-square test, *significant

Most of the doctors use antibacterial soap(p=0.004), while dental technologists, lab technicians and receptionist use ordinary soap to wash hands (p=0.008, Table4)

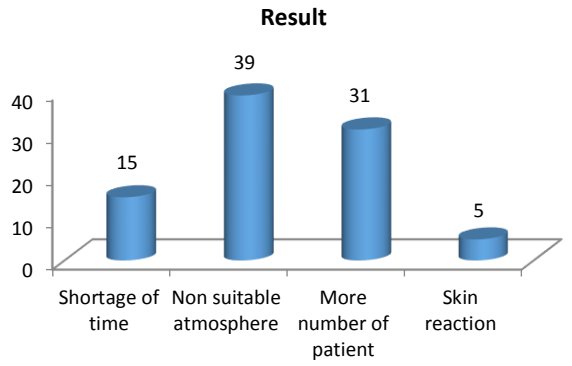
Table 4: Knowledge about infection control through Hand Washing (n=60)

Infection control through hand washing				
Disease	Dental surgeon n=34	Technologist n=15	Lab technician n=11	*p*-value
Hepatitis n (%)	26(76.4)	5(33.3)	4(36.3)	0.005*
Scabies n (%)	22(64.7)	6(40.0)	3(27.2)	0.056
Typhoid n (%)	28(82.3)	9(60.0)	3(27.2)	0.003*
Diarrhea n (%)	30(88.2)	12(80.0)	6(54.5)	0.053
Covid 19 n (%)	34(100.0)	15(100.0)	11(100.0)	

p-value obtained by Chi-square test, *significant

Among dental surgeons'knowledge on hand washing for infection control was highest regarding COVID 19 (100%) followed by diarrhea (88.2%,p=0.05)), typhoid, hepatitis and scabies(p=0.003,0.005,0.0056).There was no significant difference in the knowledge of infection control between technologist and lab technician.Most of the respondents had knowledge of infection control through hand washing.

The reasons for not adopting hand washing practice were shortage of time reported by 15%, more number of patients by 31%, non-suitable atmosphere by 39% and skin reaction 5%



DISCUSSION:

This study shows that basic prerequisite regarding the hand washing is not existing in majority of the clinics even though most of staff working there had previous good knowledge about the hand washing, various studies have denoted the significance of proper hand washing with antibacterial soaps in restriction of communicable infections. Previous study shows hand washing practices are inadequate to reduce the incidence of nosocomial infections[10].

In Munshiganj, Dental surgeons 'knowledge on hand washing for infection control was highest regarding COVID 19 (100%) followed by diarrhea (88.2%, p=0.053)), typhoid, hepatitisand scabies (p=0.003,0.005,0.0056).Moreover, the water filters and hand washing detergents were not available at all and their need was never taken up seriously in the privet setups, various studies have proved that the use of hand washing soaps are effective means of preventing infection in developing countries. Regarding behavior mostly the Key 'motivations' considered for hand washing are disgust, nurture, comfort and affiliation[11].

Here, the reasons for not adopting hand washing practice were shortage of time reported by 15%, a greater number of patients by 31%, non-suitable atmosphere by 39% and skin reaction 5%. Fear of disease generally did not motivate hand washing, except transiently in the case of epidemics such as covid-19. Except of fear of disease, no such factors were found in our study for motivation. Most of the respondents believe if the local administrative support was given regarding the provision of facilities more acceptance toward this practice will be observed. To date most of the studies contributed towards the control of epidemic via effective hand washing, this study emphasizes the need of antibacterial solutions along with hand washing[12].

In our study, mass of the doctors utilizes antibacterial soap(p=0.004), while dental technologists, lab technicians and receptionist use ordinary soap to wash hands (p=0.008)

The study open up that many of the respondents would not wash hands before putting on gloves or before changing gloves in the event of torn gloves. The urge to deliver dental care rapidly, despite inadequate facilities, is a possible cause for not carrying out the recommended hand decontamination before gloving and in the event of torn glove. It may also be that the respondents are empty headed of the fact that high microbial load on the hand is notable enough to cause cross-infection.

In an earlier study in Munshiganj, Bangladesh, households that received free soap and hand washing promotion for 9 months reported 53% less diarrhea than control. Hand washing had been effective in decreasing the risk of gastrointestinal disorders, pneumonias and hospital induced infections.

All the studies in the past have denoted the need of hand washing to reduce the spread of diseases but it is not also important in encouraging the primary prevention model in

which health education regarding the hand hygiene plays a significant role in the positive health of the individuals. This is also evident in our present study and most of our interviewees also think the same, but the interesting problem is dental technologist and lab technicians who have knowledge but are still not practicing is again shows a suspicion sign.

CONCLUSION:

The study come to an end that the controlling of communicable diseases through hand disinfection cannot be gained in the peripheral health centers as the required knowledge is get-at-able, but the deficiency of proper motivation and resources are major hindrance. There is also a need for institutional reshape which would smooth the accession of hand hygiene facilities, removal barriers to handwashing, formulate and implement policy to keep an eye on hand hygiene compliance.

CONFLICT OF INTEREST:

The authors declares that there is no conflict of interest regarding the publication of this article.

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