

Study on Knowledge and Compliance of Hand Decontamination Practices among Health Care Workers in a Military Hospital

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Abstract

This cross-sectional study was carried out in BNS Patenga- a Naval Hospital, Chittagong from February to June 2017 to know the knowledge and compliance of hand decontamination practice among health care workers with a sample size of 150 following purposive sampling technique using a pre-tested semi structured questionnaire by face-face interview method. The study revealed that majority of the respondents 114(76%) were males. This study also found that most of the respondents had education up to SSC level 59(39.3%), followed by Diploma/Graduate / Masters 39(25.5%) and HSC 32(22%). Mean age of respondents were 32.40 years with a SD of ± 7.366 . This study revealed that 40(27%) respondents were from age group 31-35 years, 33(21.9%) were both from age group ≤ 25 years and 36-40 years, 27(18%) respondents were from 26-30 years age group and 17(11.2%) were of > 40 years of age. Compliance of hand decontamination practice was significantly associated with sex, designation, education and work place ($p < 0.05$). There was statistical significant association between lack of knowledge, time constraints, lack of facilities, irritation or dryness of hands, facilities are inconveniently located, beliefs that use of gloves obviates the use of hand hygiene) and compliance to hand washing ($p < 0.002$); also there were significant association between compliance of hand decontamination and availability of soap, availability of alcohol mixed substance, and distance of available facilities ($p < 0.001$). To conclude, this study has clearly shown the requirement of an in-depth appraisal of educational interventions to recognize the hand hygiene opportunities and improved availability of hand hygiene facilities.

Key word: Knowledge, compliance, decontamination, healthcare workers.

Introduction

Hands are the highways to the transmission and spread of bacteria, pathogens, and viruses that cause diseases, food-borne illness, and infections resulting from hospital treatment (nosocomial). Infectious germs on the hands are the most common ways that people spread infection. This is caused by rubbing their nose or eyes with their hands, which have been contaminated with the cold virus and other bacteria¹.

The impact of communicable diseases on life expectancy and level of morbidity decreased with the commencement of immunization programs in 1924 and the discovery of antibiotics in the late 1930s. The link between poor hand hygiene of health care workers (HCWs) and the spread of infection in hospitals has been known and widely promulgated for the past 150 years, and a causal link between good hand hygiene and reduced risk of nosocomial infection has been demonstrated². Multiple studies have documented the poor compliance of HCWs with hand hygiene practices^{3,4}.

Although the risk of acquiring HCAI is universal and pervades every health-care facility and system around the world, the global burden is unknown because of the difficulty of gathering reliable diagnostic data. Overall estimates indicate that more than 1.4 million patients worldwide in developed and developing countries are affected at any time. HCAI is a major problem for patient safety and its surveillance and prevention must be a first priority for settings and institutions committed to making health care safer⁵.

Health-care workers are often the conduit for the spread of such infections to other patients in their care. It should also be noted here that many patients may carry microbes without any obvious signs or symptoms of an infection (colonized or sub clinically-infected). This clearly reinforces the need for hand hygiene, irrespective of the type of patient being cared for⁶.

Materials and Methods

The study was a cross-sectional study in BNS Patenga- a Naval Hospital, Chittagong from February to June 2017 with a Sample size of 150 following purposive sampling technique for data collection using a pre-tested semi structured questionnaire, data collection method was face-face interview. All interviewed questions were checked for its completeness, correctness and internal consistency to exclude missing or inconsistent data. The data were analyzed by using software SPSS version 17. Descriptive statistical analysis was considered for some selected data. In order to find out association between dependent variable with of independent variables, chi square test was done. Data were presented in the form of tables, graphs and charts as appropriate.

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Results

Table 1: Distribution of the respondents by sex and marital status (n= 150).

Variable		Frequency	Percentage
Sex	Male	114	76
	Female	36	24
Total		150	100
Marital status	Married	102	68
	Unmarried	48	32
Total		150	100

Table-1 shows that among the health care workers, predominantly males (76%) were employed where 68% of them were married.

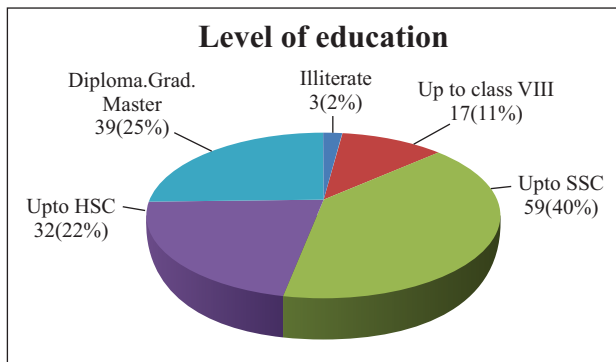


Fig. 1: Distribution of the respondents by level of education (n= 150)

Figure-1 shows that 40% of the health care workers had education up to SSC followed by Diploma/Graduate/Masters (25%), Up to HSC (22%) and Up to class VIII (11%). Only 2% of them were illiterate.

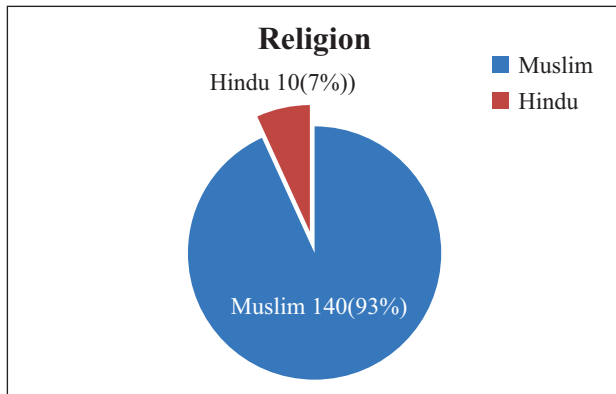


Fig. 2: Distribution of the respondents by religion (n= 150)

Figure 2 shows that out of 150 respondents 140 (93%) of them were Muslim.

Table 2: Distribution of the respondents by age group (n= 150)

Age group (In years)	Frequency	Percentage
≤ 25	33	21.9
26-30	27	18
31-35	40	27
36-40	33	21.9
> 40	17	11.2
		Mean(±SD)= 32.40 (±7.366) years

Table 2 shows that 27% of the respondents belonged to the age group of 31-35 years followed by up to 25 years and 36-40 years both (21.9%), 26-30 years (18%) and 11.2% were from age group of more than 40 years.

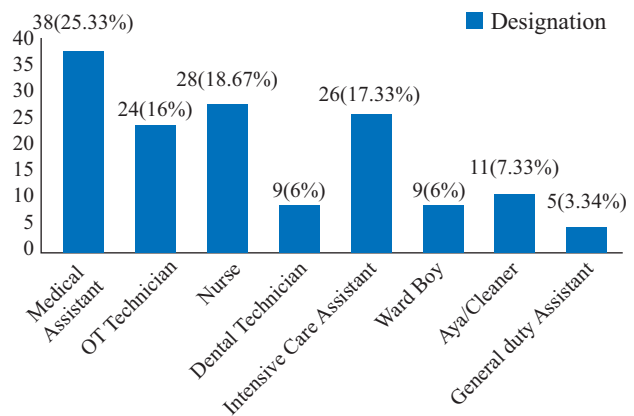


Fig. 3: Distribution of the respondents by designation (n=150)

Figure 3 shows that majority 38(25.33%) of the respondents were medical assistant by designation followed by nurse 28(18.67%), Intensive care assistant 26(17.33%), OT technician 24(16%), Dental technician 9(6%), Aya/cleaner 11(7.33%) and ward boy 9(6%). Only 5(3.34%) Health care providers were General duty assistants.

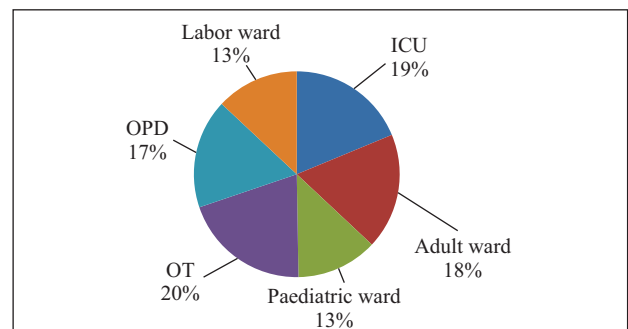


Fig. 4: Distribution of the respondents by place of work (n=150)

Figure 4 shows that 20% of the health care workers working in OT, 19% in ICU, 18% in adult ward, 17% in OPD and 13% both in paediatric and labour.

Table 3: Association between compliance to hand washing and related factors (n=150)

Variables	Compliance of hand decontamination		Total	P value*
	Yes	No		
Because of lack of knowledge	2 (1.32%)	1 (0.67%)	3 (2%)	0.002
Because of time constraints	42 (28%)	28 (18.68%)	70 (46.68%)	
Because of lack of facilities	0	5 (3.33%)	5 (3.3%)	
Because of irritation or dryness of hands	2 (1.32%)	0	2 (1.34%)	
Facilities are inconveniently located	0	13 (8.68%)	13 (8.68%)	
Beliefs that use of gloves obviates the use of hand hygiene	0	57 (38%)	57 (38%)	
Total	46 (30.64%)	104 (69.36%)	150 (100%)	

*P value is from pearson's chi square test.

Table-3 shows that there is statistical significant association between different factors (lack of knowledge, timeconstraints, lack of facilities, irritation or dryness of hands, facilities are inconveniently located, beliefs that use of gloves obviates the use of hand hygiene) and compliance to hand washing ($p < 0.002$).

Table 4: Distribution of respondents by compliance of hand decontamination and selected socio demographic factors

Variables	Compliance of Hand decontamination		Total	p value
	Yes	No		
Sex of the respondents				
Male	41 (27.33%)	73 (48.67%)	114 (76%)	.001
Female	7 (4.67%)	29 (19.33%)	36 (24%)	
Total	48 (32%)	102 (68%)	150 (100%)	
Designation of the respondents				
Medical assistant	13 (8.67%)	25 (16.67%)	38 (25.33%)	.002
Operation theatre assistant	21 (14 %)	3 (2 %)	24 (16%)	
Nurse	6 (4%)	22 (14.67%)	28 (18.67%)	
Dental technician	7 (4.67%)	2 (1.33%)	9 (6%)	
Intensive care assistant	1 (.67%)	25 (16.67%)	26 (17.33%)	
Ward boy	0 (0%)	9 (6 %)	9 (6 %)	
Aya/cleaner	0 (0%)	11 (7.33%)	11 (7.33%)	
General duty assistant	0 (0%)	5 (3.34%)	5 (3.34%)	
Total	48 (32%)	102 (68%)	150 (100%)	
Educational status of the respondents				
Illiterate	0 (0%)	3 (2%)	3 (2%)	.011
Up to class VIII	0 (0%)	17 (11.33%)	17 (11.33%)	
Up to SSC	20 (13.3%)	39 (26%)	59 (39.34%)	
HSC	18 (12%)	14 (9.33%)	32 (21.33%)	
Diploma/graduate/Masters	10 (6.66%)	29 (19.33%)	39 (26%)	
Total	48 (32%)	102 (68%)	150 (100%)	
Work Place				
ICU	0 (0%)	28 (18.67%)	28 (18.67%)	.005
Adult ward	8 (5.33%)	19 (12.67%)	27 (18%)	
Paediatric ward	6 (4%)	13 (8.67%)	19 (12.67%)	
OT	23 (15.33%)	7 (4.67%)	30 (20%)	
OPD	10 (6.66%)	16 (10.67%)	26 (17.33%)	
Labor ward	1 (.63%)	19 (12.67%)	20 (13.3%)	
Total	48 (32%)	102 (68%)	150 (100%)	

Table- 4 shows that compliance of hand decontamination practice is significantly associated with sex, designation, education and work place ($p < 0.05$).

Table 5: Distribution of respondents by compliance of hand decontamination and availability of selected decontamination materials.

Variables	Compliance of hand Decontamination		Total	p value
	Yes	No		
Availability of soap				
Yes	46 (30.66%)	94 (62.67%)	140 (93.33%)	.001
No	1 (.67%)	9 (6%)	10 (6.67%)	
Total	47 (31.33%)	103 (68.67%)	150 (100%)	
Availability of alcohol mixed substance				
Yes	21 (14%)	33 (22%)	54 (36%)	.001
No	26 (17.33%)	70 (46.67%)	96 (64%)	
Total	47 (31.33%)	103 (68.67%)	150 (100%)	
Availability of water				
Yes	47 (31.33%)	103 (68.67%)	150 (100%)	-
No	0	0	0	
Total	47 (31.33%)	103 (68.67%)	150 (100%)	
Distance of available facilities				
within 10 metres	27 (18%)	41 (27.33%)	68 (45.33%)	.001
11-20 meters	20 (13.33%)	46 (30.67%)	66 (44%)	
More than 20 metres	0	16 (10.67%)	16 (10.67%)	
Total	47 (31.33%)	103 (68.67%)	150 (100%)	

Table-5 shows that there were significant association between compliance of hand decontamination and availability of soap, availability of alcohol mixed substance, and distance of available facilities; but there was association between Compliance of hand decontamination and availability of water ($p < 0.01$).

Discussion

Frequency distribution of different socio demographic characteristics of HCWs reveals that majority of the respondents 76% were males and 24% are females. Numbers of male respondents were more because of employment pattern of CMH, only female HCWs are not employed in male adult wards and OPD, very less number at ICU and OT; majority of them are employed at female, pediatrics and labor wards. There was significant association ($p < .05$) between sex of the respondents and compliance of hand decontamination, compliance is more amongst male HCWs. It was evident that respondents education and compliance to hand decontamination were significantly associated ($p < .05$). Compliance was found lower among the diploma nurses in comparison to higher educated nurses. A number of studies support these findings. Anargh V et al in the year 2012 observed almost similar findings but A L Sofiani and others in a study in the

year 2016 observed that there is no significant difference among the sexes^{7,8}.

The relationship between designation and compliance of hand decontamination was found to be significantly associated ($p < .05$). High level of compliance found amongst operation theatre assistants and medical assistants, on the other hand quiet low compliance found amongst nurses and dental technicians and poor compliance found amongst intensive care assistants, ward boy, aya, cleaner and general duty assistants. No other study findings were found on this variable to compare with these findings. Significant association was found between work place and compliance on hand decontamination ($p < .05$). Compliance level at operation theatre was highest which is expected, low at adult wards, OPD, and pediatric ward but lowest in ICU and labor wards which is alarming. Several other studies have similar findings^{9,10}.

The relationship between knowledge about wash materials soap and water, alcohol mixed substance, water and compliance of hand decontamination was found to be significantly associated ($p < .05$), this is almost same among the observation of many other studies^{11,12}. Highly significant association was found between compliance and availability of hand washing facility, availability of soap,

availability of alcohol mixed substance and distance of available facilities (<0.001). In a study in the year 2002 Girou E et al found that during routine patient care hand rubbing with an alcohol based solution is significantly more efficient in reducing hand contamination than hand washing with antiseptic soap¹³.

Conclusion

To conclude, this study has clearly shown the requirement of an in-depth appraisal of important issues of compliance and patient safety.

Recommendations

Hand decontamination practice appraisal has to be a part of the overall strategy of improving the adherence to universal precautions in health care facilities.

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