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Original Research

Analysis of Knowledge, Attitude and Practices of Five Moments of Hand Hygiene among Nursing Staff and Nursing Students at Govt Dharmapuri Medical College and Hospital

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Abstract

Background: Hand hygiene practices of health care workers has been shown to be an effective measure in preventing hospital acquired infections. The five moments that call for the use of hand hygiene include the moment before touching a patient, before performing aseptic and clean procedures, after being at risk of exposure to body fluids, after touching a patient, and after touching patient surroundings. This concept has been aptly used to improve understanding, training, monitoring, and reporting hand hygiene among healthcare workers.

Aim: To assess the knowledge, attitude, and practice of five moments of hand hygiene among nursing staff and students at Govt Dharmapuri Medical College and Hospital.

Methods - A cross-sectional study was conducted among 50 nursing staff and 50 nursing students at Govt Dharmapuri Medical College and Hospital. Knowledge was assessed using WHO hand hygiene questionnaire. Attitude and practices were evaluated by using another self-structured questionnaire. Z test was used to compare the percentage of correct responses between medical and nursing students. A P value less than 0.05 were considered significant.

Results-The knowledge on hand hygiene was moderate (72 out of 100, 72%) among the total study population. The majority of students had poor attitudes with regard to hand hygiene. Nursing students had significantly ($P < 0.05$) better attitudes (50%) compared to nursing staff (18%). Student nurses had better five moments of hand hygiene practices than the staff nurses.

Keywords: Hand Hygiene, Knowledge, Attitude

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Introduction:

Hand hygiene is recognized as the leading measure to prevent cross-transmission of microorganisms and to reduce the incidence of health care associated infections [1, 2]. Despite the relative simplicity of this procedure, compliance with hand hygiene among health care providers is as low as 40% [3-5]. To address this problem, continuous efforts are being made to identify effective and sustainable strategies. One of such efforts is the introduction of an evidence-based concept of "My five moments for hand hygiene" by World Health Organization. These five moments that call for the use of hand hygiene include the moment before touching a patient, before performing aseptic and clean procedures, after being at risk of exposure to body fluids, after touching a patient, and after touching patient surroundings. This concept has been aptly used to improve understanding, training, monitoring, and reporting hand hygiene among healthcare workers [6].

Nurses constitute the largest percentage of the health care workers (HCW) [7] and they are the "nucleus of the health care system" [8]. Because they spend more

time with patients than any other HCWs, their compliance with hand washing guidelines seems to be more vital in preventing the disease transmission among patients.

Aim and Objectives: To assess the Knowledge, Attitude, And Practice of Five Moments of Hand Hygiene among Nursing Staff and Students at teaching hospitals.

Review of Literature

Nurses' hands come into close contact with patients and are frequently contaminated during routine patient care: e.g. auscultation and palpation or while touching contaminated surfaces, devices or materials such as changing of dressing [9]. Therefore, hand hygiene is considered an essential, cheap and most effective means of preventing cross. This method is designed to save lives and provide a safe treatment atmosphere for all patients and HCWs, regardless of the setting [10]. use different terms for hand hygiene, such as hand antisepsis, disinfection, degerming, decontamination or sanitizing, in this paper hand hygiene refers to either hand washing with antimicrobial soap or hand disinfecting with an alcohol-based hand-rub. The aim of hand hygiene is to remove dirt and limit the microbial counts on the skin, to prevent cross transmission of pathogens between patients [11]. Yet, despite the momentum for hand hygiene, some nurses are still presenting with low compliance because they perceive it as not their problem, that it is something to do with infection control staff and they have to deal with it [12].

Furthermore, Nazarko (2009) [13] indicates that nurses often fail to practise hand hygiene because they are busy and they feel hand hygiene takes up precious time. In addition, nurses often perceive that gloves can be used as an alternative to hand hygiene. They usually tend to remove the gloves without washing their hands or use the same gloves to deliver intended care to multiple patients. Even when they remove their gloves, only 20% of nurses actually clean their hands while study claim that nurses avoid hand hygiene because they are frightened that skin problems such as dermatitis could develop, especially with alcohol hand-rubs [13].

According to Collins [14] hand hygiene should be considered before invasive procedures, after contact with contaminated devices or materials, and with high risk, infectious patients. Moreover, Kampf claim that hand hygiene should be advocated before beginning work, at the end of work, and after visiting the rest room (toilet). However, Canham[15] argues that hand hygienerequirements depend on the type of procedure, the degree of contamination and the persistence of antimicrobial action on the skin. Even when nurses spend a longer time on hand hygiene, their technique is often poor compared to other HCWs in terms of leaving large areas unwashed effectively, i.e. wrists, thumbs, nail beds and between fingers.

Effective hand hygiene involves the removal of visible soiling and the reduction of microbial colonisation of the skin. Healthcare workers' hands can be contaminated by two types of pathogens: transient (contaminating) and resident (normal or colonising) microorganisms (Mani et al. 2010). Resident flora colonise deeper skin layers and, compared to transient flora, is difficult to remove mechanically, i.e. by hand washing. Fortunately, resident flora tends to be less aggressive and is, therefore, less likely to cause serious infection. Negative staphylococci and Corynebacteria are examples of this group. These bacteria tend to grow in hair follicles and remain relatively inactive over time [15].

Alcohol based hand-rub is recommended for hand decontamination in all clinical settings apart from visibly soiled hands. Alcohol hand-rub uses alcohol instead of water. In contrast to the mechanical (friction) removal of flora in hand washing, alcohol works by killing the flora. Alcohol hand-rub differs from hand washing because it acts on the microorganisms by denaturing their proteins and thus has theability to eradicate all transient flora and most resident flora .It also takes less time than hand washing, between 15 to 30 seconds.

The process of alcohol hand-rub starts by applying a sufficient amount of the alcohol based hand-rub product (liquid, gel or foam) according to the manufacturer's recommendation. (Usually between 3 to 5 ml), and spreading it all over the hands, especially the areas between fingers, thumbs and fingernails. The effective concentration of alcohol should be 60% to 95%; concentrations of greater than 95% are not recommended because they have less water which is essential for the protein denaturation of microorganisms, thus making them less potent.

HCWs should adopt either procedure for hand hygiene, either alcohol hand-rub or hand washing with antimicrobial or non-antimicrobial soap, but use the latter if hands arevisibly soiled. Using both procedures simultaneously is not recommended, as it doubles both cost and time. Trampuz argue that using alcohol hand-rub immediately before or after hand washing could cause dermatitis and further recommend wearing powder-less gloves to avoid possible alcohol reaction with residual powder. However, Kampf& Loffler (2010) maintain that using alcohol hand-rub after hand washing could reduce irritation caused by hand washing detergents, since this method also removes detergent from the skin. Clearly, skin irritation and dermatitis are a professional hazard. Unfortunately, damaged skin can harbour bacteria and may contribute to cross infection further claim that hand washing removes lipids from the

skin, while alcohol hand-rub only redistributes them. However, both procedures can induce skin dryness. Additionally, Collins [14] argue that frequent hand washing, hot water, harsh soap and rough hand paper towels are precipitating factors in skin dryness and subsequent skin infection. Therefore, skin protection products, such as hand lotions or creams, should be considered and used regularly in order to reduce dryness and promote regeneration of the skin cells.

To improve HCWs compliance with hand hygiene, it is then necessary to consider the hindering factors mentioned above and attempt to turn them to enhancer factors. For example, staff education and proper follow up training in hand hygiene practice is important to identify situations where hand hygiene is reasonable; the infection control team can be involved in attaining this. Equally important is to clarify nurses' misconceptions in terms of glove usage and skin problems in order to achieve a better adherence to hand hygiene practice. The unit or ward manager is responsible for ensuring that hand hygiene products are always available and are in accessible places: inside and outside of every patient room, nursing station, offices etc [9].

Mani [21] claims that alcohol hand-rub is suitable for use in countries where resources are limited. In addition, alcohol hand-rub increases the potential of economic benefits by reducing annual costs, especially in countries where water has to be refined. There are also hidden costs: water decontamination, power for water heating and water drainage [22]. Despite the magnitude of HAI problems and the importance of adherence to infection control policies, hand hygiene practice has remained unacceptably low. Hand hygiene compliance rates in different developed countries rarely exceed 50% [21]. Devnani[28], from another study conducted in developing countries, have reported a higher rate of HAI, 6 – 27%. Sadly, more than 1.4 million people worldwide become seriously ill from HAI at any time in their hospitalisation.

The World Health Organisation (WHO) strongly emphasise the essential need for hand hygiene during healthcare delivery, to avoid possible infection and subsequent complications; hence, the 'Clean Care is Safe Care' programme, launched by WHO in 2005 as part of the 'First Global Patient Safety Challenge'. This programme offers new guidelines on hand hygiene training, observation and performance reporting in healthcare settings.

Research Methodology

A qualitative approach is used in the study to assess the Knowledge, Attitude, And Practice of Five Moments of Hand Hygiene among Nursing Staff and Students at Govt Dharmapuri Medical College Hospital. The research design used in the study is a cross sectional design. The study was conducted at GovtDharmapuri Medical College and Hospital.

Sample Size: The 50 samples selected was a staff nurse and 50 student nurses at Govt Dharmapuri Medical College and Hospital.

Inclusion criteria:

1. Staff nurses and student nurses who willing to participate in the study.
2. Staff nurse and student nurse who are available during the period of data collection.

Exclusion Criteria: Who are not willing to participate in the study.

Data Collection Tool

Knowledge was assessed using WHO's hand hygiene questionnaire for health care workers. This proforma of 25 questions includes multiple choice and "yes" or "no" questions. Attitude and practice were assessed using another self-structured questionnaire which consists of 10 and 25questions, respectively. Respondents were given the option to select on a 1- to 7-point scale between strongly agree and strongly disagree. A score of 0 was given for negative attitudes and puny practices. 1 point was given for each correct response to positive attitudes and good practices so that maximum score for attitude is 10 and for practice it is 25. A score of more than 75% was considered good, 50-74% moderate, and less than 50% was taken as poor. Data was analyzed using SPSS version software. Descriptive statistics was used to calculate percentages for each of the responses given. Z test was used to compare the percentage of correct responses between nursing staff and students. A P value less than 0.05 was considered significant.

Analysis and Interpretation

This chapter Deals with the analysis and interpretation of the data gathered. Analysis is the process of organizing data in such way that research question may be answered and hypothesis tested.

Analysis could be rightly said as a critical examination of the assembled and grouped data for studying the characteristics of the object under study and for determining the patterns of relationship among the variables relating to it. The results were computed by using descriptive and inferential statistics.

Table 1: Distribution of demographic variables among study samples

Sr. No	*Variables*	*Nursing staff n=50*		*Nursing Students n=50*	
		Frequency	%	Frequency	%
1.	Age(Staff)				
	19 to 25	18	18	32	32
	26 to 35	16	16	18	18
	36 to 45	10	10	0	0
	46 to 65	06	06	0	0
2.	Gender				
	Male	13	13	6	6
	Female	37	37	44	44

Results

The knowledge on hand hygiene was moderate (72 out of 100, 72%) among the total study population. Only 19% of participants (19 out of 100) had good knowledge regarding hand hygiene. Nursing students had significantly better knowledge than nursing staff. (P = 0.023). The majority of students had poor attitudes with regard to hand hygiene. Nursing students had significantly (P < 0.05) better attitudes (52%) compared to nursing staff (12%).Majority 71% student nurses and 55%of staff nurses were practicing first moment of hand hygiene, while 74% student nurses and 70 % of staff nurses were practicing second moments of hand hygiene. Majority 94%student nurses and 89%of staff nurses were practicing third moment of hand hygiene, while 91% of staff nurses and 95% of student nurses were practicing fourth moments of Hand Hygiene. Majority 95%of staff nurses and 98% of student nurses were practicing fifth moment of hand hygiene. Student nurses had better practices than the staff nurses.

Discussion

In our study, both study groups had moderate knowledge on hand hygiene, which was a positive finding. Feather et al. [17] studied the hand hygiene practices of 187 candidates during final MBBS OSCE (Objective Structured Clinical Examination) at The Royal London Hospital School of Medicine and Dentistry in UK and found that only 8.5% of candidates washed their hands after patient contact, although the figure rose to 18.3% when hand hygiene signs were displayed. The situation in healthcare centers of developing countries is even more unacceptable [36]. In an earlier study from Saudi Arabia [6], adherence to hand hygiene was seen in 70% of medical students, 18.8% of nurses, and 9.1% of senior medical staff, but the technique was suboptimal in all. Like most previous studies, our study showed that the overall compliance of hand hygiene by HCWs was less than 50% [5]. However, compliance with hand hygiene practice differed among different professional categories of HCWs. Compliance among the physician category was low, compared to nursing groups. Study compared the hand hygiene knowledge, beliefs, and practices between nursing and medical students. They found that the nursing students hand hygiene knowledge was significantly higher than that of nursing staff (P <0.01) which is consistent with our study fact that hand hygiene is considered as the single best measure for infection control, compliance of health care workers regarding hand hygiene remains consistently poor. Our results suggest that there is wide scope for improvement in hand hygiene practices in Teaching hospital.

Conclusion

In our study highlights the urgent need for introducing measures in order to increase the knowledge, attitudes, practices Teaching Hospital, which may play a very important role in increasing hand hygiene compliance among the staff and reducing cross transmission of infections among patients.

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