



Knowledge, Attitude and Practice of Hand Hygiene among Nurses in Selected Primary Health Care Centres, Jos North LGA Plateau State

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Abstract

Hand hygiene (HH) is the act of cleaning hands to prevent the spread of diseases, this practice is a routine nurses procedure but it is not certain that Healthcare Practitioners have appropriate understanding of how the lack of compliance with HH transmits Hospital-acquired infections (HAIs). This study was set to assess the knowledge, attitude and practice of hand hygiene among nurses in Jos-North Local Government of Plateau State. The study employed a descriptive cross-sectional research design. A multistage sampling method was used to select 14 PHCs and 105 Nurses for the study. A self-administered questionnaire with Cronbach-alpha = 0.79 was used for the data collection. The data was analysed and presented using frequency tables and percentages while chi-square was used to test hypotheses using SPSS version 20. Findings of the study revealed that the majority of the respondents were above 49 years (47.62%) of age, most of whom were females (85.7%), with the majority of them as Christians (90.5%) and are from Plateau ethnic origin (85.7%). An overwhelming majority of the respondents (95.2%) self-reported their knowledge of hand hygiene to be adequate. All (100%) of the respondents believed that hand hygiene prevents the transmission of microorganisms. Most (91.5%) of the respondents agreed that hand washing should be done before and after attending to a patient, however, only 9.5% believed that hand washing is necessary only after attending to a patient. There was a statistically significant relationship ($X^2=13.49$, $df = 2$, $p \text{ value} = <0.001$) between knowledge and practice of hand hygiene among nurses in selected PHCs in Jos North. It is therefore recommended that management of these PHCs should provide facilities and consumables for hand hygiene in all the PHC centres so as to promote the practice especially in this period of emerging and re-emerging infectious diseases

Keywords: *Hand Hygiene, Knowledge, Attitude, Practice, Nurses*

Introduction

Hand hygiene also known as hand washing is the act of cleaning hands for the purpose of removing soil, dirt, and microorganisms (Nicol, P. W., Watkins, R. E., Donovan, R. J., Wynaden, D, & Cadwallader, H. 2013). Hand washing with soap consistently at certain "critical moments" during the day prevents the

spread of many diseases, for example, diarrhoea and cholera, which are transmitted through feco-oral route. People can also become infected with respiratory diseases such as influenza or the common cold, for example, if they do not wash their hands before touching their eyes, nose, or mouth (i.e., mucous membranes). The five

critical moments during the day where washing hands with soap is important to include: before and after defecation, after cleaning a child's bottom or changing nappies, before feeding a child, before eating and before and after preparing food or handling raw meat, fish, or poultry. The exact duration of time required for handwashing depends on the circumstance, (Center for Disease Control, 2012). A washing time of 10 to 15 seconds is recommended to remove transient flora from the hands.

Whitby et al. (2016) posited that HH is the habit referred to as “instinct handwashing behaviour” and that this habit is often established before the (age of eight and continues relatively unchanged throughout life. He explained that intrinsic handwashing behaviour is based on self-protection and is triggered when hands are visibly dirty, when they feel sticky or gritty, or by activities that are perceived as being dirty. HH indications in the healthcare setting, such as touching a client to take a pulse or touching environmental surfaces, are not triggered by the “habit” to clean the hands, indeed this indication for HH is the most frequently missed by Healthcare Practitioners. Whitby et al, (2016) recommended that highlighting activities in healthcare that are not triggered by intrinsic handwashing is needed to create a new habit. Center for Disease Control, 2012) also suggested that indication for HH in the healthcare setting must become habit; also Nicol et al. (2013) further advised that these habits should be “embedded during training”.

The significance of handwashing in patient care and maintenance of health was conceptualized in the early 19th century. Labarraque (2010) provided the first evidence that hand decontamination can markedly reduce the incidence of puerperal fever and maternal transient microorganism on the hands, using an antiseptic agent by either rubbing the hands with alcohol or using an antiseptic soap. The latter process has been referred to as antiseptic handwashing, antiseptic hand rubbing, hand

decontamination and hand disinfection. The use of an alcohol-based hand rub (ABHR) is the preferred method of hand hygiene in a health care setting (WHO, 2011).

Hospitals provides favourable transmission pathway for the spread of hospital-acquired infection (HAI) or nosocomial infections, owing partly to poor infection control practices among health workers on one hand, and overcrowding of patients in most clinical settings on the other. The mode of transmission of nosocomial infection is related to sources of infection. Nosocomial infection can be transmitted from two main sources; exogenous and endogenous and sources. Exogenous sources are factors within the healthcare environments including building, plants, devices, instrument, patients and health workers (Chotani, Roghmann, and Peri 2017). Endogenous source is normal flora organisms of a patient. Normal flora organisms could be part of the patient’s flora before admission and is responsible for primary endogenous infection while those that become part of the flora during patients stay in the hospital cause secondary infections (Chotani et al, 2017).

Factors impacting hand hygiene performance have been categorized as demographic, behavioural factors, barriers facilitators, knowledge and education (Foote et al, 2013). The professional category of Health Care Practitioners has been determined to be a contributing factor in Hand Hygiene (HH) compliance. Erasmus et al. (2014) conducted a systematic review of 96 studies that reported observed and self-assessed compliance rates with HH guidelines in hospital settings. The authors reported that the overall median HH compliance rate for all Healthcare Practitioners was 40%. The average compliance rate was 48% among nurses and 32% among physicians. The attitudes and behaviors of Healthcare Practitioners can significantly impact HH compliance. Understanding of the underlying reasons for HH beliefs and behaviors can provide understanding and help to structure

interventions to motivate behavioural changes to bring about improvement (Mathai, 2015).

The perceptions of self-risk and self-protection against infection can be highly influential to Healthcare Practitioners' HH behaviour. A theme of self-protective HH behaviour was reported in a retrospective comparison of the risk developing HAIs before and during the outbreak of the Severe Acute Respiratory Syndrome (SARS) in Ontario during the spring of 2003 (Provincial Infectious Diseases Advisory Committee (Ontario), 2010). During the SARS outbreak, hospitals imposed exceptionally strict enforcement of infection control guidelines. Education has been determined to be an essential component of all strategies to improve compliance (Pittet, 2015). Misconception about HH, knowledge deficits regarding necessary occasions for the performance of HH during patient care, in addition to poor retention of the education provided to Healthcare Practitioners, are all barriers to compliance (Sax et al., 2017). One aspect of education that has been addressed in an evaluation of the quality and content of the information and training given to Healthcare Practitioners for explanations of why, when and how to apply HH during routine care (Sax et al 2017). It is crucial to make certain that Healthcare Practitioners have an appropriate understanding of how the lack of compliance with HH transmits Hospital-acquired infections (HAIs) in order to facilitate compliance with HH guidelines and increase self-efficacy for prevention (Mathai et al, 2013).

Materials and methods

A multi-stage sampling method was used in this study, to select the PHCs used. There are 14 Wards in Jos-North L.G.A; with all the wards having 2 or 3 PHCs, while a simple percentage method of sample determination was used to determine the sample size. There was a total of 150 Nurses in the P.H.Cs in Jos North. A convenient sampling technique was used to select 105 participants for the study. A self-administered questionnaire was used for data collection. The questionnaire consisted of three sections; Section A: Socio-demographic data, Section B: Knowledge on hand hygiene, Section C: attitude of Nurses towards hand hygiene, Section D: the practice of hand hygiene, Section E: factors/barriers influencing hand hygiene compliance. The validity of the instrument for data collection was assessed after pre-testing in a different setting and was analysed for its reliability which showed Cronbach's alpha value of 0.79. Data was collected through face to face administration of the questionnaire to the selected sample. Collected data was analyzed in consonance with the research objectives. Simple frequency, percentages, tables while chi-square was used to test the hypothesis at the significant level of 0.05.

Ethical clearance was obtained from the Management of PHC centres of Jos. The health, safety and dignity of human subjects were given the greatest priority in this study. All data collected from the respondents were treated with confidentiality and respect by applying strategies for managing the private information of respondents.

Results;

Table 1: Socio-demographic data of Respondents (N=105)

Variables	Categories	Frequency	Percentage (%)
Ages (in years)	21-30	10	9.5
	31-40	35	33.3
	41-50	10	9.5
	51 and above	50	47.6
Gender	Male	15	14.3
	Female	90	85.7
Marital Status	Single	15	14.3
	Married	75	71.4
	Widow/widower	15	14.3
Religion	Christianity	95	90.5
	Islam	10	9.5
Ethnicity	Plateau ethnic group	90	85.7
	Hausa	5	4.8
	Others	10	9.5
Highest Educational Qualification	Basic Diploma	45	42.9
	Post-Basic Diploma	50	47.6
	Bachelors Degree	10	9.5
Present Rank	NO II-SNO	45	42.9
	PNO-CNO	60	57.1
Present Unit Of Work	Labour Ward	50	47.6
	Medical Ward	45	42.9
	Surgical Ward	10	9.5
Years Of Working Experience	0-5years	10	9.5
	5-10years	10	9.5
	11-15years	20	19.1
	16-20years	15	14.3
	20 and above	50	47.6

Keys

NO II: Nursing Officer II, **SNO:** Senior Nursing Officer, **PNO:** Principal Nursing Officer
CNO: Chief Nursing Officer

Table 2: Knowledge of Hand Hygiene. (N=105)

My Knowledge of hand hygiene is adequate	Yes	100	95.2
	Not sure	5	4.8
Hand hygiene prevents the transmission of microorganisms to health care workers	Yes	105	100
	No	-	-
	Not sure	-	-
Hand hygiene is necessary only after attending to a patient.	Yes	10	9.5
	No	95	91.5
	Not sure	-	-
Hand hygiene is necessary before and after attending to a patient	Yes	95	91.5
	Not sure	10	9.5
Hands are to be washed under clean running water	Yes	70	66.6
	No	30	28.6
	Not sure	5	4.8
Hands are to be washed with soap under clean running water	Yes	105	100
Did you receive didactic (i.e., classroom) teaching on hand hygiene while in the Nursing program?	Yes	105	100
Did you receive clinical/Lab practice on proper hand hygiene procedures while in the Nursing program?	Yes	105	100

Figure 1: Distribution of Respondents according to their Knowledge of Hand Hygiene (N=105)

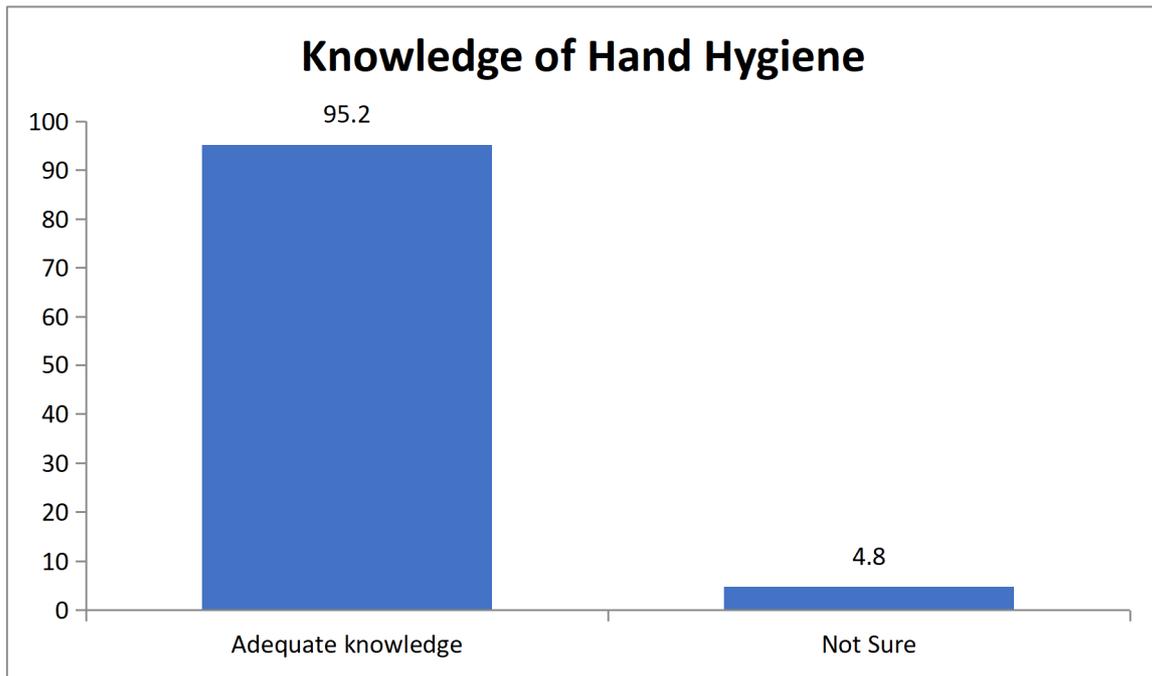


Table 3: Attitude of Nurses towards Hand Hygiene (N=105)

Variables	Category	Frequency	Percentage (%)
Is it necessary for a Nurse to wash hands regularly?	Yes	105	100
	No	-	-
Would hand hygiene prevent the nurse from contracting infections in the hospitals?	Yes	95	90.5
	No	10	9.5
Are you always comfortable washing your hands as many times as necessary?	Yes	95	90.5
	No	10	9.5

All the respondents agreed that a Nurse must wash hands regularly. However, only 90.5% agreed that hand hygiene would prevent a Nurse from contracting infection in the hospital and the same percentage were comfortable washing their hands as many times as necessary.

Table 4: Practice of Hand Hygiene. (N=105)

I cleanse my hands:	Always		Sometimes		Never	
	F	%	F	%	F	%
After touching potentially contaminated objects	105	100	-	-	-	-
After contact with blood and body fluids	105	100	-	-	-	-
After inserting an invasive device	95	90.5	10	9.5	-	-
Before entering and after exiting an isolation ward	85	81	20	19	-	-
After contact with patient only	70	66.7	15	14.3	20	19
Before and after contact with the patient.	75	71.4	30	28.6	-	-
After removing gloves	90	85.7	10	9.5	5	4.8
When it is looking dirty	75	71.4	15	14.3	15	14.3
As I enter the hospital and before leaving the hospital	80	76.2	20	19.0	5	4.8

$\chi^2=13.49$ $df = 2$ at 0.05 significant level, at 95% C.I

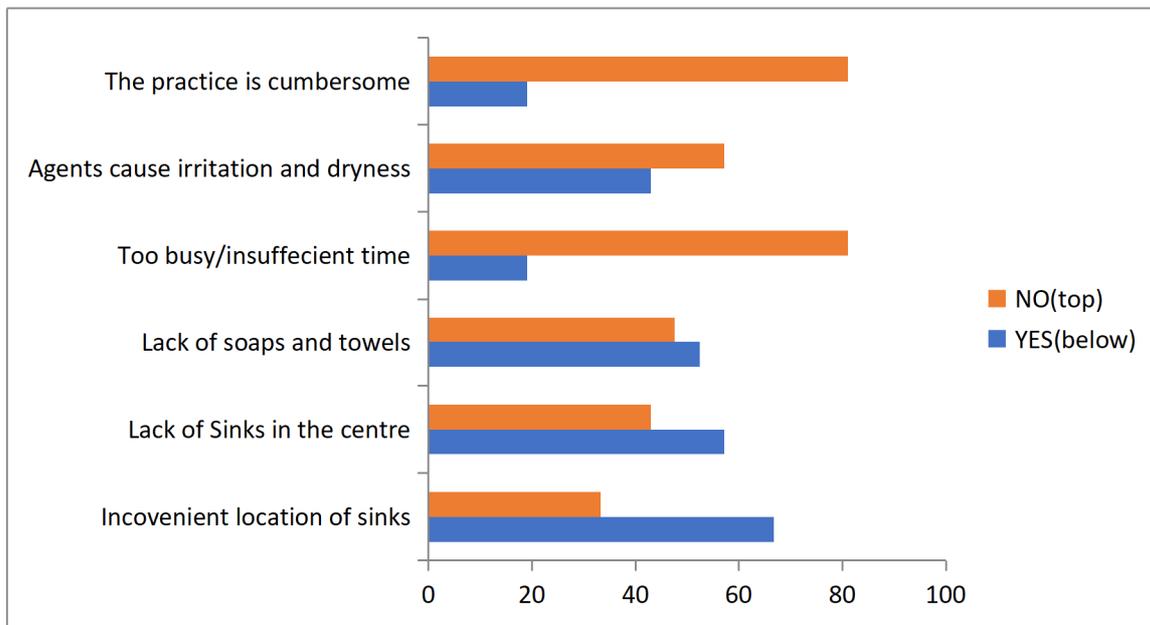


Figure 2: Barriers to Practice of Hand Hygiene

Null Hypothesis 1: There is no significant relationship between knowledge and practice of hand hygiene among Nurses in selected PHCs, Jos North.

Discussion of Findings

This study assessed the knowledge, attitude and practice of hand hygiene among Nurses in some selected PHC in Jos North L.G.A of Plateau State. From this study, all of the respondents are said to have received formal didactic and clinical training on hand hygiene. All of the respondents also agreed that hand

hygiene prevents the transmission of microorganism to health workers and patients. This agrees with the study conducted by Akpan *et al* in 2016) which concluded that nurses had good knowledge of hand hygiene. In contrast, finding from a study by Shinde, M., & Mohite, V. (2014) indicated that respondents just had moderate knowledge of

hand hygiene; They however stated that the reason for this could be the existence of inadequate hand hygiene training programs.

This research found that the respondents had a positive attitude toward HH, with more than 90% of them agreeing that a Nurse must wash hands regularly. Most of them also believe that hand hygiene would prevent a Nurse from contracting infections and were always comfortable washing their hands as many times as necessary. The overall positive attitude toward hand hygiene found in this study can be attributed to the impressive level of didactic and clinical training all the respondents received during their nursing training programs.

Hand hygiene compliance among the majority of the participant in the study was good before and after having had direct physical contact with the patient, however, it is of note that a tenth of the respondents only washes their hands after attending to a patient. All of the respondents agreed that it is necessary for a Nurse to wash hands regularly. However, only 90% were comfortable washing their hands as many times as necessary. All the respondents clean their hands after touching potentially contaminated objects and after contact with blood. Most of them washed their hands after inserting an invasive device and after removing their gloves. A large percentage of the sample always practice HH after contact with the patients wound. The findings of greater HH compliance after patient contact when compared to HH compliance prior to patient contact suggested that participants in this study were likely to be motivated to perform HH out of concern for their own safety rather than concern for the safety of their patients. These findings are consistent with the results of a systematic review of 96 HH compliance studies which reported lower HH compliance rates prior to patient contact when compared to HH compliance rate post patients contact (Erasmus *et al.*, 2014).

The barriers to effective hand hygiene practice identified in this study include being too busy meeting patients need/work load: Most of the

participants in this study are less likely to comply with hand guidelines if they perceived that the workload is enormous when performing patient care than those who did not hold this belief. Similar findings of HCW perceiving HH compliance was poor when they were busy or had enormous workload were identified in two qualitative studies (Barreth & Randle, 2008; Lusardi, 2007). Health care workers education needs to reinforce that when busy, there is an increased risk of non-compliance and also encourage HCWs to identify strategies that increase personal and team compliance (e.g. reminding busy colleagues if they forget to perform HH). It is also important to emphasize to health care workers that failure to comply with HH because of busyness contradicts HH guidelines and can result in the transmission of Health Acquired Infection (HAI). Other barriers identified by the participants include; Lack of access to running water and soap at the point of care, time constraint, lack of improvised buckets in the facilities, lack of sinks, lack of access to hand-based rubs, skin irritation from frequent hand washing. It is also reported that inconveniently located sinks hinder compliance in about two-thirds of respondents. However, a study by Lankford *et.al* (2013) reported that compliance did not improve with increased access to sinks.

Conclusion

In conclusion, this study revealed that they have a very good knowledge of hand the respondents believed that hand hygiene prevents transmission of microorganisms and a good number of the respondents practice hand hygiene before and after the hospital ..

Recommendations

Based on the findings from this study, the following recommendations were made: P.H.C Management should supply adequate equipment and manpower to enable the Nurses to carry out ideal HH procedures and here should be an evaluation mechanism/ tools to evaluate compliance with practice of hand hygiene..

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