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## Nursing Students Knowledge and Practices Regarding Hand Hygiene

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### **Abstract:**

Hand hygiene is a term used for washing hand with antimicrobial soap or alcohol-based hand rub for the purpose of removing all foreign particles from the hands either it is dust, soil or any infected germs. A nurse is a person who always in touches of patients during her duty hours so, it is very important that she have proper knowledge regarding hand hygiene and implemented it for the patient benefit. With effective hand hygiene actions, she reduces rate of health care associated infections. This study was done to assess the knowledge and practice of hand hygiene among all general nursing student including first, second and third year of Mayo Hospital Lahore. The main purpose of this study was, to assess knowledge and practice of nursing students towards the hand's hygiene. The descriptive cross-sectional design and simple random sampling technique was used in this study. The data collected with the help of Yes/ No questionnaire from 171 nursing students. Out of 171(100%) nursing students 113(66.2%) nursing students have knowledge regarding hand hygiene and 76(45%) students perform proper hand hygiene practices when they provide care to the patients. The study finding shows that the nursing students had moderate knowledge regarding hand hygiene but on the other hand they perform poor practice of it during their clinical hours so, according to this study results the nursing students need proper training and lectures on hand hygiene knowledge and strictly monitor by their mentors when they used hand hygiene actions during providing care to the patients

**Keywords:** Knowledge, practice, nursing students, hands hygiene

### **1. Introduction**

Hands are the important and necessary part of body which helps the individual in doing routine work like eating bathing etc. The nurses' hands are 24 hours and 7 days involves in providing direct and indirect care to the patients. Nurses hands are main vector for transmission of organism from one to another person in different ways including touching, on exposure and when they provide care(Challenge 2009).

Hand hygiene is a personal and most essential need of body either it is routine washing, with antiseptic solution, antiseptic hand rubs or with any surgical antiseptic. It is first line defense and cheapest way to reduce and minimize the rate of infectious disease transmission(Longtin, Sax et al. 2011).

According to WHO Hand hygiene is a method of removing microorganisms from the hands so the germs cannot be transmitted to anyone else. The two most common types of hand hygiene are simple hand washing with anti-microbial soap or non-microbial soap and second is using an alcohol-based hand rub. In simple hand washing, hands are wash with fresh running water (warm water is best choice), liquid soap and rub it on hands then wash with water, in this way all visible foreign bodies remove like dust, soil blood particles etc.(Challenge 2009).For highly effective hand hygiene, hands are wash with antiseptic alcohol base rub it remove all invisible germs from hands which make colonies in deep layer of skin (Shinde and Mohite 2014).

In hospital setting all health care facilitators are main source in transmission of micro-organism from one to another patient when they provide care to them. Nurses play a vital role in in patient care. All time in their duty hours they are involved in patient care in different ways. They are most trustable and closest health care provider for the patients so, that's why it is most important that they know about the importance of hand hygiene and implemented proper hand washing techniques before and after attending the patient. It must be reduce the risk of cross transmission of infection in patient (Challenge 2009).

In 2017 The World Health Organization introduces "My five movements for hand hygiene". The main purpose of these movements is to reduce the rate of the cross transmission of microbes from one to another person body. On the other hand it offers a substantiation base exercise of hand washing among nurses and other health care providers (Challenge 2009).

Windsor (2014) said that two polices are used for hand hygiene. In first police a nurse uses simple running water and soap for washing her hand and in second hands are washed with anti-microbial soap or alcohol-based hand sanitizer. The purpose is to maintain patient safety and averts the transmission of infectious foreign body from the nurse's hand to the patient's body(Foote 2014).

Nurses are the single health care provider who all time of their duty hours involve in attending to the patient that's why their hands always dirtied with different types of infection causing germs. For example, during auscultation, palpation, wound dressing, taking vital signs and many other procedures they carry many foreign bodies in their hands, which transmit from one to another person when they provide care and cause disease (Kampf and Löffler 2010).

If the nurses and health care workers use proper hand hygiene techniques and by following the world health organization five movement of hand hygiene, they will reduce the risk of dangerous health care infection and make the patient outcomes positive regarding health regaining. Hand hygiene procedure implemented before and after touching anything. Hand hygiene is influenced by on need and procedure. Nurses spend more time on hand washing in compare to other health care provider, but they did not follow the proper techniques of hand washing (Korniewicz and El-Masri 2010).

In a health care setting hand washing perform with the help of anti-microbial soap or alcohol-based sanitizer. The finest and coolest way of hand washing is the use of anti-microbial soap which has the capacity to remove all visible particles (soil, fluid, blood, secretions etc.) from the hands with the help of rinsing water. But for highly effective hand hygiene the hand wash and rub with alcohol-based hand rub or sanitizer which have the capability to remove all those germs who makes colonies in the deep layer of skin. These both items must present in patient room and this is nurse choice that which method she used but she must use one of them(Carradine 2014).The hand sanitizer only removes visible foreign particles from hands it does not remove non-visible germs but the alcohol based sanitizer remove all types of germs(Carradine 2014). On the other hand health care setting's first choice is alcohol based sanitizer for hand hygiene among nurses and health care workers(Ryan 2012).

Hand washing with antimicrobial soap minimize the chance of skin irritant which caused by other washing detergent but this action cause skin dryness so, the nurses and other health care provider should be use skin preventive cream or lotion for the prevention and regeneration of the skin cell(Shinde and Mohite 2014).

### *1.1. Aims of the Study*

To assess knowledge and practices regarding hand hygiene among nursing students.

### *1.2. Significance of the Study*

The study finding will help them to improve the habit of good hand hygiene techniques in practice and in future they will bring a change in the health care organization. Therefore, it is important to assess the knowledge and practices of student nurse about hand hygiene when they provide care to the patients and develop appropriate strategies for the improvement of hand washing in practices. The study findings will help the principal of nursing school to produce competent nurses with advance knowledge who perform evidence bases practices and make positive outcomes by using proper hand hygiene practices which will reduce transmission of health care infection and maintain quality of care.

## **2. Methods**

### *2.1. Setting*

The setting for this research was Nursing School of Mayo Hospital Lahore.

### *2.2. Research Design*

A cross-sectional analytical study design was used.

Lahore.

### *2.3. Population*

The study population for this research was general nursing student of Nursing School of Mayo Hospital Lahore.

### *2.4. Sampling*

The simple random sampling techniques was used to collect data from selected population.

A sample of n=171 was recruited from the targeted population).

### *2.5. Research Instrument*

- Nursing students were informed that their information keep in secret and never ever disclose in front of any one.
- Yes/No questionnaire scale used for assessment of hand hygiene knowledge and practice among nursing students. Total questions are 30 in which 5 demographic, 16 on knowledge and 9 on practice regarding hand hygiene.

### *2.6. Methods Used to Analyze Data*

Data was analyzed by using SPSS version 22.0 statistical software for data analysis.

- Demographic variables like age, gender, marital status, education etc. Were analyzed by using descriptive statistics like frequency, percentage, mean and standard deviation. Percentages will be calculated for categorical data while continuous data was analyzed through mean and standard deviation.
- Descriptive statistics was used to analyze the data regarding knowledge and practices of hand hygiene among nursing students

### 2.7. Study Timeline

The data was collected from September 2018 to December 2018.

### 2.8. Ethical Consideration

The rules and regulations set by the ethical committee of Lahore School of Nursing was followed while conducting the research and the rights of the research participants were respected.

- Written informed consent attached was taken from all the participants.
- All information and data collection were kept confidential.
- Participants were remaining anonymous throughout the study.
- The subjects were informed that there are no disadvantages or risk on the procedure of the study.
- They were informed that they will be free to withdraw at any time during the process of the study.
- Data were kept in under key and lock while keeping keys in hand. In laptop it was kept under password.

## 3. Results

### 3.1. Profile of the Respondents

Respondents were taken from different selected groups of studies at Lahore School of Nursing.

Profile		(f)	%
Age	16-20	103	60.2
	20-25	68	39.8
Gender	Male	0	0.00
	Female	171	100
Qualification	Matric	17	9.9
	F.S.C	154	90.1
Study Year	first year	35	20.5
	second year	102	59.6
	third year	34	19.9
Marital Status	Married	0	0.0
	Single	171	100

Table 1: Demographic Frequency

Table No 1 displays that Statistics shows that 171(100 %) responses were taken from the female nursing students and 0% of respondents were male.

According to statistics 103(60.2%) of respondents belong to 16-20 age groups and 68 (39.77%) of respondents belong to 20-25 age groups.

The qualification of the nursing students was recorded as; 17(9.9%) respondents are matric pass and 154 (90.1 %) students are F.S.C.

35(20.5%) respondent first year general nursing students, 102(59.6%) are in second year and 34('19.9%) are third year students.

Data distribution shows that 171(100%) students are single and 0% married.

	Yes (%)	No (%)
Hand hygiene action performs before touching to patient prevents transmission of germs to the patient.	80.7	19.3
Hand hygiene action performs immediately after on exposure of body fluid to prevent transmission of germs to the patient.	70.2	29.8
Hand hygiene action performs after exposure to the immediate surround of a patient to prevent transmission of germs to the patient.	45.6	54.4
Hand hygiene action performs immediately before a septic technique to prevent transmission of germs to the patient.	80.1	19.9
Hand hygiene action performs after touching a patient to prevent transmission of germs to the health care worker.	70.8	29.2
Hand hygiene action performs immediately after on exposure of body fluid to prevent transmission of germs to the health care worker.	65.5	34.5
Hand hygiene action performs after exposure to the immediate surround of a patient to prevent transmission of germs to the health care worker.	70.8	29.2

Table 2: Knowledge Regarding Hands Hygiene

Table No 2 displays First question was that they know that hand hygiene perform before touching the patient and it prevent transmission of germs to the patients.138 (80.7%) respondents said yes that they knew about this action but 33 (19.3%) said no they did not have knowledge regarding it.

120(70.2%) respondents said yes that hand hygiene action perform immediately after on exposure of body fluid to prevent transmission of germs to the patient but 51(29.8%) said no they did not have knowledge regarding.

78 (45.6%) nursing students gave response in yes that hand hygiene action performs immediately after on exposure of body fluid to prevent transmission of germs to the patient but 93 (54.4%) said no.

137(80.1%) nursing students gave response in yes that hand hygiene action performs immediately before a clean/ aseptic technique to prevent transmission of germs to the patient but 34 (19.9%) said no

121(70.8%) nursing students gave response in yes that hand hygiene action perform after touching a patient to prevent transmission of germs to the health care worker but 50(29.2%) said no.

112(65.5%) nursing students gave response in yes that hand hygiene action perform immediately after on exposure of body fluid to prevent transmission of germs to the health care worker but 59(34.5%) said no.

121(70.8%) nursing students gave response in yes that hand hygiene action perform after exposure to the immediate surround of a patient to prevent transmission of germs to the health care worker but 50(29.2%) said no.

	Yes	No
EDid you receive formal training during your training period?	45.6	54.4
Do you routinely use an alcohol-based hand rub for hand hygiene?	35.1	64.9
Do you routinely use soap and water for hand washing?	49.7	50.3
Do you wash your hand before attending the patient?	30.4	69.6
Do you wash your hand after attending the patient?	60.2	39.8
Do you wash your hand after an exposure of body fluid?	65.5	34.5
Do you wash your hand after exposure to the patient surrounding?	40.4	59.6
Do you perform hand hygiene before clean/ aseptic technique?	35.1	65.9
Do you remove your jewelry and artificial nail before washing your hand?	45	55

Table 3: Practices towards Hands Hygiene

Table e Reveals that 78(45.61%) students received formal training on the other hand 93(54.39%) students did not received any training regarding hand hygiene. Only 60(35.09%) student nurses routinely used an alcohol-based hand rub for hand hygiene and 111(64.91%) did not used it routinely. Only 85(49.71%) student nurses routinely use soap and water for hand washing and 86(50.29%) did not wash hands with it. Before attending a patient only 52(30.41%) students wash their hands and 119(69.59%) did not perform this action. On the other hand, 103(60.23%) student nurses wash their hands after attending the patient and 68(39.77%) did not wash their hands. After exposure of body fluid only 112(65.5%) students wash their hands but 59(34.5%) did not wash their hands. After exposure to the patient surrounding only 69(40.35%) students wash their hands on the other hand 102(59.65%) did not wash. 60(35.09%) students wash hand before aseptic techniques and 111(64.91) perform aseptic measures without washing their hands. 77(45.03%) student nurses remove their jewelry and artificial nail before washing their hands but 94(54.97%) wash their hands without removing.

#### 4. Discussion

The data was collected from 171 general nursing students and the result shows that each student answered the mostly questions correctly. In this study almost 113(66.2%) nursing students out of 171 had knowledge regarding hand hygiene and 78 (45.6%) students claimed to received formal training on hand hygiene. In Ariyaratne (2013) study only 49% nursing students had good knowledge regarding hand hygiene and 81% nursing students had claimed to receive training on hand hygiene. According to Kennedy & Burnett (2011) the student who attend classes on hand hygiene importance and practice had better understanding than others. For the prevention of germs to the patients 138(80%) nursing students said yes in favoring of washing hand before touching the patient, 120(70%) after exposure to the patient's body fluid, 137(80%) before aseptic techniques and 45% after exposure to the surrounding. Mahdeo (2014) conduct study on 100 nursing students. In that study for prevention germs transmission 94% students said hand hygiene wash before attending the patient, 86% said after exposure to body fluid, 49% said perform hand hygiene before aseptic techniques and 71% favor in washing after touching the patient surrounding. In this study 121(70.8%) students claimed that hand hygiene must perform after touching the patient and this action prevents the nurse and other health care from infected germs. On the other hand, in Mahdeo study 94% nursing students favor this action.

In this study 111(64.9%) students said hand rubbing with alcohol-based hand rub is more effective against germs than hand washing with soap, 121(70%) said hand rubbing cause skin dryness and 111(64%) students said that hand washing perform in sequence. On the other hand in Berger (2013) study almost 35 % nursing students claimed that the hand rubbing is more effective than hand washing, 46% said hand rubbing cause skin dryness and 45% students said that hand washing perform in sequence (Berger 2013).

In this study 77(45%) students claimed that removing artificial jewelry and avoid from artificial finger nail before hand washing prevent the germs transmission from one to another person. 104(60%) student claimed that regular use of hand cream or lotion should be avoided it prevent the hands from colonization of germs. In Nair et al., (2014) study 77% students said remove jewelry before hand washing omit the germs transmission, 80% said avoid from artificial finger nail when performing hand washing and 54% said avoid use of hand cream or lotion after hand washing (Nair, Hanumantappa et al. 2014). The study finding showed that nursing students had poor practice almost 76(45%) students performs proper hand washing practices when providing care to the patients. Only 60(35%) students routinely washed their hands with

alcohol-based hand rub and 85(49%) washed with soap and water. In Ingalsuo, (2009) study 59% students practice the hand hygiene. On the other hand, according to W.H.O hand washing with alcohol-based hand rub is more effective than hand washing with plain water and soap. When a nurse provides care to the patient she must wash her hands with alcohol based hand rub (Challenge 2009). In this study 52(30%) nursing students wash their hands before attending the patients and 103(60%) washed after attending the patients. In Brittany (2013) study 90% students wash their hand before and after attending the patients it prevents germs transmission from nurse to patient and patient to nurse. According to W.H.O (2012) the hand washing action before attending the patient prevent the patients from those germs which carried by nurse hands and after attending the patients hand washing action prevent the nurse and other health care provider because the nurse carries many harmful germs from patients with her hands. In this study student 112(65%) student nurses wash their hand after exposure the body fluid, 60(35%) students wash their hands after direct performing aseptic procedure and 69(40%) students wash their hands after exposure to the patient surrounding. According to Rayan (2012) nurses think that the need of hand washing only occur when contact the patient's body fluid or when in direct contact. There is no need of hand washing after contact the patient surrounding. According to PMOHLTC (2010) nurses did not perform proper hand hygiene and they did not give importance to this action. They need to perform hand hygiene according to W.H.O guide line and show a responsible behavior toward patient care.

## 5. Limitations

The study design was cross sectional and just give a snapshot about situation the sample size was small which cannot be generalized for all the nursing school of Pakistan.

## 6. Conclusion

With the help of results, it is concluded that student nurses have moderate knowledge regarding hand hygiene and they have knowledge about W.H.O five movement of hand washing but they did not perform hand hygiene practices according to WHO recommendation. They did not give importance to hand hygiene action. Mostly students did not receive any training on hand hygiene. They did not remove jewelry and other artificial things when performing hand hygiene.

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## 8. References

- i. Berger, B. (2013). Hand Hygiene Perceptions of Student Nurses.
- ii. Carradine, C. R. (2014). Does Knowledge Make a Difference? Assessing nursing students' knowledge of proper hand hygiene techniques in correlation with their progression through nursing school.
- iii. Challenge, F. G. P. S. (2017). WHO Guidelines on Hand Hygiene in Health Care.
- iv. Foote, A. (2014). Exploring Self-Perceived Hand Hygiene Practices among Undergraduate Nursing Students.
- v. Ingalsuo, M. (2015). Hand hygiene: A booklet for the students.
- vi. Kampf, G., & Löffler, H. (2017). Hand disinfection in hospitals—benefits and risks. *JDDG: Journal der Deutschen Dermatologischen Gesellschaft*, 8(12), 978-983.
- vii. Kilpatrick, C., Allegranzi, B., & Pittet, D. (2016). WHO First Global Patient Safety Challenge: Clean Care is Safer Care, Contributing to the training of health-care workers around the globe. *International Journal of Infection Control*, 7(2).
- viii. Korniewicz, D. M., & El-Masri, M. (2016). Exploring the factors associated with hand hygiene compliance of nurses during routine clinical practice. *Applied Nursing Research*, 23(2), 86-90.
- ix. Longtin, Y., Sax, H., Allegranzi, B., Schneider, F., & Pittet, D. (2015). Hand hygiene. *New England Journal of Medicine*, 364(13), e24.
- x. Nair, S. S., Hanumantappa, R., Hiremath, S. G., Siraj, M. A., & Raghunath, P. (2014). Knowledge, attitude, and practice of hand hygiene among medical and nursing students at a tertiary health care centre in Raichur, India. *ISRN preventive medicine*, 2014.
- xi. Ryan, C. (2016). Determinants of Hand Hygiene among Registered Nurses Caring for Critically Ill Infants in the Neonatal Intensive Care Unit.
- xii. Shinde, M. B., & Mohite, V. R. (2014). A study to assess knowledge, attitude and practices of five moments of hand hygiene among nursing staff and students at a tertiary care hospital at Karad. *International Journal of Science and Research (IJSR)*, 3(2), 311-321.