

“Assessment of Knowledge and Practices Regarding Hand Hygiene among the Nurses of District Headquarter Hospital Okara”

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Abstract

Introduction: Hand hygiene is most important measure to minimize the ratio of transmission of health care associated infections (HCAIs) as this is one of the major problem especially in developing countries and most of the time caused behind it is poor hand hygiene of health care providers especially nurses as they have maximum interaction to the patients. This study was conducted to assess the knowledge and practices regarding hand hygiene among the nurses of DHQ hospital Okara. **Methodology:** A self-structured questionnaire with the help of WHO guidelines base cross sectional study was done on the sample of 100 nurses among the nurses of DHQ hospital Okara. Likert scale was used to assess their knowledge and they knowledge were scored as good (13-15), average (9-12) and poor (0-8) according to their responses. Practices were also assessed by questionnaire. **Results:** Most of the participants showed having good (51%) and average (39%) knowledge and there are only some nurses (4%) who showed poor results. But despite of having sufficient knowledge there was no implementation of hand hygiene because of lacking of facilities, over burden of patients, shortage of time. **Conclusion:** To improve the practices of hand hygiene continues training sessions, sufficient nurses, and provision of all facilities needed for the hand hygiene are most important things.

Keywords: Nurse, Hand hygiene, Health Care Associated Infection, Knowledge, and Practices.

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INTRODUCTION

Hospital acquired infection (HCAI) or nosocomial infections are those infections that patients get while they are hospitalized for treatment of other diseases. Contaminated hands or improper hand hygiene of health care workers play a major role in occurring of such type of infection as well as in transmission of communicable disease which result in prolonged hospital stay, long-term disability, increased resistance of microorganisms to antimicrobials, financial burdens, increase in deaths ratio, and stress for patients and as well as their families [1]. Performing hand hygiene is a very simple as well as effective way to prevent infections but health care providers don't perform hand hygiene even half of the times they must be should and may cause many hospital acquired infections which may include urinary, respiratory, gastrointestinal and even surgical sites infections [2]. According to CDC (Center for Disease Control and Prevention), about one in 31 hospital patients suffer at

least one healthcare-associated infection on daily basis [3]. According to WHO about 40% HAI like respiratory traction infections, diarrhea etc are due to poor hand hygiene [4]. Diarrhea caused by poor hand hygiene accounts for millions deaths of children in developing countries [5]. Novel Corona Viruses (COVID-19) is the recent pandemic disease and million of the people have died of this disease. One major and basic measure by health care worker is frequent hand washing to reduce its spread. [6]. Hand hygiene is the general term that applies to either hand washing, antiseptic hand wash, antiseptic hand rub, or surgical hand antiseptics. By using the WHO multimode hand hygiene improvement strategy there can be prevention of transmission of infection. 50% of avoidable health care acquired infections can be reduce if hand hygiene is done by using the right techniques with readily available products at five specific moments [7]. Nurses are only persons who have to spend more time to deal patients as compare to any other health care provider. Their

compliance with hand washing guidelines seems to be most important in controlling, minimizing and eliminating the nosocomial infection transmission among patients [8]. According to the Society for Healthcare Epidemiology of America revealed that about only one third of healthcare providers has proper knowledge regarding hand hygiene practices whereas most of the other studies revealed that nurses don't have sufficient knowledge regarding hand hygiene but levels may vary due to many factor [9]. Sufficient knowledge of hand hygiene is the basic step to increase motivation and practices regarding this. But many studies found that practices of health care providers regarding hand hygiene are poor although having good knowledge and various factors like individual and organizational must be observed that are hurdles in performing the proper hand hygiene[10]. There are different factors like insufficient knowledge, awareness, perceptions and availability of resources which effect the proper hand hygiene [11].

With this background, the present study was undertaken for assessment of knowledge and practices regarding hand hygiene among the nurses of DHQ Hospital Okara.

Objectives of the study were to

- Assess the knowledge of nurses regarding hand hygiene.
- Assess the practices of nurses regarding hand hygiene.

METHODOLOGY

A cross sectional study was conducted in "District Headquarter Hospital Okara" to assess the knowledge and practices of nurses regarding hand hygiene and was completed within the period of 1st July 2021 to 31st September 2021 after approval of synopsis. All nurses working in suggested hospital was total population and sample size was n= 94 nurses that were taken from target population. A convenient non-probability sampling technique was used to recruit the required sample size.

Study Instrument

The instruments used in this study consisted of following parts.

- First part dealt with demographic profile of participants.
- Second part dealt with knowledge base questionnaire.
- Third part dealt with practical base questionnaire.

Questionnaire

- Assessment of knowledge was completed by self-structured questionnaire with the help WHO guidelines (ANEXURE 111) and practices of participant by practices base questionnaire (ANEXURE 1V).

- Socio-demographic characteristics were determined by using ANEXURE 11.
- The structured questionnaire was consisted on 15 questions.
- Items of questionnaire were used to assess their level of information regarding importance of hand hygiene, steps of hand washing, and methods of hand hygiene, WHO guide lines for hand hygiene, five moments of hand hygiene.
- One mark was given for each correct response and 0 mark for each wrong or no response. No negative marking was done.
- Likert Scale was used to categories the participants performance. The knowledge score was described as following arbitrary grades (as follows):

✓ Poor	0-9
✓ Average	10-12
✓ Good	13-15

- Restrictions which affected on the hand hygiene practices were assessed by practical base questions.

Variable were

- 1). Age
- 2). Working Unit:
- 3). Education
- 4). Experience

The data was collected by using a self-designed Performa with the help of WHO guideline which contained 15 questions for knowledge assessment. And 10 questions for practice assessment. All the required information was collected by the study participant. After the data collection it was analyzed by using MS excel and graph, which expressed it in tables, frequencies, percentage, bar charts and pie charts.

Ethical declaration

Ethical principal was properly implemented. Approval was taken from the ethical committee of Post Graduate College of Nursing Lahore and permission for data collection was taken from Medical superintendent of DHQ hospital Okara. The purpose of research was explained to the participant and informed consent was signed by participants.

RESULTS

Table # 1 showed that there were 20 (21%) participants of 25-30 years age old, 28(30%) participants of 31-35 years age old, 21 (22%) participants of age 36-40 years age old, 15(16%) participants of 41-45 years age old and 10(11%) participants of 46-50 years age old. Table # 2 showed that there were 44(47%) participants who had experienced of 1-10 years, 36(38%) participants with 11-20 years, 10 (11%) participants of 21-30 years, 4(4%) participants with 31-40 years. Table# 3 showed that among 96 participants there were 10 (11%) participants working in medical ward, 12 (13%) working in surgical 14(15%) working in Gynecology ward, 12(13%) working in Cardiac ward, 28(30%) working in Emergency ward, 3 (3%) working in I.C.U, 9 (9%) working in operation theater and 6(6%)

working in N.I.CU. Table#4 showed that there were 83 (88%) participants who has diploma in nursing, 3 (3%)

participants had degree of generic nursing and 8(9%) participants had degree of post- RN.

Table-5

Assessment of knowledge of Participants					
Questions	n = 94 Participants	Performance		% Correct Answer	% False Answer
		Correct Answer	False Answer		
Q#. 1. Did you receive formal training in hand hygiene in the last three years?	94	70	24	74	26
Q#. 2. What is hand Hygiene?	94	74	20	79	21
Q#. 3. Which of the following is the main route of cross-transmission of potentially harmful germs between patients in a health-care facility?	94	63	31	67	33
Q#. 4. What is the most frequent source of germs responsible for health care-associated infections?	94	66	28	70	30
Q#. 5. Which of the following hand hygiene actions prevents transmission of germs to the patient?	94	76	18	81	19
Q#. 6. Which of the following statements on alcohol-based hand rub and hand washing with soap and water are true?	94	69	25	73	27
Q#. 7. What is the minimal time needed for alcohol-based hand rub to kill most germs on your hands?	94	82	12	87	13
Q#. 8. Which type of hand hygiene method is required after emptying a bedpan?	94	84	10	89	11
Q#. 9. Which of the following should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?	94	94	0	100	0
Q#.10.Do hands need to be dried after washing?	94	88	6	94	6
Q#. 11. Is used to turn off tap after washing hand.	94	79	15	84	16
Q#.12. What is the sequence of hand washing steps?	94	81	13	86	14
Q#.13. Hand rubbing can be defined as:	94	80	14	85	15
Q#. 14. Hand washing is	94	76	18	81	19
Q#. 15. Ring should not be removed before hand washing.	94	89	5	95	5

Table#5 showed that 70(74%) participants received formal training for hand hygiene. 74(79%) participants well known the definition of hand hygiene.63(67%) nurses know about the main route of cross-transmission of potentially harmful germs between patients in a health-care facility. 66(70%) nurses knows that germs present on or within the patient is most frequent source of germs responsible for health care associated infections. 76(81%) nurses know the five moments for hand hygiene necessary in health care facilities.69(73%) nurses have proper knowledge about the alcohol –based hand rub and hand washing with soup and water. 82(87%) knows that minimal time needed for alcohol-based hand rub is 20% to kill the most germs on hands. 84(89%) responses were correct when asked about hand hygiene method required after emptying a bed pan. 94(100%) nurses knows that wearing jewelry, damaged skin and long finger nails are associated with increased likelihood of colonization of hands with harmful germs so should be avoided. 88(94 %) knows that hands need to be dry after washing. 79(84 %) nurse knows that paper towel must be used to turn off tap after washing hand. 81(86%) nurses correctly responded the sequence of

hand washing steps.80(85%) nurses mark the correct option for definition of hand rubbing.76(81%) nurses knows the proper definition of hand washing. 89(95%) nurses knows that ring should be removed before hand washing.

When we assessed their practical base knowledge then majority of participants 46 (47.9%) responded that they are unable to follow the hand hygiene protocol due to over crowd of patients, 20(20.8%) responded that lacks of resources are hurdle in hand hygiene and 20(20.83%) said that resources are not easy access for hand hygiene.

Hand hygiene is compulsory before and after touching the each patient but only 12(12.5%) nurses responded that they follow this and majority of the nurses 88(91.6%) respond that they do hand hygiene only before and after medication administration of whole ward. When there were asked about the resistance in following the hand hygiene protocol then majority of nurses 66 (68.75%) responded lack of time, 60(62.5%) said over crowd of patient, 28 (29.16%) participants said unavailability of water,

50(52.08%) nurses said unavailability of hand sanitizer and 15(15.6%) said unavailability of sink. Very alarming situation that 28 (29.1%) nurses responded that there is no easy access to sink for hand hygiene and only 20.8% responded that hand sanitizer is available at the entrance of ward. 96(100%) nurses responded that there is no hand sanitizer available at patient's bed side.

Only 6 (6.38%) nurses responded yes where as 84 (89.4%) nurses responded no when asked about availability of tissue roll at the sink for hand drying after hand hygiene.

Only 20(21.27%) nurses ensured the availability of soap at the sink. Majority of nurses 58(61.7%) told that most of the time they perform hand rubbing for hand hygiene. Only 15(15.96%) nurses out of 94 told that they are monitored for hand hygiene.

DISCUSSIONS

As per different studies it has been finalized that hand hygiene is the most important factor than can either prevent the spread of diseases or otherwise, if poor hygiene, it can cause spread of many diseases from one patient to the other resulting in spread of diseases to the thousands of patients. In this research, we concentrated on the factor whether nurses are aware of the importance of hand hygiene or not. Then we tried to know whether those nurses are applying hand hygiene or not. In case of not, we tried to explore the factors behind not applying hand hygiene strategies. We came to know that most of the nurses are aware of the importance of hand hygiene. But their practices and compliance is poor and there are several reasons behind this which we also tried to find by getting response of participants.

A previous study revealed that participants of the elder age were associated with least median knowledge score as compared to younger participants [14]. In contrast in our study there is almost equal hand hygiene knowledge and awareness among all ages' groups. Similarly, when we compared experience wise results there was also no significant difference seen in results. 100% least experience people were fall in the category of good and average. Whereas, 1-2 % participants with more experience show poor results which is very less difference. When, we assessed the nurses qualification wise for hand hygiene assessment it was seen that overall results was almost in the range of good and average but only few nurses with diploma holder showed poor performance.

On the other hand, nurses deputed in wards like emergency, Children and Gynecological ward had average and good knowledge except some participants but they are more prone to practicing hand hygiene as compared to emergency department and Neonatal unit.

Majority of the participants were well aware of definition of hand hygiene, hand washing and hand rubbing. Mostly have knowledge about the main rout of cross transmission of germs, difference between the hand washing and hand rubbing, types of hand hygiene methods, timing, sequence and five moments for hand hygiene. Most of the nurses showed that they know the protocol of hand hygiene according to WHO.

Just like current study, many other studies found that participant were loaded with good knowledge and information related to hand hygiene's protocol and its importance but attitude and practices were poor [1, 12].

In our 74% nurses attended the different workshops and training session in the regard of hand hygiene and showed the good knowledge and awareness. Similarly it was revealed by several researches that there is still need to conduct the different education session, training session and workshops regarding hand hygiene to enhance the awareness and motivation for hand hygiene among health care workers [5, 12, 13].

When we tried to find the factors behind poor practicing attitude of Nurses regarding hand hygiene, we were shocked to see that most of the facilities regarding hand hygiene practices were either unavailable or there was no access of nurses to those facilities. Unavailability of sanitizers, soap, water, tissue, sink and over crowded of patients were the most found reasons that limit the hand hygiene practices. Many other studies also found the almost same hurdles in performing proper hand hygiene which we found in our study like unavailability of soap, water, hand sanitizer, sink, dirty washroom, crowded of patients etc [1, 4, 14, 15, 16]. In the current study, according to participants there is no provision of hand sanitizers at each patient's bed side and only some nurses ensured the availability of hand sanitizer at the entrance of ward and in department. Hand hygiene practices can be improved by providing the bedside antiseptic hand rubs [17]. Many studies showed i.e. a study conducted in Karachi concluded that the HCAs can be prevented by multidimensional approach like increasing awareness regarding hand hygiene and provision of resources which are necessary in adhering the hand hygiene protocol [17, 18]. A qualitative synthesis showed that health care worker loaded with good knowledge and are provided with adequate facilities like continue water supply, having hand hygiene guidelines, who attended raining session or workshops about hand hygiene plays an important role in prevention of HCAs [19]. Nurses don't follow the hand hygiene protocol in spite of having good knowledge regarding hand hygiene and its role in prevention of spread of nosocomial infection [20] so, multidimensional approach should be applied for the strongly compliance of hand hygiene protocol and reduction in rate of hospital acquired infection [21].

So, most of the nurses were fully aware and trained regarding hand hygiene, yet they could not practice it because of lack of resources. This study could explain why the majority of our study participants had a poor hand washing practice score in spite of having good and average knowledge regarding hand hygiene and its protocol described by WHO.

Study Limitations

- Due to the less sample size, findings cannot be generalized.
- Self-reported data which may have some biasness. We did not independently observe if the participants fill the questionnaire on the base of their own knowledge.

CONCLUSION

It can be concluded that although most of the health care workers are aware of the hand hygiene practice yet it is necessary to hold continuous awareness sessions to sensitize them regarding this issue. Health care workers are not monitored for the practice of hand hygiene. They must be monitored to make this practice more effective. But the most important rather alarming factor is the unavailability of resources. Health care officials are well aware and well trained regarding importance of hand hygiene practice but they are not provided with the facilities to practice hand hygiene. Non availability or difficult access to sink, water, soap, sanitized, tissue etc. was frequently observed in this research. Hence, it is concluded that non availability of resources along with overcrowded wards of patients is the major cause of non-practicing hand hygiene by the health care officials. If government intends to prevent HAIs related diseases, it will have to do special focus on the availability of resources and frequent awareness session regarding hand hygiene.

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REFERENCES

1. Arthi, E., Abarna, V., Bagyalakshmi, R., Anitharaj, M., & Vijayasree, S. (2016). Assessment of knowledge, attitude and practice of hand hygiene among nursing and medical students in a tertiary care hospital in Puducherry, India. *Int J Contemporary Med Res.*; 3(4):1203.
2. Ahmed, J., Malik, F., Memon, Z, A., Bin Arif, T., Ali, A., Nasim, S., Ahmad, J., & Khan, M, A. (2020). Compliance and Knowledge of Healthcare

- Workers Regarding Hand Hygiene and Use of Disinfectants: A Study Based in Karachi. *Cureus.* 18; 12(2). doi: 10.7759/cureus.7036 .
3. Center for Disease Control and Prevention. (2019). Hand Hygiene in Health Care Setting. <https://www.cdc.gov/handhygiene/index.html> .
4. Agbana, RD, Ogundeji Sp, Owoseni JS,(2020) A Survey of hand hygiene knowledge, attitude and practices among health care workers in a tertiary hospital, Southwestern Nigeria Arch Community Med Public Health 6(2): 146-151.
5. Ejemot-Nwadiaro RI, Ehiri, J. E., Arikpo, D., Meremikwu, M.M., Critchley, J.A. (2021). Hand washing promotion for preventing diarrhoea. *Cochrane Database Syst Review* 2021 Jan 6; 12(1):CD004265...pub4. doi: 10.1002/14651858.CD004265.
6. Gedam, H., W, Giorgis, T., Tesfa, G., Tafere, Y., &Genet, M. (2021). Hand washing practice among health care workers in Ethiopia: *systemic review and meta-analysis, Heliyon*, 7(5): e06972. doi: 10.1016/j.heliyon.2021.e06972.
7. WHO. (2021). SAVE LIVE Clean Yours Hands- Annual global campaign [online] Available at: (<https://www.who.int/campaigns/world-hand-hygiene-day>).
8. Alrubaiee, G., Baharom, A., Shahar, H.K. *et al.* Knowledge and practices of nurses regarding nosocomial infection control measures in private hospitals in Sana’a City, Yemen. *Safe Health* 3, 16 (2017).<https://doi.org/10.1186/s40886-017-0067-4>.
9. Al-Mohaithef, M., Chandramohan,S., Hazazi,A. & Elsayed,E, A,H, . (2020). Knowledge and perceptions on hand hygiene among nurses in the Asir region, Kingdomof Saudi Arabia. *Saudi J Health Sci*, 9(1):30-38.
10. Hammerchmidt, J & Manser, T., (2019). Nurses,Knowledge, behaviour and compliance concerning hand hygiene in nursing homes. *J Family Med Prim Care*,9 (3): 1620–1627.
11. Goyal, A., Narula, H., Gupta, K, P., Sharma, A., Bhadoria, S, A. & Gupta,P. (2020). Evaluation of existing knowledge, attitude, perception and compliance of hand hygiene among health care workers in a Tertiary care centre in Uttarakhand. *J Family Med Prime Care*, 9(3): 1620-1627.
12. Prah, J., Abdulai, M., Lasim, O., & Ampofo-Asiama A. (2018). Assessment of Hygiene Practices among Students at the University of Cape Coast, Ghana. *International Research Journal of Public Health*, 2:21: DOI: 10.28933/irjph-2018-10-2701.
13. Bari, A., Imran, I., Nawaz. N.A., Kmaran, R., Bano, I., &Sadaqat, N. (2021). Perspective of health professionals on hand hygiene in a tertiary care center in Pakistan. “*J Pak Med Assoc*” [jour] 71 (1 (A)):110-113.
14. Temuta, G.M.M., Niba, L. L., Ncheuveu, N.T., Ghumbemsitia, M. T., Itor, P. O. B. Chongwain , P. & Navti, L. K.(2019). An Institution-Based

- Assessment of Students' Hand Washing Behavior. *BioMed Research International*, vol. 2019(1- 7). Published Online: [https://doi.org/10.1155/2019/7178645].
15. Goodarzi, Z., Haghani, S., Rezazade, E., Abdolalizade, M., & Khachian, A. (2020). Investigating the Knowledge, Attitude and Perception of Hand Hygiene of Nursing Employees Working in Intensive Care Units of Iran University of Medical Sciences, 2018-2019. *Maedica (Bucur)*, 15(2):230-237.
 16. Sharif, A., Azizollah, A., Balouchi, A., Ahmadidarrehshima, & Kashani, H. H. (2016). Knowledge, Attitude, and Performance of Nurses toward Hand Hygiene in Hospitals. *Glob J Health Sci*. doi: (10.5539/gjhs.v8n8p57).
 17. Engdaw, G.T., Gebrehiwot, M. & Andualem, Z. (2019). Hand hygiene compliance and associated factors among health care providers in Central Gondar zone public primary hospitals, Northwest Ethiopia. *Antimicrob Resist Infect Control* 8, 190. https://doi.org/10.1186/s13756-019-0634-z.
 18. Qasmi, S, A., Mahmood Shah, S.M., Wakil, H, Y, I., & Pirzada, S. (2018). Guiding hand hygiene interventions among future healthcare workers: implications of knowledge, attitudes, and social influences. *Am J Infect Control*, 46(9); 1026-1031. doi: 10.1016/j.ajic.2018.02.019.
 19. Sahiledengle, B., Tekalegn, Y., & Woldeyohannes, D. (2021). The critical role of infection prevention overlooked in Ethiopia, only one-half of health-care workers had safe practice: A systematic review and meta-analysis. *PLoS One*; 16(1):e0245469. doi: 10.1371/journal.
 20. Jahangir, M., Ali, M., & Riaz, M. S. (2017). Knowledge and Practices of Nurses Regarding Spread of Nosocomial Infection in Government Hospitals, Lahore. *J Liaquat Uni Med Health Sci*; 16(03); 149-53. doi: 10.22442/jlumhs.171630524
 21. Alshehari A, A., Park, S., & Rashid, H. (2018). Strategies to improve hand hygiene compliance among healthcare workers in adult intensive care units: a mini systematic review. *J Hosp Infect* 100(2):152-158. doi: 10.1016/j.jhin.2018.03.013.