

# Nurses Staff Knowledge Regarding Standard Hand Hygiene Precautions in Rania City/Kurdistan Regional Government of Iraq

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## **Abstract**

**Objectives:** -To assess nurses staff level of knowledge regarding standard hand hygiene precaution, and to find out the association between their level of knowledge and some of socio-demographic characteristics such as (gender, and level of education).

**Method:** Quantitative design, a descriptive study was carried out at Rania City. To achieve the objectives of the present study, non-probability purposive sample was used. The study sample was (66) nurses who were providing nursing services at two hospitals (Rania teaching hospital and Rania maternity and pediatric hospital). 10 of samples were excluded for a pilot study.

A questionnaire was constructed by the researcher for the purpose of the study technique and it was used as a tool for data collection. The data were collected through using an interview technique (face to face) approach.. Data were analyzed through the application of descriptive statistical analysis, such as: (frequency, percentage, mean of scores), and inferential statistical analysis (Pearson's chi-square and correlation coefficient), by using the statistical package of social sciences (SPSS) version (20).

**Results:** The study indicated that the most of samples aged between 32-36 years old and represents 28.6% of the study samples. In addition, the highest percentages of the nursing staffs were female 73%. Concerning of the educational level, more than half of nurses graduated from the medical institute 66 %. And the largest study sample have 6-10 years of experiences 28.5%The findings of the study reveal that the nurses have a good level of knowledge about hand hygiene (HH) and appropriate time to do HH. The majority of the stay sample routinely used HH and they disinfectant their hands either by washing hands with water and soap or use alcohol-based jell for, while some of the nurses don't wash their hands either because they are busy, they forget to do it or even the products are not available or not easy to reach. The study also approves that there was a statistically no significant association between the knowledge of nurses and gender and years of experiences.

**Keyword:** *Hand hygiene, Hand washing, Alcohol-based hand rub, Knowledge, Nurses*

## **Introduction**

Nurses do hand hygiene even by washing hands with water and soap or using alcohol-based hand rub to prevent spread of infection to them or even to patients. With that there are many moments that the nurses do not do it either because they are busy, they forget to do it or the products are not available or not easy to reach. In addition, they do not wash their hands correctly because of lack of knowledge about standard HH. Hand hygiene is a simple, low cost and an effective way to prevent

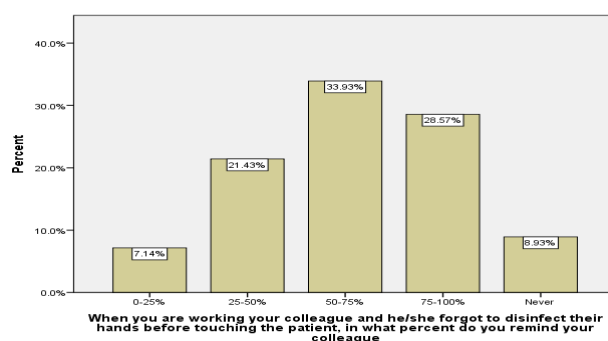
separation of infections. Cleaning your hands can prevent the spread of germs and safe the nurse and the patient lives. Hand hygiene refers to either hand washing with antimicrobial soap or hand disinfecting with an alcohol-based hand-rub. The aim of hand hygiene is to remove dirt and limit the microbial counts on the skin, to prevent cross transmission of pathogens between patients <sup>1</sup>. The New England Journal of Medicine reports that a lack of hand-washing remains at unacceptable levels in most medical environments, with large numbers of doctors and nurses

routinely forgetting to wash their hands before touching patients, thus transmitting microorganisms<sup>2</sup>. One study done in ICUs in Michigan (2003), showed that proper hand-washing and other simple procedures can decrease the rate of catheter-related bloodstream infections by 66 percent<sup>3</sup>. The World Health Organization (WHO) has issued guidelines for procedural hand washing in order to reduce the prevalence of hospital associated infections, but lack of knowledge amongst health care workers is associated with poor compliance<sup>4</sup>. To reduce the spread of germs, it is better to wash the hands or use a hand antiseptic before and after tending to a sick person. All staff in hospital should deal with hand hygiene actively because this is one of the easiest ways to help keep patients as safe and healthy as possible. So there is a need to check up nurses' knowledge and awareness toward hand hygiene periodically in order to ensure prevent spread of infection in health care setting and to stop patients and health care workers from getting infections.

## Method

A quantitative design, descriptive study was carried out in the Rania city from August 2, 2018 to the end of March 2019. In order to assess nursing staff level of knowledge regarding standard precaution (Hand hygiene) in Rania city. Rania is a city located in the Slimani Governorate Kurdistan Region/Iraq. A non-probability purposive sample of (66) nurses at the Rania teaching hospital and maternity and pediatric hospital. Who were providing nursing services at hospitals, 10 of samples excluded for a pilot study. Through an extensive review of relevant literature, and previous studies a questionnaire was constructed by the researcher for the purpose of the study and it is used for data collection. The questionnaire consisted of three parts: 1<sup>st</sup> part includes socio-demographic characteristics of nurses, staff, 2<sup>nd</sup> part consists of (7) question about HCWs compliance regarding hand hygiene, and 3<sup>rd</sup> part includes (18) items, which include (2) sections. Section (1) consists of (11) items, about knowledge of study samples regarding the hand hygiene, section (2) consists of (7) items, about the

most appropriate timing of hand hygiene actions that prevent transmission of germs to the patient. The data were collected through the use of interview technique (face to face). Items were measured by using two levels of (Likert) scale and rating as, the Yes answer (2), No answer (1)<sup>5</sup>. 1999). To content validity of the tool was established through penal of (5) experts. Reliability of the questionnaire was determined through the use of (test-retest) technique by using Pearson's coefficient of correlation formula. ( $r = .78$ ). This means that the questionnaire format was adequately reliable as a tool for data collection. Data were analyzed through the application of descriptive statistical analysis, such as: (frequency, percentage, mean of scores, Pearson's chi-square and correlation coefficient and independent



sample test), in addition use the statistical package of social sciences (SPSS) version (20). The mean of the score (1 - 1.33) was considered a low level of knowledge, (1.34 - 1.67) considered a moderate level of knowledge, and (1.68 - 2) considered a good level of knowledge.

## Results

**Figure (1). When nurses worked with his/her colleague and he/she forgot to disinfect their hands before touching the patient.**

The bar indicate when the nurses worked with his/her colleague and he/she forgot to disinfect their hands before touching the patient, in what percent he would remind him (28.57%) percentage of nurses about (75-100%) remind his colleagues, (21.43%) says they will remind them in a percentage between (25-50%). (33.93%) give a percentage between (50-75%). In addition to (8.93%) says I never be reminded him to do hand hygiene and (7.14%) give between (0-25%).

**Table (1): Level of knowledge of the study sample regarding the hand hygiene action with (2) levels of scale and frequency, percentage, mean of scores, and comparative significant.**

No	Items	Yes		No		MS	Comparative significant
		F	%	F	%		
1	Hand hygiene (HH) reduces chances of spreading infections	56	100%	0	0%	2	G.K
2	Perform HH by means of hand rubbing or hand washing	49	87.5%	7	12.5%	1.87	G.K
3	Handwashing: washing hands with plain or antimicrobial soap and water	53	94.5%	3	5.5%	1.94	G.K
4	Alcohol-based handrub formulation: an alcohol-containing preparation (liquid, gel or foam) designed for application to t for reducing the number of viable microorganisms on the hands	48	85.25%	8	14.25%	1.85	G.K
5	Wearing gloves did not replace the need for HH	36	64.25%	20	35.75%	1.64	M.K
6	Washing hands when visibly soiled, otherwise use hand rub	28	50%	28	50%	1.5	M.K
7	Duration of the washing hands procedure when visibly soiled 40-60 seconds	44	78.5%	12	21.5%	1.78	G.K
8	Duration of the hand rub procedure: 20-30 seconds	42	75%	14	25%	1.75	G.K
9	HH contributes significantly to keeping patients safe	55	98.25%	1	1.75%	1.98	G.K
10	Hand need to be dried after hand hygiene	42	75%	14	25%	1.75	G.K
11	Jewelry, ring, and watch should be removed during washing	47	84%	9	16%	1.83	G.K
12	HH must be done immediately before aseptic procedure	44	78.5%	12	21.5%	1.78	G.K
13	HH must be done after handling objects and device such as soiled linen, trash and equipment.	51	91%	5	9%	1.91	G.K
14	HH must be done after contact with blood, body fluids secretions or excretions, mucous membrane.	56	100%	0	0%	2	G.K

G.I= Good Knowledge M.I= Moderate Knowledge L.I= Low Knowledge M.S= Mean of score S= Severity

This table indicated that the mean scores were good for knowledge of study samples regarding the hand hygiene actions and most appropriate timing that prevent transmission of germs to the patient.

**Table 2. The association between nurses level of knowledge regarding hand hygiene and gender**

Independent Samples Test						
		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Knowledge of nurses	Equal variances assumed	0.049	0.825	-0.879	54	0.383
	Equal variances not assumed			-0.897	25.953	0.378

This table shows there is no significant association between knowledge of nurses regarding hand hygiene and gender at level of P value  $\leq 0.05$ .

**Table 3. The association between nurses level of knowledge regarding hand hygiene and years of experiences Pearson correlation**

		Years of Employment	Knowledge of nurses
Years of employment	Pearson Correlation	1	0.066
	Sig. (2-tailed)		0.631
	N	56	56
Knowledge of nurses	Pearson Correlation	0.066	1
	Sig. (2-tailed)	0.631	
	N	56	56

This table shows there is no significant association between knowledge of nurses regarding hand hygiene and years of employment at level of P value  $\leq 0.05$ .

### Discussion

Hand hygiene is one of the essential ways to prevent or reduce the spread of infection in the health care setting. Periodically assessing knowledge of nursing staff regarding hand hygiene is an important ways to provide them with update information. In relation to the sociodemographic characteristics of the nurses' the results show more than a quarter percentages of the nurses their ages between (32-36) years old. More than

two-third of the study sample were female, due to Rania city has two hospitals; (Rania teaching hospital and Rania maternity and pediatric hospital). Most of the nurses in maternity and pediatric hospital were female. Concerning the level of education, more than half percentage of the samples are graduated from the medical institute, at the same time only a small percentage of the nurses were graduated from nursing college 12%. Regarding the years of experiences, above the quarter percentage of nurses' has (6 - 10) years, while only five percentages

of nursing staff have (16 – 20) years' experience. The result is an agreement with the Alireza Sharif study, the result of the study shows most of the nurses (38.5%) had working experience 5-10 years<sup>6</sup>. But another study done in Mozambique which titled (Cold chain management: Knowledge and Practice in PHC facilities) that one-third of workers had between (2 to 5) years which constituted 32 %<sup>7</sup>. Concerning source of information, more than 70 % of nurses had a self-reading either from reading books or from internet to increase or update their knowledge about HH. In addition, more than half of nurses took the training course about HH. The hospital administration, always tried to help their nursing staff to participate in course training in order to increase the staff's knowledge and experiences about hand hygiene. While the diagram 1 shows that the more than seventy percentage of the study sample routinely used hand hygiene either by washing hands with water and soap or use alcohol-based handrub, but nearly 30 % did not do hand hygiene routinely. This is not acceptable in hospitals because maybe they become source of transmission of infection. Healthcare workers' hands are the source for the carrying of pathogens from patient to another and within the healthcare environment. The health care worker commitment to the highest degree of practices remains low<sup>10</sup>. The study also shows the reason that makes the nurses did not do hand hygiene due to they are too busy, out of product or the product are way or located in an inconvenient location to get in time. In addition, they forget to do HH sometimes. Even though these excuses are not reasonable for nurses or other health care worker, they need to do hand hygiene in order to prevent or reduce the transmission of infection in healthcare facilities. Health experts say poor hand hygiene is one of element in hospital-borne infections that kill tens of thousands of Americans each year. One every 25 patients in U.S. hospitals get a hospital-acquired infection as part of his or her care despite modest progress in controlling those pathogens inside medical facilities, the Centers for Disease Control and Prevention (CDC) reported in its most comprehensive look at a stubborn and dangerous health care problem<sup>11</sup>. The result of this study is consist with the study done in teams in eight hospitals used secret observers, to identify the causes of hand hygiene noncompliance. Data from the eight hospitals revealed 41 different causes of noncompliance, which were some of them were healthcare worker forgot, inconvenient placement of hand rub dispenser or sink, broken dispenser or sink and healthcare worker was too busy<sup>12</sup>. The result

of this study also shows depicted that no significant association between knowledge of nurses regarding hand hygiene with gender and years of experiences. The mean knowledge score was not associated with gender ( $p=0.82$ ), and years of employment ( $p=0.63$ ). This may back to some reasons like the small percentage of study samples, and this is out of hand of the researcher due to Rania city has only two hospitals, and only nurses includes in the study. Another reason is the most of the study samples have the same level of education (most of them graduated from the institute). There is consistent with a study done about the knowledge of hand hygiene among the healthcare workers of two teaching hospitals in Mashhad. The result shows there was no significant difference in the knowledge level of the participants who had received formal training in hand hygiene and those who had not. Also, the mean knowledge score was not associated with age, gender, department, and the profession<sup>13</sup>.

## Conclusion

According to the results of the study, nurse have good knowledge regarding HH, but they are not routinely aware to use HH due to they are too busy or because out of disinfect product or they forgot to do that. In addition, most of them, they did not remind other to disinfect their hands before touching the patient in case they forget to do that. Finally, the findings of the study also show there is no significant association between nurses' knowledge regarding HH with gender, and years of experiences.

**Financial Disclosure:** There is no financial disclosure.

**Conflict of Interest:** None to declare.

**Ethical Clearance:** All experimental protocols were approved under the College of Nursing, University of Raparin, and all experiments were carried out in accordance with approved guidelines.

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