Kufa Journal for Nursing Sciences
Open Access Full Text Article

Publisher
University of Kufa, Faculty of Nursing

Barriers to Hand Hygiene Performance among Nursing Staff during the Pandemic of Corona Virus Disease

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الخلاصة:

خلفية البحث: تم تحديد ممارسة غسل اليدين الصحيحة كواحدة من أبسط تدابير الوقاية من كوفيد-19 من حيث التكلفة. ومع ذلك، لا يوجد دليل متاح يشير إلى أن نظافة اليدين تمارس بشكل كامل وصحيح من قبل العاملين في مجال الرعاية الصحية.

الاهداف: هدفت هذه الدراسة إلى تقييم العوائق المتعلقة بممارسة نظافة اليدين بين طاقم التمريض في ردهات العناية المركزة التي خصصت للمرضى المصابين بمرض كوفيد_19.

منهجية البحث: تم تنفيذ تصميم مقطعي وصفي في ثلاثة مستشفيات في وحدات العناية المركزة من الفترة (20 ديسمبر 2021 إلى 20 يناير 2022). طريقة أخذ العينات غير الاحتمالية تتكون من (130) ممرضة تم اختيارهم بشكل هادف بناءً على معايير الدراسة.

النتائج: كانت العوائق الرئيسية التي تم ذكرها لعدم مراعاة ممارسات نظافة اليدين باستمرار هي عبء العمل الثقيل (93.1٪)، وعجز البنية التحتية (90.8٪)، وتهيج الجلد (85.4٪)، وعدم كفاية الوقت (76.2٪)، على التوالي.

الاستنتاج: كانت هناك نسبة عالية بشكل عام من المشاركين لديهم عوائق تحول دون نظافة اليدين. يمكن أن يكون لهذه الحواجز تأثير سلبي على ممارسة نظافة أيدين للملاك التمريضي مما قد يؤدي إلى زيادة الأمراض المعدية في المستشفيات.

التوصيات: هناك حاجة لتحسين ممارسات نظافة اليدين من خلال معالجة الحواجز، وإجراء برامج التدريب المستمر، وتوفير الإمدادات اللازمة لنظافة اليدين لتحسين الموقف مع الامتثال لإرشادات نظافة اليدين. أيضًا، يوصى بإجراء بحث مستقبلي للتحقيق في ممارسات طاقم التمريض تجاه نظافة اليدين.

الكلمات المفتاحية: الحواجز، نظافة اليدين، ممرض، كوفيد -19.

Abstract

Background: Proper hand hygiene was identified as one of the simplest most cost-effective Covid-19 prevention measures. However, there is no available evidence indicating that hand hygiene is fully practiced by health care workers.

Objectives: This study aimed to assess the barriers regarding hand hygiene practice among the nursing staff at intensive care units special for covid-19 patients.

Methodology: A descriptive cross-sectional design was carried out in three hospitals' Intensive Care Units from the period (20th December 2021 to 30th January 2022). A non-probability sampling method consists of (130) nurses who were selected purposively based on the study criteria.

Results: The main barriers cited for not observing hand hygiene practices consistently were as heavy workload (93.1%), infrastructural deficit (90.8%), skin irritation (85.4%), and insufficient time (76.2%), respectively.

Conclusion: There were an overall high proportion of participants who had barriers to hand hygiene. These barriers can harm hand hygiene compliance for nursing staff which may lead to an increase the infectious diseases in hospitals.

Recommendations: There is a need for optimizing hand hygiene practices by addressing the barriers, conducting continuous training programs, and providing the necessary supplies for hand hygiene to improve the attitude toward compliance with hand hygiene guidelines. Also, it is recommended to conduct future research to investigate the practices of nursing staff toward hand hygiene.

Keywords: Barriers, Hand Hygiene, Nurse, covid-19.

INTRODUCTION

Infection control and prevention are the cornerstones in preventing and reducing microorganisms that cause harm to patients, health care workers (HCWs), and society in general [1]. Health-care-associated infections (HCAIs) refer to infections that patients contract while in the hospital, in which they were not infected before admission and whose symptoms show about 48 hours or more after admission to a health care setting [2]. HCWs are on the front lines of the COVID-19 outbreak, and their continual exposure to infected patients and contaminated surfaces puts them at risk of contracting and transferring the disease [3]. Nurses account for the biggest proportion of HCWs. Because they spend more time with patients than any other HCWs, their adherence to hand washing requirements appears to be more important in reducing disease transmission [4].

Hand hygiene is both inexpensive and effective, and it is estimated that between 15% and 30% of HCAIs can be averted with this method. However, HCWs' adherence to hand hygiene standards is limited [5]. Another study also reported that hand hygiene is the most basic and effective way to avoid Health-care-associated infections [6]. In this perspective, hand hygiene is one of the majority important procedures to avoid the transmission of the severe acute respiratory syndrome -associated coronavirus (SARS-CoV-2), which causes Coronavirus disease [7].

Therefore, this study will look for gaps in barriers about hand hygiene adherence among nursing personnel in the intensive care units special for covid-19 patients. The findings of this study are significant in paving the way for a complete intervention for successful behavior change programs on hand hygiene practices. On the other hand, improving hand hygiene compliance will minimize HAI, resulting in improved patient satisfaction with nursing care, a reduction in complications, a shorter duration of stay, and better utilization of institutional resources.

Importance of the Study

HCAIs are among the top ten causes of death in hospitals around the world [8]. At any given time, 7 out of every 100 hospitalized patients in developed countries and 10 out of every 100 hospitalized patient's developing countries suffer from at least one HCAI [8]. In addition, it estimates that 1.7 million HCAIs cause 99000 deaths in the United States per year [9]. Even though hand washing is critical for reducing and controlling hospital-acquired infections, there has been a lack of compliance with the simple procedure. Nonetheless, past research has found that hand hygiene compliance was low in Iraqi nurses [10]. Moreover, recommended conducting studies to assess the barriers to hand hygiene in intensive care units (ICUs) [11].

Aims of the Study

This study aimed to assess the barriers regarding hand hygiene practice among the nursing staff at intensive care units special for covid-19 patients.

METHODOLOGY

Study Design and Population:

A descriptive cross section study design from the period 20th December 2021 to 30th January 2022 was used to achieve the study's objectives. Nurses who work in ICUs were the population in this study.

Sampling and Sample Size:

A non-probability (purposive) sampling method was used to collect the data. The inclusion criteria were nurses with at least one year of experience and work in the morning shift. While exclusion criteria included those who work outside the isolation wards (intensive care units). The total number of nurses who work in ICUs in the target hospitals was 195 at the time of the data collection. The minimum sample size was collected based on the margin of error of 5% and confidence level of 95%, the population size of 95%, and a response distribution of 50%; the recommended sample size would be 130. The number of questionnaires handed to the study subjects was 130 and the natured questionnaires were 130. So, the response rate was 100%.

Data Collection and Setting

The data were collected from (6th January 2022 to 30th January 2022) using a self-administered questionnaire that was adapted based on the WHO Guidelines on hand hygiene in a health care setting(12). The data was collected from three hospitals; Marjan Teaching Hospital, Al-Hilla Surgical Hospital, and Imam Sadiq Hospital in Babylon Governorate in Iraq.

Instrumentations

A self-administered Arabic version questionnaire was adapted based on the WHO

WHO guidelines on hand hygiene in a health care setting (12), which includes scales to assess barriers to performing hand hygiene, and sociodemographic (age, gender, year of experience, educational level, and a question if participants have had formal training toward hand hygiene).

Regarding identifying barriers, 16-items representing hand hygiene barriers were included based on the WHO Guidelines. The items were rated as ‘‘Yes=1’’ or ‘‘No=0’’ options (16 items) ranging from 0-to 16.

The structured questionnaire was written in English and translated into Arabic using Briline's back-translation approach. Then, a panel of 22 confirmed the content validity of the questionnaire. Regarding the reliability, a test and re-tests approach was done by evaluating 20 nurses that work in the intensive care unit designated for patients with coronavirus disease in Marjan Teaching Hospital. The result showed that Cronbach's Alpha was (r = 0.87 for the barriers domain) which is considered acceptable.

Data Analysis

The data was entered into the IBM-Statistical Package for the Social Sciences (SPSS) version 21 software program and analyzed using descriptive and inferential statistics. Analysis of Variance (ANOVA) was used to measure the difference between variables.

Ethical Considerations

To conduct the study, the first step was to get the IRB approved which was done by the College of Nursing at the University of Baghdad. On the other hand, participants were ensured that the provided information will be confidential and for scientific research purposes only. Also, nurses' participations were voluntary, and they have the right to withdraw without any consequences.

LIMITATIONS

Since this is a cross-sectional study, the results reflect a single point in time, which might give different results if another timeframe was used. Another limitation was assessing only the barriers

and attitudes on practicing hand hygiene, which the actual practice of hand washing was not observed in the study sample.

RESULTS

Table (1): Distribution of Participants According to their Demographic Characteristics

Demographic Characteristics		Sample analysis	
	Subgroup	f.	%
Age **Mean ± SD** **29.2 ± 0.821**	20-25	37	28.5
	26-31	64	49.2
	32-37	22	16.9
	20-25	37	28.5
Gender	Male	73	56.2
	Female	57	43.8
Years of experience **Mean ± SD** **6.7 ± 0.381**	1-4	36	27.7
	5-8	66	50.8
	More than 8	28	21.5
Level of education	Nursing school graduate	24	18.5
	Diploma	46	35.4
	Bachelor's degree	53	40.8
	Master's or Ph.D.	7	5.4
Training for hand hygiene performance	No training	117	90.0
	Training	13	10.0

f. = Number of frequencies, %=Percentages.

As the results in Table 1 show, the mean participants' age was 29.2 years with an SD of 0.82, and more than half of them were male (56.2 %). The mean of nurses' years of experience was 6.7 years with an SD of 0.381. Regarding their educational level, 40.8% had bachelor's degrees in nursing. Furthermore, the majority (90%) of nurses in this study have not been trained in hand hygiene performance.

Table (2): Barriers to Hand Hygiene Practice among Nurses at intensive care units

N.	Items	Frequency	Percentage (%)
16	**The overburdened inpatient care is not allowed in the practice of hand washing.**	121	93.1
5	**Hand washing may cause skin irritation and damage**	111	85.4
13	**infrastructural deficit (e.g., lack of water, soap, and hand sanitizers)**	118	90.8
12	**insufficient time prevents me from practicing hand washing**	99	76.2
4	**Work uniforms for patients with COVID 19 prevent me from practicing hand hygiene**	49	37.6
6	**The place for hand washing in the hall is not suitable**	45	34.6
9	**Not thinking about hand hygiene or forgetting to wash them**	40	30.7

15	**No educational model for hand washing in the hallway/No update with a new version**	39	30
8	**the process of washing hands is not necessary in case of touch only**	36	27.6
3	**Hand washing prevents effective care of patients from continuing**	33	25.3
10	**do not promote a work environment in the institution to clean hands**	31	23.8
11	**My hands hurt or have wounds that prevent me from washing them**	27	20.7
2	**Hand washing does not affect the clinical outcome of the patient**	24	18.4
14	**Hand washing takes a long time I doubt the real value of hand washing**	24	18.4
1	**The process of washing hands between the patient and the other patient is not necessary**	23	17.6
7	**Hand washing takes a long time**	18	13.8

f. =Frequencies, %=Percentages

In Table 2, the results show the barriers that reduce hand hygiene performance among nursing staff in intensive care units. Nurses consider four items ("The overburden inpatient care is not allowed in the practice of hand washing", "Hand washing may cause skin irritation and damage", "infrastructural deficit", and "insufficient time prevents me from practicing hand washing") as top barriers that reduce hand hygiene performance.

Table (3): Relationships between Participants' Demographics and their Barriers to Hand Hygiene

Demographic characteristics	Barriers	
	p. value	Analysis
Age	.296	Cc = .211
Gender	.402	F = .055
Years of experience	.148	Cc = .287
Level of education	*.005*	F = .41
Training	.000	F = .611

P=probability value, NS: S: Significant at P < 0.05, HS

In Table 3, the results show that there is no statistically significant correlation between barriers with nurses' age and years of experience at p- values 0.296, 0.148 respectively. Also, nurses' barriers to hand hygiene were not different among male and female nurses at a p-value of 0.402. On the other hand, nurses' barriers to hand hygiene were significantly different among nurses' educational levels at a p-value of 0.005. Also, nurses' barriers to hand hygiene were highly significantly different between nurses who took training courses and who do not at a p-value of 0.000, respectively.

DISCUSSION

The findings of the study in table (1) indicated that 40.8% of the nurses had bachelor's degrees in nursing. Nurses can be registered by graduating from high school in nursing, two years of studying after high school (nursing institutes), or having Bachelor's and higher degrees in nursing. Another study stated that 64% of the participants were graduated from the college of nursing [13]. Regarding participants' years of experience, the mean was 6.7 years which was compatible with another study that found that the mean was 6.24 years [14].

Concerning participation in training courses, only 10% of the nurses entered training courses about hand hygiene techniques. This can be due to the lack of courses in continuing education [13]. Also found that none of the Iraqi nurses have taken any training courses about hand hygiene [13].

In the table (2) the findings indicated that participants in this study highlighted "heavy workload", "skin irritation", "infrastructural deficit", and "insufficient time" as the main barriers that prevent nurses to perform hand hygiene as shown in figure (1). The heavy workload was the major barrier in this study, many studies [14][5][15][16] confirmed that too. One of the main reasons can be the nursing shortage in hospitals.

However, as shown in table 3, no statistical correlation was shown between participants' age and years of experience with nurses' barriers toward hand hygiene. Another study found no relationship between nurses' age and years of experience with their barriers [17]. Also, found no relationship between age and barriers [18].

The findings in this study presented that male and female nurses did not significantly differ concerning the barriers that prevent hand hygiene performance. This can be related to the contingency of the study sample regarding their work environment and opportunities to participate in continuous education to take courses about hand hygiene (see table 3).

Also in table 3, nurses with different educational levels scored differently on barriers and that was statistically approved. Similar results were found in another study [16]. This was expected for researchers as nurses with high educational levels learn more about hand hygiene in their curricula. Regarding training courses, the results showed that nurses' barriers to hand hygiene differed between nurses who took training courses and who do not. Many studies proved that educational training improves hand hygiene practices among nurses [14][10][11].

CONCLUSION

These barriers can harm nursing hand hygiene which may lead to an increase the infectious diseases in hospitals. Also, this study revealed that focusing on hand hygiene training courses within continuous education in hospitals can make high nurses' compliance with hand hygiene.

RECOMMENDATIONS

There is a need for optimizing hand hygiene practices by addressing the barriers, conducting continuous training programs, and providing the supplies necessary for hand hygiene to improve the attitude toward compliance with hand hygiene guidelines. Also, observational studies are needed to investigate the practices of nursing staff toward hand hygiene.

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