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Knowledge of critical care nurses related to infection control measures in AL-Hilla teaching hospitals

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***Abstract*---**Background: The need for nurses to be aware about hospital infection control measures is critical issue in nursing as a response to the rapidly change in the health care environment, infection control measures are essential to a safe, competent, skillful nursing practice and safe workplace. Objective: To assess knowledge of critical care nurses related to infection control measures in AL-Hilla teaching hospitals. Methodology: Descriptive cross-sectional study design selected to achieve the study objectives from the period between (19. Oct.2021 to May. 2022). Purposive non-probability sample of (150) critical care nurses, (70) female and (80) male, who representing approximately all nurses who involved in the direct care of patients. Special questionnaire prepared which consist of three parts. Alpha Cronbach correlation used as statistical method to calculate the reliability of the prepared questionnaire which is statically acceptable (r=0.706). Result: The finding presented that the higher percentage 142(94.7%) of the study sample were between (20-30) years of age, 80(53.3%) were male nurses, 83(55.3%) of them were married, while the result shows that most of the participants 85(56.7%) were bachelor degree holder. Conclusion: The presented findings recorded that most of the participants have knowledge deficits in many aspects of infection control measures and hand hygiene standard which should be taking under consideration during patient care to maintain their health and safety.

***Keywords*---**critical care unit, nurses, knowledge, infection control measures.

Introduction

The minimal infection prevention techniques that must be employed in the treatment of all patients at all times are known as safety measures. These procedures are intended to safeguard health care workers while also preventing them from transferring illnesses to patients (Jacob,2018). For critical care nurses, putting in place safety protocols isn't enough to keep patients safe. They should also improve their professional expertise by participating in continuous learning, as well as communicate well with coworkers, work in teams, and provide high-quality care to critically sick patients. It is crucial to create a safety culture in which critical care unit workers see safety as a top priority at all levels of the organisation (Livne & Donchin, 2009).

The costs of HAIs was projected to be $4.5 billion in 1992 by the Study on the Efficacy of Nosocomial Infection Control (SENIC), and after inflation, it was expected to be $6.65 billion in 2007. HAI control has lately been a global concern, resulting in a development of infections prevention and control measures (Yokoe et al.,2014). Although infection control rules have been created, HAIs continue to be unavoidable due to a lack of controls over their execution. The growing incidence of healthcare-associated infections (HAIs) is currently considered one of the most severe issues facing healthcare systems throughout the worldwide (Allegranzi et al.,2011).

Hand cleanliness is widely acknowledged as the most effective way to minimize microbial cross-transmission and lower the occurrence of healthcare-associated illnesses. (J. M. Boyce and colleagues, 2002). According to the WHO, 1,400,000 individuals are affected by nosocomial diseases daily, both directly and indirectly (Hosseinialhashemi et al., 2015). Hand hygiene (HH), which consists of either washing hands with soap and water or using an alcohol-based hand rub, is a simple and efficient technique to avoid infection (Boyce,2002).

Despite the fact that the hand is continuously classified as the main preventative strategy in WHO recommendations, few of them recommend it in practice. (Polin et al., 2012; Mertz et al., 2011; Park et al., 2014; Mertz et al., 2011). During the epidemic spread of acute respiratory syndrome (SARS), it was discovered in a Chinese study that paying close attention to developing hand-washing technique in healthcare personnel while caring for high-risk patients could dramatically reduce transmission of infection between staff and patient (Bennett et al., 2015).

Objectives

To assess critical care unit nurse’s knowledge related to infection control measure and hand hygiene.

Method

Descriptive cross-sectional study conducted at critical care at Al- Hilla teaching Hospital and Imam Al Sadeq teaching hospital from the period between (19. Oct. 2021 to 2. May.2022). Purposive non-probability of (150) nurses who representing approximately all nurses who involved in the direct care of patients admitted to

the critical care units. Special questionnaire prepared after a comprehensive review of related literature in the field of interested phenomena content three parts. Content the following items: (Age, gender, marital status, educational level, and residency). Cronbach Alpha (split half) was used to determine the questionnaire's reliability. The reliability determined the quality of the tool, alpha cronbach correlation value's (r= 0.706), which is statically acceptable. This means that the questionnaire is extremely trustworthy.

Data Collection

Data was collected using a questionnaire (Arabic version) by self- report method with nurses after the appropriate approvals were completed. The questionnaire was collected from the participants after they self-administered it on an individual basis. Approximately each self-report took (15 to 60) minutes, overall (150) nurses selected to participate in the study. Data collection carried out from (3.FEB to 21.FEB.2022).

Ethical consideration

A humanity faces or respect of nurse's personality as human is considered in the current study as issue of ethical consideration. The researcher follows certain steps in order to achieve the ethical consideration and obtain permission from the nurse him/her-self. Critical care unit nurses who agree participate in the study has given a written informed consent. After explaining the purpose of the study, and explaining that all the information will kept secured used only of the study purposes.

Result

Table (1): Distribution of the study sample related to their demographical characteristics

Variables		Frequency	Percent
Age	20-30	142	94.7
	31-40	3	2.0
	41-50	5	3.3
	Total	150	100.0
Gender	female	70	46.7
	male	80	53.3
	Total	150	100.0
Marital status	single	67	44.7
	married	83	55.3
	Total	150	100.0
Educational status	Secondary school	11	7.3
	Diploma	54	36.0
	Bachelor holder	85	56.7
	Total	150	100.0
Residency	urban	54	36.0
	rural	96	64.0
	Total	150	100.0

Table (2): Distribution of the study sample related to their employment characteristics

variables		Frequency	Percent
Period of Experience	less than 10	142	94.7
	11-20	5	3.3
	21-30	3	2.0
	Total	150	100.0
Years of experience in critical care	one years	89	59.3
	2-4	40	26.7
	over 4 years	21	14.0
	Total	150	100.0
Working shift	evening	78	52.0
	morning	72	48.0
	Total	150	100.0
special courses related to safety measure	no	103	68.7
	yes	47	31.3
	Total	150	100.0

Table (3): level of nurse's knowledge related to the hand hygiene

Items		Frequency	Percent	Mean	Std, deviation	Assessment
1-The most adherence improvement of hand hygiene in health care facilities is	incorrect	102	68.0	1.32	.468	Poor
	correct	48	32.0			
	Total	150	100.0			
2-It is preferable to rub the hands with a solution containing alcohol for all the following clinical cases except	incorrect	97	64.7	1.35	.480	Poor
	correct	53	35.3			
	Total	150	100.0			
3-Healthcare workers are exposed to germs on their hands by doing the following accept	incorrect	142	94.7	1.05	.225	Poor
	correct	8	5.3			
	Total	150	100.0			
4-Hand hygiene refers to … accept	incorrect	62	41.3	1.59	.494	Good
	correct	88	58.7			
	Total	150	100.0			
5-What should the nurse do if your hands touch the sink while you are washing your hands before giving care to the patient?	incorrect	69	46.0	1.54	.500	Good
	correct	81	54.0			
	Total	150	100.0			
6-What is the main purpose of hand hygiene and hand washing?	incorrect	48	32.0	1.68	.468	good
	correct	102	68.0			
	Total	150	100.0			
Overall				1.42	0.439	Poor

"N= Number, % = Percentage, M.s.= Mean of score (1.5), Poor (mean == <1.5), Good (mean=≥ 1.5), S.d=Standard deviation"

Table (4): level of nurse's knowledge related to the infection control measures

Items		Frequency	Percent	Mean	Std , deviation	Assessment
1-Which activity would be best in preventing septic shock in the hospitalized client?	incorrect	119	79.3	1.21	.406	Poor
	Correct	31	20.7			
	Total	150	100.0			
2-When caring for a patient with respiratory infection, what is the best way the nurse can prevent the spread of infection?	incorrect	111	74.0	1.26	.440	Poor
	Correct	39	26.0			
	Total	150	100.0			
3-Which of the following is NOT part of standard infection control precaution practice?	incorrect	125	83.3	1.17	.374	Poor
	correct	25	16.7			
	Total	150	100.0			
4-What action by the nurse is most important when performing addressing change using surgical aseptic technique ?	incorrect	27	18.0	1.82	.385	Good
	correct	123	82.0			
	Total	150	100.0			
5-Before applying iv cannula the nurse must do which of the flowing for preventing transition of the infection	incorrect	10	6.7	1.93	.250	Good
	correct	140	93.3			
	Total	150	100.0			
6-What should the nurse do before inserting the cannula?	incorrect	26	17.3	1.83	.380	Good
	correct	124	82.7			
	Total	150	100.0			
7-According to the Centers for Disease Control and Prevention guidelines, make sure the ventilator circuit is changed	incorrect	108	72.0	1.28	.451	Good
	correct	42	28.0			
	Total	150	100.0			
Overall				1.5	0.383	Good

"N= Number, % = Percentage, M.s.= Mean of score (1.5), Poor (mean == <1.5), Good (mean=≥ 1.5), S.d=Standard deviation"

Discussion

Table (1) presented the demographical characteristics of the study sample which revealed that most of the sample (94%) were within (20-30) years old, (53.3%) male, married, (56.7%) bachelor degree holder, and urban area resident. As well as, the study findings come consisting with study conducted in Baghdad City at critical care unit, the findings of this study illustrated that (64%) of the study samples were male and (58%) at age groups (20-29) year old, (52 %) were married, (66%) had (1-5 year) skill in critical units (Hadi & AbdulWahhab, 2016)

Table (2) show that most of the sample of the study were with one year and above experience in the critical care unit, (52%) of the participant didn't attend any educational sessions related to hospitals safety measures. This finding go parallel with the study which find that more than a half of the nurses who participate in the study have un experience between (1-5) years (Kandeel and Tantawy,2014), Aboul-Fotouh et al.,2016, find in their study which conducted in teaching hospital in Cairo, related to patient safety among health care providers that most of the study sample have lake of knowledge related to studied issue because they didn't involve with special training courses which prepared regarding safety standers precaution's in the work place.

As a stand point, nurses in the critical care are responsible for constant monitoring of the patient's conditions as well as recognition of any subtle changes, by using amount of technologies within their practice, for this reason most of health agencies preferred nurses with 1 to 2 years of experience in the medical or surgical experience, bachelor of science in nursing which prepare nurses to provide holistic care for the patients and cover all needs of his\her family members.

Table (3) show the overall mean regarding nurse's knowledge related to hand hygiene (1.42±0.439), which indicated unsatisfactory level of knowledge. These findings agree with a study carried out to assess Knowledge, Beliefs and Practices towards hand hygiene which showed that the majority of nurses received less than 6 out of a possible twelve points, indicating a lack of knowledge of hand washing. (Ghezeljeh et al., 2015). Also, the results agree with a study conducted by Ghadamgahi et al.,2013, according to the findings, only 47.8% of nurses achieved an adequate level of knowledge in this area. While Najafi et al.,2011, said that nurses mostly chose appropriate hand washing materials after doing official tasks, they had less understanding about correct washing hands and scrubbing. According to Jang et al., (2010), healthcare workers lacked knowledge on hand-washing guidelines.
Hand hygiene consider one of the most important strategies to decrease cross infection in the health setting, for this reason un educational program which had a positive effect on retention of knowledge and practices in all health care providers. The table (4) show that the nurses have good knowledge regarding infection control measures the overall evaluation (1.5±0.383), which state acceptable level. The result goes a line with study carried out in 2009, entails "Evaluation of knowledge and practice amongst nursing staff toward infection control measures in a tertiary care hospital" which show that most of the nurses who participate in the study sample (75.5%) at a tertiary care hospital had

sufficient knowledge regarding infection control (Taneja et al.,2009). The study agrees with Ibrahim et al.,2011, who noticed that the higher percentage of their investigated group of nurses conscious with what infections is, and how it will be transferred. According to Perry and Potter (2002), nurses may act to prevent diseases by knowing how they are transferred or disseminated. The findings support Escander's (2014) paper, Intensive care nurses' knowledge and behaviours regarding infections control and prevention strategies in a chosen Egyptian cancer hospital, which found that the majority of nurses had enough knowledge of preventing infection due to ongoing education.

The result agree with a study conducted by Mahfouz, 2016, who find that 53% of nurses reported awareness related to infectious diseases precautions were important and applied in the hospital. The result are also agree with a study performed by Asadollahi et al.,2015, titled “Hand hygiene awareness among nurses, and personal and organizational factors”. The study's findings show that nurses' knowledge was appropriated in the field of nosocomial precautionary measures, especially concerning strategies of transmission of infectious agents and the proper time for performing hand hygiene.

Mathai et al.,2010, reported that the education and gaining knowledge of healthcare workers is essential to improve their knowledge and practices and referenced that healthcare workers can protect themselves from contact with infectious material or exposure to communicable diseases by having enough knowledge and understanding of the infectious process and appropriate barrier protection .So the healthcare worker education has a positive impact on improving hand hygiene and reducing healthcare-associated infection.

Conclusion

The presented findings recorded that most of the participants have knowledge deficits in many aspects of safety measures standard which should be taking under consideration during patient care to maintain their health and safety.

Recommendations

Continues educational programs are recommended to alleviate nurse’s knowledge related to safety measures aspects.

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