ASSESSMENT OF NURSES KNOWLEDGE REGARDING INFECTION CONTROL MEASURES IN EMERGENCY DEPARTMENT AT AL-DIWANIYAH TEACHING HOSPITAL, IRAQ

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ABSTRACT:

Infection control are important procedures and measures which should be applied and followed in various departments of hospitals especially at the emergency department by healthcare team and the nurses who are in contact with the patients having infectious diseases (Kerity & Naji, 2017). The study aims to assess the nurses’ knowledge regarding infection control measures. Descriptive, cross-sectional design conducted in the Emergency Department at AL-Diwaniyah Teaching Hospital. The study started from (27 September / 2020) to (13 June 2021) on a non-probability (purposive) sample consisting of (100) nurses. Data were collected from the nurses by administering self-report questionnaire. The questionnaire were constituted from two parts. The first part was demographic characteristics of the participants (age, gender, level of education, years of experience in nursing, years of experience in emergency department, training course related to infection control, and marital status). The second part was assessment of nurses' knowledge regarding infection control measures in Emergency Department consisted of (37) questions which are divided into seven elements.

Results: (70%) of the participants were male and most of them married, graduated from secondary school of nursing about (46%), (71%) of nurses receiving training course regarding infection control. About (49%) of nurses had moderate knowledge regarding infection control measures, and there was significant relationship between the nurses’ knowledge regarding infection control measures and some demographic data at p≤ 0.05.

Conclusion: The study concluded that about (49%) of nurses had moderate knowledge and (15%) had poor knowledge.

Recommendations: The study recommended for continuing to provide educational programs or training courses for nurses on infection control measures. Forming specialized committees or units to control infection that follow-up and provide guidance and advice to health care providers, posting written instructions and hang them on the walls of the emergency department in order to improve the knowledge of the nurses.

I. INTRODUCTION

Hospital-acquired infection (healthcare-associated infection) HAI is an infection acquired after the passage of (48-72) hours of a patient's admission to the hospital. It considered the worldwide challenge that facing systems of healthcare. Previously healthcare-associated infection is called (nosocomial or hospital) infection, according to the World Health Organization prevalence of hospital-acquired infections HAIs is (15%) globally, in Europe is (6%), in developing countries and in East Mediterranean countries is about (5.7%-19.1%), and more than (80%) of HAIs include (bloodstream, surgical site infections, urinary tract, and respiratory system) (Nasiri et al., 2019).

Healthcare-associated infection is a major health problem facing the world, including Iraq. It causes morbidity and death. Increased duration of patients' hospitalization, great burdens and material losses for the patient and his family, and effects on health institutions. Many health care providers exposed to different types of infections
while providing care to patients, so they must follow the available strategies to protect themselves, their families, and the patients from communicable diseases. Thus the transmission of infection can be reduced (Kerity & Naji, 2017).

Nurses are predominantly exposed to diverse infections when providing care to patients. Infectious agents may cause dangerous and fatal infections. Therefore infection control measures (hand washing and application of standard precautions during invasive procedures require for training courses to staff and change of their behavior and monitoring systems) can decrease chances of spreading infections (Fashafsheh et al., 2015).

Moreover, nurses’ hands play an important role in the spread of infection during the delivery of care to patients. Increase the nurses' knowledge about infection control measures will affect firmly their performances and their roles about the safety of patients' and society's health (Kalantarzadeh, 2014).

The emergency department considered a great challenge for nurses to compliance with infection control measures because it is an overcrowded area, decrease the presence of enough staff, increase workload and stress among nurses for all times, all these factors lead to hospital-acquired infections for nurses and patients (Zottele, 2017).

1.1 Objectives of The Study

1- Identify the demographic characteristics of nurses that work in the emergency department at Al-Diwaniyah Teaching Hospital.

2- Assess nurses' knowledge who are working in the emergency department at Al-Diwaniyah Teaching Hospital.

3- Find out the relationship between nurses' knowledge and their demographic characteristics such as (age, gender, educational level, years of experience, …).

II. LITERATURE REVIEW

2.1 Historical Background of Infection Control

Pride in the first discovery (a healthcare worker’s hand could transmit the infection) was by Ignaz Semmelweis, a (Hungarian obstetrician at the Maternity Hospital in Vienna, Austria) was describing the method of transmission of puerperal sepsis. In 1847, he noted the high maternal mortality rate among the patients caring for by obstetricians, medical students, and midwives, then Similweis emphasized the importance of hand washing to reduce the transmission of infection, and after the application of hand washing, the maternal mortality rate was decreased (Sydnor, 2011).

The earliest official step in (1941) was the recommendation by the British Medical Research Council (MRC) was the preventing surgical sepsis, (full-time special officers) must be appointed to supervise the infection control. In (1944) the MRC recommended all hospitals contain healthcare workers and managers a committee of infection control be instituted. In United Kingdom UK (1959) the first Infection Control Nurses (ICNs) was appointed (Forder, 2007).

At the end of the 1950s and the earlier 1960s, a small rate of hospitals in the United States was starting to design programs for controlling hospital infections. The effort was located especially in the large centers for the medical academies and not in the agencies of public health. In the 1970 some hospitals which made programs for controlling infections were increased (Center for Diseases Control and Prevention [CDC], 2011).

In 1980 established infection control as an attractive profession because of programs based on the knowledge, experiences, and scores of test (Dixon, 2011).

The Iraqi ministry of health (MOH) in 2009 collaborated with the world health organization (WHO) to make a national guideline for controlling infections in the settings of healthcare. In (2012) Ministry of Health (MOH) in Iraq developed the guidelines for the prevention of infection and waste disposal for the agencies of health care centers. The purpose of guidelines was to increase the knowledge and tools needed by healthcare workers and managers to implement the infection control (MOH, 2012).

2.2 Conceptual Framework

Nightingale’s theory also called environmental theory formed by Florence Nightingale's Lady with the Lamp. Focused on the environment of the patient and the external conditions that influence the disease and the death.
This theory directs nursing practices now. By the experiences of Nightingale in the Crimean war, she knew the impact of unsanitary conditions and the sanitary repairs on the rates of death. The environmental theory created by the experience and the precisely examining how the conditions of the environment influenced the health of patients and outcomes (Trafford, 2018).

The contaminated environmental roofs lead to the spread of infectious agents. Disinfection and cleaning of the environment is an essential aspect in preventing healthcare-associated infections. The cleaning of the patients' rooms focuses on keeping a clean environment for the patients. Existing evidence-based researches that confirmed the Environmental theory indicate that proper cleaning of the environment and practices of hygiene is the foundation for nursing care and can reduce the transmission of infections (Trafford, 2018).

2.3 Hospital-Acquired Infections

Hospital-acquired infections (HAIs) are the infections that patients acquired after receiving care in the hospital. The term of HAIs firstly referred to the infection that occurs during admission to the hospital (in the past called nosocomial infections), but in the present, the term includes infection developed in different settings where the patients obtained health care (examples include long-term care, ambulatory care, clinics of families medicine, and home care) (Revelas, 2012).

2.4 Infection Control Measures

Infection Control Measures are the basic cornerstone for preventing hospital-acquired infections. These measures provide barriers to HCWs and the patients from acquiring infections, protect the HCWs from infectious body fluids, blood, and contaminated equipment, help in the decrease of morbidity and mortality rate, reduce the financial burden and decrease the staying inside the hospital, therefore reducing the spread of infectious agents to others in healthcare settings. (Center for Health Protection [CHP], 2018).

Hand hygiene is one of the very essential elements of infection control and prevention measures, as it helps to reduce and prevent the spread of infection from the hands of health care workers during health care delivery (Hammerschmidt & Manser, 2019).

Respiratory Hygiene and Cough Etiquette is an infection control and prevention measure intended to decreases the spread of respiratory infections that transmitted by droplets or airborne. These measures added in the year 2007 to the infection control measures. It is important to implement in healthcare settings to protect patients, relatives, and HCWs (CDC, 2016).

Personal Protective Equipment (PPE) is an essential strategy to prevent the transmission of infectious diseases in hospitals. PPE (gloves, apron, gowns, masks, face shield, and eye shield or goggles) must be used properly by health care providers to prevent pathogens, and pollutants from being transmitted to them. Improper practice in removing PPE will lead to contamination of their bodies and then lead to increase the risk of acquiring infections for HCWs and the patients (Phan et al., 2019).

Safe Injection Practices is an injection that doesn't lead to injury for health care providers and the patients, and not lead to the transmission of infections (HBV, HCV, and AIDs) among them (WHO, 2016).

Cleaning: is intended to remove visible dirt, organic matters (which include blood or tissues), and non-organic salt adhering to devices, tools, and surfaces through the use of detergents with water, cleaning process precedes disinfection and sterilization processes for dirty tools, devices, and surfaces in hospitals (CDC, 2008, update: May 2019).

Sterilization and Disinfection

Sterilization means the action of killing and destroying all microorganisms that include also the spores of bacteria. Disinfection is the chemical or thermal destruction of microorganisms. It is less effective than sterilization because not killing all micro-organisms e.g spores of bacteria (Sukhlecha et al., 2015).

Management of Medical Waste Medical waste includes liquid waste (such as body fluids and blood), gaseous and solid wastes produced during the provision of care to patients in hospitals, in medical care institutions, laboratories, drug stores, human and veterinary medicine clinics (Al-Nakkash et al., 2019).
III. METHODOLOGY

3.1 The Research Design
A descriptive, cross-sectional study conducted on a group of nurses.

3.2 Sample of The Study
A purposive (non-probability) sample consists of (100) nurses was selected based on some criteria to assess their knowledge regarding infection control measures.

3.3 Setting of the Study.
The study was conducted in the Emergency Department at Al-Diwaniyah Teaching Hospital, Iraq.

3.4 Instrument of The Study
The researcher was constructed the instrument from various previous literature reviews and articles in order to achieve the objectives of the current study, and it consists two parts were

The first part: constitutes from (7) elements that include demographical data of the nurses (age, gender, educational level, years of experience in nursing, years of experience in emergency department, training course related to infection control, and marital status).

The second part: assessment of nurses' knowledge regarding infection control measures in emergency department, this part consists of (37) questions which are divided into seven domains that include

1-General knowledge regarding Hospital-Acquired Infections (HAIs) (7) items.
2-Knowledge regarding hand hygiene (5) items.
3-Knowledge regarding Personal Protective Equipment (PPE) (5) items.
4-Knowledge regarding Safe Injection Practices (5) items.
5-Knowledge regarding Safe Handling of Equipment and Instruments (5) items.
6-Knowledge regarding Sterilization and disinfection (5) items.
7-Knowledge regarding Waste Management (5) items.

3.5 Reliability of The Questionnaire
Reliability is referred to the consistency and dependability of a research instrument to measure a variable. Determination of reliability of the questionnaire based on the internal consistency reliability, split-half technique. To obtain the reliability of the questionnaire alpha Cronbach used as a statistical method, the result was (0.81) which is statistically acceptable.

3.6 Data Collection Methods
The data was collected by using the instrument filled by the nurses after acquired the permission from the institution. The researcher takes oral and written agreement from each nurse to participate in this study. The time to answer the questions of the instrument with each participant takes about (20-25) minutes. The data collected from the date (11 March to 9 May/2021).

3.7 Approach of Statistic
Data analyzed electronically through the application of descriptive statistical approaches (Statistical Package for the Social Sciences (SPSS)) version 24.

IV. RESULTS AND DISCUSSION
Figure 4.1: Overall assessment level of Nurses' Knowledge regarding Infection Control Measures in Emergency Department. (N= 100).
The findings in table 4.1 demonstrated that about (49%) of the study participants had a moderate level of knowledge regarding infection control measures in an emergency department. While (15%) of them had poor knowledge. This findings of knowledge indicated that the participants did not receive sufficient information during the study and from the training course, in addition, it may be due to the presence of different educational levels, insufficient training sessions for newly appointed nurses regarding infection control and prevention, moreover non-continuous training courses for the nurses. These results disagreed the results of two studies which were:

the first study conducted in Iraq at Hawler Teaching Hospital in Erbil city by (Ronak, 2016) to assess the knowledge of the nurses about infection control measures, it showed that the knowledge of more than half (54%) nurses was good, and (44%) of them was bad. The total score was fairly good according to their knowledge. The second study conducted by (Rochwani & Sharma, 2019) in India among (100) nurses. It was assessed the knowledge of nurses regarding standard precaution it showed that the overall assessment level of knowledge was good for the majority of the sample.

Table (4.1) association between Nurses' overall knowledge regarding Infection Control Measures and their demographic data.
In Table 4.1 illustrated that there was a significant relationship between nurses' overall knowledge regarding infection control measures and some demographic data at p ≤ 0.05, such as (educational level, marital status, and training course related to infection control). While the other demographic data (age, gender, years of experience in emergency department, and years of experience in nursing) had no significant association with nurses' overall knowledge regarding infection control measures at p ≤ 0.05.

The results of this study agreed with the study of (Ayed, 2015) which conducted in Palestinian hospitals, revealed that there was no association between nurses' overall knowledge about measures of infection control and some demographical information (age, and years of experience), except the training course contradicted with the current finding. While the other demographic data (gender and qualification) had an association with the nurses’ knowledge at p-value < 0.05. Moreover, a study conducted by (Datta et al., 2018), reported that there was a disagreement with this finding which showed that there was a strong correlation between the nurses' age and their knowledge regarding safe injection practices.

Another study conducted by (Sessa et al., 2011) corresponded to the current study demonstrated that there was a significant association between nurses' knowledge towards procedures of disinfection and their educational level in Italy.

V. CONCLUSION AND RECOMMENDATION

The study concluded that most of the nurses were males and married with experience in emergency department 1-5 years, and received training course, knowledge of majority of them ranged from poor to moderate regarding infection control measures. There was strong association between nurses' overall knowledge and some demographical data at p ≤ 0.05 (educational level, marital status, and training course related to infection control).

The study recommended for Continuing to provide educational programs or training courses for nurses on infection control measures and how to prevent and control infection within health institutions and emphasize training for all newly appointed health care providers. Forming specialized committees or units to control infection that follow-up and provide guidance and advice to health care providers. Posting written instructions and hang them on the walls of the emergency department. In the future, additional researches are required for raising the levels of the knowledge of nurses and their practices regarding measures of infection control in the emergency department ED especially knowledge and practices of hand washing.
REFERENCES


