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ORIGINAL RESEARCH

Knowledge and Practice of Standard Precautions by Nurses in Hospitals of Babylon Governorate.

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ABSTRACT

Background: Hospital-acquired infection (HAI) is one of the most frequent issues that hospitals are facing in every country worldwide. Since nurses are an essential part of the medical workforce that they play a special role in preventing the transmission of infections within hospitals.
Objectives: to assess levels of nurses' knowledge and practice regarding standard precautions. Find out the relationship between knowledge level and practice level.
Methodology: 400 nurses from eight hospitals in Babil governorate are included in this cross-sectional study. To assess the knowledge and practice levels, an interview questionnaire was used. SPSS-27 was used for analyzing the data that was collected between September 2022 and March 2023.
Results: The main results revealed that 56.3% of nurses had a high level of knowledge on standard precautions. While 51.5%of nurses had poor practice regarding standard precautions. A significant positive relationship between nurses' level of practice and their level of knowledge was also identified.
Conclusion: Despite the fact that the majority of study participants had a high level of knowledge, the majority did not always practice these precautions. In addition, the level of practice correlates positively with level of knowledge.

Keywords: Standard precautions, infection control, knowledge, practice.

INTRODUCTION

Healthcare-associated infection (HAI) is characterized as "an infection that develops in a patient while receiving care in a healthcare facility and was not present at the time of admission or incubating prior to admission". These infections are a worldwide issue and are among the leading causes of illness and death related to clinical, diagnostic, and therapeutic procedures. They affect not only patients

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but also pose a significant occupational risk for healthcare workers (HCWs) (Yemane, 2014).

HCWs are at high risk of acquiring HAIs in various circumstances within a healthcare setting, such as during direct patient care, instrument processing, surgical procedures, the disposal of healthcare waste, and handling patient care items. These situations pose significant challenges for HCWs in preventing the spread of HAIs (Joseph et al., 2010). One of the ways to prevent HAIs is by implementing standard precautions (World health organization, 2010).

The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have put forth two strategies for managing infections: standard precautions (SPs) and transmission-based precautions (TBPs) (Brosio et al., 2017). These are the fundamental principles for managing infections that aim to safeguard healthcare personnel against HAIs (AL-Rawajfah & Tubaishat, 2015).

These precautions consist of various measures, such as hand hygiene, using protective barriers like gloves, masks, goggles, and face shields, safe handling of sharp instruments, and proper management of patient care equipment. These precautions are considered the minimum requirements for ensuring healthcare safety in any healthcare setting, regardless of the type and severity of the illness. TBPs are implemented when SPs alone are insufficient to control the spread of infections (Ocampo et al., 2017).

Nurses, being the largest group among healthcare providers, have the most frequent contact with patients, making them more susceptible to acquiring HAIs (Boev & Xia, 2015). So, it's important for nurses to know about and apply SPs to reduce the incidence of these infections (Mudedla et al., 2014).

AIMS OF THE STUDY

To assess levels of nurses' knowledge and practice regarding standard precautions. Find out the relationship between knowledge level and practice level.

METHODOLOGY

Design of the study: A descriptive cross-sectional study was carried out from September 2022 to March 2023. The sample size for the present research was calculated using an online web-based software "Raosoft sample size calculator". The estimated sample size was 400 nurses.

A simple random method was used to select 50% of hospitals in the governorate, which is equal to eight hospitals: "Al-Musaib General Hospital, Al-Zahraa Hospital, Al-Alexsandriay General Hospital, Al-Mahawil General Hospital, Al-Imam Sadiq Teaching Hospital, Al-Hilla Teaching Hospital, Al-Noor Paediatric Hospital, and Al-Qasim General Hospital". These hospitals are geographically distributed in the north, middle, and south of the governorate.

Study instruments: An interview-structured questionnaire was used to find out the research objectives. The questions of the questionnaire are based on the guidelines of the WHO and other

previous studies (Abalkhail et al., 2021; World Health Organization (WHO), 2022a, 2022b). The questionnaire included three categories of questions: the first was related to the demographic and professional information of the nurses; the second was about the knowledge of SPs; and the third was about the practice of SPs. The study participants were identified using sampling techniques.

Ethical considerations: Prior to any data collection, every participant provided their verbal permission. All participants were notified during data collection that participating in the study was optional. Before collecting data, necessary approvals and official permission were obtained from the Babylon Health Directorate, Training and Development, and all hospital administrators participating in this study.

Scoring system: Forty "yes" or "no" questions were used to assess nurses' knowledge of infection prevention. Responses were given either "1" or "0" points depending on whether they were correct or incorrect, respectively.

The nurse's overall knowledge score was calculated by summing up each of their knowledge scores. Two categories of responses were determined based on the overall score of knowledge questions ranging from 0 to 40: high knowledge “if above the mean” and low knowledge “if equal to or below the mean”. Sixteen questions were used to assess nurses' practice of infection prevention, which has three Likert scale options “always, sometimes, never”. The procedure was followed to analyze the practice, and a score of 3 was given for each "always" practice, 2 for "sometimes", and 1 for "never"; hence, Infection prevention practice might get a total score between 16 and 48. Accordingly, there was two categories for nurse practice: safe “if above the mean” and unsafe “equal to or below the mean” (Geberemariyam et al., 2018).

Statistical analysis: Using the "SPSS-27 statistical software" that was available, data analysis was done. “Simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values)” were used to present the data. An association between knowledge and practice was determined. Consideration was given to statistical significance whenever “the P value was equal to or less than 0.05”.

RESULTS

Table (1.1) shows the distribution of nurses according to social and demographic characteristics. The age of the participants ranged from 20 to 60 years, with a mean of 29.07 ± 8.95 years. The highest percentage (28.7%) was for the age group 20–23 years, while the lowest percentage (19%) belonged to the age group (27–30 years). Regarding gender, there was a clear female predominance of 65.3%. As for the educational level, the highest percentage (43.8%) of nurses hold a diploma, followed by 29.5% of secondary degree holders. In addition, the results found that the years of work experience ranged from 1–40 years, with a mean of 7.19 ± 4.20 years. The highest percentage (58%) of nurses have work experience of less than 5 years,

while the lowest percentage (19.5%) of them have a tenure of more than 10 years.

Figure (1.1) shows that the highest percentage (56.3%) of nurses have a high level of knowledge. While the lowest percentage (43.8%) of them have a low level of knowledge.

Figure (1.2) shows that the highest percentage (51.5%) of nurses have a poor practice score. While the lowest percentage (48.5%) of them have a good practice score.

Table (1.2) demonstrates the correlation between the overall practice score and the overall knowledge score. The results reveal that there is a positive and significant correlation between the level of knowledge and practice of nurses, with a P value <0.01; r=0.180. This indicated that increasing the level of knowledge would lead to an increase in the level of practice of the SPs.

DISCUSSION

The main goal of current study was to determine the level of knowledge and practice regarding standard and determine the association between knowledge level and practice level.

The knowledge level was 56.3%, this mean that most of nurses had high level of knowledge (Figure 1.1). This result is consistent with a study conducted by Abuduxike et al.(Abuduxike et al., 2021), which found that the level of knowledge of SPs among HCWs was satisfactory (57.5%). This finding is similar to a study carried out by Jemal et al.(Jemal et al., 2020) , which found 55.7% of participants have a good level of knowledge about SPs, while 44.3% of them have a poor level of knowledge. The results of another study by Sarani et al. (Sarani et al., 2015) showed that 43% of nurses had poor knowledge.

The practice level was 48.5%, this mean that most of nurses had poor level of practice (Figure 1.2). This result is similar to a study carried out by Abuduxike et al. (Abuduxike et al., 2021) in Cyprus, which reported that 69.1% of HCWs had unsatisfactory practice of SPs while only 30.9% of them had satisfactory practice. This study agrees with another study done by Jemal et al. (Jemal et al., 2020), which revealed that 53.3% of participants have poor practice in infection prevention SPs. Another study contracted in Iran showed that 42% of nurses had average practice (Sarani et al., 2015). In Iraq, Omer & Saleh revealed that 66.67% of nurses had a good level of practice in infection prevention (Omer & Saleh, 2023).

The correlation between the practice level and the knowledge level was positive (Table 1.2). This finding was expected and is in agreement with a cross-sectional study conducted in South Korea, which reported that there is a correlation between knowledge and compliance of nurses, with a P value <0.001; r=0.18 (Park et al., 2021).

CONCLUSIONS

The current study's results showed that most nurses have high levels of overall knowledge about standard precautions. While the majority of nurses have a poor level of practice for standard precautions.

In addition, there is a correlation between knowledge and practice of standard precautions and those related to acute injuries.

RECOMMENDATIONS

1. Conducting routine lectures, educational courses, and training workshops for nurses to improve their knowledge of standard precaution measures might improve their practice of these measures.
2. Conducting observational studies in the future is more accurate than questionnaires for evaluating the practice of standard precautions and getting an idea of limitations and barriers.

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TABLES AND FIGURES

Table (1.1): The distribution of nurses according to sociodemographic characteristics

Variables	Category	Frequency	Percentage %
Age	20 - 23	115	28.7
	24 - 26	112	28
	27 - 30	76	19
	31+	97	24.3
	Mean ± SD (Range)	**29.07±8.95 (20-60)**	
Gender	Male	139	34.8
	Female	261	65.3
Educational level	Secondary graduate	118	29.5
	Diploma graduate	175	43.8
	Bachelor degree or above	107	26.8
Work Experience	<5 year	232	58
	5_10 year	90	22.5
	>10 year	78	19.5
	Mean ± SD (Range)	**7.19+ 4.20 (1-40)**	

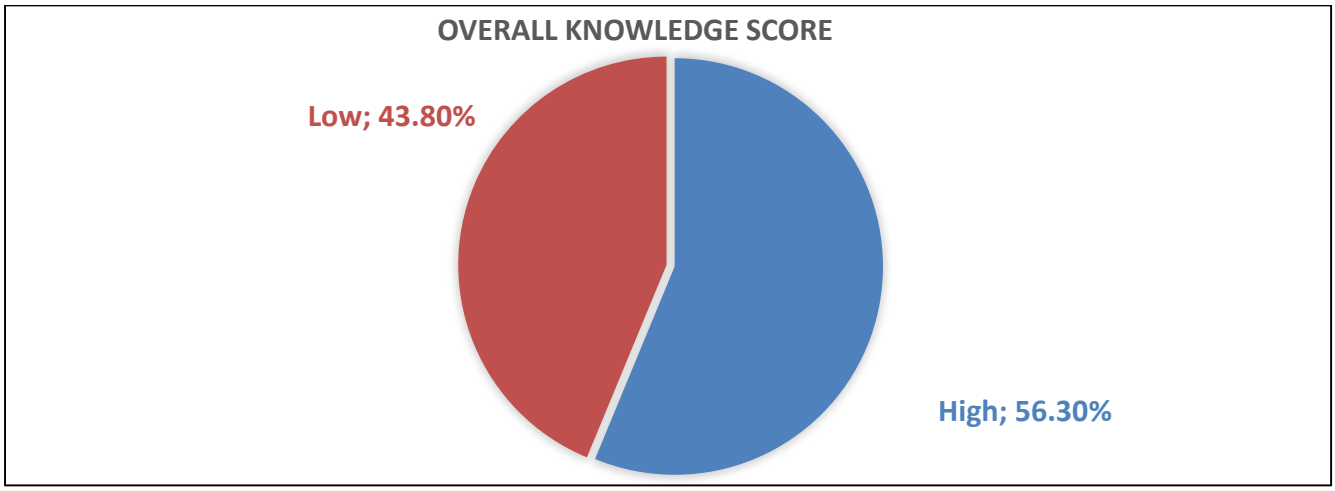

Figure (1.1): The overall knowledge score

Table (1.2): Descriptive indicators of ¬nurses' work productivity scores

		Overall practice score	Overall knowledge score
Overall practice score	**r**	**1**	**.180****

**** Correlation is significant at the 0.01 level (2-tailed).**

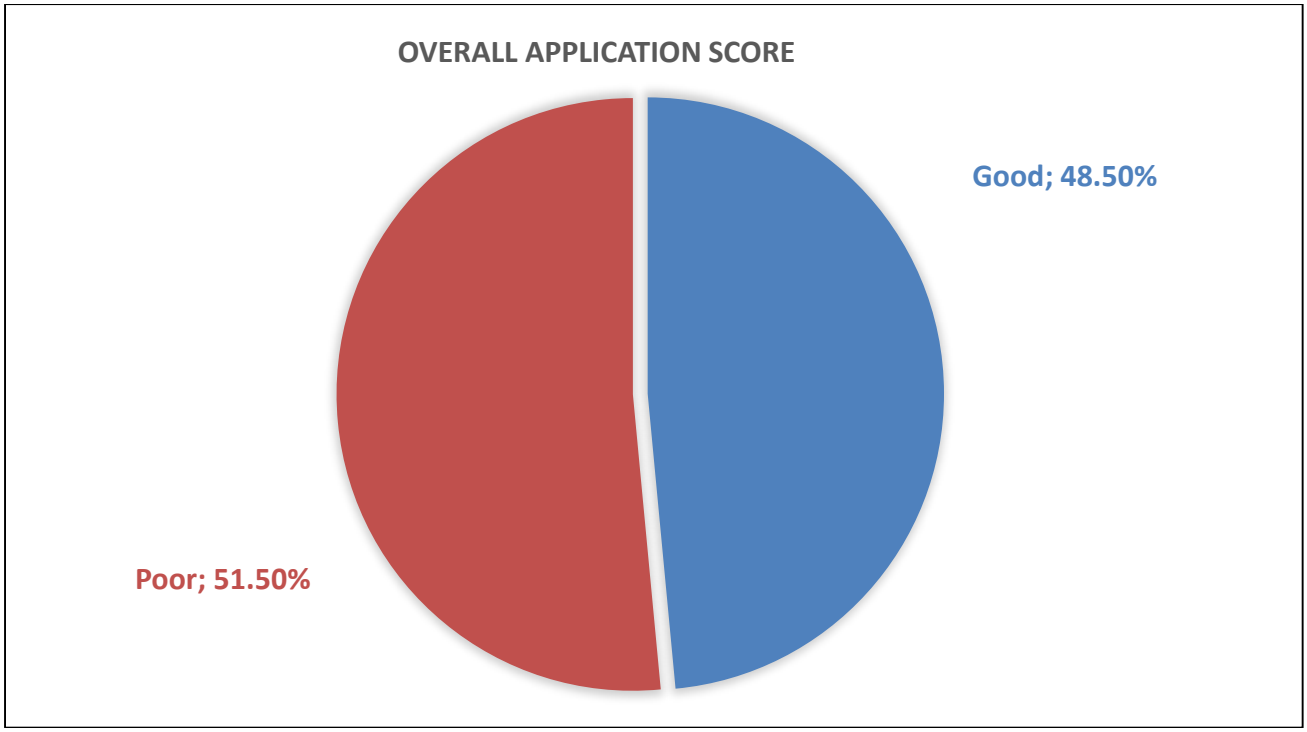

Figure (1.2): The overall application score