

# Effectiveness of an Educational Program on Nurses' Awareness of Preventive Measures for Infection Control at Primary Health Care Centers

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**ABSTRACT**

The goal of the study is to determine the level of awareness of nurses in primary healthcare centers about infection control prevention measures, and then develop an educational program for them to improve their awareness, as well as to determine the relationship between nurses' awareness and socio-demographic characteristics like age, gender, educational level, and years of experience, as well as the effectiveness of the educational program. A quasi-experimental study was conducted during the period from 21 January 2021 to 29 October 2021. It was conducted in the city of Ramadi (the first and second sectors). It included a multiple sample of (60) male and female nurses who were selected from (14) the first sector (14) in the second sector. The study sample was divided into 2 groups: (30) nurses who were exposed to the educational program as a study group and (30) nurses who were not exposed to the educational program as a control group. The tool of this study was adapted from a study by reviewing the related literatures [1], [2]. The data was collected using a questionnaire form that included 2 components. The first section delves into the social and demographic aspects of nurses, such as their (age, gender, educational level, years of experience, and training courses), while the second section focuses on nurses' knowledge and awareness of infection control prevention measures, which includes (90) items. The study's findings demonstrated that the educational program's execution helped the nurses in the study group. The finding of the study, after implementing program on study group, demonstrated a significant to improve the level of awareness and knowledge of nurses with a high degree through the arithmetic mean (2.73). The study's findings also revealed that there were substantial differences between the pre-test and post-test in the primary areas of nurses' awareness and demographic characteristics for the study group. The study concluded that nurses' awareness of preventive measures for infection control was at a low level before implementing the program, while this awareness increased to a good level after participating in the educational program. Following the implementation of a health education program aimed at boosting nurse awareness of infection control, the data demonstrated that the research group had a high degree of awareness. The study recommends the implementation of the national infection control program in all health institutions, emphasizing continuous medical education programs for all property working in health institutions, and

continuous follow-up to the application of the program to prevent infection of patients and workers, and focus on holding seminars and lectures on an ongoing basis on infection control.



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## 1. INTRODUCTION

Infection is not a new topic when providing primary healthcare. Rather, at the beginning of the 1850s, when Nightingale's studies were accepted and welcomed by the medical community, primary care researchers emphasized the importance of the relationship between preventive precautions and occupational safety practices used to protect patients and care workers. Therefore, primary healthcare workers were directly or indirectly exposed to the risk of infection through their touch the blood and other bodily liquids while providing care, and this practice was one of the most important practices conducted by Nightingale's to prevents the transmission of the infection [3]. Infection control is an important component of patient care, and as such is the highest quality of care and is important to the health of both patients and staff. Infection prevention and control principles applied in all healthcare settings around the world. Because it is important to use these principles regardless of the lack of resources and support, these principles are intended to protect both the patient and the person in charge of health care against infectious germs, as well as to limit the incidence of diseases and fatalities linked with them. For such factors in case of injury. These guidelines are for health care workers (HCW) and IPC (infection prevention and control) teams at the energy level but are also relevant to the full national guidance available from the World Health Organization [4].

Healthcare-associated infection can occur to a patient as a results of care provided at the first health care facility and wasn't present at the time of arrival at the power. The term "healthcare-associated infection" (HAIs) has replaced "hospital" or "hospital-acquired" infections as evidence has shown that these infections can affect patients wherever they receive primary health care. to spot HAIs, a time-frame of infection onset must be defined to differentiate HAI from community-acquired infection. The U.S. Healthcare-associated infection is defined as an illness that develops on or after third day on hospitalization, on day of discharge, or the day after discharge, according to the Centers for Disease Control and Prevention (CDC) [5].

## 2. Methodology

A non-probability sample (purposive) of nurses working in the primary health care centers was selected. The study sample was divided into two groups, (30) nurses as a study group who were exposed to the educational program and (30) nurses as a control group who were not exposed to this educational program. The questionnaire was created as a tool for gathering data for the study's purposes using the interview technique. The data was collected using a questionnaire form that included two components. The first section focuses on the socio-demographic characteristics of nurses, whereas the second section focuses on the nurses' awareness of infection control preventive measures, which include (90) items.

The Cronbach Alpha test was used to determine the questionnaire's reliability, and the questionnaire's reliability was determined by a committee of 16 specialists. The data were examined and explained using both the descriptive statistical method (frequency, percentage, arithmetic mean, and data analysis method) and the inferential statistical method (frequencies, percentage, arithmetic mean, and data analysis method) (Pearson correlation coefficient, t-test, chi-square test, and ANOVA).

### 3. Results

**Table (1):** Total assessment of nurses' awareness towards preventive measures for infection control among study group

Items = 90	Study group n = 30							
	Pre – test					Post – test		
	Know	Uncertain	Don't know	M.S	Ass.	Know	Uncertain	Don't know
Nurses' knowledge about infection (20) items	136	60	404	1.55	L	508	32	60
Nurses' knowledge about hand washing (13) items	89	37	264	1.55	L	330	11	49
Nurses' knowledge about used of gloves (10) items	71	32	197	1.58	L	254	10	36
Nurses' knowledge about used of mask (10) items	62	33	205	1.52	L	258	11	31
Nurses' knowledge about used of gown (7) items	47	22	141	1.55	L	188	7	15
Nurses' knowledge about safe use and disposal of sharps (10) items	57	34	209	1.49	L	242	13	45
Nurses' knowledge about environmental cleaning (10) items	77	34	189	1.62	L	257	12	31
Nurses' knowledge about waste management (10) items	54	33	213	1.47	L	247	14	39
<b>Total</b>	<b>593</b>	<b>285</b>	<b>1822</b>	<b>1.54</b>	<b>L</b>	<b>2284</b>	<b>110</b>	<b>306</b>

Ass.= Assessment, M.S. = Mean of Score.

The total mean of scores for nurses' awareness shows that there is a high degree of awareness (2.73) in the study group after executing the educational program, Despite the fact that there was no change in nurses' awareness in the control group in the pre- and post-tests in terms of the total mean of scores, there was no change in the control group's awareness in the pre- and post-tests in terms of the total mean of scores.

**Table (2):** Total assessment of nurses' awareness towards preventive measures for infection control among control group

Items = 90	Control group n = 30							
	Pre – test					Post – test		
	Know	Uncertain	Don't know	M.S	Ass.	Know	Uncertain	Don't know
Nurses' knowledge about infection (20) items	116	59	425	1.48	L	112	58	430
Nurses' knowledge about hand washing (13) items	68	40	282	1.45	L	70	42	278
Nurses' knowledge about used of gloves (10) items	71	27	202	1.56	L	62	23	215
Nurses' knowledge about used of mask (10) items	57	31	212	1.48	L	50	31	219
Nurses' knowledge about used of gown (7) items	42	23	145	1.50	L	36	17	157
Nurses' knowledge about safe use and disposal of sharps (10) items	66	30	204	1.54	L	58	30	212

<b>Nurses' knowledge about environmental cleaning (10) items</b>	61	31	208	1.51	<b>L</b>	56	29	215
<b>Nurses' knowledge about waste management (10) items</b>	54	33	213	1.47	<b>L</b>	73	35	192
<b>Total</b>	<b>535</b>	<b>274</b>	<b>1891</b>	<b>1.49</b>	<b>L</b>	<b>517</b>	<b>265</b>	<b>1918</b>

Ass.= Assessment, M.S. = Mean of Score

The total mean of scores for nurses' awareness shows that there is a low level of awareness (1.48) for nurses after implementing the educational program in the control group, while the entire mean of scores is evaluated, there is no change in nurses' awareness in the control group in the pre- and post-tests.

**Table (3):** Significant comparison of the period (pre and post) for knowledge towards preventive measures for infection control among study group

group	Periods	Paired Samples Test			T	df	Sig. P-value
		Mean	Std. Deviation	Std. Error Mean			
Study group	Pre-test Post-test	1.07467	.33148	.06052	17.757	29	.000

C.S: Comparison Significant, HS: Highly Significant

This table reveals that there is a highly significant change in nurses' awareness of infection prevention methods between the study group's initial pre- and post-test periods.

**Table (4):** Significant comparison of the period (pre and post) for knowledge towards preventive measures for infection control among control group

group	Periods	Paired Samples Test			T	df	Sig. P-value
		Mean	Std. Deviation	Std. Error Mean			
Control group	Pre-test Post-test	.01433	.38250	.06984	.205	29	.839

C.S.: Comparison Significant, NS: No Significant

This table reveals that there is no significant difference in the control group's awareness of infection control

preventive measures between the pre- and post-test periods.

#### **4. Discussion of the Results**

Table (1 and 2) The high percentage of nurses' responses concerning preventive measures for infection control knowledge between pre and post-program for the case group, and the majority of nurses' responses for the study group at post-program had good awareness concerning preventive measures for infection control than the responses of the control group, show the effectiveness of the program about preventive measures for infection control.

The study findings agreement with study by that shows the effect of educational program and increase score on awareness of nurses concerning measures of infection control [6]. Also, this results supported by study by who conduct a study to determine the impact of educational programs on nurses' adherence to infection control's universal precautions, and found substantial disparities between the study and control groups [7].

The findings are agreeing with a study by which demonstrated that a preliminary test was performed on the study group before executing the educational program, and the findings revealed that the nurses' level of knowledge in areas of infectious disease control was low. These results are in agreement with the study conducted in Saudi Arabia. It was reported from Saudi Arabia that nurses did not have sufficient knowledge of infectious disease control [8].

Table (3 and 4) The table reveals that there is a highly significant change in nurses' awareness of infection prevention methods between the study group's initial pre- and post-test periods, while shows that there is no significant difference between the initial period of pre and posttest of the control group for nurses' awareness towards preventive measures for infection control.

The present study consistent by a study of who conduct a study to determine the impact of instructional program on nurses' awareness of compliance with universal precaution of infection control, results showed that after being exposed to the educational program, the research group's nurses had a high level of awareness [9]. Also, the study findings supported by who conducted a study to assess effects of a physical activity governmental health program on the quality of life of elderly people, that showed the control group had no difference between the two tests [10], [11].

#### **5. Conclusion**

Following the implementation of a health education program aimed at boosting nurse awareness of infection control, the data demonstrated that the research group had a high degree of awareness.

#### **6. Recommendations**

The study recommends the implementation of the national infection control program in all health institutions, emphasizing continuous medical education programs for all property working in health institutions, and continuous follow-up to the application of the program to prevent infection of patients and workers, and focus on holding seminars and lectures on an ongoing basis on infection control.

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