

ORIGINAL

Effectiveness of an Educational Program in Improving Nurses' Knowledge Towards Communicable Diseases

Eficacia de un programa educativo para mejorar el conocimiento de las enfermeras sobre enfermedades transmisibles

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ABSTRACT

Introduction: diseases brought on by infectious agents—such as bacteria, viruses, parasites, or fungi that can be transmitted from one person to another either directly or indirectly are known as communicable diseases. The aim of the study to ascertain whether an educational program is successful in raising nurses' awareness of communicable diseases.

Method: purposive sampling with a quasi-experimental design using 60 nurses from 8 Mosul hospitals. Data for the current study was collected using a questionnaire form to gauge nurses' knowledge between September 20, 2024, and November 14, 2024. A questionnaire with two axes was used to gather data for this study (knowledge). The first axis describes the demographics of the nurses, including "age, sex, education level, years of service, workplace, number of training courses" they have taken on communicable diseases, and whether they are knowledgeable about communicable diseases. The second axis consists of thirty questions about nurses' understanding of communicable diseases. The Statistical Package for Social Science (SPSS) software for Windows (Version 26) is used to analyze data. Various methods are used to analyze the data.

Results: the current study demonstrated the efficacy of an interventional program on nurses' knowledge by comparing the results of three knowledge tests in four parts: pre-test = poor, post-test 1 = good, and post-test 2 = good.

Conclusions: the implementation of the program has improved the performance of all nurses in the study group with regard to communicable diseases.

Keywords: Effectiveness; Educational Program; Nurses' Knowledge; Communicable Diseases.

RESUMEN

Introducción: las enfermedades provocadas por agentes infecciosos, como bacterias, virus, parásitos u hongos, que pueden transmitirse de una persona a otra de forma directa o indirecta se conocen como enfermedades transmisibles. El objetivo del estudio es determinar si un programa educativo tiene éxito en la sensibilización de las enfermeras sobre las enfermedades transmisibles.

Método: muestreo intencional con un diseño cuasiexperimental en el que participaron 60 enfermeras de 8 hospitales de Mosul. Los datos para el estudio actual se recopilaron mediante un cuestionario para medir el conocimiento de las enfermeras entre el 20 de septiembre de 2024 y el 14 de noviembre de 2024. Se utilizó un cuestionario con dos ejes para recopilar datos para este estudio (conocimiento). El primer eje describe la demografía de las enfermeras, incluida la "edad, el sexo, el nivel de educación, los años de servicio, el lugar de

trabajo, la cantidad de cursos de capacitación” que han realizado sobre enfermedades transmisibles y si tienen conocimientos sobre enfermedades transmisibles. El segundo eje consta de treinta preguntas sobre la comprensión de las enfermeras sobre las enfermedades transmisibles. Para analizar los datos se utilizó el programa estadístico para ciencias sociales (SPSS) para Windows (versión 26). Para ello se utilizaron diversos métodos.

Resultados: el presente estudio demostró la eficacia de un programa de intervención en enfermeras castoras comparando los resultados de tres pruebas de conocimientos en cuatro partes: prueba previa = deficiente, prueba posterior 1 = buena y prueba posterior 2 = buena.

Conclusiones: la implementación del programa ha mejorado el desempeño de todas las enfermeras del grupo de estudio en lo que respecta a las enfermedades transmisibles.

Palabras clave: Eficacia; Programa Educativo; Conocimiento de las Enfermeras; Enfermedades Transmisibles.

INTRODUCTION

Communicable diseases are illnesses caused by viruses or bacteria that people spread to one another through contact with contaminated surfaces, bodily fluids, blood products, insect bites, or the air.^(1,2) There are numerous instances of communicable diseases, some of which need to be reported to the relevant government offices or health departments in the area where the outbreak is occurring. HIV, hepatitis A, B, and C, measles, salmonella, and blood-borne infections are a few examples of communicable diseases. Fecal-oral, food, sexual contact, insect bites, contact with contaminated fomites or droplets, or skin contact are the most frequent ways that the disease is spread.^(3,4) Infections from contaminated food and water, respiratory infections, vector- and insect-borne diseases, and infections from wounds and injuries are the four main categories of communicable diseases during disasters.⁽⁵⁾ In this case, acute respiratory infections and diarrheal illness are the most frequent causes of morbidity and mortality.^(6,7) One of the biggest risks to human health over the ages has been communicable diseases. These illnesses frequently spread swiftly.⁽⁸⁾ In particular, hepatitis is a type of infectious disease that is transmitted orally and through the feces. A person can contract hepatitis by eating food tainted with the virus, drinking tainted water, having oral or intercourse with another infected person, or coming into contact with blood products. A hepatitis infection must be diagnosed based on six criteria. These requirements consist of an infection agent—in this case, the hepatitis virus—a reservoir, an infection route, a mode of transmission, an entry point, and a susceptible individual who contracts the virus.^(9,10,11,12) Vaccination can prevent the spread of the hepatitis A virus (HAV). It causes jaundice by affecting the liver. It spreads from person to person through contaminated water, poor hand hygiene after changing diapers or using the restroom, oral sexual contact, and food consumption. In the US, it is among the most widely reported outbreaks. After being consumed through tainted food sources, it self-limits. The virus can grow to high concentrations in the stool, replicates in the liver, and is eliminated in bile.^(13,14,15) The epidemiology of HAV is changing globally, primarily in developing nations, and is partially attributable to better living and sanitation conditions. Without a doubt, this has helped to lower the number of infected children worldwide. However, the greater number of people without HAV-protective antibodies has led to an increase in the incidence among adults.^(16,17) Over 13 million people die each year from infectious and parasitic diseases, accounting for one in two fatalities in some developing nations, according to the World Health Organization. The most vulnerable are the elderly, women, children, and those in poverty. The leading cause of death for children and young adults worldwide is still infectious diseases. Furthermore, by validating the application of the Theory of Planned Behavior in educational programs, this study contributes to the advancement of behavioral science in healthcare, promoting a culture of continuous improvement and evidence-based practice within healthcare settings. In essence, this research serves as a cornerstone for advancing nursing practice, enhancing patient safety and fostering a proactive approach to managing communicable diseases in healthcare environments.^(19,20) The study's objective was to ascertain how well an educational program improved nurses' understanding of communicable diseases.

METHOD

Study Design

A quasi-experiment with non-probability To find out how well an educational program improved nurses' understanding of communicable diseases, purposeful sampling was used.

Study Setting

The Nineveh Governorate, which is located in northern Iraq about 400 kilometers from the capital city of Baghdad, is the subject of the current study. At 33 313 square kilometers, the Nineveh Governorate is a sizable land area that makes up about 8,6 % of all of Iraq. Ten districts were created, each of which added to the varied demographic landscape that was being studied. It is essential to comprehend the population

dynamics. According to the population projection for 2022, there will be 4 133 536 people living in the Nineveh Governorate overall (CSO-Iraq, 2022). The study was implemented as an experimental and control group in eight hospitals located on either side of the Tigris River in Mosul. All eight hospitals are associated with the Nineveh Health Department of the Iraqi Ministry of Health. "Al Salam Teaching Hospital, Ibn Al Atheer Pediatric Teaching Hospital, Al Khansa'a Teaching Hospital, Ibn Sena Teaching Hospital, and Al-shefaa Teaching Hospital" are among the five hospitals from 8 that are situated on the left side of Mosul city. The remaining hospitals, "Al Batool Teaching Hospital, Mosul General Hospital, and Al Jumhury Teaching Hospital", are situated on the right side of the city.

Study Sample

Non-probability purposeful sampling of nurses for two groups in different positions. The experimental group's sample was gathered at Mosul Hospitals. They were sixty nurses who consented to take part in the research. Thirty nurses were selected as an experimental group from eight hospitals using purposive sampling. Additionally, 30 nurses from 8 hospitals were selected as a control group.

Instrument of the study

Data for this study (knowledge) were collected by using a constructed questionnaire, which consist of two axes: the first axis, which includes a description of the demographic characteristics of the nurses such as age, sex, level of education, service years, work place, participation in and the number communicable disease training courses, and whether they have information about communicable disease. The second axis, which includes 30 questions on nurses' knowledge with relation to communicable diseases.

Data Collection Tools

A questionnaire with two axes was used to gather data for this study (knowledge). The first axis describes the demographics of the nurses, including "age, sex, education level, years of service, workplace, number of training courses" they have taken on communicable diseases, and whether they are knowledgeable about communicable diseases. The second axis consists of thirty questions about nurses' understanding of communicable diseases.

Data Collection Period

By using the study instrument, the data is collected from nurses from November 3, 2024, to November 14, 2024. Each person takes roughly fifteen to twenty minutes to finish the questionnaire.

Analysis of statistical data

The Statistical Package for Social Science (SPSS) software for Windows (Version 26) is used to analyze data. Various methods are used to analyze the data.

RESULTS

Table1. Socio-demographical characteristics and Homogeneity between Experimental and Control group for the research sample (60 participation)

Variables	Items	Test of Homogeneity			Test type	P-value
		Group	No.	%		
Gender	Male	Control	15	50	Fisher's exact test	1,000
		Study	15	50		
	Female	Control	15	50		1,000
		Study	15	50		
Age	20-30	Control	14	46	Fisher's exact test	0,025
		Study	5	17		
	31-40	Control	6	20		0,761
		Study	8	27		
	41-50	Control	5	17		0,050
		Study	13	43		
	50 above	Control	5	17		0,999
		Study	4	13		

Marital status	Single	Control	7	23	Fisher's exact test	0,145
		Study	2	7		
	married	Control	18	60		0,795
		Study	16	53		
	Widow	Control	5	17		0,360
		Study	9	30		
residence	Divorced	Control	0	0		0,237
		Study	3	10		
	City	Control	15	50	Fisher's exact test	1,000
		Study	15	50		
	Rural	Control	15	50		1,000
		Study	15	50		
certificate	Secondary	Control	8	27	Fisher's exact test	0,999
		Study	7	23		
	Diploma	Control	12	40		0,267
		Study	7	23		
	Bachelors	Control	9	30		0,288
		Study	14	47		
Year of service	Master	Control	1	3		0,999
		Study	2	7		
	Less than 5 year	Control	8	27	Fisher's exact test	0,532
		Study	5	17		
	6-10 years	Control	6	20		0,999
		Study	5	17		
	11-15year	Control	6	20		0,999
		Study	7	23		
	16-20 year	Control	4	13		0,731
		Study	6	20		
	21-25 year	Control	4	13		0,999
		Study	4	13		
Worke place	Mor than 25 year	Control	2	7		0,999
		Study	3	10		
	Operating room	Control	3	10	Fisher's exact test	0,612
		Study	1	3		
	Pediatric lounges	Control	3	10		0,472
		Study	6	20		
	Surgical lounges	Control	4	13		0,333
		Study	8	27		
	Emergency	Control	7	23		0,999
		Study	7	23		
	Internal lounges	Control	7	23		0,748
		Study	5	17		
Number of training	Women's lounge	Control	4	13		0,999
		Study	3	10		
	Care	Control	2	8		0,492
		Study	0	0		
	1-3	Control	12	40	Fisher's exact test	0,037
		Study	21	70		

4-6	Control	5	17	0,999
	Study	6	20	
7-9	Control	3	10	0,999
	Study	3	10	
10-12	Control	7	23	0,011
	Study	0	0	
13-15	Control	3	10	0,237
	Study	0	0	

This study shows in table 1 the distribution and homogeneity of the two samples (experimental and control), In terms of the socio-demographic research sample, the number of participants in this study is (60) nurses from the Mosul hospitals, whose ages range from (20 to 50 years or more), (30) nurses as experimental group and (30) as a control group. The (p-value) according to (Fisher's exact test) for (age, gender, Marital status, residence, certificate, year of service , work place, number of training and), show that there are no significant variances and that the sample is homogeneous, in addition to the Fisher's exact test, which is based on the ratio value. In comparison, all results showed that all probability values are greater than (0,05), and this leads us to accept the null hypothesis that there is homogeneity between the two samples.

Table 2. Show for nurses knowledge with three tests about communicable disease in hospital										
Q	Scale	Pre -Study			Post1 -Study			Post2 -Study		
		N (%)		Ass.	N (%)	M	Ass.	N (%)	M	Ass.
Q1	Incorrect	14(47)	16	Fair	6(20)	24	Good	7(23)	23	Good
	Correct	16(53)			24(80)			23(77)		
Q2	Incorrect	17(57)	13	Fair	4(13)	26	Good	4(13)	26	Good
	Correct	13(57)			26(87)			26(87)		
Q3	Incorrect	11(37)	19	Fair	10(33)	20	Fair	11(37)	19	Fair
	Correct	19(63)			20(67)			19(63)		
Q4	Incorrect	16(53)	14	Fair	3(10)	27	Good	3(10)	27	Good
	Correct	14(47)			27(90)			27(90)		
Q5	Incorrect	12(40)	18	Fair	7(23)	23	Good	7(23)	23	Good
	Correct	18(60)			23(77)			23(77)		
Q6	Incorrect	12(40)	18	Fair	5(17)	25	Good	5(17)	25	Good
	Correct	18(60)			25(83)			25(83)		
Q7	Incorrect	14(47)	16	Fair	4(13)	26	Good	4(13)	26	Good
	Correct	16(53)			26(87)			26(87)		
Q8	Incorrect	18(60)	12	Fair	6(20)	24	Good	7(23)	23	Good
	Correct	12(40)			24(80)			23(77)		
Q9	Incorrect	16(53)	14	Fair	7(23)	23	Good	7(23)	23	Good
	Correct	14(47)			23(77)			23(77)		
Q10	Incorrect	18(60)	12	Fair	6(20)	24	Good	6(20)	24	Good
	Correct	12(40)			24(80)			24(80)		
Q11	Incorrect	13(43)	17	Fair	6(20)	26	Good	4(13)	26	Good
	Correct	17(57)			24(80)			26(87)		
Q12	Incorrect	12(40)	18	Fair	9(30)	21	Good	9(30)	21	Good
	Correct	18(60)			21(70)			21(70)		
Q13	Incorrect	15(50)	15	Fair	6(20)	24	Good	6(20)	24	Good
	Correct	15(50)			24(80)			24(80)		
Q14	Incorrect	12(40)	18	Fair	3(10)	27	Good	3(10)	27	Good
	Correct	18(60)			27(90)			27(90)		
Q15	Incorrect	20 (70)	9	Fair	9(30)	21	Good	9(30)	21	Good
	Correct	10 (30)			21(70)			21(70)		
Q16	Incorrect	16(53)	14	Fair	5(17)	25	Good	6(20)	24	Good
	Correct	14(47)			25(83)			24(80)		
Q17	Incorrect	18(60)	12	Fair	9(30)	21	Good	9(30)	21	Good
	Correct	12(40)			21(70)			21(70)		

Q18	Incorrect	10(33)	20	Fair	7(23)	23	Good	8(27)	22	Good
	Correct	20(67)			23(77)			22(73)		
Q19	Incorrect	14(47)	16	Fair	5(17)	25	Good	6(20)	24	Good
	Correct	16(53)			25(83)			24(80)		
Q20	Incorrect	11(37)	19	Fair	7(23)	23	Good	9(33)	21	Good
	Correct	19(63)			23(77)			21(67)		
Q21	Incorrect	16(53)	14	Fair	8(27)	22	Good	9(43)	21	Good
	Correct	14(47)			22(73)			21(57)		
Q22	Incorrect	13(43)	17	Fair	5(17)	25	Good	9(30)	21	Good
	Correct	17(57)			25(83)			21(70)		
Q23	Incorrect	14(47)	16	Fair	7(23)	23	Good	7(23)	23	Good
	Correct	16(53)			23(77)			23(77)		
Q24	Incorrect	13(43)	17	Fair	5(17)	25	Good	8(40)	22	Good
	Correct	17(57)			25(83)			22(60)		
Q25	Incorrect	20 (70)	9	Fair	6(20)	24	Good	14(47)	16	Fair
	Correct	10 (30)			24(80)			16(53)		
Q26	Incorrect	15(50)	15	Fair	8(27)	22	Good	9(30)	21	Good
	Correct	15(50)			22(73)			21(70)		
Q27	Incorrect	14(47)	16	Fair	3(10)	27	Good	6(33)	24	good
	Correct	16(53)			27(90)			24 (67)		
Q28	Incorrect	11(27)	19	Fair	9(30)	21	Good	6(43)	24	Good
	Correct	19(73)			21(70)			24(57)		
Q29	Incorrect	11(37)	19	Fair	5(17)	25	Good	8(47)	22	Good
	Correct	19(63)			25(83)			22(53)		
Q30	Incorrect	12(40)	18	Fair	7(23)	23	Good	7(43)	23	Good
	Correct	18(60)			23(77)			23(57)		
Mean ass all			15,80	Fair		23,83	Good		21,83	Good

Note: N: Frequency, %: Percentage, M: Mean of total score, Poor= 0,0 - 10,0, Fair= 10,1 - 20,0, Good= 20,1 - 30.

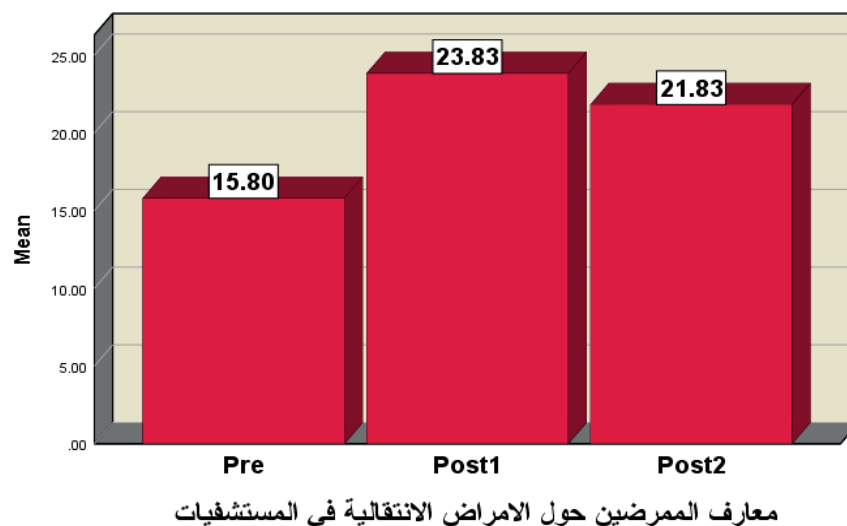


Figure 1. Show result of knowledge of the nurse about the communicable disease before, during , after two months

Analysis of Nurses' Knowledge about Communicable Diseases in Hospitals In this paragraph, an analysis of nurses' knowledge regarding communicable diseases in hospitals will be conducted through a series of questions. The level of response has been divided into three categories: the first level is considered "poor," with response rates ranging from (0-10). The second level represents "acceptable," with response rates falling within the range of (10 -20) The third level signifies "good," with response rates ranging from (20-30). The results are illustrated in the table 2 illustrates nurses' knowledge before and after the program .before give the program to the participate degree of acknowledge is 10,80 after interaction and educational programmer regarding for communicable disease in hospitals that include , methods of transmission, disease prevention, understanding of planned behavior theory concepts ,nursing role in communicable disease and the World Health Organization recommendations on infectious diseases have significantly improved. Nurses' knowledge increased to 23,83, indicating the effectiveness of the internal program aimed at enhancing nurses' behaviors concerning

communicable diseases. After two months, a follow-up test revealed a slight decrease in knowledge to 21,83. This is expected as participants had a period without continuous programs.

DISCUSSION

The distribution and homogeneity of the two samples (experimental and control) are shown in table 1. The sociodemographic research sample consists of 60 nurses from Mosul hospitals, whose ages range from 20 to 50 years or more. There are 30 nurses in the experimental group and 30 in the control group. The p-value according to Fisher's exact test for (age, gender, marital status, residence, certificate, year of service, work place, number of training and) indicates that there are no significant variances and that the sample is homogeneous. Additionally, the Fisher's exact test, which is based on the ratio value, indicates that there are no significant differences and that the sample is homogeneous. Comparatively speaking, every result indicated that every probability value was higher than 0,05, which supports the null hypothesis that the two samples are homogeneous. Because they all come from the same hospital and work in the same units, the researchers believe that all of the participants in the two groups (control and experimental) are homogeneous. Based on the study sample's criteria, the majority of them are recent graduates with over a year of work experience and unit exposure to communicable diseases.⁽²¹⁾ Table 2 Examination of Hospital Nurses' Understanding of Communicable Diseases Using a series of questions, this paragraph will analyze nurses' understanding of communicable diseases in hospitals. Three categories have been established for the response level: the first is deemed "poor," with response rates falling between 0 and 10. At the second level, which stands for "acceptable," response rates are between 10,1 and 20. The third level, which denotes "good," has response rates between 20,1 % and 30,1 %. The findings are presented in table 2, which compares the knowledge of nurses before and after the program. Following interaction and educational programming about communicable diseases in hospitals, including methods of transmission, disease prevention, comprehension of planned behavior theory concepts, the role of nurses in communicable diseases, and WHO recommendations on infectious diseases, the degree of acknowledgement before the program was given to the participants was 10,80. The effectiveness of the internal program designed to improve nurses' behaviors regarding communicable diseases was demonstrated by the nurses' increased knowledge, which reached 23,83. A follow-up test two months later showed a slight decline in knowledge to 21,83. Given that participants had a period without ongoing programs, this is to be expected. With a few minor variations, this is consistent with a study carried out in India by Chua BS et al.⁽²²⁾ Years of age: Regarding age, 14 (46,67 %) of the staff nurses in the Control group are between the ages of 26 and 30, while 16 (53,33 %) of the subjects in the Experimental group are between the ages of 21 and 25. Gender: 18 (60 %) of the subjects in the experimental group were female, and 18 (60 %) of the subjects in the control group were staff nurses. Professional Qualifications: Of the Experimental group's 18 staff nurses (60 %) with GNM/PBB. Sc. nursing qualifications, all 10 (33,33 %) of the Control group's staff nurses were equally distributed across all categories. Years of Experience: Of the staff nurses in the Experimental group, 24 (80 %) had 6-10 years of experience, while 12 (40 %) were in the Control group, which had 1-5 years of experience. Prior knowledge of communicable diseases: In the Experimental group, the majority of the staff nurses (12, or 40 %) did not fall into any of the categories above, while in the Control group, 14 (46,67 %), the majority of the staff nurses gathered information based on their personal experiences. According to the researcher's perspective, this table provides an overview of the research and findings that served as the foundation for the intervention program and were used with nurses who worked in units where communicable diseases were present. To demonstrate the program's impact on nurses' knowledge, the researcher separated it into three sections: pre-test, post-test 1, and post-test 2. Last but not least, the overall knowledge score demonstrates that the outcome of the intervention program's effectiveness on the participating nurses was caused by the program's impact following the pretest, which had clear negative results, to the post-test results, which showed a clear improvement (good). It is clear that after completing the educational program designed to improve nurses' behaviors, the participants' knowledge increased from weak to good. However, a follow-up test after two months revealed that, overall, their knowledge stayed at a good level, with the exception of questions 3 and 25, where it reverted to weak levels compared to before the program. Many studies in Iraq were consistent with the results and demographic characteristics of the study sample.^(23,24,25,26,27) The majority of participants' poor comprehension of infection prevention techniques and the lack of educational opportunities to advance their knowledge in this field are the primary causes of the knowledge decline to the weak level in this assessment. According to the researcher, this table's findings primarily demonstrate that nurses' knowledge of communicable diseases varies depending on the interventional system the researcher applied to them.

CONCLUSIONS

The study concluded that the Nurses' acknowledge has been improved, regarding all aspects of communicable disease which includes six parts :definition of communicable disease , Type of communicable disease, Mode of transmission of communicable disease, Nursing care for each type, away of protective from communicable disease, WHO recommendation about dealing with communicable disease as result of the program implementation.

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None.

CONFLICT OF INTEREST

Authors declare that there is no conflict of interest.

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