



## Original Article

# Effectiveness of Training Programs for Nurses' Personal Attitudes towards Communicable Diseases

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### Abstract:

**Background:** communicable disease is an illness caused by an infectious agent or its toxic product that is transmitted from an infected person, animal or inanimate source to a susceptible host. To determine the influence of training on nurses' attitudes towards infection prevention and control measures

**Methodology:** Quasi-experimental design through using (Non probability) Purposive Sampling was conducted to determine effectiveness of training program for nurses' personal attitudes towered communicable diseases. design using 60 nurses from 8 Mosul hospitals. Data for the current study was collected using a questionnaire form to gauge nurses' personal attitudes between September20, 2024, and jan21, 2025. A questionnaire with two axes was used to gather data for this study (personal attitudes). 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. The second axis consists of six questions about nurses' personal attitudes towered 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 training program for nurses' personal attitudes towered communicable diseases by comparing the results of three knowledge tests in four parts: pre-test = poor, post-test 1 = good, and post-test 2 = good.

**Conclusion:** The implementation of training program has improved the nurses' personal attitudes of all nurses in the study group with regard to communicable diseases.

**Keywords:** Effectiveness, training program, personal attitudes, communicable disease.

## Introduction:

Communicable diseases, also known as infectious diseases, are a significant public health concern globally, caused by pathogenic microorganisms

such as bacteria, viruses, parasites, or fungi. These diseases can be transmitted through various means, posing a threat to individuals and

communities alike<sup>(1)</sup>. Despite advancements in healthcare, communicable diseases continue to impact populations worldwide, particularly in regions with limited resources and healthcare infrastructure<sup>(2)</sup>. The burden of communicable diseases is substantial, with diseases like tuberculosis, malaria, HIV/AIDS, and hepatitis affecting millions annually. Emergent infectious diseases like COVID-19, Ebola, and Zika present ongoing challenges to public health systems<sup>(3)</sup>. The recent COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, has emphasized the vulnerability of healthcare systems and the need for effective preparedness and response measures<sup>(4)</sup>. The transmission of communicable diseases is influenced by a variety of factors, including population density, climate change, and social determinants. Socioeconomic disparities and limited access to healthcare exacerbate the impact of these diseases, particularly among marginalized populations<sup>(5)</sup>. Controlling communicable diseases requires a holistic approach encompassing vaccination campaigns, sanitation improvements, vector control, and health education initiatives<sup>(6)</sup>. Addressing social determinants like poverty and education is crucial for long-term disease prevention<sup>(7)</sup>. This research aims to investigate the epidemiology, transmission patterns, and public health implications of communicable diseases, focusing on [insert specific disease or aspect, e.g., "the impact of COVID-19 on healthcare systems" or "the role of vaccination in disease prevention"]. By examining the current challenges and opportunities in disease management, this study aims to contribute to global efforts in reducing disease burden and improving health outcomes for impacted populations. Between 2011 and 2014 respiratory infectious diseases, diarrhea, AIDS and malaria have constantly been on the top 10 causes of death worldwide. Effective management of communicable diseases requires developed systems which provide timely, comprehensive and updated information. At the end of the last century, many countries implemented NCDSS for the ongoing, systematic collection, analysis and interpretation of the communicable diseases data Surveillance systems should be capable of laying

the foundation for effective controlling and managing of communicable diseases.

### Materials and methods:

**Study Design:** The design of a non-probability quasi-experiment. A training program's effectiveness in improving nurses' personal attitudes toward infectious diseases.

**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.

**Data Collection Tools:** A questionnaire with two axes was used to gather data for this study (attitudes). 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 about attitudes communicable diseases. The second axis consists six questions about of nurse’s personal attitudes toward communicable diseases.

**Data Collection Period:** By using the study instrument, the data is collected from nurses

from 20 September, 2024, to January 21, 2025. 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:**

**Table 1: Socio- demographical characteristics and Homogeneity between Experimental and Control group for the research sample (60 participation)**

Test of Homogeneity						
Variables	Items	Group			Test type	P-value
			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		
	above 50	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		
	Divorced	Control	0	0		0.237
		Study	3	10		
Residence	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		
	Master	Control	1	3		0.999
		Study	2	7		
Year of service	Less than 5 year	Control	8	27	Fisher's exact test	0.532
		Study	5	17		
	years 10-6	Control	6	20		0.999
		Study	5	17		
	year15-11	Control	6	20		0.999
		Study	7	23		
	year 20-16	Control	4	13		0.731
		Study	6	20		
	year 25-21	Control	4	13		0.999
		Study	4	13		
	year 25Mor than	Control	2	7		0.999
		Study	3	10		
Worke place	Operating room	Control	3	10	Fisher's exact test	0.612
		Study	1	3		
	Pediatic 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		
	Women's lounge	Control	4	13		0.999
		Study	3	10		
Care	Control	2	8	0.492		

		Study	0	0		
Number of training	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		

**Table (2) implementing the Theory of Planned Behavior among nurses in hospitals Personal Attitude**

Axis	Q	Scale (per)	Pre -Study			Post1 -Study			Post2 -Study		
			N (%)	M	Ass.	N (%)	M	Ass.	N (%)	M	Ass.
Personal Attitude Scale	Q1	do not agree strongly	3(10)	2.8	Fair	0(0)	4.066	Good	0(0)	4.033	Good
		do not agree	9(30)			2(7)			2(7)		
		Neutral	13(43)			4(13)			5(17)		
		Agree	1(3)			14(47)			13(43)		
		agree strongly	4(14)			10(33)			10(33)		
	Q2	do not agree strongly	4(13)	2.833	Fair	0(0)	4.1	Good	0(0)	4.033	Good
		do not agree	6(20)			1(3)			1(3)		
		Natural	14(47)			5(17)			6(20)		
		Agree	3(10)			14(47)			14(47)		
		agree strongly	3(10)			10(33)			9(30)		
	Q3	do not agree strongly	5(17)	2.4	Fair	0(0)	4.166	Good	0(0)	3.933	Good
		do not agree	13(43)			0(0)			1(4)		
		Natural	8(27)			8(27)			10(33)		
		Agree	3(10)			9(30)			9(30)		
		agree strongly	1(3)			13(43)			10(33)		
	Q4	do not agree strongly	5(17)	2.733	Fair	0(0)	4.2	Good	0(0)	3.933	Good
		do not agree	6(20)			0(0)			0(0)		
		Natural	13(43)			7(23)			12(40)		

Q5	Agree	4(13)	2.933	Fair	4.433	Good	4.166	Good	10(33)	8(27)
	agree strongly	2(7)							13(44)	10(33)
	do not agree strongly	4(13)							0(0)	0(0)
	do not agree	7(23)							0(0)	0(0)
	Natural	8(27)							2(7)	3(10)
	Agree	9(30)							13(43)	19(63)
	agree strongly	2(7)	15(50)	8(27)						
Mean as all			2.739	Fair	4.193	Good	4.019	Good		

N: Frequency, %: Percentage, M: Mean of total score, Poor= 0.00 – 1.6, Fair= 1.7 – 3.3, Good= 3.4 – 5

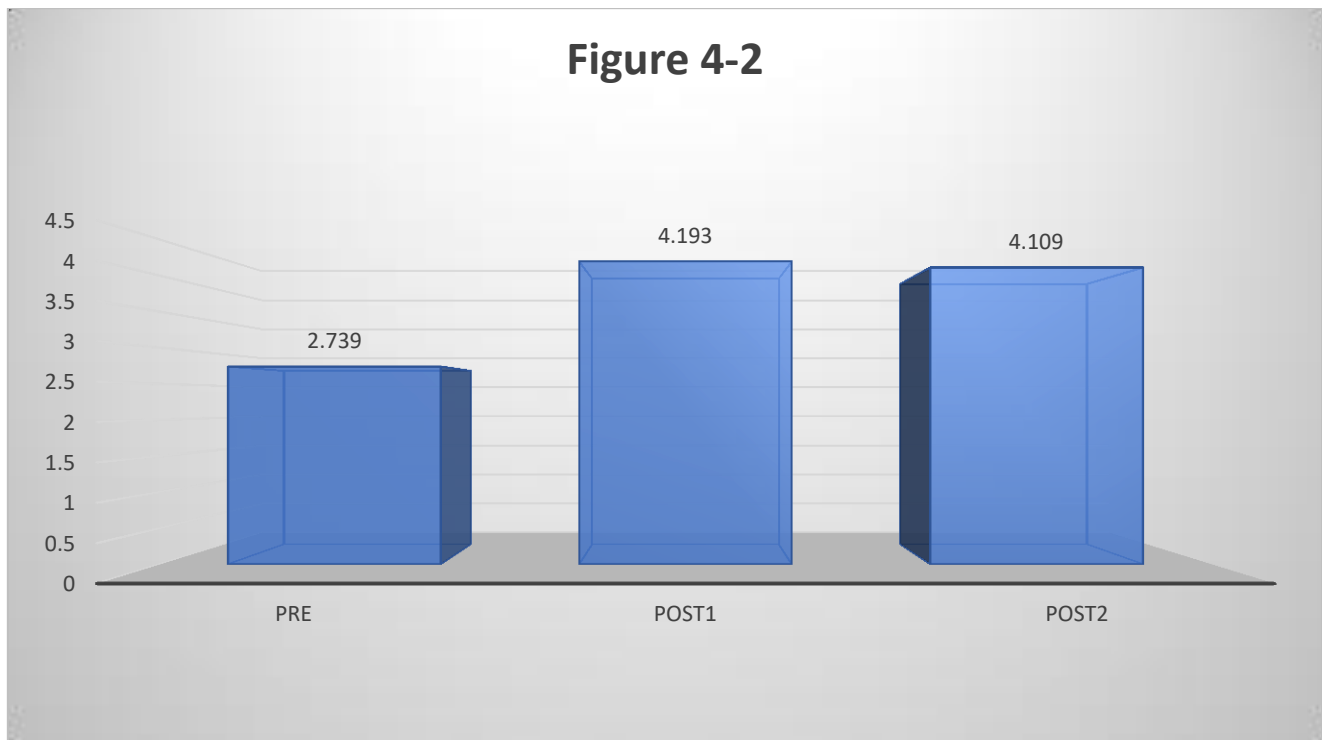


Figure (1) show the person attitude scale

Table (3) statistical differences between demographic information and the personal attitude scale for the study sample before and after the program.

Axis	Categories	Pre study			Post one study		
		Statistic	p-value	Ass	Statistic	p-value	Ass
	Gender	0.139	0.712	N.S	2.786	0.106	N.S
	Age	0.187	0.905	N.S	1.937	0.148	N.S
	Marital status	0.060	0.980	N.S	0.627	0.604	N.S
	Residence	0.970	0.333	N.S	0.063	0.803	N.S
	Certificate	0.333	0.801	N.S	0.621	0.608	N.S
	Year of service	0.632	0.678	N.S	2.471	0.061	N.S
	Work place	0.969	0.458	N.S	0.392	0.850	N.S
	Number of training	1.284	0.303	N.S	1.145	0.364	N.S

## Discussion:

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. From the researcher's point of view, all the participants in the two groups (experimental and control) are homogenous due to being from the same hospital and the same units in which they work. The average age for most of them are new graduates who have more than one year of service in the job and in the unit exposure for communicable disease according to the criteria of the study sample.

Personal Attitude Scale: Table (2) based on documented data and observations, it was evident that participants' attitudes in the educational program for enhancing nurses' behaviors were marginally positive, with a rate 2.739 before the program. Following program implementation and interactions with participants, knowledge notably increased by 4.193. This signifies the effectiveness of the educational program focused on improving nurses' behaviors concerning communicable diseases. After two months, a follow-up test was conducted, and their knowledge remained at nearly the same level, approximately 4.109, indicating the program's effectiveness. One of studies has been conducted by <sup>(8)</sup>.The authors investigated the effectiveness of an educational program based on the Theory of Planned Behavior (TPB) in improving nurses' adherence to infection control practices in communicable disease management. The study highlighted that attitude, perceived behavioral

control, and subjective norms significantly influenced nurses' intention to adopt better practices. The program involved workshops, role-playing, and feedback sessions, which resulted in a marked improvement in adherence rates. The authors concluded that TPB-based training could effectively enhance nurses' behaviors when addressing communicable diseases. They recommended incorporating continuous reinforcement and peer-support systems to maintain these behavioral improvements over time. Table (3) show the statistical differences between demographic information and the personal stance scale for the study sample before and after the program: Gender: There were no statistically significant differences in the personal stance scale between genders before and after the program. Age: There were no statistically significant differences in the personal stance scale based on age before or after the program. Marital status, residence, qualification, and hospital work location: There were no statistically significant differences in the personal stance scale based on these variables before or after the program. Years of service and number of courses participated in: There were no statistically significant differences in the personal stance scale based on years of service and number of courses participated in before or after the program.

## Conclusion:

According to the study's findings, the implementation of the program has improved the attitude of all nurses in the study group with regard to communicable disease

## References

1. Janati A, Hosseiny M, Gouya MM, Moradi G, Ghaderi EJJoph. Communicable disease reporting systems in the world: a systematic review article. 2015;44(11):1453.
2. Bhutta ZA, Sommerfeld J, Lassi ZS, Salam RA, Das JKJIdop. Global burden, distribution, and interventions for infectious diseases of poverty. 2014;3:1-7.
3. Aqil A, Lippeveld T, Hozumi DJHp, planning. PRISM framework: a paradigm

- shift for designing, strengthening and evaluating routine health information systems. 2009;24(3):217-28.
4. Sahal N, Reintjes R, Aro ARJSjoph. Communicable diseases surveillance lessons learned from developed and developing countries: Literature review. 2009;37(2):187-200.
  5. Chandrasekar K. Use of Information Communication Technology (ICT) in communicable disease surveillance—a review of literature. 2011.
  6. Abat C, Chaudet H, Rolain J-M, Colson P, Raoult DJIJoID. Traditional and syndromic surveillance of infectious diseases and pathogens. 2016;48:22-8.
  7. Lee LC. Measuring Public Health Practitioner's Information and Communication Technology Competence and Preparation: A Mixed Methods Approach 2021.
  8. Salerno RM, Kessler W. Infectious Disease Detection and Control in the Developing World. Sandia National Lab.(SNL-NM), Albuquerque, NM (United States); 2014.



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