AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 2, Issue 6, 2024 ISSN (E): 2993-2149

Evaluation of Nurses' Knowledge toward Human Immuno Deficiency

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Abstract: Background: There are around 37 million people in the worldwide HIV population. HIV is mostly associated with homosexual behavior, with straight women in Sub-Saharan Africa experiencing the most severe impact. Nurses have a vital role in overseeing HIV/AIDS management, delivering care, and improving patient safety. Training courses and educational efforts are crucial for enhancing nurses' knowledge and attitudes. Additional study is required to comprehend the comprehension and participation of rural nurses in healthcare research.

Objective(s): This study aims to evaluate nurses' knowledge toward human Immuno deficiency.

Methodology: A quasi-experimental design was conducted in 7 January 2024 to 7 May 2024, The research was carried out at Al Musayyib General Hospital and included 100 nursing personnel who were separated into two groups. There were 50 nurses who took part in a health education program, while another 50 nurses served as a control group by not engaging in the program. All nurses were from the night shift.

Results: Most nurses in both the research group (62%) and the control group (72%) were young, aged between 23 and under 30. Women comprised 66% of the study group and 54% of the control group. 58% of nurses in the study group were married, whereas 46% of nurses in the control group were unmarried. The majority of nurses resided in urban regions, with 82% in the study group and 86% in the control group. The assessment of HIV knowledge revealed an enhancement in the study group's general knowledge level from an average score of .28 in the pretest to a satisfactory level of .94 in the posttest. On the other hand, participants in the control group maintained a consistent level of knowledge, showing a little decrease from their pretest score (average score of 0.58) to their posttest score (average score of 0.50). Participants in the study group showed an increase in knowledge regarding HIV transmission techniques from an average score of 0.31 to 0.90, whereas negligible improvements were seen in the control group.

Conclusion: The research emphasizes differences, in nurses understanding of HIV. Nurses who underwent training showed progress in their HIV knowledge moving from a low level to a high level after the intervention. On the hand the control group, who didn't receive the training maintained only a moderate level of knowledge throughout the study with minor decreases in scores from before to after the intervention. These findings highlight how educational initiatives can improve nurses expertise in HIV related topics, which's essential, for their safety and the quality of treatment.

Recommendations: Institutions should organize regular HIV training sessions for nursing staff, customize educational resources, assess and review knowledge levels, promote peer learning, and broaden research scope to improve understanding of HIV care practices. This will help nurses improve their knowledge and make necessary adjustments to programs, ensuring effective HIV care.

Keywords: Evaluation, Nurses', Knowledge, Human Immuno Deficiency.

Introduction

As of 2016, the global population of individuals living with HIV has been estimated to be around 37 million, with sub-Saharan Africa housing the largest proportion [1]. As per the latest estimation from the World Health Organization, the global population infected with HIV exceeded 37 million by the end of 2016. There are approximately twenty million individuals receiving antiretroviral therapy. Even though diagnosis and treatment options have advanced, approximately 2 million new cases of HIV are diagnosed annually [2].

Homosexuality is the primary risk factor for newly diagnosed cases in Europe and North America, whereas heterosexual women in Sub-Saharan Africa are the most severely affected [3] [4]. The predominant mode of getting HIV in Russia, other former Soviet Union nations, and portions of Asia is via the injection of drugs. Transferred drug resistance (TDR) is seen between 8% and 12% of newly diagnosed HIV/AIDS patients [5].

Nurses have an essential function in handling HIV/AIDS. Nurses with the requisite expertise can provide suitable care and assistance to those affected by HIV/AIDS [6] [7]. The aid it provides makes it easier to understand the symptoms, causes, diagnosis, treatment and prevention of the illness. Nurses can improve personal safety, from HIV/AIDS by following safety measures and educating on preventive actions, for the disease [8].

Professional nurses play a role, in addressing misunderstandings fostering hope and ensuring that individuals affected by HIV/AIDS receive compassionate care [9]. Enhancing the understanding of HIV/AIDS among nurses involves organizing training sessions and educational campaigns. More research is needed to evaluate how educational programs influence the knowledge and perspectives of nurses regarding HIV/AIDS. Studies have concentrated on educating nurses, about HIV/AIDS through training programs and educational initiatives [10].

By incorporating the six abilities outlined in the National HIV Curriculum (NHC) into nurses programs there was an improvement, in nurses perceived understanding of HIV care as indicated by a research study [11]. A different research conducted a training course for nurses to evaluate their understanding of handling risks and looking after HIV and HBV patients. The program significantly improved nurses understanding, in these fields as indicated by the findings of a study. [12] [13].

Nursing students showed understanding of the concept of "sexuality" following their participation, in an HIV training workshop as outlined in a study [14]. An HIV care inter professional education (IPE) course has been completed. Learners may improve their IPE abilities and get helpful suggestions on their care plans in this authentic atmosphere [15]. The studies emphasis the significance of standardized HIV curriculum and ongoing training for nurses and nursing students to enhance their knowledge and abilities in HIV care.

Research on nurses' understanding of HIV is necessary for various reasons. There are inconsistencies in the literature about the understanding and opinions of rural nurses towards HIV/AIDS. Research indicates that nurses in Nigeria frequently lack awareness of their involvement in healthcare research advancement regarding HIV and AIDS. A study in Nepal revealed that nurses lacked sufficient understanding regarding post-exposure prophylaxis (PEP) for HIV.

Methodology

Study design and sampling

This study was conducted at Al Musayyib General Hospital in the region of Babylon city, Al Musayyib, Iraq. This study followed an approach using a quasi-experimental design. This design involved manipulation and control elements without randomization. Included pretest and posttest assessments for both the study and control groups. The research was conducted from 7 January 2024 to 7 May 2024 with a total of 100 nursing involved.

The participants were selected using a non-probability convenience sampling method resulting in a group of 100 nurses from the hospital. These individuals were evenly split into two groups; a study group comprising 50 nurses from the morning shift who took part in a health education program and a control group consisting of 50 nurses from the night shift who did not receive the program.

Inclusion and exclusion criteria

Initially 129 nurses agreed to participate in the study; however adjustments were made to streamline the sample size to 100 participants due, to exclusions based on pilot study , assessment need and dropouts resulting from refusal to take part.

To assess the gaps, in knowledge among nurses a structured survey was created with 15 questions aimed at testing their understanding of HIV. Ten nurses participated in an interview session lasting between 15 to 25 minutes to complete the knowledge assessment by answering a series of questions. The results highlighted deficiencies in knowledge with 32% of responses being true and 68% false indicating the requirement for educational intervention.

Educational program

The educational program, customized based on the initial assessment outcomes and following recommendations from organizations such as WHO, CDC, UNCIE and HIV.gov aimed to improve nurses knowledge and attitudes towards HIV. The program covered aspects of HIV/AIDS including concepts, transmission methods, pathophysiology, risk factors, symptoms, complications, diagnostic procedures, treatment options and preventive measures. Spanning a week from 28 January to 26 February in the year 2024.; this initiative aimed to address these requirements.

Data collection

To assess the effectiveness of this initiative a questionnaire was given to nurses before and after the program focusing on their knowledge ,attitudes and views on HIV. This questionnaire was designed by Zekeriya GOKTAS and was approved by the questionnaire's founder for use in my research (Zekeriya,2012)(30). That consisted of with two sections; Socio-demographic Characteristics and nurses' attitude toward human immuno deficiency virus

The section, on knowledge was assessed using a multiple choice setup, which included questions on facts, ways of transmission well, as treatment and prevention methods. Points were given for both wrong answers enabling an evaluation of knowledge levels classified as low, moderate or high based on total and specific question scores.

Data Analysis:

The data of the present study was analyzed electronically via the Statistical program (SPSS) version 26. The method used in this program aimed to find out the descriptive and inferential statistics ,by entering data to achieve the objectives of the study.

Results

The results in table (1) shows that nurses are with age group of "23-less than 30" years as reported among 62% of them in the study group and 72% of them in the control group.

Regarding gender of nurses, more than half of nurses are females as reported among 66% of them in the study group and 54% in the control group.

The marital status refers to married among 58% of nurses in the study group and unmarried among 46% in the control group.

Concerning residency, more of nurses are resident in urban as reported by 82% nurses in the study group and 86% in the control group.

Table (1): Distribution of Participants according to their Socio-demographic Characteristics. No: Number, f: Frequency, %: Percentage.

No.	Characteristics		Study group		Control group	
			f	%	f	%
1	**Age (year)**	23 – less than 30	31	62	36	72
		30 – less than 40	11	22	11	22
		40 – less than 50	8	16	3	6
		50 and more	0	0	0	
		Total	***50***	***100***	***50***	***100***
2	**Gender**	Male	17	34	23	46
		Female	33	66	27	54
		Total	***50***	***100***	***50***	***100***
3	**Marital status**	Unmarried	14	28	23	46
		Married	29	58	19	38
		Divorced	7	14	5	10
		Widowed/er	0	0	3	6
		Total	***50***	***100***	***50***	***100***
4	**Residency**	Rural	9	18	7	14
		Urban	41	82	43	86
		Total	***50***	***100***	***50***	***100***

No: Number, f: Frequency, %: Percentage

The results of Distribution of Participants according to their Professional Characteristics shown in table (2) reveals that 44% of nurses in the study group and 50% in the control group are graduated with bachelor degree in nursing.

The years of experience refers to "1-less than 6" years as reported by 54% of nurses in the study group and 62% in the control group.

More of nurses reported that they are developing their knowledge about human immunodeficiency virus as reported by 70% of them in the study group and 68% in the control group; the sources of knowledge are highly referred to experienced nurses (study=24% and control= 28%), Facebook (study=16% and control= 16%), health care provider (study= 14% and control= 10%), and google scholar (study= 10% and control=10%).

Regarding participation in training courses, 90% of nurses in the study group and 90% in the control group is reported that they didn't participated in training courses.

Table (2): Distribution of Participants according to their Professional Characteristics

No.	Characteristics		Study group		Control group	
			F	%	f	%
1	**Level of education in nursing**	Secondary school	10	20	7	14
		Diploma	17	34	17	34
		Bachelor	22	44	25	50
		Postgraduate	1	2	1	2
		Total	***50***	***100***	***50***	***100***

2	**Years of experience**	1 – less than 6	27	54	31	62
		6 – less than 11	11	22	13	26
		11 - less than 16	9	18	5	10
		16 and more	3	6	1	2
		Total	***50***	***100***	***50***	***100***
3	**Developing knowledge**	No	15	30	16	32
		Yes	35	70	34	68
		Total	***50***	***100***	***50***	***100***
4	**Sources of knowledge**	None	15	30	16	32
		Facebook	8	16	8	16
		Google scholar	5	10	5	10
		Library	3	6	2	4
		Health care provider	7	14	5	10
		Experienced nurses	12	24	14	28
		Total	***50***	***100***	***50***	***100***
5	**Participate in training course**	No	45	90	45	90
		Yes	5	10	5	10
		Total	***50***	***100***	***50***	***100***

No: Number, f: Frequency, %: Percentage

Results of Nurses' General Knowledge about Human Immunodeficiency Virus are shown in table (3) presents the items of nurses' general knowledge about human immunodeficiency virus; the total average in the study group reveals that nurses have poor level of general knowledge during pretest (Total average= .28) while they have good level of general knowledge during posttest (Total average= .94).

The findings in the control group reveal that nurses have fair level of general knowledge during pretest (Total average= .58) and posttest (Total average= .50).

Table (3): Assessment of Nurses' *General Knowledge* about Human Immunodeficiency Virus among the Study and Control Group

List	Knowledge	Scale	Study Group (N=50)						Control Group (N=50)					
			Pre-test			Post-test			Pre-test			Post-test		
			f (%)	M	Ass.	f (%)	M	Ass.	f (%)	M	Ass.	f (%)	M	Ass.
1	Human Immunodeficiency Virus caused by virus	**Incorrect**	8(16)	.84	Good	0(0)	1.00	Good	8(16)	.84	Good	8(16)	.84	Good
		Correct	42(84)			50(100)			42(84)			42(84)		
2	Human Immunodeficiency Virus syndrome affects immunity system	**Incorrect**	46(92)	.08	Poor	0(0)	1.00	Good	18(36)	.64	Fair	18(36)	.64	Fair
		Correct	4(8)			50(100)			32(64)			32(64)		
3	Patients infected with Human Immunodeficiency Virus appear healthy	**Incorrect**	46(92)	.08	Poor	8(16)	.84	Good	44(88)	.12	Poor	44(88)	.12	Poor
		Correct	4(8)			42(84)			6(12)			6(12)		
4	Symptoms of the infection being obvious within short time	**Incorrect**	41(82)	.18	Poor	8(16)	.84	Good	43(86)	.14	Poor	43(86)	.14	Poor
		Correct	9(18)			42(84)			7(14)			7(14)		
5	Human Immunodeficiency Virus can be transmitted through person to person	**Incorrect**	46(92)	.08	Poor	1(2)	.98	Good	2(4)	.96	Good	18(36)	.64	Fair
		Correct	4(8)			49(98)			48(96)			32(64)		
6	A patient can be identified as infected with Human Immunodeficiency Virus by blood	**Incorrect**	18(36)	.64	Fair	2(4)	.96	Good	18(36)	.64	Fair	18(36)	.64	Fair
		Correct	32(64)			48(96)			32(64)			32(64)		

	test													
7	Human Immunodeficiency Virus can be detected by blood test	**Incorrect**	46(92)	.08	Poor	1(2)	.98	Good	11(22)	.78	Good	26(52)	.48	Fair
		Correct	4(8)			49(98)			39(78)			24(48)		
Total average				***.28***	***Poor***		***.94***	***Good***		***.58***	***Fair***		***.50***	***Fair***

Ass: Assessment, M: Mean, (Poor= 0-0.33, Fair= 0.34-0.67, Good= 0.68-1).

Table (4) presents the items of nurses' knowledge about transmission methods of human immunodeficiency virus; the total average in the study group reveals that nurses have poor level of knowledge during pretest (Total average= .31) while they have good level of knowledge during posttest (Total average= .90).

The findings in the control group reveal that nurses have fair level of general knowledge during pretest (Total average= .55) and posttest (Total average= .49).

Table (4): Assessment of Nurses' Knowledge about *Transmission Methods that could lead to infection* of Human Immunodeficiency Virus among the Study and Control Group

List	Transmission methods	Scale	Study Group (N=50)						Control Group (N=50)					
			Pre-test			Post-test			Pre-test			Post-test		
			f (%)	M	Ass.	f (%)	M	Ass.	f (%)	M	Ass.	f (%)	M	Ass.
1	Causes of Human Immunodeficiency Virus infection might include unsafe sex	**Incorrect**	22(44)	.56	Fair	7(14)	.86	Good	15(30)	.70	Good	22(44)	.56	Fair
		Correct	28(56)			43(86)			35(70)			28(56)		
2	Further, causes of Human Immunodeficiency Virus infection might include injection with a contaminated syringe	**Incorrect**	34(68)	.32	Poor	2(4)	.96	Good	18(36)	.64	Fair	20(40)	.60	Fair
		Correct	16(32)			48(96)			32(64)			30(60)		
3	Human immunodeficiency virus (HIV) attacks mainly CD4 T cells type of cells in the human body	**Incorrect**	30(60)	.40	Fair	6(12)	.88	Good	29(58)	.42	Fair	30(60)	.40	Fair
		Correct	20(40)			44(88)			21(42)			20(40)		
4	A patient in the chronic phase of HIV has a CD4 count test ordered to measure T cells	**Incorrect**	33(66)	.34	Fair	4(8)	.92	Good	32(64)	.36	Fair	33(66)	.34	Fair
		Correct	17(34)			46(92)			18(36)			17(34)		
5	Identify the criteria that is used to diagnose a patient with HIV syndrome CD4 T cells more than 1500 cells\mm3	**Incorrect**	39(78)	.22	Poor	7(14)	.86	Good	36(72)	.28	Poor	39(78)	.22	Poor
		Correct	11(22)			43(86)			14(28)			11(22)		
6	Infection with Human Immunodeficiency Virus can be caused by blood transfusion	**Incorrect**	34(68)	.32	Poor	1(2)	.98	Good	33(66)	.34	Fair	33(66)	.34	Fair
		Correct	16(32)			49(98)			17(34)			17(34)		
7	Making a tattoo with a device that was used for infected person can lead to infection with Human Immunodeficiency Virus	**Incorrect**	34(68)	.32	Poor	1(2)	.98	Good	18(36)	.64	Fair	33(66)	.34	Fair
		Correct	16(32)			49(98)			32(64)			17(34)		
8	HIV can be transmitted from a pregnant mother to her fetus through placenta	**Incorrect**	34(68)	.32	Poor	6(12)	.88	Good	33(66)	.34	Fair	18(36)	.64	Fair
		Correct	16(32)			44(88)			17(34)			32(64)		
9	Sharing a shaving razor with an infected person lead to infection	**Incorrect**	34(68)	.32	Poor	3(6)	.94	Good	17(34)	.66	Fair	20(40)	.60	Fair
		Correct	16(32)			47(94)			33(66)			30(60)		
10	Infection with Human Immunodeficiency Virus transmitted by breast feeding to a	**Incorrect**	34(68)	.32	Poor	3(6)	.94	Good	24(48)	.52	Fair	18(36)	.64	Fair
		Correct	16(32)			47(94)			26(52)			32(64)		

	child													
11	White hair-like spots appear on the side of the tongue are signs and symptoms in a patient with HIV that indicate the disease is getting worse, and the immune system is severely compromised	**Incorrect**	42(84)	.16	Poor	8(16)	.84	Good	35(70)	.30	Poor	42(84)	.16	Poor
		Correct	8(16)			42(84)			15(30)			8(16)		
12	Infection with Human Immunodeficiency Virus can be caused by Sexual intercourse	**Incorrect**	34(68)	.32	Poor	2(4)	.96	Good	20(40)	.60	Fair	25(50)	.50	Fair
		Correct	16(32)			48(96)			30(60)			25(50)		
13	Sharing personal equipment with an infected person can lead to HIV infection, such as Using razor blades	**Incorrect**	34(68)	.32	Poor	0(0)	1.00	Good	19(38)	.62	Fair	20(40)	.60	Fair
		Correct	16(32)			50(100)			31(62)			30(60)		
14	Human Immunodeficiency Virus can be transmitted from a person to another person by Drugs injection syringes	**Incorrect**	30(60)	.40	Fair	4(8)	.92	Good	21(42)	.58	Fair	30(60)	.40	Fair
		Correct	20(40)			46(92)			29(58)			20(40)		
15	The patient is prescribed Enfuvirtide (fuzeon) treatment. The nurse prepares to administer this medication via Intravenously infusion	**Incorrect**	34(68)	.32	Poor	7(14)	.86	Good	26(52)	.48	Fair	29(58)	.42	Fair
		Correct	16(32)			43(86)			24(48)			21(42)		
16	HIV-2 virus is associated to the acquired immunodeficiency syndrome (AIDS) epidemic	**Incorrect**	34(68)	.32	Poor	15(30)	.70	Good	33(66)	.34	Fair	34(68)	.32	Poor
		Correct	16(32)			35(70)			17(34)			16(32)		
Total average				***.31***	***poor***		***.90***	***Good***		***.55***	***Fair***		***.49***	***Fair***

Ass: Assessment, M: Mean, (Poor= 0-0.33, Fair= 0.34-0.67, Good= 0.68-1).

Results in table (5) presents the items of nurses' knowledge about prevention and treatment of human immunodeficiency virus; the total average in the study group reveals that nurses have poor level of knowledge during pretest (Total average= .26) while they have good level of knowledge during posttest (Total average= .90).

The findings in the control group reveal that nurses have fair level of general knowledge during pretest (Total average= .38) and posttest (Total average= .41).

Table (5): Assessment of Nurses' Knowledge about *Prevention and Treatment Methods* of Human Immunodeficiency Virus among the Study and Control Group

List	Prevention and treatment methods	Scale	Study Group (N=50)						Control Group (N=50)					
			Pre-test			Post-test			Pre-test			Post-test		
			f (%)	M	Ass.	f (%)	M	Ass.	f (%)	M	Ass.	f (%)	M	Ass.
1	Human Immunodeficiency Virus infection can be prevented by Safe blood transfusion	**Incorrect**	34(68)	.32	Poor	2(4)	.96	Good	25(50)	.50	Fair	25(50)	.50	Fair
		Correct	16(32)			48(96)			25(50)			25(50)		
2	The best way of Human Immunodeficiency Virus prevention is through Blood transfusion	**Incorrect**	34(68)	.32	Poor	5(10)	.90	Good	25(50)	.50	Fair	26(52)	.48	Fair
		Correct	16(32)			45(90)			25(50)			24(48)		
3	Condom use be helpful in Human Immunodeficiency Virus prevention	**Incorrect**	31(62)	.38	Fair	6(12)	.88	Good	29(38)	.42	Fair	30(60)	.40	Fair
		Correct	19(38)			44(88)			21(42)			20(40)		
4	Having one sexual	**Incorrect**	34(68)	.32	Poor	0(0)	1.00	Good	18(36)	.64	Fair	19(38)	.62	Fair

	partner can be helpful in Human Immunodeficiency Virus prevention	**Correct**	16(32)			50(100)			32(64)			31(62)		
5	Making tattoos in unlicensed centers can be helpful in Human Immunodeficiency Virus prevention	**Incorrect**	43(86)	.14	Poor	7(14)	.86	Good	42(84)	.16	Poor	42(84)	.16	Poor
		Correct	7(14)			43(86)			8(16)			8(16)		
6	Human Immunodeficiency Virus have no treatment	**Incorrect**	37(74)	.26	Poor	0(0)	1.00	Good	35(70)	.30	Poor	36(72)	.28	Poor
		Correct	13(26)			50(100)			15(30)			14(28)		
7	No vaccine is available for Human Immunodeficiency Virus	**Incorrect**	34(68)	.32	Poor	4(8)	.92	Good	33(66)	.34	Fair	33(66)	.34	Fair
		Correct	16(32)			46(92)			17(34)			17(34)		
8	Avoiding persons who are infected with Human Immunodeficiency Virus cannot prevent infection	**Incorrect**	48(96)	.04	Poor	16(32)	.68	Good	43(88)	.14	Poor	44(88)	.12	Poor
		Correct	2(4)			34(68)			7(14)			6(12)		
Total average				***.26***	***Poor***		***.90***	***Good***		***.38***	***Fair***		***.41***	***Fair***

Ass: Assessment, M: Mean, (Poor= 0-0.33, Fair= 0.34-0.67, Good= 0.68-1).

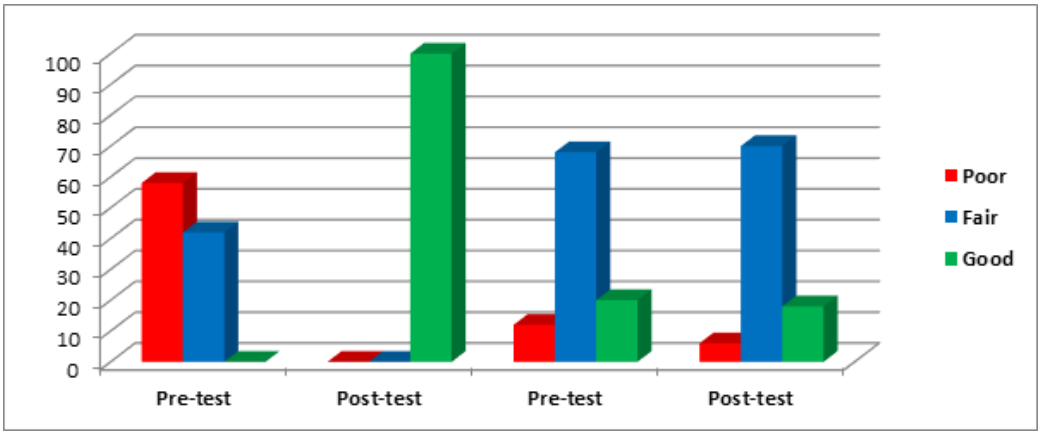
Table (6) presents the overall assessment of nurses' knowledge; the findings reveals that nurses in the study group having poor level of knowledge during the pretest (58%, M±SD= 10.12±1.409) while they are having good level of knowledge during the posttest (100%, M±SD= 27.06±1.707) that indicate significant changes in their level of knowledge.

The nurses in the control group having fair level of knowledge during the pretest (68%, M±SD= 13.42±4.394) and posttest (70%, M±SD= 13.20 ± 4.412) that indicate no significant change in knowledge.

Table (6): Overall Assessment of Nurses' Knowledge about Human Immunodeficiency Virus among Study and Control Group. ***f: Frequency, %: Percentage, M: Mean of total score, SD Standard deviation Poor= 0 - 10.33, Fair= 10.34 - 20.67, Good= 20.68 - 31***

Levels of Knowledge	Study Group (N= 50)								Control Group (N= 50)							
	Pre-test				Post-test				Pre-test				Post-test			
	f	%	M	SD	f	%	M	SD	f	%	M	SD	f	%	M	SD
Poor	29	58	10.12	1.409	0	0	27.06	1.707	6	12	13.42	4.394	6	6	13.20	4.412
Fair	21	42			0	0			34	68			35	70		
Good	0	0			50	100			10	20			9	18		
Total	***50***	***100***			***50***	***100***			***50***	***100***			***50***	***100***		

Figure (1) shows that nurses in the study group show poor level of knowledge during pretest (58%) that increased to good level during the posttest (100%), while those in control group show fair level of knowledge during pretest time (68%) and posttest (70%).



Study group (N=50) Control group (N=50)

Figure (3-1): Levels of Nurses' Knowledge about Human Immunodeficiency Virus among Study and Control Groups.

Discussion

The research delved into how educational attainment influences nurses understanding and perspectives, on immunodeficiency. Ensuring a balance in socio characteristics between the study and control groups as shown in table (1) was crucial for maintaining comparability and the study's internal validity. The study made sure that both groups were balanced in terms of numbers, which's crucial for making comparisons. However minor differences in socio factors like age, gender, marital status and residency, between the two groups could affect how broadly applicable the findings of the study are.

The findings of this research aligned with an earlier investigation indicating that the average age of nurses was 27.19 years with a standard deviation of 6.22. However, they disagreed with the research due to most of their 244 participants were single (65.2%), earned bachelor's degrees (79.1%), and worked in government hospitals (85%) [16]. However, the results are disagreed with another previous study that showed mean age of participants was 43.6 years, with a standard deviation (s.d.) of 9.98 years, the youngest being 25 years of age and the oldest being 64 years of age [17].

The results of experience agreed with the results of previous study that showed the average number of years spent working at the hospital was 4.04 years (standard deviation=4.162). The overall experience, as a nurse averaged at 4.98 years (standard deviation=4.35). This data represents the characteristics of the nurses surveyed (n=374) [16]. This study also agreed with the previous study that revealed more than half of the studied group had nursing diploma. From researcher point of view this may have been due to the fact, that the nursing institutes provide the health agencies with large numbers of graduated diploma nurses, when compared to nursing faculties [18].

The evaluation of nurses overall understanding of HIV as shown in Table (3) provides an assessment of how effective the educational program was, for the study group. Studies have found that educational interventions can significantly improve knowledge, attitudes, and willingness to provide nursing care to patients with HIV/AIDS [19]. Education programs that include interaction with people living with HIV/AIDS show a short-term effect in improving stigmatizing attitudes of nursing students [20]. Nurses' ability to correctly identify HIV testing methods improved following an educational intervention, which is crucial for the diagnosis and treatment [21].

The study group initially had poor understanding of HIV transmission, with confusion in identifying transmission routes like blood transfusions and pregnancy. After participating in a program, their post-test mean score increased to 0.90, indicating a 'Good' understanding. Improvements were seen in tattoos and breastfeeding. However, the control group maintained 'Fair' scores, highlighting the importance of educational programs.

Educational interventions have shown significant improvements in nursing students' HIV/AIDS knowledge and attitudes, including understanding transmission routes and symptom identification [22]. An educational intervention was found to significantly increase nurses' knowledge, positive attitudes, and good practices towards patients living with HIV/AIDS [23]. An educational intervention focusing on HIV sexual transmission knowledge was found to be effective in increasing participants' awareness, which could be beneficial for nurses in their practice [24].

After the sessions the study groups grasp of measures, like safe blood transfusion and the importance of using condoms was initially rated as 'Poor' with an average score of 0.26. Common misconceptions included beliefs like getting tattoos at places can protect against HIV and thinking that avoiding people with HIV can prevent its spread.

An educational intervention among health workers in Nigeria improved knowledge and adherence to HIV guidelines, indicating that continuous training and provision of guidelines in

clinics are recommended [25]. Educational interventions significantly increased knowledge about HIV infection and transmission prevention among the non-infected heterosexual partners of HIV-infected patients in Thailand, indicating the potential for broader implementation [26]. An HIV/AIDS prevention education program significantly improved street children's attitude and knowledge in the southeast of Iran, demonstrating the effectiveness of targeted interventions [27].

Educational technologies implemented for HIV prevention in black people included a variety of methods such as workshops, videos, and applications, showing effective health impacts for this population [28]. An educational intervention based on the Health Belief Model significantly improved HIV/AIDS preventive behaviors among vulnerable women in peripheral neighborhoods in Iran, suggesting the need for further research to investigate factors influencing behavioral stability [29]. Click or tap here to enter text. .

Conclusion

The research emphasizes differences, in nurses understanding of HIV depending on whether they participated in targeted programs. Nurses who underwent training showed progress in their HIV knowledge moving from a low level to a high level after the intervention. On the hand the control group, who didn't receive the training maintained only a moderate level of knowledge throughout the study with minor decreases in scores from before to after the intervention. These findings highlight how educational initiatives can improve nurses expertise in HIV related topics, which's essential, for their safety and the quality of treatment.

Recommendations

Institutions should organize regular HIV training sessions for nursing staff, customize educational resources, assess and review knowledge levels, promote peer learning, and broaden research scope to improve understanding of HIV care practices. This will help nurses improve their knowledge and make necessary adjustments to programs, ensuring effective HIV care.

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