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Effect Of Health Education Program Toward Prevention Of Hiv Transmission On Midwives

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Abstract
Background: *Human Immunodeficiency Virus (HIV) is the cause of Acquired Immune Deficiency Syndrome (AIDS) which transmits through sexual contacts, exposure to infected blood or blood components, needle stick injury, and prenatally from mother to neonate. About 2.1 million of people under the age of 15 have acquired HIV through mother to child transmission .HIV prevalence in Sudan was 0.67% after the separation in 2011. The WHO guides the health sector response to human immunodeficiency virus (HIV) epidemics in order to achieve universal access to HIV prevention, diagnosis, treatment, care, and support.* **(1)**
The aim of the study: *The study aimed to examine the effect of health education program toward prevention of HIV transmission on midwives in Omdurman Maternity Hospital, Omdurman State, Sudan.*
Materials and Methods: *This is an experimental study, and it involved (60) Midwives. Official permission was obtained from the institutions and consent from participants. The study was implemented in three phases, pre-intervention baseline assessment was done using a structured interview questionnaire to assess the knowledge & practices regarding HIV prevention and checklist was used for observation including preparation and steps regarding universal precautions during three phases of labor. After that an intervention done through lectures and demonstrations, role play was used in the practical situation. Monitoring and supervision were carried out monthly for 9 months post-intervention data were collected again, The data were analyzed using Statistical Package for Social Sciences (SPSS) version 20, statistical significance was set to alpha.0.5. Data were calculated to find out midwives' knowledge and practice. Total score of knowledge and practice were also calculated and compared with pre-test and post-test.*
Results*: secondary school is the highest level of education in all participants, only (30%) of the participants attending courses on HIV/AIDS. The Knowledge of the participants about modes of transmission of AIDS increased after the intervention, mean (51&82) (p = 0.00), and knowledge of the participants about the universal precaution increased after the intervention (p = 0.01). The Training Program enhances participants to use universal precautions during practice, mean (50.8 &98. 7) (P = 0.00).*
Conclusions *The intervention program significantly improved knowledge and practice of participants regarding prevention of HIV/AIDS.*
Keywords: *HIV/AIDS; transmission; midwives; knowledge; intervention; program; Sudan.*

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I. Introduction

Worldwide, 35.0 million [33.2–37.2 million] people were living with HIV at the end of 2013.Since the beginning of the epidemic, almost 78 million people have been infected with the HIV virus and about 39 million people have died of HIV. 0.8% of adults aged 15–49 years globally are living with HIV, although the burden of the epidemic continues to vary considerably between countries. Sub-Saharan Africa remains most severely affected, with nearly 1 in every 20 adults living with HIV and accounting for nearly 71% of the people living with HIV worldwide. **(2)**

HIV and other blood-borne illnesses such as Hepatitis B may be transmitted in the healthcare setting from patient to health care provider, patient to patient, or from health care provider to the patient. HIV has been isolated from: blood, semen, vaginal and cervical secretions, urine and feces, wound secretions, saliva, tears, breast milk and cerebrospinal, amniotic, synovial, and pericardial fluids. Vertical transmission of HIV is the most common way of infection in less than 15 year-olds. Fifteen to twenty percent of children are infected during pregnancy, 50 % during labor and delivery and 33% through breastfeeding .Regarding that WHO has promoted hygiene as a universal program for preventing HIV in newborns, most programs focus on vertical transmission prevention[(3)] Programs to prevent the vertical transmission of HIV (from mothers to children) can reduce rates of transmission by 92–99%. This primarily involves the use of a combination of antiviral medications during pregnancy and after birth in the infant and potentially includes bottle feeding rather than breastfeeding.[(4)]

The average HIV prevalence rate among pregnant women attending antenatal care (ANC) is 0.19%. Only 4% of the respondents knew all the three ways to prevent HIV transmission in Sudan[(5)]

The Universal/Standard precautions are the practices that must be adopted by all healthcare workers (HCW) when potentially coming into contact with any patient's blood, tissue or body fluid. They are based on a set of principles designed to minimize exposure to and transmission of a wide variety of micro-organisms. Since every patient is a potential infection risk it is essential that universal/standard precautions are used for all patients all of the time.[(1)]

Standard precautions are meant to reduce the risk of transmission of Blood borne and other pathogens from both recognized and unrecognized sources. Standard precautions (SP) are the core concept for the prevention of HIV transmission in all health care settings. (HCW)[(6)]

With treatment there is a 70% reduced risk of acquiring tuberculosis. Additional benefits include a decreased risk of transmission of the disease to sexual partners and a decrease in mother-to-child transmission. [(1)]

The effectiveness of treatment depends to a large part on compliance.[(7)]

II. Materials and Methods

The Materials and Methods begin by presenting the research design, followed by setting and duration of the study,sample ,sample size, data collection technique and tools, phases of the study, validity, and reliability of instruments and ethical considerations.

2.1. Study design: A quasi-experimental research design was used to accomplish this study.

2.2. Setting: Omdurman Maternity Teaching Hospital, Omdurman State, Sudan.

2.3. Sample: 60 midwives are enrolled in this study total coverage; official permission was obtained from the institutions and consent from participants.

2.4. Data collection technique and tools: structured interview questionnaire sheet was developed to assess midwives knowledge regarding HIV prevention and observational checklist to assess their actual practices regarding universal precautions pre and post intervention.

2.5. Phases of the Study

2.5.1. Pre Intervention Phase: Baseline survey was conducted.

2.5.2. Intervention Phase: A course of 5 days was offered for each group, which included three lectures for three hours. The demonstration role play was used in the practical station for 4 hours in which application of universal precautions steps was applied; a total of 60 midwives was trained.

2.5.3. Post Intervention Monitoring: Monitoring and supervision were carried out monthly for 9 months after the intervention to assess application of UPs, in the first three months they were observed in the morning shift, the second three months they were observed in the afternoon and night shift and the last three months they were observed again in the afternoon shift. Post-intervention data were collected. (by using checklist and questionnaire) After 9 months to assess the application of UPs by the same data collector.

2.6. Validity and Reliability of instruments

The instruments were pre-tested in the pilot study before final data collection for reliability.

2.7.Ethical consideration: A written acceptance was obtained from the director of Omdurman Maternity Teaching Hospital , Sudan national Aids program and all midwives who participate in this study was given information about the study.

III. Results

Table.(1): Showed that,the frequency of socio-demographic characteristics of participants, the highest educational qualification was a secondary school (60%), level of intermediate school constitutes (21%), primary school level constitutes (11.7%), Illiterate level constitutes (3.3%) and khalwa constitutes (3.3%). The Experience of participants showed that (83.3%) was 5 years or more and (16.7%) is 1 year.

Table.(2): Illustrated the present of Participants attending course on HIV/AIDS. as represent in the table there are (30%) received courses on HIV/AIDS as workshops/seminars and/or attended lectures for the same purpose, while (70.0%) do not attend courses

Table.(3): Showed the source of information for most participants as shown from the table (40%) was from more than one source (25%) from another source while (16.7%) from magazines and newspaper. (8.3%) their source from TV (5%) from Radio (3.3%) from AIDS centers and (1.7%) from the hospital.

Table.(4): Present the level of midwives knowledge regarding HIV/AIDS mode of transmission after the intervention. Most participants 48(80%) knew that HIV/AIDS can be transmitted by unsafe sex, more than half of participants knew that HIV/AIDS can transmit by sharing needles and cannot transmit by Mosquito or rodents .

Independent–sample t-test has calculated the differences in Knowledge about AIDS mode of transmission before and after the intervention. The result showed significantly increased in knowledge Mean (16&57) and Stander deviation (1.4 &2) respectively ($p = 0.00$). The program improved midwives' knowledge of the HIV/AIDS about the mode of transmission.

Table.(5): Illustrated the percentage of participants deliver AIDS women as represent in table five as (28.3) their answer are yes and (71.7) their answer are No.

Table.(6): Illustrated the prescnt of Participants knowledge about opportunistic infection AIDS education program is expected to enhance midwives about opportunistic infection

Table(7): Showed the total Midwives knowledge about exposure to needle stick injury after intervention most participants (96.6) knew that they squeeze the site of infection till it bleeds then notify before 72 hrs

Table(8): Illustrated the percent Midwives care of known HIV infected women most participants Care of known HIV infected women after intervention(100%)

Table(9): Presente AIDS education program will enhance midwives, Knowledge on universal precautions against occupational exposure to HIV. The total knowledge score of midwives who participated in a training program was improved after intervention compared to score before the intervention.

The results after conduction of t-test showed that mean before intervention (51) and after intervention was (82) and SD before intervention (4.6) and after intervention (2.8) That means the result differs in their total score of knowledge in post-test and the result was significant, $p = 0.01$ and this result answered question two and accepted hypothesis two

The result clearly reflected the effectiveness of training program with total knowledge of participating MWs.

Table(10): Independent–sample t-test has calculated the differences in the midwives application of universal precautions before and after the intervention. The result showed Mean (50.8 &98. 7) and Stander deviation (4.7&1.6) respectively ($p = 0.00$).

Figure.(1&2).: AIDS education program is expected to enhance midwives, practice on universal precautions against occupational exposure to HIV compare to pre-intervention .The post-intervention score of midwives who participated in a training program of the practice on universal precautions against occupational exposure to HIV compared to pre-intervention would be improved. The total score of practice of midwives who participated in a training program was improved after intervention compared to score before the intervention.

Table.(1): Frequencies and percentages of demographic variables of the whole sample midwives .

Variable	Frequency	Precent
Education		
Khalwa	2	3.3%
Illiterate	2	3.3%
Primary	7	11.7%
Intermediate	13	21.7%
Secondary	36	60.0%
Experience		
< 1 year	10	16.7%
5 years or more	50	83.3%

Table.(2): Midwives attending course on HIV/AIDS .

Course on HIV/AIDs	Frequency	Percentage (%)
Yes	18	30.0%
NO	42	70.0%
Total	**60**	**100.0**

Table.(3): Midwives information sources on HIV/AIDs

Information sources on HIV/AIDs	Frequency	Percentage (%)
Magazine and newspaper	10	16.7%
AIDs center		
TV	2	3.3%
Radio	5	8.3%
Hospital	3	5.0%
Others	1	1.7%
More than one source	15	25.0%
	24	40.0%
Total	**60**	**100.0**

Table.(4):Midwives knowledge about HIV/AIDS mode of transmission

	Before Intervention		After Intervention		
Mode	**Frequency**	**Percent**	**Frequency**	**Percent**	**P-value**
Is HIV/AIDS transmitted by Mosquito or rodents					
Yes	25	41.7%	0	00.0	0.00
No	35	58.3%	60	100%	
Is HIV/AIDS transmitted by sharing utensils?					
Yes	47	78.3%	3	5.0%	0.01
No	13	21.7%	57	95.0%	
Is HIV/AIDS transmitted by sharing needles?					
Yes	33	55%	60	100%	0.00
No	27	45%	0	00.0%	
Is HIV/AIDS transmitted by unsafe sex?					0.02
Yes	48	80%	60	100%	
No	12	20%	0	00.0%	
Is HIV/AIDS transmitted by vertical method?					
Yes					0.00
No	31	51.7%	100%	100%	
	29	48.3%	00.0%	00.0%	
Total midwives' knowledge about AIDS transmission	**Mean**	**± SD**	**Mean**	**± SD**	**P-value**
	16	1.4	57	2	0.00

Table.(5). Midwives result regarding delivery of HIV positive women

	Before Intervention		After Intervention		
Variable	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**P.Value**
Did you deliver AIDS, women?					
Yes	**17**	**28.3%**	**60**	**100%**	
No	**43**	**71.7%**	**0**	**00.0%**	**0.00**

Table.(6) Midwives knowledge about opportunistic infection

	Before Intervention		After Intervention		
Variable	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**P.Value**
Do you know opportunistic Infection					
Yes	12	20.0%	60	100%	
No	48	80.0%	0	00.0%	0.02

Table.(7) Midwives knowledge about exposure needle stick injury

	Before Intervention		After Intervention		
Variable	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**P.Value**
After exposure needle stick injury					
Nothing to be done	9	15.0%	1	1.7%	
Wash using soap and water	35	58.3%	1	1.7%	
Squeeze the site of infection till it bleeds then notify before 72 hrs	16	26.7%	58	96.6%	0.07

Table.(8): Midwives Care of known HIV infected women

	Before Intervention		After Intervention		
Variable	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**P.Value**
Care of known HIV infected women					
Yes	22	36.7%	60	100%	
No	38	63.3%	0	00.0%	0.00

Table(9). midwives' knowledge about universal precaution

	Before Intervention		After Intervention		
Variable	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**P-value**
HIV/AIDS prevention					
Avoid sharing syringes	**4**	**6.7%**	**1**	**1.7%**	**0.06**
Safe sex	**42**	**70.0%**	**1**	**1.7%**	
Avoid sharp equipment	**1**	**1.7%**	**2**	**3.3%**	
All answer	**13**	**21.7%**	**56**	**93.3%**	
Hand washing					
Yes	**24**	**40.0%**	**60**	**100%**	
No	**36**	**60.0%**	**0**	**00.0%**	**0.00**

Safe disposal **Yes** **No**	 **11** **49**	 **18.3%** **81.7%**	 **60** **0**	 **100%** **00.0%**	 **0.02**
Use protective measures **Yes** **No**	 **15** **45**	 **25.0%** **75.0%**	 **60** **0**	 **100%** **00.0%**	 **0.00**
Sharp equipment disposal **Yes** **No**	 **21** **39**	 **35.0%** **65.0%**	 **60** **0**	 **100%** **00.0%**	 **0.02**
Cloths appropriate treatment **Yes** **No**	 **9** **51**	 **15.0%** **85.0%**	 **60** **0**	 **100%** **00.0%**	 **0.00**
Waste disposal **Yes** **No**	 **19** **41**	 **31.7%** **68.3%**	 **55** **5**	 **91.7%** **8.3%**	 **0.01**
Gloves are worn **Yes** **No**	 **24** **36**	 **40.0%** **60.0%**	 **60** **0**	 **100%** **00.0%**	 **0.00**
Total midwives' knowledge about AIDS universal precautions	**Mean**	**± SD**	**Mean**	**± SD**	**P-value**
	51	**4.6**	**82**	**2.8**	0.01

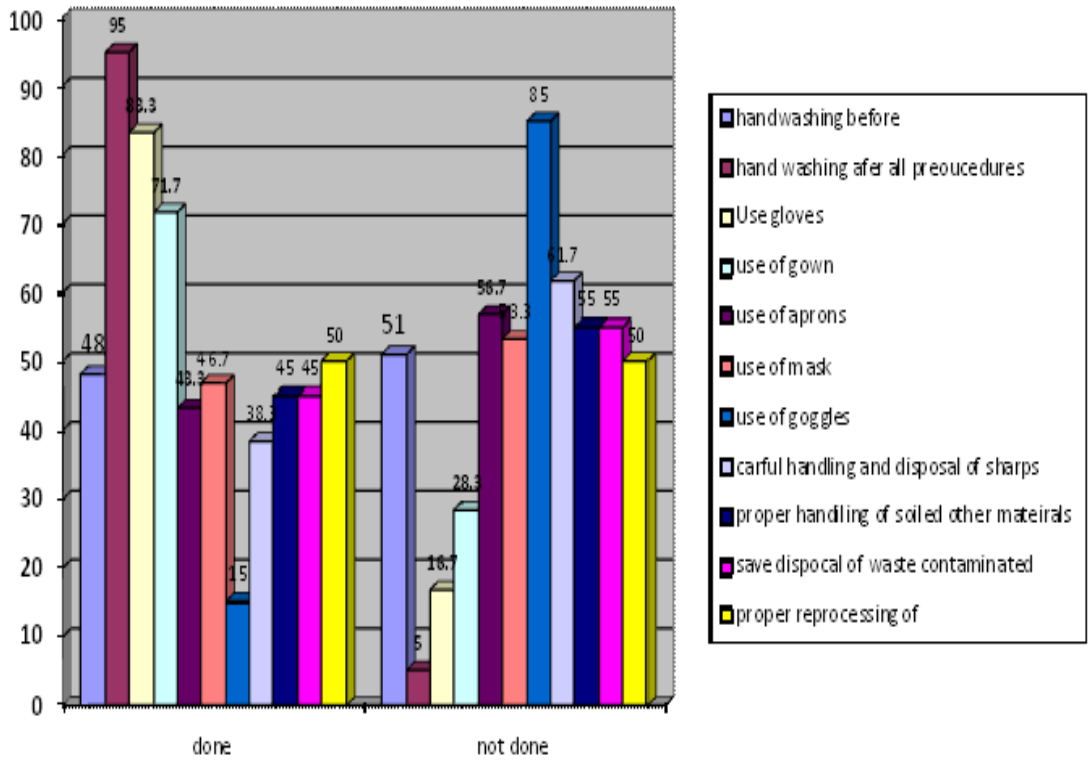

Figure (1) Midwives application of universal precaution for HIV/AIDS prevention Before Intervention

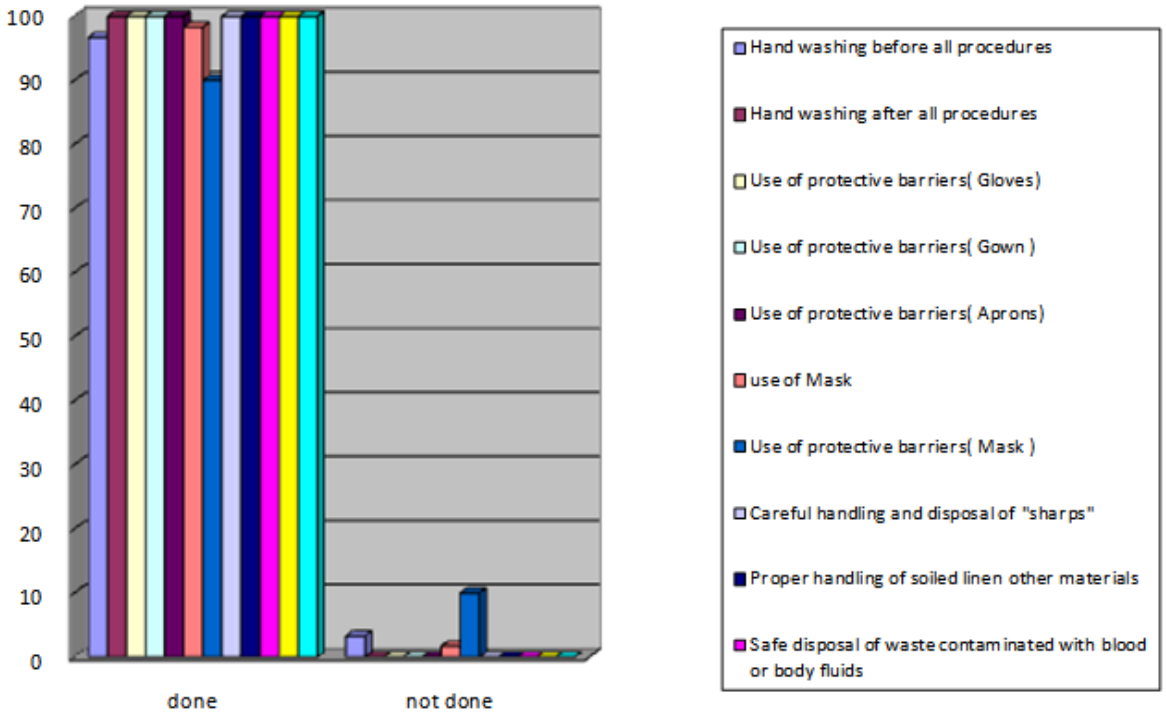

Figure (2). Midwives application of universal precaution for HIV/AIDS prevention After Intervention

Table.(10).Total midwives level of application of universal precaution

Indicators	Time	Mean	Stander deviation	P-value
Total midwives level of application of universal precaution for HIV/AIDs	Before	50.8	4.7	0.00
	After	98.7	1.6	

IV. Discussion

Introduction

The application of Universal Precautions through an Educational Intervention Training Program on knowledge and practice toward prevention of Human Immunodeficiency Virus (HIV) on midwifery discipline significantly improved the level of nurse-midwives perception and performance compared to pre-intervention assessment for midwives at Omdurman Maternity Hospital.

The study showed a positive effect of training program on the midwives' knowledge to prevent HIV (human immunodeficiency virus) transmission in Omdurman Maternity Hospital compared to pre- intervention. The midwives demonstrated statistically significant scores of knowledge post-intervention compared to pre-intervention, the lack of knowledge may be due to lack in the curriculum of training institutes and an up-to-date policy concerning the transmission of HIV/Aids in institutes. The findings of this study are compared to findings of a study conducted by Adeline Nyamathi (2009), to improve midwives' knowledge about HIV,which showed that some interventions improved midwives' knowledge. [8]

Furthermore, a reviewed study conducted by Vida Mockienė (2010) indicated that in most researches the interventions have a quite positive effect on nurses' knowledge, attitudes and willingness to take care of HIV-positive patients or those with AIDS in different countries.[9]

The findings of this study disagree with a research carried out on England midwives which suggested that there is a need to review HIV- related training for midwives. It found that no significant difference in levels of knowledge or attitude between those who had attended the training program and those who had not. [10]

The nurse-midwives' knowledge of HIV is necessary to make positive changes in behavior and practice which can enable them to prevent the transmission of HIV in the course of their professional duty.

The knowledge of universal precautions amongst midwives statistically has a significant relation, (p = 0.01), between the study groups (pre and post.). The study clarifies that before the intervention knowledge means (51) and after the intervention, the study highlighted a relative improvement in mean (82). The prevention of HIV through an educational intervention program significantly improved the level of midwives

knowledge compared to pre-intervention. This is in contrast with the findings of Serah Osamudiamen (2015) study which carried out among midwives in Central Hospital, Benin City, that the midwives had a high level of knowledge about universal precautions. **(11)**

This agreed with the study done by Faiza Ali Sudan (2014) that nurse/midwives had high level of knowledge towards HIV and universal precautions. **(12)** The findings of this study showed that the midwives level of universal precautions for HIV/AIDS application increased after the intervention, this is similar to the findings mentioned by (Faiza Ali 2009). The performance of participants in the first month immediately following intervention was very high compared with the following months in the memory gap, therefore a marked reduction of UPs application in the following months was reported. **(13).**

Gammon (2005) stated that globally, knowledge of universal precautions is inadequate and compliance is low. Most of the respondents have had previous training in universal precautions which may have influenced their knowledge positively. **(14)**

Furthermore, the findings of this study disagree with a research carried out in Nigeria by Serah Osamudiamen (2015) midwives practices of universal precautions is significantly high. Also Chiamaka (2008) said that the more contact with PLWA the higher knowledge base of these workers and the more willing the staff would be to offer care. **(15)**

V. Conclusion

The current study concluded that the results and findings answered the research questions. The intervention program significantly improved knowledge and practice of midwives regarding prevention of HIV/AIDS. .This program was effective in increasing midwives knowledge and practice regarding prevention of HIV.

VI. Recommendations

The researcher recommends that it is important to educate all midwives on HIV prevention. As well as periodic workshops and seminars should be seen as vital to prevent from infection. Future studies to search the impacts of AIDS education program for village midwives are highly recommended.

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