

A Survey Study between Acquired Immune Deficiency Syndrome and Pregnant Women, Health Promotion Program

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Abstract

Background: Acquired immune deficiency syndrome (AIDS) is a disease affecting the human immune system; it is caused by a virus that reduces the effectiveness of the immune system of the body to the extent that it is no longer able to fight a simple infection. The health promotion program is an important option in preventing the disease by raising the level of knowledge and information of the individual. **Objectives:** To determine the level of the pregnant women's knowledge about AIDS as well as to identify the effectiveness of the health promotion program on the knowledge and information of the pregnant women toward the disease and the relationship with some relevant variables. **Materials and Methods:** A cross-sectional study was conducted in Babylon/Al-Hashimiya district from September 20, 2020 to December 30, 2020. Data were collected from five health centers at Al-Hashimiya Health Sector (health centers in Al-Madhatiya, Khakan, Al-Qassim, Al-Ghazalli, and Al-Awadil), by using a special questionnaire designed for this purpose. Simple random sampling was used for the study; 300 pregnant women served as the participants attending health centers. **Results:** Result shows the majority of the pregnant women (123, 41%) were registered at age 25–29 years. With regard to education, 111 (37%) of the participants in the study sample were at secondary level of education, and about 202 (67.3%) of the participants were housewives. Regarding residency, 169 (56.3%) of the women participants were reported to be in urban areas. In addition, an analysis of the results by the “chi-square” test had reported a high significant association ($P \leq 0.01$) between pregnant women's knowledge and basic sources of the information and the knowledge during the pretest and posttest period, with some factors related to the effectiveness of the health promotion program being achieved by success in the field of health promotion (15.7%) during two periods. **Conclusions:** In the present study, knowledge of pregnant women about HIV/AIDS was intermediate at (pretest) period. Whereas, during the (posttest) period, their knowledge was increased to high levels.

Keywords: AIDS, health promotion, knowledge, pregnant women

INTRODUCTION

Acquired immune deficiency syndrome (AIDS) is a major epidemic and health problem all over the world, and it affects all ages and both genders. Today, AIDS is one of the top 10 killer diseases in some countries. Globally, around 36.7 million people are estimated to be living with human immunodeficiency virus (HIV) at the year 2015, out of whom 17.8 million are women.^[1,2]

At the end of the year 2018, approximately 37.9 million people were living with HIV globally; so, HIV infection has contributed to the death of more than 35 million people since its emergence.^[3]

The virus can be transmitted from a pregnant mother to her child during the pregnancy, birth, and breastfeeding.^[4]

The disease is caused by the HIV—retrovirus, which infects and destroys the immune system's cells and then leads to an increase in the susceptibility to infection. It can take about 10–15 years for HIV-affected people to develop into AIDS cases.^[5]

The WHO promotes three approaches to reduce HIV transmission from a mother to her child. They are: prevention of new infection in parents, avoiding

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pregnancies of infected women with HIV (primary prevention), and preventing the transmission of HIV from an affected mother to her infant (secondary prevention).^[6]

Administration of antiretroviral medications to the HIV-affected pregnant woman and her infants is very important for reducing the risk of transmission. Antiretroviral drugs lead to a low viral load; the rate of HIV transmission to a child through breastfeeding and the caesarean section approximately 2%.^[7,8]

Health promotion strategies are considered to be equally valid for the prevention and control of infectious diseases, especially in the developing world.^[9]

Health promotion is a process of enabling people to exercise control and improve their health.^[10]

The decrease of adequate knowledge toward AIDS and the prevention methods against the transmission of HIV from a mother to her infant could be seen as being responsible for around 90% of the childhood infections with HIV.^[11]

Most of the pregnant women have a general knowledge about the AIDS, but they does not have the ability to identifying the main behaviors of preventing the disease.^[12]

Therefore, one of the essential goals of the prevention against the transmission of AIDS from mother to child is to strengthen population-based activities, as well as to enhance effective health education programs.^[13]

MATERIALS AND METHODS

A cross-sectional study design was used. This study was conducted in south Babylon Province at Al-Hashimiya District, Iraq. The study was conducted from September 20 to December 30, 2020. Data were taken from five health centers (Al-Madhatiya health center, Khakan health center, Al-Qassim health center, Al-Ghazalli health center, Al-Awadil health center) in Al-Hashimiya Health Sector, Babylon Province, Iraq. The study sample consisted of 300 pregnant women who attended primary health care centers; simple random sample selection was used. Data were obtained by coordination with staff of the health promotion units at Al-Hashimiya Sector, through a direct interview with the participants by using a special questionnaire format; before collection of the data, all pregnant women were present in the health centers and their consent to participate in this study was obtained. In this study was application of the "Health Promotion" program (Pre-Post Test); (Pre-test begin at 9:00 am - 9:30 am), via interview of the pregnant women and lasted for 15–20 minutes to answer questions of the questionnaire by them, and then was taken a rest for 10 minutes. After completion data collection at (Pre-test) period, began giving lectures of health promotion program about AIDS (One lecture at each day), each lecture lasted for

1 h begin at (9:30 am to 10:30 am), the lectures included many educational method such as display information by using (power point slides), educational pamphlets, and discussion about the disease. Lectures of health promotion included the information below about HIV-AIDS: (What is HIV-AIDS? - Signs and Symptoms - Incubation period and Communicability - Mode of transmission - Epidemiology- Complications - Risk groups – Treatment - Prevention and Control measures). After that, the (post-test) period begins after end of the lecture; which includes video display with giving important tips for the pregnant women and educating them about the disease.

Statistical analysis

Results of this study were analyzed by SPSS package version 23.0 (SPSS, IBM Company, Chicago, IL), using inferential data analysis. This was used to accept or reject the statistical hypotheses, which included the following:

- 1- Chi-square test (χ^2): For testing distribution of the frequencies.
- 2- Binomial test (Bin. test): For testing the different distribution of the observed frequencies in two categories.
- 3- MC-Nemar test: A nonparametric test for two related dichotomous variables. In order to test whether the mother's knowledge had been affected due to application of the suggested program on each individual of the studied sample or not, MC-Nemar test using the nonparametric method for two related dichotomous variables is used. This test is useful for detecting changes in responses due to experimental interventions in "before and after" designs. Typically, a significance value less than 0.05 is considered significant. Addition to that, the options (I don't know and answered with No) were admixed together at the same scale.

The comparison significant (C.S.), as the following:

Nonsignificant ($P > 0.05$); Significant ($P < 0.05$); High significant ($P < 0.01$)

Abbreviations: (T–T) reveals for responding with true in the two periods, (T–F) reveals for responding with true in pre-test period and changed to false at the post-test period, (F–T) reveals for responding with false in pre-test period and changed to true at the post-test period, and finally (F–F) reveals for responding with false in two periods.

Ethical consideration

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. Before collection of the data, verbal consent was obtained from all pregnant women in the health centers before their participation in this study. The study protocol, the subject information, and consent form were reviewed and approved by a local ethics committee.

RESULTS

Table 1 showed that 123 (41%) of the pregnant women were in the age group of 25–29 years; their mean age was 27.04 ± 6.81 years. With respect to educational degree, the greater number of pregnant women were at secondary level of education: They were 111 (37%), and about 202 (67.3%) of them were housewives. With regard to residency, 169 (56.3%) of the women participants resided at urban areas. Regarding the number of children, the findings indicated that a majority of the pregnant women had one child and these accounted for 105 (35%).

Table 2 shows the knowledge of pregnant women during the pretest period regarding HIV/AIDS; the results indicated a high significant difference at P value ≤ 0.01 between differentiated dichotomous categories, responding for the study items.

Regarding the item of the question “Have you heard of HIV/AIDS?”: The majority of pregnant women (279, 93%) answered “Yes”; whereas the respondents with “No” were 21 (7%).

Relative to item of the question “Is HIV/AIDS considered a contagious disease?”: Most of the pregnant women answered “Yes,” and these accounted for 211 (70.3%).

With respect to item of the question “Do you know whether HIV/AIDS classify at any categories of the epidemiological diseases?”: The vast majority of the studied sample (196, 65.3%) answered with Respiratory; whereas the others answers with Immunological and

Intestinal accounted for 60 (20%) and 44 (14.7%), respectively.

Concerning the item of the question “What are the causative agents of HIV/AIDS?”: Most of the participants’ answers were Bacteria, which accounted for 171 (57%). However, the remaining answers with Virus and Parasite were reported to be 92 (30.7%) and 37 (12.3%), respectively.

Regarding the item of the question “Can HIV/AIDS be transmitted from an infected mother to her child?”: A higher rate of women participants answered “Yes,” and they accounted for 216 (72%).

With respect to the item of the question “Is HIV/AIDS a disease transmitted by sexual contact and contaminated blood of the patients?”: The majority of the participants (199, 66.3%) answered “Yes.”

Relative to the item of the question “Do you think the incubation period of HIV/AIDS lasts for several years?”: The observed answers of the pregnant women were high with “Yes,” and they accounted for 153 (51%).

Concerning the item of the question “Does HIV/AIDS affect pregnant women more than other groups?”: The vast majority of the women participants (201, 67%) answered “Yes.”

Relative to the item of the question “Can HIV/AIDS be cured completely by using medication?”: Most of the pregnant women (134, 44.7%) answered “Yes.”

Table 1: Distribution of the participants according to socio-demographic characteristics

Sociodemographic characteristics	Years	N = 300	%
Pregnant women	Younger than 20	33	11
Age groups	20–24	87	29
	25–29	123	41
	30–34	45	15
	35–39	10	3.3
	40 and older	2	0.7
	Mean $\pm$ SD	26.04 $\pm$ 3.81	
Educational degree	Illiterate	9	3
	Read/write and primary	56	18.7
	Intermediate	79	26.3
	Secondary	111	37
	University	45	15
Occupational status	Housewife	202	67.3
	Student	51	17
	Governmental employee	47	15.7
Residency	Urban	169	56.3
	Rural	131	43.7
No. of children	0	83	27.7
	1	105	35
	2	64	21.3
	3	30	10
	≥ 4	18	6

Table 2: Participants knowledge toward HIV/AIDS at (pretest) period

Pregnant women's knowledge	Responding	No.	%	P value
Have you heard of HIV/AIDS?	Yes	279	93	$P = 0.001$
	No	21	7	(HS) Binomial test
Total		300	100%	-
Is HIV/AIDS considered a contagious disease?	Yes	211	70.3	$P = 0.000$
	No	48	16	(HS)
	I don't know	41	13.7	$\chi^2 = 43.56$
Total		300	100%	-
Do you know whether HIV/AIDS can be classified into any of the categories of the epidemiological diseases?	Respiratory	196	65.3	$P = 0.001$
	Immunological	60	20	(HS)
	Intestinal	44	14.7	$\chi^2 = 62.31$
Total		300	100%	-
What are the causative agents of HIV/AIDS?	Bacteria	171	57	$P = 0.001$
	Virus	92	30.7	(HS)
	Parasite	37	12.3	$\chi^2 = 60.87$
Total		300	100%	-
Can HIV/AIDS be transmitted from an infected mother to her child?	Yes	216	72	$P = 0.000$
	No	14	4.7	(HS)
	I don't know	70	23.3	$\chi^2 = 71.43$
Total		300	100%	-
Is HIV/AIDS a disease that is transmitted by sexual contact and the contaminated blood of the patients?	Yes	199	66.3	$P = 0.000$
	No	86	28.7	(HS)
	I don't know	15	5	$\chi^2 = 69.86$
Total		300	100%	-
Do you think that the incubation period of HIV/AIDS lasts for several years?	Yes	153	51	$P = 0.001$
	No	106	35.3	(HS)
	I don't know	41	13.7	$\chi^2 = 74.78$
Total		300	100%	-
Does HIV/AIDS affect pregnant women more than other groups?	Yes	201	67	$P = 0.001$
	No	82	27.3	(HS)
	I don't know	17	5.7	$\chi^2 = 77.60$
Total		300	100%	-
Can HIV/AIDS be cured completely by using medication?	Yes	134	44.7	$P = 0.000$
	No	99	33	(HS)
	I don't know	67	22.3	$\chi^2 = 62.20$
Total		300	100%	-
Can HIV/AIDS be prevented by vaccination?	Yes	221	73.7	$P = 0.000$
	No	43	14.3	(HS)
	I don't know	36	12	$\chi^2 = 153.6$
Total		300	100%	-
Do you think that health promotion programs play an essential role in the prevention of HIV/AIDS?	Yes	205	68.3	$P = 0.000$
	No	17	5.7	(HS)
	I don't know	78	26	$\chi^2 = 122.4$
Total		300	100%	-

HS = highly significant, χ^2 = chi-square test $P \leq 0.001$

Regarding the item of the question “Can HIV/AIDS be prevented by vaccinations?”: The majority of the study sample answered “Yes,” and they accounted for 221 (73.7%).

Finally, with regard to the item of the question “Do you think that health promotion programs play an essential role in the prevention of HIV/AIDS?”: The answers of the

participants were very high (205, 68.3%), with the option Yes; whereas the minority of pregnant women answered with No and I don't know, which were recorded as 17 (5.7%) and 78 (26%) respectively.

Table 3 shows the knowledge of pregnant women during the posttest period regarding HIV/AIDS; the results indicated that high significant differences were found

at P value ≤ 0.01 between differentiated dichotomous categories, responding for the study items.

Regarding the item of the question “Have you heard of HIV/AIDS?”: The majority of pregnant women (296, 98.7%) answered “Yes”; whereas the respondents with “No” were four (1.3%).

Relative to the item of the question “Is HIV/AIDS considered a contagious disease?”: Most of the pregnant

women answered “Yes,” and these accounted for 273 (91%).

With respect to the item of question “Do you know HIV/AIDS classifies as any category of epidemiological diseases?”: The vast majority of the studied sample (185, 61.7%) answered with Immunological; whereas the others answered with Respiratory and Intestinal, which accounted for 79 (26.3%) and 36 (12%), respectively.

Table 3: Participants knowledge toward HIV/AIDS at (posttest) period

Pregnant women's knowledge	Responding	No.	%	P value
Have you heard of HIV/AIDS?	Yes	296	98.7	$P = 0.000$ (HS)
	No	4	1.3	Binomial test
Total		300	100%	-
Is HIV/AIDS considered a contagious disease?	Yes	273	91	$P = 0.000$ (HS)
	No	10	3.3	$\chi^2 = 245.2$
	I don't know	17	5.7	
Total		300	100%	-
Do you know whether HIV/AIDS can be classified into any category of epidemiological diseases?	Respiratory	79	26.3	$P = 0.000$ (HS)
	Immunological	185	61.7	$\chi^2 = 75.96$
	Intestinal	36	12	
Total		300	100%	-
What are the causative agents of HIV/AIDS?	Bacteria	84	28	$P = 0.001$ (HS)
	Virus	203	67.7	$\chi^2 = 153.17$
	Parasite	13	4.3	
Total		300	100%	-
Can HIV/AIDS be transmitted from an infected mother to her child?	Yes	241	80.3	$P = 0.001$ (HS)
	No	17	5.7	$\chi^2 = 84.26$
	I don't know	42	14	
Total		300	100%	-
Is HIV/AIDS a disease that is transmitted by sexual contact and contaminated blood of the patients?	Yes	219	73	$P = 0.000$ (HS)
	No	74	24.7	$\chi^2 = 155.4$
	I don't know	7	2.3	
Total		300	100%	-
Do you think the incubation period of HIV/AIDS lasts for several years?	Yes	168	56	$P = 0.001$ (HS)
	No	105	35	$\chi^2 = 80.92$
	I don't know	27	9	
Total		300	100%	-
Does HIV/AIDS affect pregnant women more than other groups?	Yes	139	46.3	$P = 0.000$ (HS)
	No	152	50.7	$\chi^2 = 149.39$
	I don't know	9	3	
Total		300	100%	-
Can HIV/AIDS be cured completely by using medication?	Yes	102	34	$P = 0.001$ (HS)
	No	151	50.3	$\chi^2 = 73.66$
	I don't know	47	15.7	
Total		300	100%	-
Can HIV/AIDS be prevented by vaccination?	Yes	58	19.3	$P = 0.000$ (HS)
	No	212	70.7	$\chi^2 = 161.80$
	I don't know	30	10	
Total		300	100%	-
Do you think that health promotion programs play an essential role in the prevention of HIV/AIDS?	Yes	252	84	$P = 0.000$ (HS)
	No	13	4.3	$\chi^2 = 134.52$
	I don't know	35	11.7	
Total		300	100%	-

HS = highly significant, χ^2 = chi-square test

$P \leq 0.001$

Regarding the item of the question “What are the causative agents of HIV/AIDS?”: Most of the participants answered with Virus, which were 203 (67.7%); whereas the remaining answered with Bacteria and Parasite, which were reported to be 84 (28%) and 13 (4.3%), respectively.

Regarding the item of the question “Can HIV/AIDS be transmitted from an infected mother to her child?”: Most of the women participants answered “Yes,” and they accounted for 241 (80.3%).

With respect to the item of the question “Is HIV/AIDS a disease that is transmitted by sexual contact and contaminated blood of the patients?”: The majority of the participants (219, 73%) answered “Yes.”

Relative to the item of the question “Do you think the incubation period of HIV/AIDS lasts for several years?”: The observed answers of the pregnant women were high with Yes, and they accounted for 168 (56%).

Regarding the item of the question “Does HIV/AIDS affect pregnant women more than other groups?”: The vast majority of women participants (152, 50.7%) answered “No.”

Relative to the item of the question “Can HIV/AIDS be cured completely by using medication?”: Most of the pregnant women (151, 50.3%) answered “No.”

Regarding the item of the question “Can HIV/AIDS be prevented by vaccination?”: The majority of the study sample answered “No,” and they accounted for 212 (70.7%).

Finally, with regard to the item of the question “Do you think the health promotion program plays an essential role in the prevention of HIV/AIDS?”: The answers of participants were very high (252, 84%), with the option Yes; whereas the minority of pregnant women answered with No and I don’t know, which were recorded as 13 (4.3%) and 35 (11.7%), respectively.

Table 4 shows the main sources for knowledge and information of pregnant women regarding HIV/AIDS during the pretest period, with significant comparisons. The result indicated that there was a highly significant

association at ($P \leq 0.01$) between the different dichotomous categories, responding for the studied question.

Regarding the item of the question “What are the basic sources of knowledge and information toward HIV/AIDS?”: The majority of the participants in this study chose the health staff as a main source for their knowledge, and they were accounted 193 (64.3%).

Table 5 shows the main sources for knowledge and information of the pregnant women regarding HIV/AIDS during the posttest period, with significant comparisons. The result indicated that there was a highly significant association at $P \leq 0.01$ between the different dichotomous categories, responding for the studied question.

Regarding the item of the question “What are the basic sources of knowledge and information toward HIV/AIDS?”: The majority of the participants in this study answered with (Health staff), and they are accounted 218 (72.7%). whereas, the answers of pregnant women was very low at the option (Other: Health conferences, Cycles, workshops etc...), which that recorded two (0.7%). Thus, the results did not register a significant difference for this option.

Table 6 represents the comparison during the pretest and posttest periods for asking questions (related to the effect of the health promotion program on the knowledge and information of pregnant women regarding HIV/AIDS) as follows:

Do health promotion programs have an effective role in increasing pregnant women’s knowledge to prevent HIV/AIDS?

The result showed that a highly significant association that occurred at $P \leq 0.01$, since 95 (31.7%) of participants were wrongly answer with “No” and “didn’t know” that health promotion program play essential role to prevent HIV/AIDS in pre-test period at (F–F) and (F–T); In addition, it was observed that the percentage were increased for respondents true answer at “post-test” period, which that recorded 252 (84%) at respondents answers (T–F) and (T–T). Based on the above, the program has achieved success in the field of health promotion for

Table 4: Sources of participants knowledge toward HIV/AIDS at pretest period

Question for pregnant women	Sources of knowledge and information	No.	%	Comparison significant (P value)
What are the basic sources of knowledge and information toward HIV/AIDS?	TV and radio	41	13.7	$P = 0.001$ (HS) $\chi^2 = 268.0$
	Health staff	193	64.3	
	Friends and neighbors	46	15.3	
	Pamphlets and publications	18	6	
	Other (health conferences, cycles, workshops etc.)	2	0.7	
	Total	300	100%	-

HS = highly significant, χ^2 = chi-square test

$P \leq 0.001$

pregnant mothers and proved that has an influent on their knowledge about HIV/AIDS. So, this indicates as a positive sign and improvement in participants' knowledge between the "pre- and post-test" periods.

DISCUSSION

The women who have adequate knowledge about AIDS will protect themselves and their family from the infection, more than women who do not have adequate knowledge on the disease.^[14]

Results of Table 1

In this study, most of the pregnant women belong to the age group of 25–29 years, and they accounted for 123 (41%); this could be explained by the age of reproduction increasing so much in this age group. This finding of the present study is in agreement with the study of Karir in

Burla, India (2019), wherein he showed that 63 (42%) of the participants were in the age group of 25–29 years.^[11] In comparison with another study, this study coincides with the findings of Otokpa in Nigeria (2015), who demonstrated that the majority of the respondents were in the age group of 20–34 years.^[15] With respect to education, 111 (37%) of the studied sample were at the secondary level of education, and about 202 (67.3%) of them were housewives; the possible explanation for this was the contrast in time and place during the selection of the study sample or perhaps the participants were not lucky to complete their education. This result was supported by a study of Uche Eze in Nigeria (2016), wherein he showed that 120 (68.6%) of the pregnant women had at least secondary education.^[16] In addition, in a study of Reja in Rajasthan, India (2018), he mentioned that out of 320 pregnant women, 218 (68.1%) were housewives,^[17] which was strongly in agreement with the results of the present

Table 5: Sources of participants knowledge toward HIV/AIDS at posttest period

Question for pregnant women	Sources of knowledge and information	No.	%	Comparison significant (<i>P</i> value)
What are the basic sources of knowledge and information toward HIV/AIDS?	TV and radio	43	14.3	<i>P</i> = 0.000 (HS) $\chi^2 = 381.5$
	Health staff	218	72.7	
	Friends and neighbors	27	9	
	Pamphlets and publications	10	3.3	
	Other (health conferences, cycles, workshops, etc.)	2	0.7	
Total		300	100%	-

HS = highly significant, χ^2 = chi-square test

P ≤ 0.001

Table 6: Effectiveness of health promotion program (at pretest and posttest) on the pregnant women's knowledge toward HIV/AIDS

Asking the question: Do health promotion programs play an effective role in increasing pregnant women's knowledge for the prevention of HIV/AIDS?

Period	Responding	No. and %	Responding		Total no. = 300	Comparison significant, <i>P</i> value
			F	T		
Pretest	F	No.	17	78	95	MC-Nemar test <i>P</i> = 0.000 (HS)
		%	5.7	26	31.7	
	T	No.	0	205	205	
		%	0.0	68.3	68.3	
Total		No.	17	283	300	
		Row %	5.7	94.3	100	
		Column %	100	100	100	
Posttest	F	No.	13	35	48	MC-Nemar test <i>P</i> = 0.000 (HS)
		%	4.3	11.7	16	
	T	No.	0	252	252	
		%	0.0	84	84	
Total		No.	13	287	300	
		Row (%)	4.3	95.7	100	
		Column (%)	100	100	100	

HS = highly significant

P ≤ 0.001

study. Regarding residency, 169 (56.3%) of the participants were residing in urban regions. Possible reason was that most of the pregnant women are living in the urban than rural areas. These results were comparable to the study done by Abajobir in Ethiopia (2013), wherein he stated that 183 (78.9%) of the participants were from urban regions.^[18] Regarding the number of children, the results revealed that most of the pregnant women (105, 35%) had one child. So, this result was supported by Sandgren in Kazakhstan (2008), who stated in his study that the parity ranged from 0 to 4 children, with a median of one child.^[19]

Results of Tables 2 and 3

At first, due to multiplicity health promotion program questions to identify level of pregnant women knowledge regarding HIV/AIDS, and also the absence of sufficient and similar studies to compare with each question, will be a discussion of the results in briefly. So, the results indicated to registration a high significant association between differentiated dichotomous categories responding for all items of the questions at (pre-test period and post-test period) concerning knowledge of pregnant women about HIV/AIDS. Therefore, the information and knowledge of the participants before the application of the program was acceptable and then it increased well after applying the educational program about the disease. This can be explained by most of the participants in the present study not being able to previously participate in such educational programs that contribute toward increasing their knowledge toward the disease. These findings were supported by Suresh in Karnataka, India (2014), who stated that most of the women were aware about HIV/AIDS, but some of them did not know about other aspects of the disease,^[20] which was strongly in agreement with the results of the present study. In addition, in the studies done by Kumar in Jharkhand, India (2015), it was found that the level of awareness and health education among pregnant women regarding AIDS was not satisfactory enough before applying the health education program,^[21] which nearly corresponded with the results of the present study.

Results of Tables 4 and 5

Regarding the main sources for knowledge and information of the pregnant women about AIDS during the pretest and posttest period, the present study showed that the majority of the participants answered with the option (health staffs) during the two periods, and they accounted for 193 (64.3%) and 218 (72.7%), respectively. This can be explained by the vast majority of the pregnant women improving their knowledge and being educated against the disease by health personnel during their attendance to health institutions. This result is in agreement with findings of Shree in Patna, India (2015), he had found 49 (56.9%) of the participants in his study the major source of their information about HIV/AIDS was taken

from health workers.^[22] In comparison with other studies, this coincides with the findings of Mnyani in South Africa (2017), who revealed that the employees of health institutions consider the basic source of information for women participant groups both with and without HIV; they accounted for 87.8% and 86.8%, respectively.^[23] In addition, the present findings disagreed with the results of Suresh in Karnataka, India (2014); among the 400 women participants, he confirmed that for 80.4% of them, the TV was an essential source for their information about the disease.^[20]

Results of Table 6

The results indicated that there is a highly significant association regarding the effect of the health promotion program and the essential role for raising the pregnant women knowledge. Therefore, the program has achieved success by increasing the knowledge of the participants toward the disease. This can be explained by the health promotion program implemented in this study being beneficial and effective in providing the majority of the participants with sufficient knowledge and information about HIV/AIDS. These findings strongly agree with results of Rahayu in Indonesia (2019), wherein he showed that there was a highly differences of knowledge level for participants before and after receiving Health Education about HIV/AIDS.^[24]

CONCLUSIONS

The present study confirmed that knowledge of the pregnant women about HIV/AIDS was intermediate during the pretest period. However, during the posttest period, their knowledge was increased to very high levels. The current study also shows a high correlation between the effect of the health promotion program and knowledge of the pregnant women toward the disease.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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