Journal of Statistical and Econometric Methods, vol.7, no.3, 2018, 35-62
ISSN: 2241-0384 (print), 2241-0376 (online)
Scienpress Ltd, 2018

Statistical survey on awareness of Hiv/Aids and its impact on economic development in northern Nigeria during the period 2010 - 2015

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Abstract

The effect of Human Immunodeficiency Virus/Acquired Immune deficiency syndrome (HIV/AIDS) global epidemic, continue to emerge decades after the first wave of infection. One critical aspect of controlling the epidemic is by enlightening the general public on the epidemic. That is on how it can be contracted and managed. Since the start of the epidemic many measures have been taken by the government and non-governmental organizations to control the epidemic, but still, it continued to infect and kill many people. The actions taken include manufacturing antiretroviral drugs and therapy, using of condoms and enlightenment among others. Nigeria consists of thirty-six (36) states and the federal capital territory (FCT) Abuja, out of this, Northern Nigeria comprising nineteen states (19) and the federal capital territory (FCT) Abuja with a population of about seventy-five million (75m), most of the people live in the rural areas where level of education is low, level of poverty is high, and culture and tradition may contribute to the spread of the epidemic.

Using secondary data from Federal Ministry of Health, National Bureau of Statistics (NBS), and National Agency for the Control of Aids (NACA), State Agency for the Control of Aids (SACA)

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Article Info: Received: April 26, 2018. Revised : May 22, 2018
Published online : July 15, 2018

and other Non- governmental organizations, the study has looked in to the awareness of the epidemic in the region and its impact on the economic development of the region. Statistical methods and techniques are used in analyzing the data. The results are presented in tables and charts for easy understanding and interpretation.

Keywords: HIV/AIDS, Awareness**,** Counselling, Testing, Epidemic, Economic Development, North-Eastern Nigeria

1 Introduction

HIV/AIDS (Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome) has affected many people in the world leading to their death since the early 1980s. The number of people affected by the virus continues to rise, and many attempts have been made to produce drugs/vaccine to control the virus, but up to now, a concrete solution has not been found.

Nigeria has passed through several phases in her response to the AIDS epidemic. The stages included an initial period of denial, a large health sector response, and now a multi-sectoral response that focuses on prevention, treatment, and mitigation of impact interventions and divorces coordination and implementation as distinct response components. A central body is dedicated to leading and coordinating the response, while the various sectors, including civil society organizations (CSO), faith-based organizations and networks of people living with HIV and AIDS support groups focus on packaging and implementing interventions based on a national action plan.

The health response commenced with the setting up of an ad hoc National Expert Advisory Committee on AIDS (NEACA) in 1987. By 1988, the National AIDS and STDs Control Programme (NASCP) was formally established, with state counterparts set up after that to organize as well as to coordinate all HIV and AIDS activities at national and state levels. Federal Ministry of Health's HIV & AIDS division and High risk groups including brothel-based sex workers, non-brothel based sex workers, men having sex with men, injecting drug users, uniformed servicemen (Armed forces and Police) and transport workers, (Formerly known as NASCP) played a key role in developing guidelines on key interventions and monitoring of the epidemic. In 1997, the National Council on Health formally endorsed the multi-sectoral approach, and in 2000 the Federal Government of Nigeria commenced the implementation of

this approach with the establishment of a Presidential Council on AIDS (PCA) and National Action Committee on AIDS (NACA). NACA has been transformed from a committee to an agency and now called National Agency for the Control of AIDS (NACA), for effective coordination of the national multi-sectoral response to HIV & AIDS. An HIV & AIDS Emergency Action Plan (HEAP) was initiated in 2001 which ran through 2004. The partners involved in implementing the plan included governmental institutions, non-governmental organizations, community-based organizations, faith-based organizations and persons living with or affected by HIV and AIDS. As part of renewed efforts, Nigeria launched a revised HIV and AIDS policy and a five year (2004-2008) National HIV and AIDS Behaviour Change Communication Strategy in 2003 and 2004, respectively.

The country also launched the Nigeria National Response Information Management System (NNRIMS) for HIV and AIDS (NACA, 2004).

The NNRIMS has been reviewed, and an operational plan (2007 – 2010) has been developed. Failure of access to HIV & AIDS treatment and services by the people needing them has prompted a rapid scale-up of the national response and made it appropriate to align the NNRIMS framework with issues articulated in the National Strategic Framework (NSF) as well as in the Nigeria roadmap moving towards Universal Access (UA) for prevention, treatment and support. This, can done in collaboration with donors and partner. The Federal Ministry of Health has recently undertaken an intensive review of health sector HIV and AIDS response and developed the Health Sector Strategic Plan. The HIV and AIDS National Strategic Framework for Action (2005-2009) was developed under the leadership of NACA to replace HEAP with the intention of significantly scaling up the anti-retroviral treatment programme. The country also completed a policy document titled “Plan to scale-up antiretroviral treatment for HIV and AIDS in Nigeria 2005-2009” with the overarching goal of improving the survival, quality of life and productivity of people living with HIV and AIDS (PLWHAs).

The HIV and AIDS response in Nigeria subscribes to the principle of “Three Ones”:

- One agreed on AIDS Action Framework that provides the basis for coordinating the work of partners;
- One National AIDS Coordinating Authority, with a broad-based multisectoral mandate; and,

- One agreed on country-level Monitoring and Evaluating system (FMOH 2005a, FMOH & WHO 2005).

The Nigerian government has also continued to be pro-active in its efforts to confront the HIV scourge with its overarching strategy elaborated in the bottom-up, poly-stakeholder and multi-sectoral National Strategic Plan (NSP). The NSP is derived from the architecture of the National Strategic Framework 2010-15 (NSF II) and has targets to halt and begin to reverse the spread of HIV infection, as well as mitigate the impact of HIV & AIDS by 2015. With the condition that where appropriate, the targets of the NSP should be population-based, the Federal Government of Nigeria implicitly recognizes HIV care and treatment as national public health good.

HIV prevalence in Nigeria is high considering the huge population (about 170 million) and the rate is higher than that of sub - Saharan African estimate of 3.4% (PRB, 2012). About 3.5 million people in Nigeria are estimated to be living with HIV/AIDS, and the estimated number of new infections and HIV/AIDS-related deaths was 390,000 and 217,000 respectively in 2013 (General Population Survey, 2013). There is a slightly higher HIV prevalence in the rural areas (3.6%) than in the urban areas (3.2%). The distribution of the epidemic varies from region to region with the south-south zone (5.5%) and lowest in the south-east (1.8%). In Northeastern Nigeria where most of the people live in rural areas, the spread of HIV/AIDS causes includes sexual activities of adolescents and young adults (standing and Kisekka, 1989, Renne, 1993, kinsman et al 2000) polygamy and multiple sexual partners, illiteracy, ignorance and poverty (Nnko et al, 2007, Abdoolkarem et al, 1992). According to Baker et al. (2010), many research finding has shown that higher education level is associated with lower level of risk of being infected with HIV/AIDS. This study attempted to find out are people of Northern Nigeria aware of HIV/AIDS and the impact of the epidemic on the economic development of the region. The main objective is to find a basis on what to do to control the epidemic.

2 Methodology

2.1 Study Design

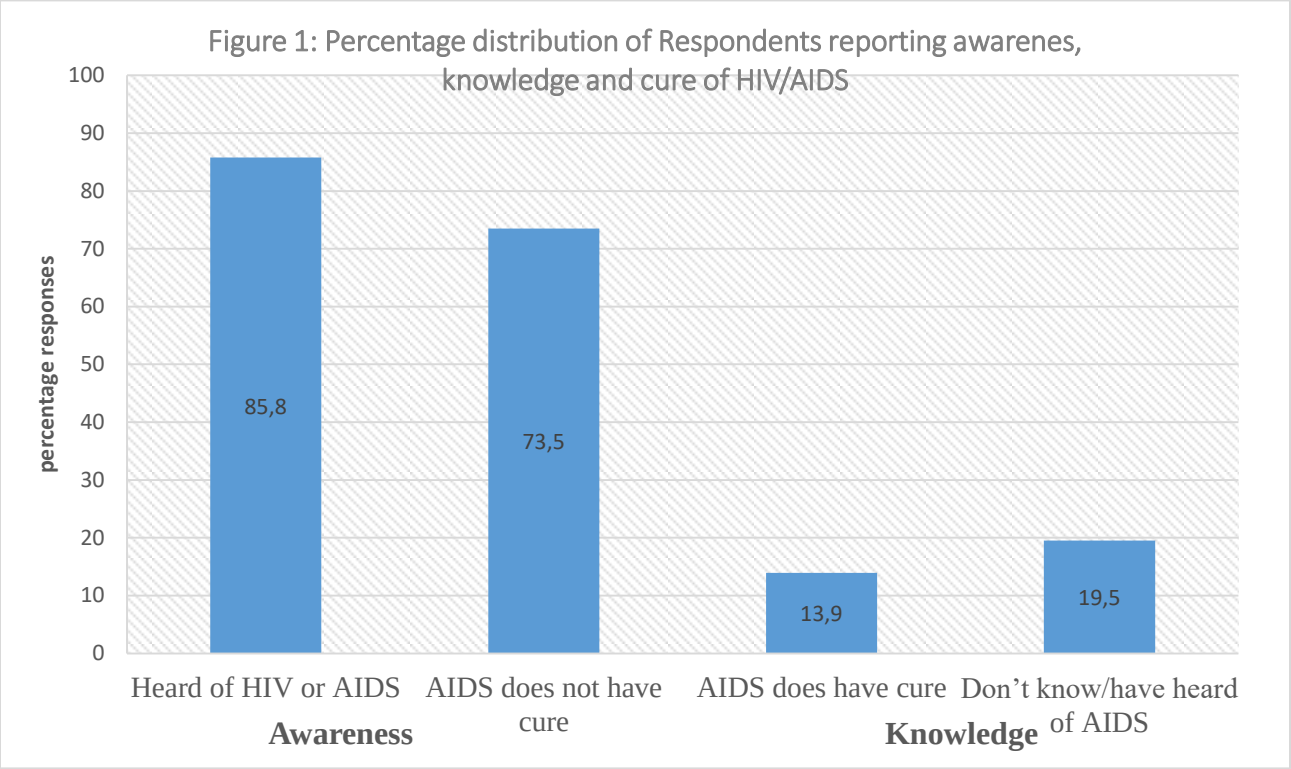
In this study, secondary data collected from the Federal ministry of health through National HIV & AIDS and Reproductive Health and Serological Survey (NARHS Plus) is used. Statistical

methods and techniques are used in analyzing the data and results are presented in tables and figures.

3 Main Results

Table 1: Percentage Distribution of Respondents Reporting Awareness and knowledge of HIV & AIDS and its Cure by State in Northern Nigeria. FMOH, Nigeria

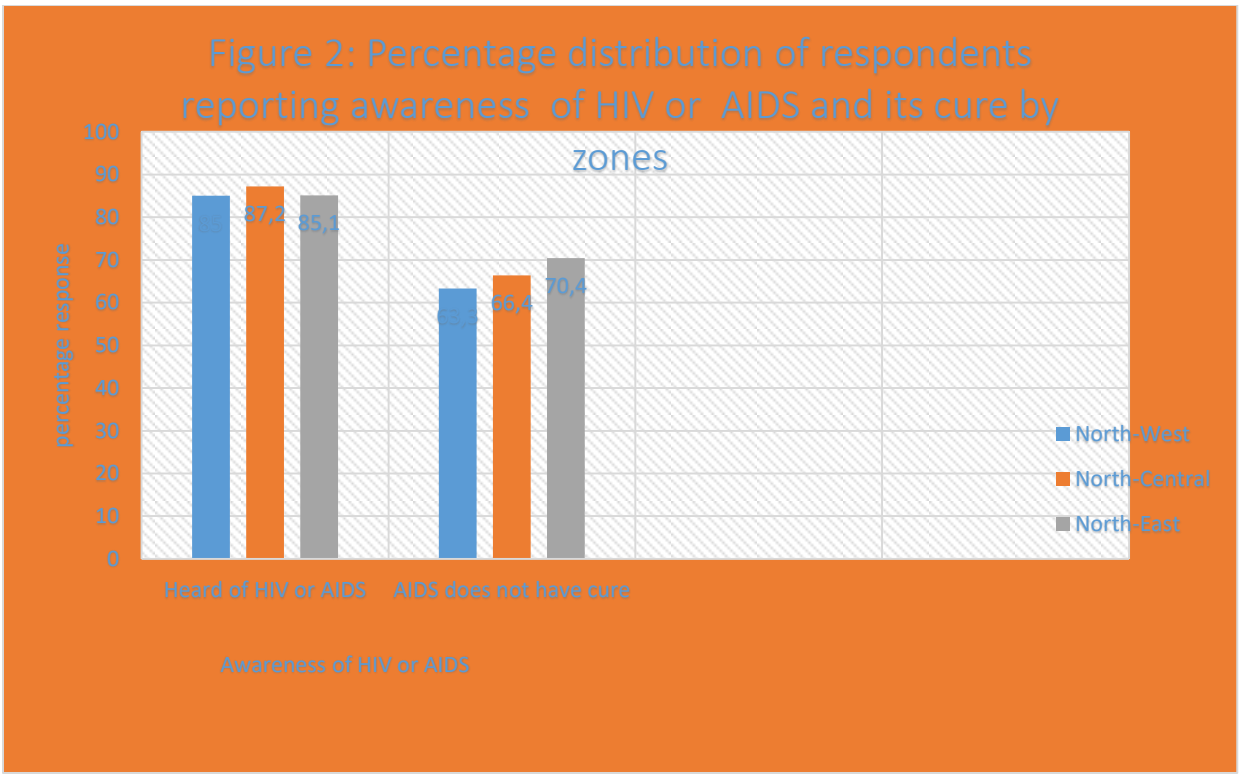
S/No	States	AWARENESS		KNOWLEDGE		Number of Men &Women interviewed
		Heard of HIV or AIDS	AIDS does not have a cure	AIDS does have a cure	Don't know/have heard of AIDS	
1	**Adamawa**	95.0	82.1	3.5	14.2	891
2	**Bauchi**	75.3	68.6	13.5	18.0	574
3	**Benue**	93.1	77.7	7.3	15.1	886
4	**Borno**	65.3	56.3	12.9	30.9	517
5	**Gombe**	91.9	76.5	12.2	11.3	804
6	**Jigawa**	83.5	57.4	29.9	12.7	756
7	**Kaduna**	99.0	76.1	17.7	6.2	919
8	**Kano**	90.4	68.2	8.8	23.0	762
9	**Katsina**	92.3	40.2	24.6	35.2	628
10	**Kebbi**	75.8	67.6	9.3	22.9	728
11	**Kogi**	97.1	69.2	16.6	14.2	804
12	**Kwara**	72.3	59.1	15.8	25.1	611
13	**Nasarawa**	72.0	65.6	15.8	18.6	672
14	**Niger**	89.9	60.2	11.6	28.2	779
15	**Plateau**	91.2	68.0	12.9	19.1	810
16	**Sokoto**	84.4	62.3	9.9	27.9	756
17	**Taraba**	96.2	71.8	13.9	14.3	907
18	**Yobe**	86.7	67.2	18.4	14.4	490
19	**Zamfara**	69.9	71.4	9.3	19.3	658
20	**FCT**	94.8	64.9	14.8	20.3	657
TOTAL		**85.8**	**73.5**	**13.9**	**19.5**	**14,609**



Respondents were asked whether they have heard of HIV/AIDS and thought there was a cure for it. The results are presented in "Table 1" and "figure 1". About eighty-six percent (86%) reported that they have heard of HIV/AID and are aware of it and about Seventy-four percent (74%) reported that AIDS has no cure. Only about twenty percent (20%) reported that they have not heard of HIV/AID and about fourteen percent (14%) reported that HIV/AIDS have a cure. This proportion was highest among the respondents with higher educational attainment compared to those with no formal education but about the same proportion for females and males, as well as respondents from rural and urban areas.

Table 2: Percentage Distribution of Respondents Reporting Awareness of HIV & AIDS and its Cure by zones in Northern Nigeria. FMOH, Nigeria

S/No.	States in the zone	Awareness		Number of men & women interviewed
		Heard of HIV or AIDS	AIDS does not have a cure	
1	Jigawa	83.5	57.4	756
2	Kaduna	99.0	76.1	919
3	Kano	90.4	68.2	762
4	Katsina	92.3	40.2	628
5	Kebbi	75.8	67.6	728
6	Sokoto	84.4	62.3	756
7	Zamfara	69.9	71,4	658
	North- West	**85.0**	**63.3**	**5,207**
1	Benue	93.1	77.7	886
2	Kwara	72.3	59.1	611
3	Nasarawa	72.0	65.6	672
4	Niger	89.9	60.2	779
5	Kogi	97.1	69.2	804
6	Plateau	91.2	68.0	810
7	F.C,T	94.8	64.9	657
	North-Central	**87.2**	**66.4**	**5,219**
1	Adamawa	95.0-	82.1	891
2	Bauchi	75.3	68.6	574
3	Borno	65.3	56.3	517
4	Gombe	91.9	76.5	804
5	Taraba	96.2	71.8	907
6	Yobe	86.7	67.2	490
	North-East	**85.1**	**70.4**	**4,183**

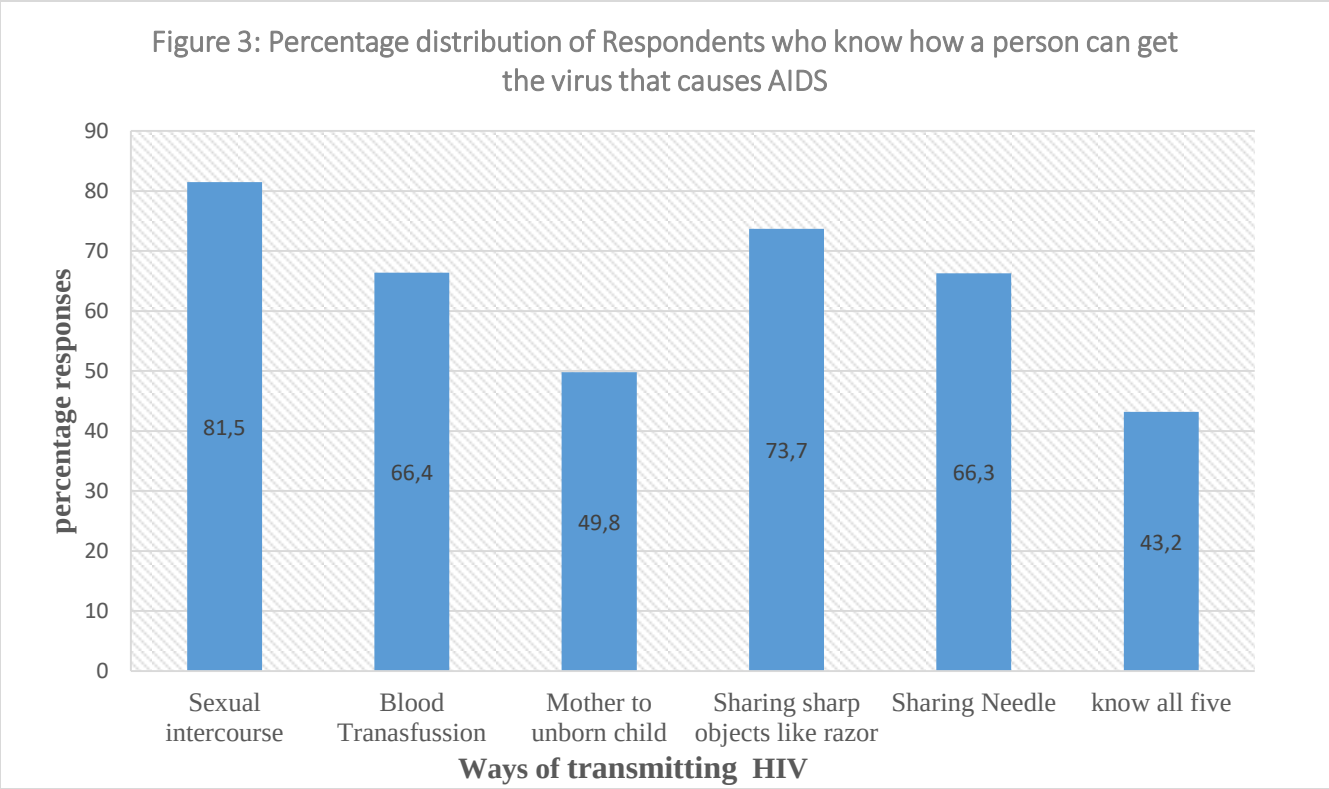


From the previous analysis which has shown that awareness about HIV/AIDS is high in the whole of northern Nigeria, the analysis according to the zones has also proved that with North-Central with the highest percentage of awareness. The results are presented in "Table 2" and "figure 2". This may be due to the early establishment of schools in this zone.

Table 3: Percentage Distribution of Respondents who know how a person can get the virus that causes AIDS by State in Northern Nigeria. FMOH, Nigeria

S/No	States	Sexual intercourse	Blood transfusion	Mother to unborn child	Sharing sharp objects like razors	Sharing needles	Know all five	Number of Men &Women interviewed
1	**Adamawa**	91.2	76.2	50.6	88.1	78.9	45.3	938
2	**Bauchi**	72.8	63.3	48.6	67.7	61.2	39.6	763
3	**Benue**	89.4	78.9	63.9	83.7	74.7	52.7	951
4	**Borno**	63.8	55.0	41.3	48.4	45.5	29.6	791
5	**Gombe**	89.6	76.6	60.0	82.6	79.0	54.4	875
6	**Jigawa**	76.8	66.7	44.8	71.5	67.2	41.1	906
7	**Kaduna**	98.7	91.6	73.0	95.8	90.4	67.2	928
8	**Kano**	89.2	61.6	40.9	80.5	72.6	38.0	843
9	**Katsina**	82.2	68.1	51.4	67.6	58.3	40.3	680
10	**Kebbi**	67.1	43.9	31.6	51.0	45.5	28.5	959
11	**Kogi**	89.6	76.8	54.6	85.4	79.4	51.1	829
12	**Kwara**	66.2	42.9	34.0	60.5	51.7	28.7	844
13	**Nasarawa**	67.9	46.6	39.1	54.5	41.7	30.7	934
14	**Niger**	85.3	70.9	45.4	77.4	72.3	38.5	868
15	**Plateau**	88.2	78.5	63.4	81.9	74.3	54.7	888
16	**Sokoto**	81.8	67.9	60.8	77.0	71.6	55.0	895
17	**Taraba**	94.5	77.7	63.6	85.2	78.7	57.7	943
18	**Yobe**	82.8	67.3	37.5	72.7	66.5	32.5	565
19	**Zamfara**	61.8	36.7	25.3	56.6	42.8	23.5	941
20	**FCT**	90.6	81.3	66.8	86.6	74.1	55.7	694
TOTAL		**81.5**	**66.4**	**49.8**	**73.7**	**66.3**	**43.2**	**17,035**

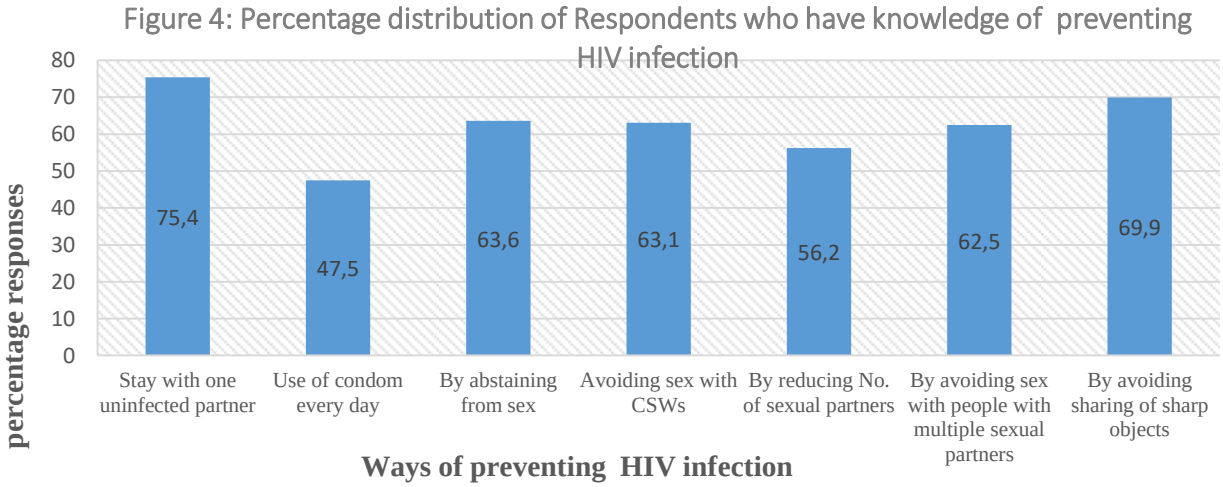
Respondents were asked whether they know how a person can get the virus that causes AIDS.



The results are presented in “Table 3” and “figure 3”. About eighty-two percent (82%) reported that they know that it can be gotten through sexual intercourse, sixty-six percent (66%) reported through blood transfusion. About fifty percent (50%) reported through mother to unborn child and about seventy-four percent (74%) reported that it could be contracted through sharing of sharp objects like a razor. Sixty-six percent (66%) reported through sharing of needles. About forty-three percent (43%) of the respondents reported that they know of the all five-way that a person can contract the virus that causes AIDS. This proportion was highest among the respondents with higher educational attainment compared to those with no formal education but about the same proportion for females and males, as well as respondents from rural and urban areas.

Table 4: Percentage Distribution of Respondents' Knowledge of ways of preventing HIV infection by states in Northern Nigeria. FMOH, Nigeria

S/No	States	Stay with one uninfected partner	Use of condom every day	By abstaining from sex	Avoid sex with CSWs	By reducing no. of sexual partners	By avoiding sex with people with multiple sexual partners	By avoiding sharing of sharp objects	No. of men & women
1	**Adamawa**	84.6	56.2	69.2	79.6	65.7	81.2	86.7	938
2	**Bauchi**	68.5	35.7	60.0	63.5	48.6	54.5	60.7	763
3	**Benue**	82.5	74.2	77.3	64.1	63.6	66.2	80.1	951
4	**Borno**	56.0	16.5	39.2	48.8	39.1	41.3	46.0	791
5	**Gombe**	85.0	61.0	78.4	77.0	73.0	77.8	79.3	875
6	**Jigawa**	70.2	20.2	40.0	58.2	46.6	60.8	68.1	906
7	**Kaduna**	97.9	79.2	88.3	79.0	78.8	85.6	95.7	928
8	**Kano**	85.1	38.7	70.0	75.8	59.2	72.1	80.6	843
9	**Katsina**	76.0	26.0	66.9	60.2	58.4	56.2	54.9	680
10	**Kebbi**	57.1	23.0	36.7	44.7	24.9	34.4	49.5	959
11	**Kogi**	86.7	70.0	76.9	75.2	72.1	79.0	82.7	829
12	**Kwara**	57.8	45.9	38.1	33.5	33.3	37.0	56.6	844
13	**Nasarawa**	60.7	47.9	55.9	41.0	38.5	41.0	51.3	934
14	**Niger**	81.3	52.6	76.0	78.9	72.4	75.3	73.1	868
15	**Plateau**	77.8	56.9	73.0	57.0	55.7	63.4	75.0	888
16	**Sokoto**	78.3	51.5	64.4	75.4	65.8	69.0	74.3	895
17	**Taraba**	91.5	63.2	78.9	75.5	74.3	77.3	83.0	943
18	**Yobe**	71.8	25.8	58.5	68.3	48.2	60.9	72.3	565
19	**Zamfara**	54.0	25.8	49.1	42.5	38.3	43.4	47.9	941
20	**FCT**	85.7	79.3	74.6	63.8	67.9	72.9	79.6	694
TOTAL		**75.4**	**47.5**	**63.6**	**63.1**	**56.2**	**62.5**	**69.9**	**17,035**



Respondents were asked whether they know ways of preventing HIV infection. The results are presented in "Table 4". and "figure 4". About seventy-six percent (76%) reported that they know that it can be prevented by staying with one uninfected partner. About forty-eight percent (48%) reported that it could be prevented by using a condom every day. Sixty-four percent (64%) reported that it could be prevented by abstaining from sex. About sixty-three percent (63%) reported it could be prevented by avoiding sex with commercial sex workers (CSW). Fifty-six percent (56%) reported that it could be prevented by reducing the a number of sexual partners. About sixty-three percent (63%) reported that it could be prevented by avoiding sex with people with multiple sexual partners and about seventy percent (70%) of the respondents reported that it could be prevented by avoiding sharing sharp objects. This proportion was highest among the respondents with higher educational attainment compared to those with no formal education.

Table 5: Percentage Distribution of Respondents who had Misconception about HIV transmission by State in Northern Nigeria. FMOH, Nigeria

S/No	States	By sharing toilet	By sharing eating utensils	By mosquito bites/bed bugs	By witchcraft	By kissing	Men & Women who have heard of AIDS
1	**Adamawa**	5.9	6.3	4.3	3.2	18.4	891
2	**Bauchi**	17.2	14.4	16.0	7.6	11.1	574
3	**Benue**	27.2	19.6	24.7	23.9	27.4	886
4	**Borno**	23.9	14.3	10.5	13.4	39.5	517
5	**Gombe**	21.0	18.1	21.2	11.3	21.4	804
6	**Jigawa**	13.7	15.9	23.2	16.4	25.7	756
7	**Kaduna**	13.0	14.9	20.8	13.0	20.1	919
8	**Kano**	11.9	9.7	13.3	4.3	15.0	762
9	**Katsina**	14.8	12.1	17.8	4.8	7.3	628
10	**Kebbi**	15.0	12.9	12.5	2.0	15.0	728
11	**Kogi**	25.7	24.3	31.7	15.6	25.1	804
12	**Kwara**	28.6	25.1	17.1	10.4	15.5	611
13	**Nasarawa**	22.8	21.7	20.6	20.7	15.7	672
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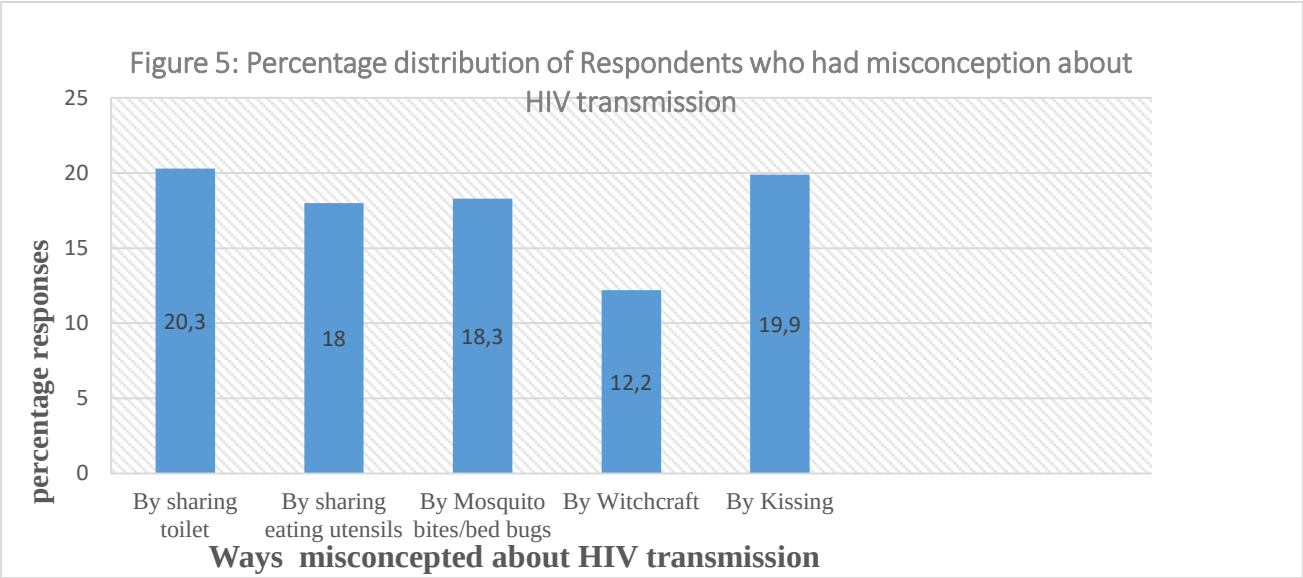
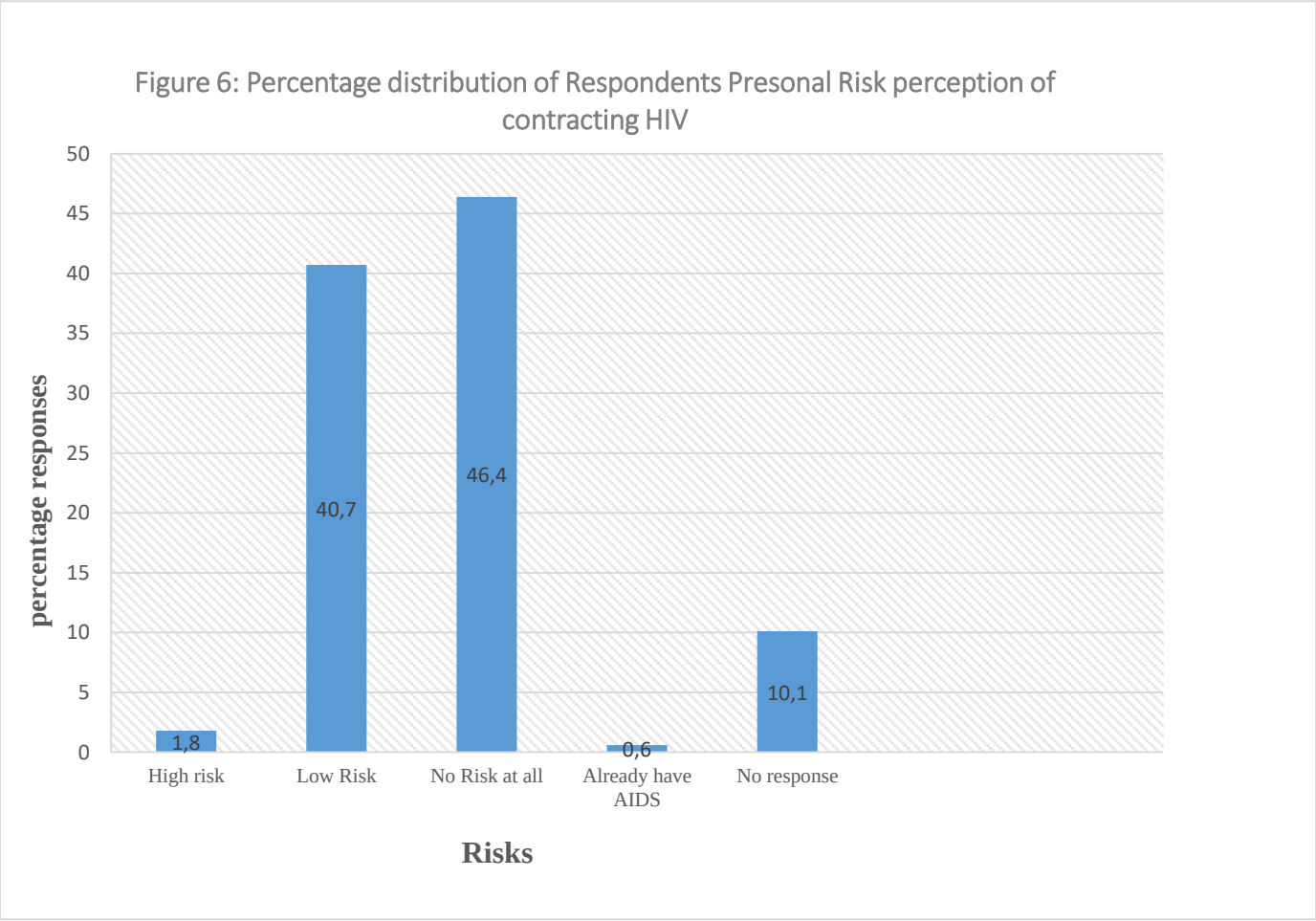
15	**Plateau**	17.4	10.5	11.2	8.3	13.7	810
16	**Sokoto**	29.5	29.1	13.5	14.8	23.0	756
17	**Taraba**	26.1	20.0	21.0	15.8	23.3	907
18	**Yobe**	15.6	17.6	18.9	6.2	11.4	490
19	**Zamfara**	21.2	20.8	16.7	14.0	19.9	658
20	**FCT**	16.0	12.6	16.3	9.6	13.9	657
TOTAL		**20.3**	**18.0**	**18.3**	**12.2**	**19.9**	**14,609**



Respondents were asked about ways of transmitting HIV. Among the respondents interviewed about twenty percent (20%) thought it could be transmitted by sharing toilets. Eighteen percent (18%) thought it could be transmitted by sharing utensils like a spoon, dish, plate, etc. and about eighteen percent (18%) thought it could be transmitted by mosquito bites and bed bugs. Only twelve percent (12%) thought it could be transmitted by witchcraft while about twenty percent thought it could be transmitted by kissing. Generally, the percentages of misconception are low because a large number of those interviewed are aware of ways of transmitting the virus. The results are presented in "Table 5" and "figure 5". This proportion was highest among the respondents with higher educational attainment compared to those with no formal education.

Table 6: Percentage Distribution of Respondents personal Risk perception of contracting HIV by State in Northern Nigeria. FMOH, Nigeria

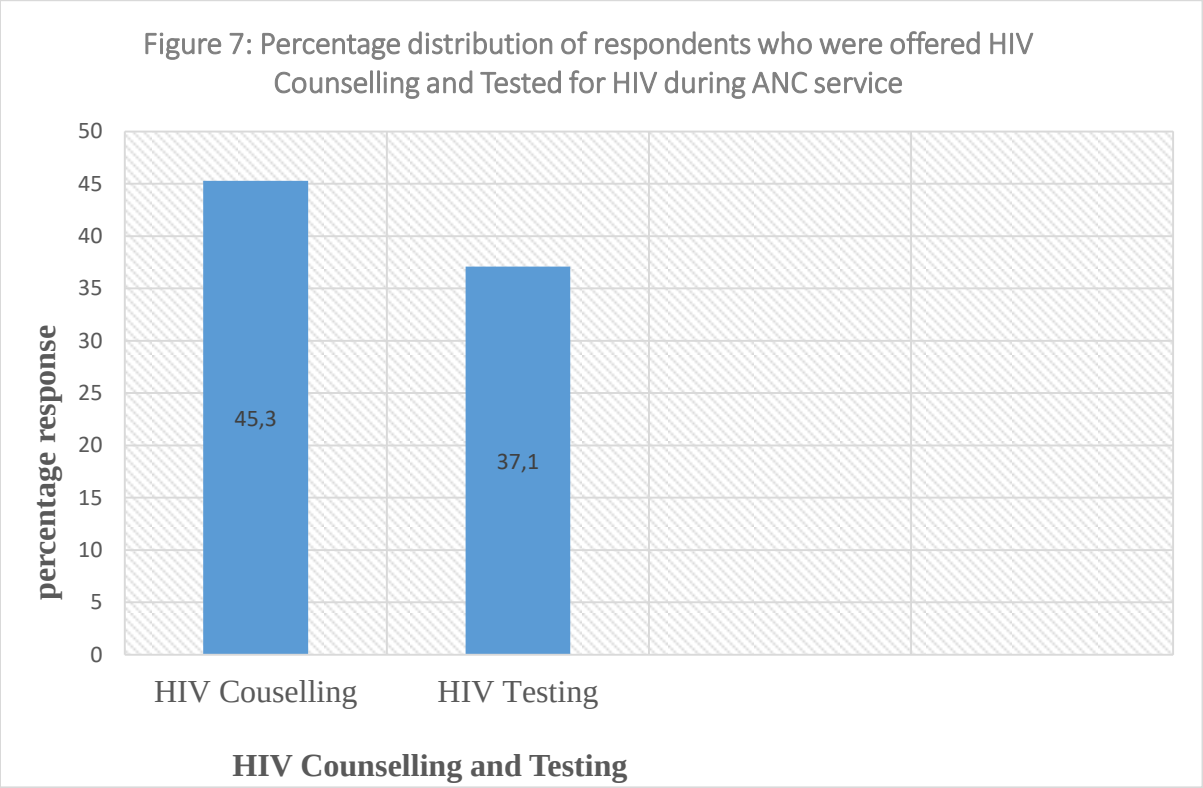
S/No	States	Respondents opinion about their chances of contracting HIV					Respondents aware of AIDS
		High chance	Low chance	No risk at all	Already have AIDS	No response	
1	**Adamawa**	0.6	52.2	40.8	0.2	6.0	803
2	**Bauchi**	1.1	41.6	53.3	0.2	3.7	578
3	**Benue**	4.1	37.2	52.3	1.4	4.7	886
4	**Borno**	1.6	57.0	31.0	2.0	8.2	517
5	**Gombe**	2.0	43.8	44.0	0.7	9.3	804
6	**Jigawa**	1.2	33.2	45.0	0.3	20.0	756
7	**Kaduna**	2.2	32.2	51.0	0.5	14.1	919
8	**Kano**	1.6	26.9	66.4	0.6	4.3	762
9	**Katsina**	0.6	10.4	40.4	1.3	46.7	628
10	**Kebbi**	1.2	38.1	54.9	0.2	4.6	728
11	**Kogi**	0.9	44.9	48.8	0.4	4.9	804
12	**Kwara**	0.5	42.9	53.1	0.0	3.0	611
13	**Nasarawa**	2.8	63.9	25.6	0.0	7.1	672
14	**Niger**	2,4	54.7	34.0	1.6	6.1	779
15	**Plateau**	6.4	43.9	42.8	0.3	5.9	810
16	**Sokoto**	-	25.8	63.4	0.2	9.6	756
17	**Taraba**	3,6	43.7	41.2	1.5	9.9	907
18	**Yobe**	-	35.0	55.6	0.2	9.2	490
19	**Zamfara**	0.4	47.0	34.7	0.0	17.4	658
20	**FCT**	2.5	40.3	49.2	0.9	7.1	657
TOTAL		**1.8**	**40.7**	**46.4**	**0.6**	**10.1**	**14,525**



Respondents were asked about their risk of contracting HIV. Among the respondents interviewed about two percent (2%) have a high chance of contracting the virus and about forty-one percent (41%) reported low chance. Forty-six percent (46%) reported no risk at all, and only zero point six percent (0.6%) have aids while about ten percent (10%) no response. The results have presented in “Table 6” and “figure 6”. Generally, the results have shown that most people are aware of HIV and are very careful not to contract the virus.

Table 7: Percentage Distribution of Respondents who were offered HIV Counselling and Tested for HIV during ANC service by State in Northern Nigeria. FMOH, Nigeria

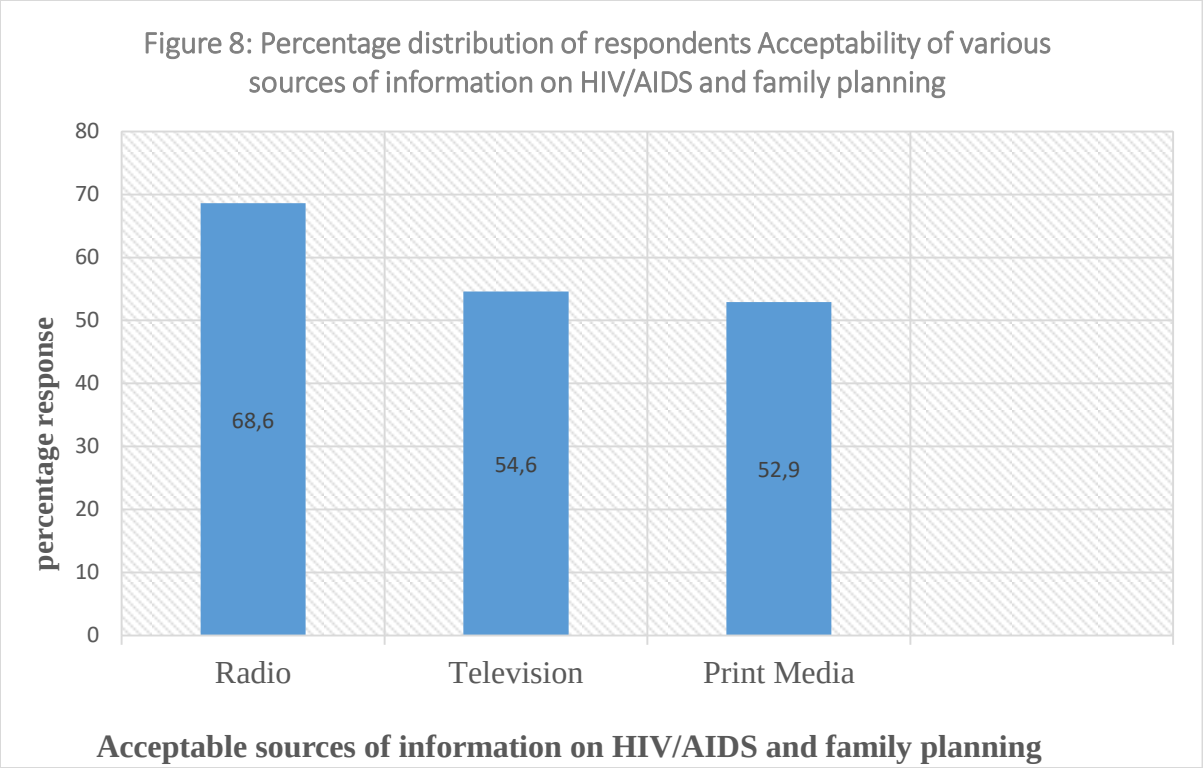
S/No	States	Offered HIV counseling during last or current pregnancy while receiving ANC	Tested for HIV during last or current pregnancy while receiving ANC	Number of women who had ANC
1	**Adamawa**	38.5	25.0	141
2	**Bauchi**	24.6	20.2	117
3	**Benue**	35.2	31.0	119
4	**Borno**	35.0	26.3	120
5	**Gombe**	69.1	62.5	147
6	**Jigawa**	48.6	32.4	112
7	**Kaduna**	79.4	58.0	179
8	**Kano**	46.7	46.3	148
9	**Katsina**	34.9	27.9	136
10	**Kebbi**	41.4	40.0	146
11	**Kogi**	61.1	55.7	183
12	**Kwara**	72.4	66.7	152
13	**Nasarawa**	57.1	42.9	117
14	**Niger**	18.2	13.8	184
15	**Plateau**	63.4	45.0	144
16	**Sokoto**	78.9	7.7	151
17	**Taraba**	51.6	28.6	144
18	**Yobe**	10.5	5.9	126
19	**Zamfara**	30.0	30.0	115
20	**FCT**	8.6	75.7	178
TOTAL		**45.3**	**37.1**	**2,859**



The respondents, who were women were asked if they received HIV counseling and testing during ANC services. The results of their responses were presented in "Table 7" and "figure 7". About forty-five percent (45%) reported that they were counseled during the ANC services they attended while about thirty-seven percent (37%) were tested for their HIV status. The general results have indicated that a lot needs to be done to enlighten the general public on the importance of HIV counseling and testing. This is for people to know their HIV status which will help them to know what to do about their status.

Table 8: Percentage Distribution of Respondents Acceptability of various sources of information on HIV/AIDS and family planning by State in Northern Nigeria. FMOH, Nigeria

S/No	States	Radio	Television	Print Media	Respondents
1	**Adamawa**	80.0	73.9	69.2	930
2	**Bauchi**	53.3	36.4	31.7	760
3	**Benue**	78.5	71.9	68.4	938
4	**Borno**	43.2	30.9	25.5	732
5	**Gombe**	72.7	65.3	63.1	870
6	**Jigawa**	57.0	25.8	23.8	901
7	**Kaduna**	94.8	85.9	79.8	920
8	**Kano**	69.0	51.5	43.7	837
9	**Katsina**	36.8	29.3	28.1	658
10	**Kebbi**	52.4	38.8	33.9	921
11	**Kogi**	87.0	84.3	72.8	823
12	**Kwara**	62.7	60.3	54.7	834
13	**Nasarawa**	68.9	58.7	55.4	920
14	**Niger**	74.1	57.8	46.4	857
15	**Plateau**	79.2	76.8	74.0	884
16	**Sokoto**	74.1	55.6	50.9	885
17	**Taraba**	87.3	81.3	78.8	935
18	**Yobe**	54.7	41.4	38.5	565
19	**Zamfara**	55.3	34.5	31.3	935
20	**FCT**	91.6	89.8	87.7	671
TOTAL		**68.6**	**54.6**	**52.9**	**16,776**



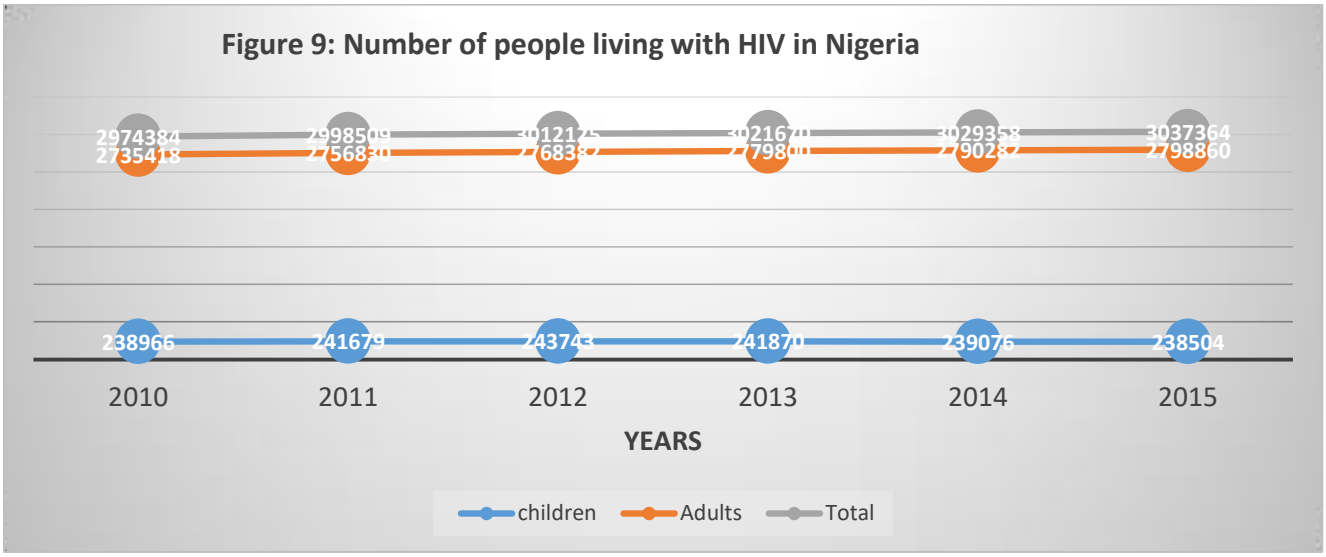
The responses have indicated that information on HIV/AIDS and family planning heard from the radio is highly accepted by respondents with a percentage of about sixty-nine percent, (68.6%). This may be because most of the people can easily own radio set because it is affordable. About fifty-five percent (54.6%) of the respondents consider information from television as acceptable while about fifty-three percent (52.9%) consider it acceptable from print media. The results a presented in "table 8" and "figure 8". Generally, most of the people in Northern Nigeria listen to radio more than watching television or reading newspapers. Most especially foreign media like BBC, VOA, Radio France and Germany

3.1 Impact of HIV/AIDS on the economic development of Northern Nigeria

The macroeconomic impact of AIDS is difficult to assess. Most studies have found that estimates of the macroeconomic impacts are sensitive to assumptions about how AIDS affects savings and investment rates and whether AIDS affects the best-educated employees more than others. Few studies have been able to incorporate the impacts at the household and firm level in macroeconomic projections. Some studies have found that the impacts may be small, especially if there is a plentiful supply of excess labor and worker benefits are small.

Table 9: Estimated number of people living with HIV in Nigeria for 2010-2015, FMOH, Abuja, Nigeria

S/N	INDICATORS	YEARS					
		2010	2011	2012	2013	2014	2015
1	Estimated number of children living with HIV	238,966	241,679	243,743	241,870	239,076	238,504
2	Estimated number of Adults living with HIV	2,735,418	2,756,830	2,768,382	2,779,800	2,790,282	2,798,860
Total		**2,974,384**	**2,998,509**	**3,012,125**	**3,021,670**	**3,029,358**	**3,037,364**



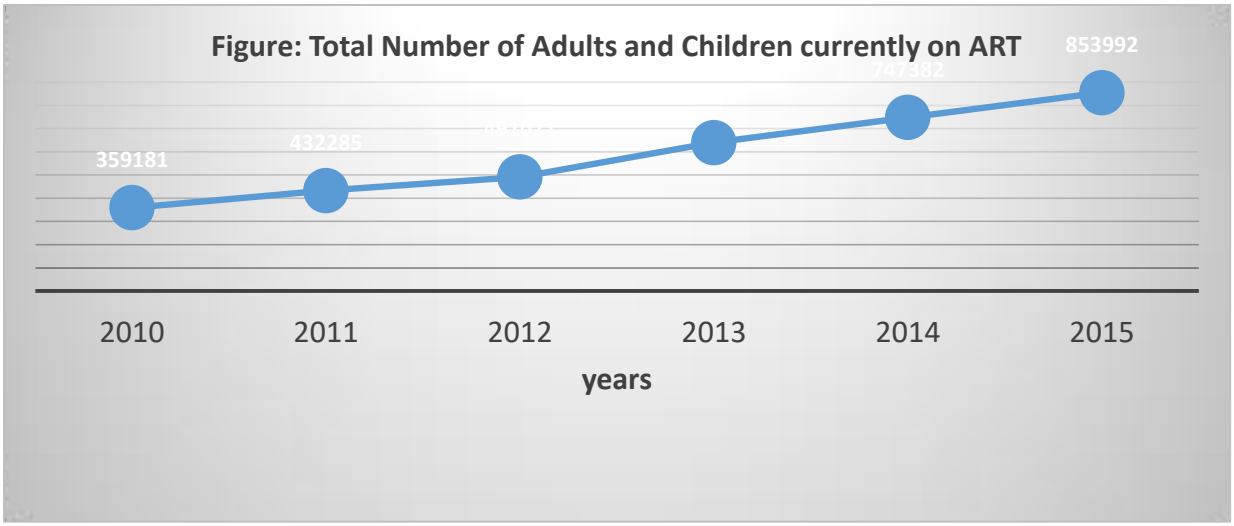
The data in "table 9" and "figure 9" has shown that there is a slight increase in the number of people living with HIV in Nigeria. It is expected that with the current effort by government through federal ministry of health, NACA, SACA and non-governmental organisations like WHO, UNICEF, USAID, etc. by enlightening the people and providing free antiretroviral drugs,

testing, and counselling, the rate of infection will drastically decline, and this will mean only fewer infected people.

Northern Nigeria has about seventy-five million people (75million) with many able unemployed people. Therefore HIV/AIDS will not have a negative impact on the economic development of the region.

Table 10: Total number of Adults and Children currently on ART in Nigeria for 2010-2015, FMOH, Nigeria

S/N	INDICATORS	YEARS					
		2010	2011	2012	2013	2014	2015
1	Total number of Adults and Children currently on ART	359,181	432,285	491,021	639,397	747,382	853,992

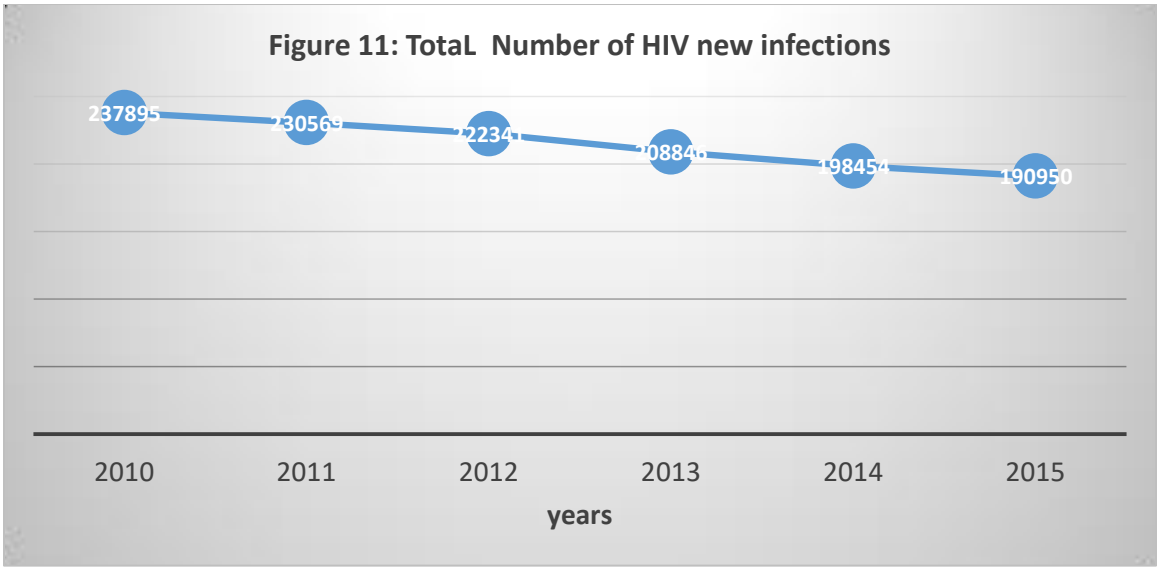


The data in “table 10” and “figure 10” has indicated that there is a rise in the total number of people on ART. This is due to the enlightenment and free ART provided by the government and other organization. More people a now aware of the epidemic and are ready to go for counseling

and testing. If this trend continues, it will reduce the number of people infected by HIV in the long run thereby reducing the number of infected person and death. This will mean it will not have a negative impact on the economic development of the region.

Table 11: Total number of new infections in Nigeria for 2010-2015, FMOH, Abuja, Nigeria

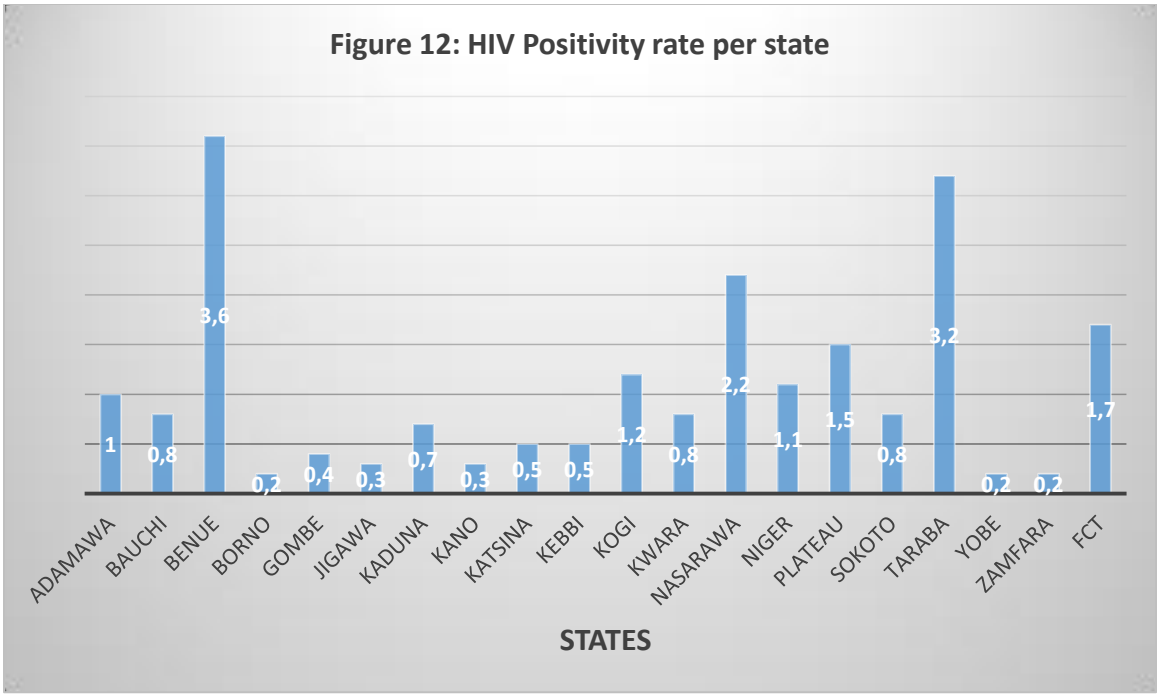
S/N	INDICATOR	YEARS					
		2010	2011	2012	2013	2014	2015
1	Total number of new infections	237,895	230,569	222,341	208,846	198,454	190,950



The data in “table 11” and “figure 11” has indicated that there is a decline in the total number of an infected person with HIV. This trend if continuing will reduce the number of people infected by HIV thereby reducing the mortality rate. This will mean it will not have a serious negative impact on the economic development of the region because the total number of infection and death will be less.

Table 12: HIV Positivity rate per state for 2015

S/N	States	Positivity rate (%)
1	Adamawa	1.0
2	Bauchi	0.8
3	Benue	3.6
4	Borno	0.2
5	Gombe	0.4
6	Jigawa	0.3
7	Kaduna	0.7
8	Kano	0.3
9	Katsina	0.5
10	Kebbi	0.5
11	Kogi	1.2
12	Kwara	0.8
13	Nasarawa	2.2
14	Niger	1.1
15	Plateau	1.5
16	Sokoto	0.8
17	Taraba	3.2
18	Yobe	0.2
19	Zamfara	0.2
20	FCT	1.7
TOTAL		**1.0**



"Table 12" and "figure 12" has shown the HIV positivity rate for each state in Northern Nigeria. Most of the state has a positivity rate of less than one present (1%) with Benue and Taraba having the highest of 3.6 and 3.2 percent respectively. This may be due to many factors like culture, poor enlightenment, insecurity, poverty, etc. in these two State.

4 Conclusion

This study finds that awareness and knowledge of HIV/AIDS are high among people of Northern Nigeria. Virtually all the variables used in the analysis were significantly associated with awareness and knowledge of HIV/AIDS as shown in the tables and figures. Most people have heard of the virus, how it can be transmitted, avoided and prevented. This proportion was highest among the respondents with higher educational attainment compared to those with no formal education but about the same proportion for females and males, as well as respondents from rural and urban areas. Enlightenment should be intensified to enable people to go for counseling on HIV and HIV test for prevention. The study has also found out that, the impact of HIV/AIDS on the economic development of the region is minimal due to the decline in the number of infected persons, and increasing number of infected persons on ART and a large number of the unemployed workforce in the region.

References

[1] An Analysis of HIV Epidemiology and Response among Adolescents and young people in Nigeria, 2015 NACA/UNICEF. The HIV Epidemic in Nigeria/ NACA Nigeria, 15/12/2015.

[2] Badamasi Abba, V. V. Singh, New odd generalized exponential-exponential distribution: its properties and application. Biostatistics and Biometrics (open access). vol 6(3), pp 1-6, 2018.

[3] Baker DP, Leon J, Collins JA (2010). Facts, attitudes and health reasoning about HIV and AIDS: explaining the education effect on condom use among adults in Sub-Saharan Africa. AIDS Behavior 15:1319-1327.

[4] Bankole O.M and Mabekoje O.O. (2008). Awareness and Opinions about HIV/AIDS among secondary school teachers in Ogun State, Nigeria. Scientific Research and Essay Vol.3 (6), pp.245-253, June 2008

[5] Bukar A, Olusoji o, Adeleke OA, Danfillo IS, Taiwo OO, Jallo PH (2006) knowledge and perception on HIV/AIDS among the Kanuri and Shuwa people of Northern Nigeria in relation to their traditional practice. Nig. J. Clin. Biomed. Res... 36(1):36 - 43.

[6] Chiwa Musa Dalah, V.V. Singh, Survey and Assessment Report of HIV/AIDS Awareness of in North-Eastern Nigeria. International Journals of Advanced Research in Computer Science and Software Engineering, ISSN: 2277-128X (Volume-7, Issue-11) pp 105-112. 2017.

[7] Country Economic Report (2006:1) the impact of HIV/AIDS on the Economy, livelihood and poverty of Malawi.

[8] Danjuma M., Bashir K.M., (2013) Impact of HIV/AIDS on Economic growth and Development in Nigeria.

[9] Faleyimu, BL, OA Fagade, SO Ogunniti, AI Faleyimu, LA Ubuane. 1998. “Sexual networking and AIDS awareness program at the workplace: the case of oil locations in Nigeria. Int. Conf. AIDS 1998;

[10] Garbati N, Musa A, Abba N, Abdullah A (2011). HIV/AIDS in Northern Nigeria. pp. 176-182

[11] McDonald S, J. Roberts (2006), "AIDS and Economic Growth: A Human Capital Approach", Journal of Development Economics, 80, 228-250.

[12] Modes of HIV Transmission in Nigeria: Analysis of the Distribution of New HIV Infection and Recommendations for prevention in Nigeria: UNAID, 2009

[13] National HIV & AIDS and Reproductive Health Survey (NARHS plus II, 2012) Federal Ministry of Health. Abuja, Nigeria.

[14] National HIV and Syphilis Sero-Prevalence Sentinel Survey among Pregnant Women Attending Antenatal Clinics in Nigeria,2014,FMOH,Abuja, Nigeria

[15] National HIV Sero-prevalence Sentinel Survey Technical Report (2010). Department of Public Health National AIDS/STI Control Programme, Federal Ministry of Health, Abuja, Nigeria.

[16] Negin, J. (2005), "Assessing the Impact of HIV/AIDS on Economic Growth and Rural Agriculture in Africa", Journal of International Affairs, 58, 267-281

[17] Petersen, P.E. (2006) Policy for prevention of oral manifestations in HIV/AIDS: the approach of the WHO Global Oral Health Program. Advances in Dental Research 19, pp. 17-20.

[18] Sa'ad, S. M. (2008). The social sciences, the development programme (LDP) of the United Nation Development Programme (UNDP), Social Sciences and the Complex Problems of Nigeria: Combating HIV and AIDS in Nigeria. Paper presented at the National Conference on Social Sciences and the Challenges of the Millennium Development Goals (MDGS) in Africa, organized by the Faculty of Social Sciences, University of Maiduguri, Nigeria, 26th – 30th October 2008

[19] Soyinka, F. 1998. "Needs assessment and care programme for people living with HIV/AIDS (PLWA), in resource constrained and hostile environment." Int. Conf. AIDS. 1998; 12:98 (abstract no. 12424).

[20] V. N. Maurya and Yusuf Umar Madaki, and V.V. Singh, Statistical analysis of the rate of kidney (renal) failure,. American Journal of Applied Mathematics and Statistics, vol. 2, (6A), pp. 6-12, 2014.

[21] V. N. Maurya, Yusuf Umar Madaki, V. V. Singh, and Babagana Modu, Application of discriminate analysis on Broncho- pulmonary dysplasia among Infants: A case study of

UMTH and UDUS hospitals in Maiduguri, Nigeria, American Journal of Theoretical and Applied Statistics, Vol. 4 (2), pp. 44-51, 2015.

[22] World Food Programme (2013). Literature review on the impact of education level on HIV/AIDS prevalence rates. Available at: Hivaids clearing house unesco.org/search/resources/Literature Review on the impact of education level on HIV.A. Pdf 2013.