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Full Length Research

KNOWLEDGE OF AWARENESS ABOUT HIV/AIDS AMONG STUDENTS COMING FOR INDUSTRIAL TRAINING IN NATIONAL INSTITUTE FOR PHARMACEUTICAL RESEARCH AND DEVELOPMENT (NIPRD), ABUJA, NIGERIA

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Knowledge of awareness about HIV/AIDS is one of the major cornerstones in the fight against the dreaded disease. Mostly youths are at risk to infection because of their involvement in risky practices due to a lack of vital information. Therefore, to determine their Knowledge of awareness will help in developing acceptable prevention and control strategies. This study was aimed at assessing Knowledge of awareness about HIV/AIDS among students coming for industrial training in National Institute for Pharmaceutical Research and Development, Abuja. A cross-sectional study was conducted on 360 students aged 17– 36 years. Pre-tested and modified questionnaires were administered to the students to obtain information about their knowledge of awareness on HIV/AIDS. Data were analyzed using SPSS version 20.0. Virtually all of the students (99.4%) had heard of HIV but only 1.4% was able to know HIV- infected person from their appearances. Sources of information differed, the most familiar being sex education in school. The majority of students demonstrated an adequate understanding of HIV transmission and prevention. However, misconceptions about modes of transmission were observed in 1.7 to 79.2 % of students. The main finding of the study revealed that students had a satisfactory level of awareness on HIV/AIDS prevention and highlighted some misconceptions about HIV transmission.

Keywords: Knowledge, Awareness, HIV/AIDS, Abuja, Prevention, Control, Misconceptions.

INTRODUCTION

Globally, Human immunodeficiency virus (HIV) infection remains serious public health challenges with approximately 36.9 million people living with HIV by the end of 2017 (UNAIDS, 2017). It was reported by World Health Organization (WHO) in 2018 that about 1.8 million populace came up with new infections and in 2017 about 940,000 of the populace die of these AIDS related diseases (Onoja et al.,

2016; WHO, 2018). It is reported that sub-Saharan Africa continues to be the most heavily affected region worldwide (Gaston et al., 2014**)**. According to Joint United Nations Global Fact Sheet (2015), sub-Saharan Africa is harboring over two-third of all people living with HIV/AIDS globally, which means that more than 66% of the population infected with HIV are found and lived in the region.

Although, it was reported globally that there was general decline in AIDS related deaths and new HIV infections as a result of the concerted efforts of various stakeholders, the toll of HIV/AIDS continues to be severe in developing countries particularly those in sub-Saharan Africa (Okonko et al., 2012; NACA, 2015). It is estimated that about 71% of people living with HIV worldwide in 2012 are found in the sub-Saharan Africa with 70% of new infection cases and with approximately 74% of all deaths related to AIDS (Addis et al., 2013). Globally, over 40% of new HIV infections are found among youth of age range 15 to 25 years (Tadesse and Menasebo, 2013). The youth are much more inclined to HIV infection and other sexually transmitted infections (STIs) as a consequence of lack of required health information, economic exploitation, engagement in risky behaviours, regional and national conflicts and a lack of access to adequate reproductive health services (Shiferaw et al., 2011). Nigeria has the second largest HIV epidemic worldwide (NACA, 2015). Although, the prevalence of HIV among adults is remarkably small (3.1%) compared to other sub-Saharan African countries such as South Africa (19.2%) and Zambia (12.9%). With the population size of Nigeria, it means that 3.5 million people were living with HIV in 2015 (UNAIDS, 2016).

The first Nigeria HIV case was detected in 1985 and reported in an international conference in 1986 in Lagos. The national prevalence of HIV was estimated to be 1.8% in 1991 to 4.5% in 1996, 5.8% in 2001, 5.0% in 2003 and 4.4% in 2005. However, the national prevalence seemed to stabilize between 2005 and 2010 as shown by the reported prevalence of 4.4% (2005), 4.6% (2008), and 4.1% (2010), which ranged from 1.0% in Kebbi State to 12.7% in Benue State (FMOH, 2011). The recent report of national HIV prevalence indicates a drop to 1.4% from 2.8% and it was estimated that there were 1.9 million people still living with this virus; with the South-South and North Central Zones of the country having the highest HIV prevalence, at 3.1% and 2.0% respectively (UNAIDS, 2019).

Based on the overall national prevalence of 1.4% obtained in 2019, the UNAIDS welcomes the new survey report and calls for better focus on the delivery of HIV prevention, treatment and care services to the people (UNAIDS, 2019). Therefore, this work was motivated by the desire in assessing the level of awareness among Students on the Industrial Work Experience Scheme (SIWES) towards people living with the HIV/AIDS at the National Institute for Pharmaceutical Research and Development (NIPRD), Abuja, Nigeria.

MATERIALS AND METHODS

Study Area

This study was conducted at NIPRD, Abuja, Nigeria. The NIPRD is one of the HIV care and treatment centres, highest medical research and referral institution in Nigeria charged with the responsibility to conduct research about diseases of public health significance. This research institute principally provides the research backup and referral centre for both local and international pursuits in academic and other related research activities of national interest. It is located in Abuja. Abuja is the Federal Capital City of Nigeria. The city is lying between latitude 8^{o} 25' N and 9^{o} 20' E of the equator and longitude 6^{o} 45' N and 7^{o} 39' E and located at the centre of the country with an area of approximately 7,315 km², of which the actual city occupies 275.3 km^2. It is found in the Savannah area with moderate climatic weather conditions. The capital city is located at the north of the confluence of the River Niger and Benue River (Henry, 2008).

Study Design and Study Period

The cross-sectional designed study was carried out between April and July, 2019 in which pre-tested standard questionnaires with both open and close ended questions were administered to SIWES are used to obtain information on their level of awareness towards people living with the AIDS, as well as their sources of information regarding the challenges.

Study population

The population of the study consisted of students from various tertiary institutions in Nigeria, which seek for industrial work experience scheme (SIWES) placement to the institute.

Sample size estimation

The sample size (minimum) was determined using the formula for a single proportion:

$$n = \frac{Z^2 (P) (1 - P)}{E^2}$$

With the estimated awareness level of 80% reported in 2005 and 2006 (Opaleye et al., 2005; Manafa et al., 2006).

Where: 95% confidence level (*Z*-score value: 1.96) and 5% precision level.

The estimated minimum sample size was approximately 245 (Z = 1.96; P = 0.8; E = 0.05). However, 360 students were selected for the study to allow for non-response.

The institution usually has SIWES population of over 600 per annual from the five technical departments. Seventy-two students (n= 72) were randomly selected from each technical department.

Ethical Approval

Ethical clearance and approval for the study was obtained from the Health Research and Ethics Committees (HREC) of Federal Capital Territory, Abuja and was endorsed by the authority of the NIPRD, Abuja, Nigeria where the cross-sectional study was developed.

The students were recruited after they were sufficiently counseled on the objectives and importance of the study. Informed consent was obtained from the selected students. The students were provided an assured of the confidentiality of information that they provided in the questionnaire.

Research Questionnaire

A well-researched structured self-administered questionnaire was developed to collect baseline socio-demographic characteristics of all students who consented to participate in the study. The questionnaire was pre-tested on 20 students' previous year in the institute. The necessary modification and corrections were made following the pre-test outcomes. The questionnaires were developed based on the HIV Indicator Survey model developed by the MEASURE DHS program and the AIDS survey model with some indicators from the National HIV/AIDS prevention programs for young people guide (WHO, 2015). The final questionnaire included questions on HIV transmission, prevention and control measures, awareness and source of the information, in addition to socio-demographic characteristics information of the student participants. The completed questionnaires were examined for completeness and all (360) questionnaires were filled and returned for analysis.

Data Analysis

The quantitative data were analyzed statistically using SPSS (version 20) statistical software. Standard descriptive statistics including means, standard deviations, frequencies and percentages, was used to describe some of the findings in tabular form. Student t-tests were used to examine any differences in continuous variables between males and females, between marital status as well as between the type of community of residence. All statistical tests were carried out at 5% significance level.

RESULTS

All (n = 360) of the student's respondents completed the questionnaire correctly giving a response rate of 100%, this was achieved through the entry point used in administering the questionnaires. There were 230 females (63.9%) and 130 males (36.1%). The ages of the students ranged from 17 to 36 years with a mean age of 26.5±3.9 years. Only (1.9%) of the study students were married and the rest (98.1%) were single. The age group 17 – 21 years had the highest (58.2%) students, followed by 22 -26 years with 30.6%. State Universities had the highest (46.9%) respondents and followed by the Federal Universities with 29.4% respondents as depicted in Table 1.

Virtually all of the students (99.4%) had heard of HIV but only 1.4% was able to know HIV- infected person from their appearances (Table 2). Most of them 253 (70.3%) had obtained information about HIV/AIDS from their family, while sex education in the school accounted for 53.6%. Other (19.2%) mentioned sources of information were the friends as shown in Table 3. The knowledge of the modes of transmission of HIV was also high at 99.7% each for sexual intercourse route, sharing toothbrush with infected persons and scarification marks and tattoos respectively (Table 4). Regarding to knowledge of HIV prevention and control, majority (99.2%) each

Table 1. Socio-demographic characteristics of the students (n = 360).

Variable	Total (n)	Percentage (%)
Age group		
17 – 21	210	58.2
22 – 26	110	30.6
27 – 31	20	5.6
32 - 36	20	5.6
Sex		
Male	130	36.1
Female	230	63.9
Marital status		
Single	353	98.1
Married	7	1.9
Institution		
Federal University	106	29.4
State University	169	46.9
Private University	68	18.9
Federal Polytechnic	11	3.1
State Polytechnic	6	1.7
Private Polytechnic	0	0
Residence		
On Campus	129	35.8
Off Campus	231	64.2

believed that if HIV positive pregnant women receive treatment, if HIV positive mothers do not breastfeed their babies and if family members of HIV patients are screened for HIV were effective way of prevention and control measures (Table 5). Responses to other knowledge questions are shown in Tables 6 and 7. Notwithstanding, 3.6%, 1.7% 30.8%, 79.2%, 10.6% and 10.6% responded erroneously that HIV could be transmitted through mosquito bites, sharing of food with HIV infected person, witchcraft, male or female traditional circumcision, hugging and kissing respectively.

DISCUSSION

Knowledge of awareness studies are very important tools prior to any intervention to assess the extent to which individuals, societies or communities are willing to take measures in order to achieve the risk-free desire behaviours (Akoachere and Colins, 2016). Some studies have been conducted in different parts of the geographical location worldwide among diversified groups. Knowledge of awareness studies about HIV has also been carried out among high risk populations such as long journey travelers, uniformed men, commercial sex workers (CSWs), prisoners, and even in general population. This study is the first study carried out on specific groups; students industrial work experience scheme (SIWES) in a research institute in Abuja, Nigeria.

This study revealed that 99.4% of students had a high level of knowledge of HIV/AIDS whereas those with poor knowledge comprised 1.4%. This finding is comparable with the report of Thanavanh and co-workers in which 46.3 % had high levels of knowledge, and 22.4 % poor knowledge and the students were adequate informed about HIV/AIDS (Thanavanh et al., 2013). The extensive awareness campaigns on HIV/AIDS have been conducted locally, nationally and globally since the mid-1980s, in which it could have been expected to have increased the HIV and AIDS knowledge in the country. Comparable findings have been shown by Thanavanh and co-workers (Thanavanh et al., 2013). The student respondents reported of 53.6% in this study about sexual education in school as the major sources of information on HIV/ AIDS is in agreement with study carried out by Haddison and his co-workers in 2012 (Haddison et al., 2012). This suggest that the school also serves as a common source of HIV and AIDS information which augers well for school based HIV and AIDS programmes for example HIV and AIDS club. With the exception of information from friends (19.2%) the media (TV, radio and newspapers) had the lowest ratings as sources of information. This finding is contrary to Bamise and co-workers reports about the media (Television, 76.9 %; radio, 75.5 %; newspapers/handbills, 74.4 %) as main sources of information on HIV/AIDS to secondary school adolescents in Nigeria (Bamise et al., 2011). The low percentages of the media outlets as sources of information directed towards young people directly indicate that the media may not be the primary channel to use for any intervention on HIV/AIDS targeting adolescents in our study settings. Youth usually prefers to the media for social activities and entertainment rather than for source of information (WHO, 2015).

HIV/AIDS continue to remain global major public health challenge and indeed Nigeria is not left out despite the concerted efforts by federal government, non-governmental organizations (NGOs) and other

Table 2. Knowledge of HIV/AIDS (n =360).

	YES n(%)	NO n(%)
Ever heard about HIV/AIDS?	358 (99.4)	2 (0.6)
Will you know HIV- infected person from his/her appearance	5(1.4)	355(98.6)
Does HIV cause life-long infection	339(94.2)	21(5.8)
Is HIV easily transmitted	32(8.9)	328(91.1)
Is there a medical treatment for HIV	358(99.4)	2(0.6)
Is there a possibility of a cure for HIV	158(43.9)	202(56.1)
Do you know about condoms	359(99.7)	1(0.3)
Can be condom use for HIV/AIDS prevention	359(99.7)	1(0.3)
HIV can be prevented by properly using condom during sexual intercourse	359(99.7)	1(0.3)
HIV transmission can be avoided by remaining faithful to a single partner	359(99.7)	1(0.3)
HIV transmission can be avoided by a blood test before marriage	360(100)	0(0)

Table 3. Source of information on HIV/AIDS (n =360).

	YES n(%)	NO n(%)
Family	253(70.3)	107(29.7)
Friends	69(19.2)	291(80.8)
Internet	23(6.4)	337(93.6)
Newspaper	19(5.3)	341(94.7)
Radio	27(7.5)	333(92.5)
Sex education at school	193(53.6)	167(46.4)

stakeholders in curbing the menace over the last decade. Our findings from this study showed a good knowledge of HIV amongst students on industrial training. But knowledge of the common routes of HIV transmission such as blood transfusion, sexual intercourse, breastfeeding, sharing of sharps, scarification and tattooing was high, misconceptions that HIV can be transmitted through mosquito bites, witch craft, hugging, kissing and hand shake was also common. This finding is comparable to what was documented in Benin City over a decade ago amongst civil servants and more recently among young individuals in cross river state and other developing countries such as Ghana, Lao Peoples Democratic Republic, and Afghanistan (Okojie et al., 1995; Mansoor et al., 2008; Sallar, 2009; Osonwa et al., 2013; Thanavanh et al., 2013).

Although, these misconceptions observed from this study could revert in risky behaviors like unprotected sex or also multiple sexual partners and others, which may expose these students to this viral infection. These findings depict the need for total reinforcement of educational interventions for youth particularly in the secondary school curriculum prior to their higher level institution educations. These misconceptions observed in this study are also similar to those reported by Koksal et al., (2005); Tan et al., (2007) and Mansoor et al., (2008). In spite of these misconceptions, the majority (99.7%) of students were aware of condoms and indicated self-sufficiency in HIV/AIDS prevention and unwanted sex.

The Nigerian Bureau of Statistics (NBS) in 2014 reported that approximately 32% of the adult in general population of the country had comprehensive knowledge of HIV transmission and prevention (NBS/FMOH, 2016). This is an indication of not only the need for more adequate information and proper sex education at school and health outfits of the general public regarding transmission of HIV/AIDS, but of paramount importance, there is need to integrate the services of health care workers (HCWs) specifically trained nurses on prevention, treatment and lifestyle changes for people living with HIV/AIDS (PLWHA) into the HIV voluntary counseling and treatment (HVCT) centers to support family members, physicians and other care givers in their care, management and interactions with PLWHA.

Table 4. Knowledge about transmission of HIV (n =360).

Can HIV be transmitted through	YES n(%)	NO n(%)
Blood transfusion	347(96.4)	13(3.6)
Sexual intercourse	359(99.7)	1(0.3)
Breastfeeding	303(84.2)	57(15.8)
From infected mother to unborn child	303(84.2)	57(15.8)
Sharing razor blade	349(96.9)	11(3.1)
Nail cutter	349(96.9)	11(3.1)
Sharing needle and syringe	349(96.9)	11(3.1)
Sharing a toilet with an HIV-positive person	11(3.1)	349(96.9)
Clipper	349(96.9)	11(3.1)
Wearing the same clothes of an HIV-positive person	3(0.8)	357(99.2)
Sharing toothbrush with infected persons	359(99.7)	1(0.3)
Scarification marks and tattoos	359(99.7)	1(0.3)

Table 5. Knowledge of HIV prevention and control (n =360).

HIV can be prevented	YES n(%)	NO n(%)
By vaccination	38(10.6)	322(89.4)
Screening of pregnant women	357(99.2)	3(0.8)
If HIV positive pregnant women receive treatment	357(99.2)	3(0.8)
If HIV positive mothers do not breastfeed their babies	357(99.2)	3(0.8)
If family members of HIV patients are screened for HIV	349(96.9)	11(3.1)
HIV can be prevented by consulting traditional healers	3(0.8)	357(99.2)
Do you think religion can stop the spread of HIV	349(96.9)	11(3.1)

Therefore, misconceptions surrounding the transmission of HIV would be reducing drastically and attitudes and behaviour towards PLWHA would also be improved. This is also in agreement with the observation made by Ciccone and co-workers in their study who demonstrated that integrating care givers into the health care system for the management of chronic infections would improve patient's knowledge, self-efficacy and disease outcome (Ciccone et al., 2010).

The 100% response rate of student respondents completing the questionnaire correctly was achieved through the entry point used in administering the questionnaires. The entering point for SWIES placement in the institute is through a coordinator and secretary was the students are accepted and deployed to various technical departments. They were given the questionnaires at this point and immediately returned to the coordinator secretary.

HIV testing was excellent among students as over 95.3% (343/360) had carried out an HIV test and 25.3 % (91/360) of these did the test within three (3) months prior to our study. Although, almost all (98.9%) students believed in knowing their HIV status, in this study, our proportion of students who had tested for HIV is greater than the 28.7 % reported by Haddison and co-workers (Haddison et al., 2012).

The activities related to HIV/AIDS should be more focused on adolescents because this is the age when sexual activity begins and more active. At this age most adolescents are in school thus are accessible through in-school education. In our findings, this was confirmed as the most effective way of reaching students because it was picked as the major source of information on HIV/AIDS by 53.6 % of the students. Adequate and accurate of HIV knowledge will help and support adolescents in making standard and acceptable decisions about practices that may

Table 6. Knowledge about HIV status (n =360).

	YES n(%)	NO n(%)
Have you ever carried out HIV test	343(95.3)	17(4.7)
Have you ever carried out HIV test in the last 3 months	91(25.3)	269(74.7)
Do you think it is good to know your HIV status	356(98.9)	4(1.1)
Do you think religious belief should stop you from knowing your HIV status	4(1.1)	356(98.9)

Table 7. Misconception about HIV/AIDS (n =360).

HIV can be transmitted by	YES n(%)	NO n(%)
Mosquito bites	13(3.6)	347(96.4)
Sharing food with HIV infected person	6(1.7)	354(98.3)
Witchcraft	111(30.8)	249(69.2)
Male or female traditional circumcision	285(79.2)	75(20.8)
Hugging	38(10.6)	322(89.4)
Kissing	38(10.6)	322(89.4)
Hand shaking	12(3.3)	348(96.7)
Coughing of infected persons	138(38.3)	222(61.7)

protect them from acquiring HIV infection.

CONCLUSION

The present study revealed that the awareness of HIV and its major routes of transmission are high among industrial training student at NIPRD, Abuja. But there are still gaps in the knowledge of the consequences of HIV and misconceptions about routes of transmission. Therefore, the need to design community based inter-generational preventive programmes and integrate-care-givers in our HIV counseling and testing (HCT) units to address challenges in communication and enhancing self-efficacy of PLWHA. Finally, sexual education in schools, should be buttressed to correct the misconceptions observed in this study.

LIMITATION OF THE STUDY

This study is limited in that it was carried out in a research environment involving 360 students in Nigeria, thus making the students very selective. Therefore, any generalization and usage of the findings revealed from this study must be made with great care.

RECOMMENDATIONS

The information on the awareness of SIWES in NIPRD can reflect the gaps in HIV/AIDS awareness among youths in Nigeria. It is possible that youths not enrolled in institutes of higher learning may be experiencing even greater gaps on awareness of prevention of HIV/AIDS. Universities in Nigeria should offer health education programme related to HIV/AIDS prevention among their students and information can be disseminated at social gathering like local meeting and religions ceremonies. This can help to improve the student's knowledge of awareness and correct any misconception regarding HIV/AIDS. Beside health education, intervention strategies must focus on behavioral changes towards safer sex. This is to ensure prevention of rapid transmission of HIV and early screening of exposed youths.

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CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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