



Awareness and Behaviours Relating to Prevention of Sexually Transmitted Infections (STIs) Among Students of Higher Institutions in South West Nigeria

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Abstract: Background: Sexually transmitted infections (STIs) constitute a major health concern worldwide, this is particularly so in the developing and low resource countries and important factor in the prevention and treatment is the awareness and attitudes of the people toward these diseases. Methodology: The study was conducted among the students in higher institutions in Ekiti state using a self-administered questionnaires following a two-stage stratified clustered sampling. Results: A total number of 150 questionnaires were distributed, with a response rate of 90% (135) and an average age of 22.94 years. The males were statistically older than the females ($P < 0.03$). Gonorrhoea, syphilis and HIV enjoyed better awareness compared to other STIs with (95.4%), (79.2%) and (77.7%) respectively with Chlamydia being the least known STI with only 16.2% of the respondents being aware. The male students had a higher incidence of multiple sexual partners than their female counterparts, with the difference being statistically significant both in the last 12 months (37.8% vs. 8.7%, $P < 0.001$) and total numbers of sexual partners ever 54.1% vs. 21.7%, $P < 0.0001$). Majority of respondents (50%) had their sexual debut between 15-20 years but a sizable number had first intercourse below 15 years of age (20%). Eighty-two percent (82%) and 50% of the respondents acknowledge the use of condom for prevention of STI transmission and contraception respectively. Conclusion: The knowledge of the students on STIs is above average except for Chlamydia infection. The practice of the students concerning sexual intercourse and prevention of STIs including HIV is disturbing, especially sexual intercourse and low level of condom use.

Keywords: Sexually Transmitted Infections, Awareness, Prevention

1. Introduction

Sexually transmitted infections (STIs) have been recognized as a major public health problem for a number of years. Despite medical advances, STIs continue to pose a threat to the health and welfare of millions of people worldwide [1] especially in the developing countries where STIs treatment is less accessible. [2] Gonorrhoea, syphilis and HIV/AIDS are the most widely known, but there are

more than 20 other STIs [3]. An estimated 685,000 people are infected everyday with STIs such that by the end of 2017, about 36.9 million people had been infected with HIV/AIDS according to World Health Organization (WHO) estimates and two-third of these people live in developing countries [4]. It is also estimated that every year there are 250,000 new cases of STIs excluding HIV/AIDS, nearly as many as malaria [5]. STIs account for up to 17% of productive years lost and are second only to malaria in their disease burden [1].

They are major causes of acute illness, infertility, long term disability and death, with severe medical and psychological consequences for millions of men, women and children. A major source of concern is the potential for STIs to facilitate the spread of HIV infection. Studies in both developed and developing countries indicate that people with current STI are 2-9 times more likely to be infected with HIV with strong epidemiological evidence to link STIs with HIV transmission [1, 6]. STIs are often not recognized until they have caused serious complications. Studies have shown that, of those infected as many as 70% of women and 30% men are asymptomatic. Some people especially women, may have symptoms, but they may not attribute them to an infection. Even those who suspect they have an STI may not seek care because they do not appreciate the seriousness of these diseases, are too embarrassed to attend a clinic, fear stigmatization or simply have no access to treatment. All these factors are more prevalent among the adolescents and younger people [1]. STIs take their greatest tolls through their sequelae. Conditions resulting from the spread of these pathogens (bacteria or viruses) may affect the fetus and infant e.g. syphilis may result in spontaneous abortion, still birth and perinatal death [7]. *Gonorrhoea* and *Chlamydia* may cause ophthalmia neonatorum and lung infections including atypical pneumonias. STIs also lead to male and female infertility, pelvic inflammatory disease and chronic pelvic pain. *Chlamydia trachomatis* is recognized as the most prevalent sexually transmitted organism in many parts of the world. The risk of ectopic gestation is increased by some STIs. About 1-15% of maternal deaths in developing countries are due to ruptured ectopic gestation [7]. Pelvic inflammatory disease by permanently scarring and narrowing the fallopian tubes increases the risk of ectopic gestation 7-10 times. Human papilloma virus (HPV) has been implicated as a co-factor in the pathogenesis of pre-invasive and invasive cervical neoplasia many years after initial infection. [1] In general, the prevalence of STIs tends to be higher in urban residents, in unmarried individuals and in young adults. [9] STIs tends to occur at a younger age in females than males, and is related to the pattern of sexual activity and to the relative rates of transmission from one sex to the other. [1] Most cases of STI including HIV/AIDS occur among young people who would normally be in the peak of their reproductive years. [10] About half of all HIV infections occur among individuals younger than 25 years worldwide. [9, 10] The risk of HIV infection is especially high among those with multiple or high risk sexual partners and who engaged in unprotected sexual intercourse. [9, 11, 12] In addition the young people lack knowledge about the prevention of STIs and contraception with erroneous ideas about reproduction. The lower age limit for admission into most Nigerian high institutions is 16-17 years. [9] This means that majority of these students are in their late teens or early twenties. Most of them live away from home in school hostels or rented apartments. These arrangements weaken parental control and supervision of students' activities. They are often exposed to influences that encourage casual sexual

relationships especially those coming in contact with such environments for the first time. [9] The socio-economic consequences of STIs and HIV/AIDS in the developing countries cannot be easily quantified. Due to the high prevalence of STIs in our environment, this study is designed to ascertain the knowledge, attitudes and behaviours of students in higher institutions in relation to STIs and their prevention.

2. Materials and Methods

The study was conducted among the students in higher institutions in Ekiti state (University of Ado-Ekiti; Federal polytechnic, Ado-Ekiti; and College of Education, Ikere-Ekiti). All the institutions are located in south west Nigeria. University of Ado-Ekiti and College of Education Ikere - Ekiti are state owned, thus majority of students in these institutions are from the state. The Polytechnic is a Federal institution and thus has the whole country as catchment area for admission. They represent the three cadres of higher institution in Nigeria. The sample size was calculated to be approximately 100 based on a previous study of 95% of aware of common STIs (*Gonorrhoea* and HIV) among similar population [9]. The precision was 0.05 with a confidence interval of 95% ($z=1.96$). Allowance was made for 20% non respondent rate. The sample of respondents were selected from each institution following a two-stage stratified clustered sampling design. At the first stage, a random sample of clusters consisting of halls of residence (stratified into male and female) for the residential institution (College of Education, Ikere- Ekiti and Federal Polytechnic Ado- Ekiti) or the departments for the non- residential institution (University of Ado- Ekiti). In the second stage, the blocks of residence or the lecture theatres respectively were listed and then systematically selected. A self – administered structured questionnaire designed to elicit necessary information from the respondents were administered. One hundred and fifty (150) such questionnaires were distributed equally to first 50 consecutive students (first 25 males and first 25 females) encountered in the selected halls of residence and the lecture theatres as described above. Information about the respondent characteristics such as age, parity, educational status and place of residence were sought. Awareness of the various STIs, the perceived mode of transmission and preventive measures were also sought. The sources of their information were verified. The data obtained were coded and entered into a computer using SPSS software version 20. The results are included in simple percentages, descriptive measures and chi square tests. P-value of 0.05 was set as the measure of significance. Cross tabulations and correlations analysis were performed to establish relationships among variables.

3. Results

A total of 150 questionnaires were collected of which only 135 (90%) were valid. The remaining 15 (10%) were invalid

due to incomplete information. Table 1 shows summary statistics of age by sex and institution. Of the 135 respondents 51.1% were males and 48.9% were females. The average age was 22.94±3.0 years. However males were statistically older than the females (P<0.03). Students

attending the college of Education with a mean age of 21.6±2.5 years were younger than their colleagues in polytechnics and university. The university students were the oldest with a mean age of 23.9±3.7 years.

Table 1. The Summary Statistics of Respondent by Age, Sex and Institution.

| | MEAN AGE (YEARS) | S. D | N | Test | Sig. |
|----------------------------------|------------------|------|----|-------------------|-------|
| INSTITUTION | | | | | |
| College of Education Ikere Ekiti | 21.58 | 2.50 | 43 | (F) | |
| Federal Poly, Ado Ekiti | 22.91 | 2.67 | 42 | | 0.775 |
| University of Ado Ekiti | 23.89 | 3.74 | 48 | | 0.082 |
| SEX | | | | | |
| Male | 33.84 | 3.74 | 71 | (X ²) | |
| Female | 22.08 | 2.78 | 64 | | 0.003 |

F=Anova; X²=Chi square.

Though these differences were not statistically significant. Figure 1 shows the level of awareness of STIs among the respondents. Gonorrhoea, syphilis and HIV enjoy better awareness compared with other STIs with (95.4%), (79.2%) and (77.7%) respectively. Chlamydia is the least known STI

with only 16.2% of the respondents being aware. Unexpectedly 58.3% were aware of carcinoma of the cervix although probably not as a sexually related disease entity. Majority (96.9%) identify virus as the causative organism of HIV.

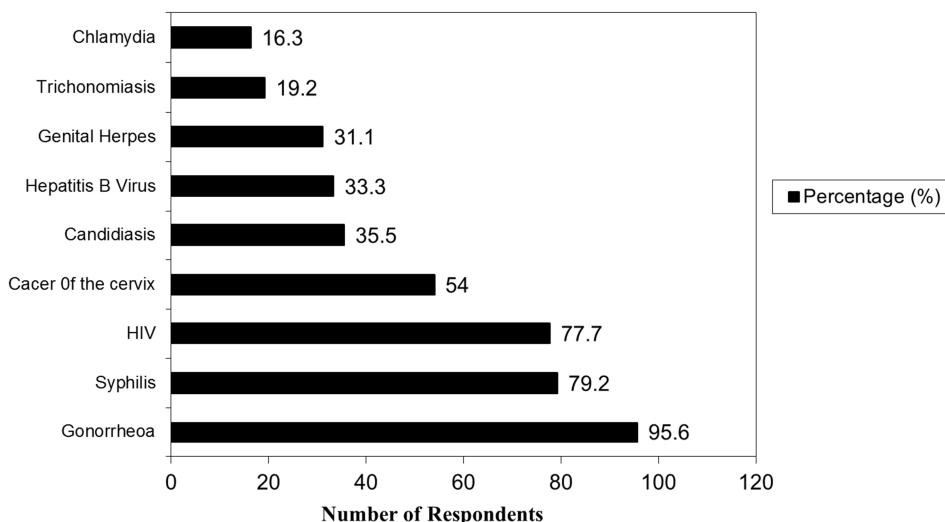


Figure 1. STI Awareness Among the Respondents.

The perceived routes of STIs/HIV/AIDS infections by demographic characteristics is shown in Table 2. It shows the students' knowledge of the modes of STIs & HIV/AIDS transmission. Though most students are aware of the common modes of transmission there are still some

misconceptions of these diseases. The younger age group and students of college of Education who are of course younger than those in Polytechnics and University had higher level of misconceptions about the mode of transmission.

Table 2. Perceived Routes of HIV Transmission by Respondents.

| Route of transmission | Number of Respondents | Percentage (%) |
|---------------------------------|-----------------------|----------------|
| Inhalation | 10 | 7.5 |
| Sexual intercourse | 103 | 77.4 |
| Hugging | 2 | 1.5 |
| Pregnant Mother to unborn Child | 90 | 67.7 |
| Infected Sharp object | 80 | 60 |
| Blood transfusion | 90 | 67 |

Table 3 shows the sexual activity of respondents. It shows the number (s) of sexual partners of the respondents in the last 12 months and total ever. The male students had a higher incidence of multiple sexual partners than the female

students. The difference was statistically significant both in the last 12 months (37.8% vs. 8.7%, P<0.001) and total numbers of sexual partners ever (54.1% vs. 21.7%, P<0.0001). Those in older age group and those in the

universities tended to be more sexually active than the younger age groups and those in the college of education and/or polytechnic, though these differences are not

statistically significant $P > 0.05$). Religious affiliation and type of family did not seem to have significant effect on the number of sexual partners in this study.

Table 3. The Demographic Characteristics of the Students and number of Sexual Partners.

| | n | No of Partners in last 12 month in % | | | Test | No of people ever had sex with in % | | | Test |
|----------------------|-----|--------------------------------------|------|------|----------|-------------------------------------|------|------|----------|
| | | 0 | 1 | 2+ | | 0 | 1 | 2+ | |
| Age | | | | | | | | | |
| 15-24 | 100 | 42.0 | 36 | 22 | 5.022* | 36.0 | 28.0 | 36.0 | 3.153* |
| 25+ | 35 | 20.6 | 50.0 | 29.4 | P=0.081 | 20.6 | 29.4 | 50.0 | P=0.207 |
| Sex | | | | | | | | | |
| Male | 70 | 23.0 | 39.2 | 37.8 | 22.402* | 24.3 | 21.6 | 54.1 | 15.808* |
| Female | 65 | 55.1 | 36.2 | 8.7 | P<0.0001 | 43.5 | 34.8 | 21.7 | P<0.0001 |
| School | | | | | | | | | |
| College of Education | 38 | 35.0 | 42.5 | 22.5 | 1.408** | 37.5 | 35.0 | 27.5 | 5.080** |
| Polytechnic | 36 | 45.9 | 32.4 | 21.6 | P=0.843 | 40.5 | 24.3 | 35.1 | P=0.202 |
| University | 61 | 36.5 | 38.1 | 25.4 | | 25.4 | 28.6 | 46.0 | |

*X² (Chi square) ** F test (Anova).

Majority of respondents (50%) had their sexual debut between 15-20 years (Table 4) but a sizable number had first intercourse below 15 years of age (20%).

Table 4. Ages at Sexual Debut by Sex.

| | Age at first Intercourse | | | | | | TOTAL | |
|--------|--------------------------|------|---------------|------|-----------|------|-------|------|
| | <15 Years | | 15 – 20 Years | | >20 Years | | | |
| | No. | % | No. | % | No. | % | No. | % |
| MALE | 11 | 12.2 | 33 | 26.7 | 8 | 8.9 | 52 | 57.8 |
| FEMALE | 7 | 7.8 | 12 | 13.3 | 19 | 21.1 | 38 | 42.2 |
| TOTAL | 18 | 20.0 | 45 | 50 | 27 | 30 | 90* | 100 |

*Only 90 Respondents indicated their ages at first sexual intercourse.

Electronic media (Radio/television) was identified as the most common source of information (83.0%). The parents as source of information was low at 14.8%. Table 5 show the knowledge of STIS and HIV/AIDS preventive measures. High proportions of the respondents are knowledgeable about

common risk reduction strategies like use of condom, sexual abstinence, mutual fidelity etc. Eighty-two percent (82%) and 50% of the respondents acknowledge the use of condom for prevention of STI transmission and contraception respectively.

Table 5. Knowledge of STI/HIV preventive measures by simple percentage.

| Method | Number of Respondents | Percentage (%) |
|--------------------------|-----------------------|----------------|
| Abstinence | 56 | 41.5 |
| Use of Condom | 38 | 28.2 |
| Keeping to One Partner | 20 | 14.8 |
| Reducing sexual activity | 10 | 7.4 |
| Regular Medical check up | 11 | 8.1 |
| TOTAL | 135 | 100 |

4. Discussion

The knowledge of Gonorrhoea, syphilis and HIV are almost universal among the students (95.4%, 79.2% & 77.7 respectively) regardless of the age and educational level. This trend was summarized by earlier reports thus; gonorrhoea, syphilis and now HIV/AIDS are most widely known STIs. [2, 3] However the above statement cannot be made about *chlamydia* infection with only 16.2% level of awareness. *Chlamydia trachomatis* has been recognized as the most prevalent sexually transmitted organism in many parts of the world. [2, 14-16] This low level of awareness among the students is not encouraging as the sequelae of this disease especially in relation to male and female infertility cannot be

ignored. [2, 15] Efforts should be made to improve the level of awareness among these particularly high risk group of people. The high level of HIV/AIDS awareness may not be unconnected with the government and non-governmental efforts. This study showed that most of the respondents are sexually active and some commenced sexual intercourse as early as 15 years of age, with history of pregnancies and abortions. Thus one can no longer ignore the need for adequate knowledge and information dissemination among this previously perceived "innocent" but at risk citizens. This trend is in consistent with the high rate of unwanted pregnancy and abortion related complications among the female adolescent population in Nigeria. [17] The study also shows that the male students are more sexually active with high-risk behaviours like multiple sexual partners and

commencement of sexual activity at a much younger age than their female counterparts. Similar result was reported from Benin [17]. This finding has important implication for the policy formulation on adolescent reproductive health, as attention is often focused on the female group. More attention should therefore be placed also on the male adolescent reproductive health. This study shows that despite high level awareness of HIV/AIDS, there are still misconceptions especially about the mode of transmission, [13] with hugging and inhalation still being considered as modes of transmission. This may have a negative effect on the effort against stigmatization being preached worldwide in relation to HIV/AIDS. The knowledge of the preventive measures among the respondents is above average with high proportion citing abstinence, mutual fidelity, and use of condom as means of prevention. The use of condom is considered the most effective way of preventing transmission of STI including HIV. [18] The low level of condom use among the students is particularly a source of concern because members of these groups are the one most likely to engage in high risk sexual behaviours. [9] Also 54 percent of respondents cited condom as being used solely as contraception, however one can assume that once condom is used to prevent pregnancies, it also provides protection against HIV transmission and other STIs at the same time. However it is important that the youth should be conscious of the STIs especially HIV and thus take positive steps towards prevention of the spread. Thus adequate enlightenment should be put in place to improve the level of condom use among the youth. This is because condom is relatively available and affordable. This study shows that the electronic media-Television and radio are important source of information on STIs/HIV, with 83% identifying this media as their source of information. It was reported earlier that radio reaches almost everyone and that worldwide there are an estimated over 1.6 billion radio receivers -one for every three people and over 32000 radio stations. [13] The result of this study is comparable to what obtained in the central African Republic and in Eastern Nigeria. [2] Thus simple programmes on radio and television like drama, chats and songs should be used to pass information about STIs/HIV across to people in general [13]. Although it is believed that parents, teachers and trained personnel could provide information on STIs/HIV and contraception, their attitudes could prevent youths from seeking advice from them. The judgmental attitudes of health workers on such information especially demand of contraception by young ones in a certain family planning clinics have been reported [9]. The role of parents in family health education cannot be over-emphasized and parents should be involved in information dissemination on reproductive health education to the youths. The misconception by some parents that sexual education for youths encourages early sexual activity should be corrected. Indeed it has been found that the risk of early sexual intercourse is increased when inadequate and wrong information on sex-related issues is given to the youth. [19]

5. Conclusion

The knowledge of the students on STIs is above average except for Chlamydia infection. The practice of the students concerning sexual intercourse and prevention of STIs including HIV is disturbing because they are the most likely to spread the disease. [9] Early sexual intercourse and low level of condom use are particularly worrisome. [20] Efforts at increasing awareness about these diseases especially the *Chlamydia infection* and effective preventive strategies such as correct and consistent use of condom via appropriate channels such as electronic and social media will go a long way in mitigating against the adverse and deleterious effects of sexually transmitted infections especially the tendency of these infections to potentiate HIV transmission, [6] particularly among the youth who are more vulnerable because of their unpredictable attitude, misconceptions and behaviours.

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