

# Screening of *Chlamydia trachomatis* urogenital infection among Nigerian university students

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## ABSTRACT

*Chlamydia* infection is a sexually transmitted infection caused by the bacterium *Chlamydia trachomatis*. The goal is to determine the prevalence of Chlamydia infection among University students in one of the Nigerian universities. These students are among the highest sexually active populations in the country. Urine and vaginal swab samples from a total of 200 students of Anambra State University, Uli, Nigeria was randomly collected from student volunteers. 200 students, among who are 140 female students and 60 male students from different background aged between 17-26 years were screened for *Chlamydia trachomatis* infection. From the result obtained, the average prevalence rate of *Chlamydia* infection among the 200 students screened was 12.5% with a higher prevalence rate of 10% in young adults aged between 17-20 years and 2.5% for older adults. Out of 140 female and 60 male students screened, 20 females and 5 males were positive while others were negative. From this result, it can be said that young adults between the ages 17-20 had a higher positive result than other age groups. Also, women had a higher prevalence rate of 10% than men with 2.5%. With this result, routine screening of *Chlamydia* infection on university campuses is recommended in order to prevent further spread and improve public health.

**Key words:** *Chlamydia trachomatis*, infection, screening and prevalence, young university students

## 1. INTRODUCTION

*Chlamydia* is a common sexually transmitted infection (STI) caused by the bacteria *Chlamydia trachomatis*. It is one of the most sexually transmitted infections (STI) in human [1]. About three (3) million new cases of *Chlamydia infection* is report yearly in the United States of America and approximately 48% of said cases occur among sexually active

late teen and young adults aged between 16 and 24 years [2].

This infection is known as “silent” disease, as it is found to be mostly asymptomatic (no symptoms) in about 90% of women and 50% of men who are infected [3]. Due to this, *Chlamydia* infection is easily transmitted to their unsuspecting partners and with the high rate of sexual risk behaviours engaged by

University students. There is bound to be a very high prevalence rate if not checked on time.

*Chlamydia* infection is easy and low cost to diagnose, and can be treated with antibiotic if detected on time. But this infection may lead to severe complications like pelvic inflammatory disease (PID), Ectopic pregnancy, chronic pelvic pain, infertility and sterility in women if not detected on time. It can also cause urethritis, infertility and sterility in men [4]. *Chlamydia trachomatis* can also be transmitted to neonate from infected mothers during vaginal birth this could cause *Chlamydia* conjunctivitis and pneumonia to the new born babies [5].

However, early detection is often a challenge primarily because of its asymptomatic or lack of symptoms to diagnose, most especially to young girls and women [6]. The lack or unavailability of routine screening exercises in many health centres in the country. With the availability of SDA a highly sensitive rapid test device which is able to detect a minute amount of organisms in the sample, this has facilitated mass screening in non-clinical setting which could provide opportunities and awareness for routine *Chlamydia* screening among students [7].

Despite these high risks behaviours, routine *Chlamydia* screening is not readily available at most of the University's health centres thereby encouraging a high transmission rate of the infection in the campus. Therefore, there is need to provide *Chlamydia* screening strategies in colleges and universities in the country [8].

Screening for this infection is recommended in several population subgroups, current recommendations from CDC as well as the American College of Obstetricians and Gynaecologists (ACOG) are to screen these age groups as well as pregnant women [9]. However many of those risk factors do not have access to screening or are not aware of its risk associated with it. In the light of high prevalence of *Chlamydia* infections and underutilization of screening exercises, increased efforts to encourage screening can have a significant positive public health impact. Therefore, there is need to create awareness and provide screening opportunities in the universities and colleges in various countries.

University students were used as case study because university campus harbours sexually active young adults who are the high risk factors for the *Chlamydia* infection. Therefore the purpose of this screening exercise was to determine the prevalence rate of *Chlamydia* infections among the students and to also create awareness about the existence and complications of *Chlamydia* infections in the selected university.

## 2. MATERIALS AND METHOD

### 2.1. Research location

The screening exercise was carried out at Anambra State University Uli Campus (5.7833 E and 6.8667 N) with 200 student volunteers of Nigeria.

### 2.2. Sample collection

Both Male and female students aged between 17 and 26 years who are not under any medication prior to the collection of sample were randomly approached and educated about *Chlamydia* infection and its complications if not treated. Of all the students approached, 200 students both male and female volunteered to provide samples for screening.

### 2.3. Data collection

The students (140 female and 60 male) were required to provide answers to questionnaires comprising of their gender, age, sexual history and detailed risk factor associated with *Chlamydia trachomatis*. Male students were given sterilized urine bottles and instructed on proper method of collecting first void urine sample while the female students were given vaginal swab and educated on how to get the sample using self-administered vaginal swabbing. All the samples provided were promptly transported to the school clinic laboratory for testing and analysis. The tests were carried out according to the instructions on the test kit.

## 3. RESULTS AND DISCUSSION

The prevalence rate of students with *Chlamydia trachomatis* infection, based on their ages was observed and reported. From table 1, it is seen that, out of the 200 samples, only 25 tested positive for *Chlamydia trachomatis*. These constitute about 12.5% of the total students screened. From the data obtained by the analysis, students aged between 17 and 20 years has a higher prevalence rate of this infection with a 10% rate compared to the other age range. It should be noted that out of

all the students screened, none showed any symptom of this infection before testing. It can be said based on this screening that there is a high prevalence rate of *Chlamydia* infection among the university students therefore an urgent intervention is required to curb the spread.

Table 1. Average Prevalence rate of students with *Chlamydia trachomatis* infections, based on their age.

Age range	No of students	Positive (%)	Negative (%)
17-20	120	10%	50%
21-23	55	2%	25.5%
24-26	25	0.5%	12%
Total	200	12.5%	87.5%

From the results obtained from the samples analysed, the present screening in the Anambra State University is at a high rate of 12.5% of 200 samples screened. Also the results show that female students had more positive result (20 out of 140) than male students (5 out of 60) and that the positive results were found higher among late teens and young adults aged between 17-20 years with 10% prevalence rate. Therefore the risk factors are young adults and late teens according to this analysis.

From table 2, the screening also revealed from the study that there is a higher risk of infection in the female student more than male students and from the data obtained, 20 female tested positive compared to 5 male that tested positive to the infection. This shows that female students are more susceptible to this *Chlamydia* infection than the male students.

The result of this analysis reveals that the prevalence of *Chlamydia* infection in the university is determined to be high at 12.5%

Table 2. Average prevalence rate of students with *Chlamydia trachomatis* infections based on their gender.

Gender	No of students	Positives (%)	Negatives (%)
Female	140	10%	60%
Male	60	2.5%	27.5%
Total	200	12.5%	87%

compared to the 9.7% reported by the previous study on college students in the United States [11]. Overall, the result shows that younger girls are more likely to be infected and are more susceptible to the disease than older females and male students and this is in agreement with the national data report that younger age is a risk factor for *Chlamydia* [3].

According to this analysis result and based on the answers to the questionnaires provided by the volunteers, these younger age group are the risk factors because they are more likely to engage in unprotected sexual activities or have multiple sexual partners which are high risk behaviours that exposes them to *Chlamydia* infection because of a new found freedom from their parental control and curiosity to explore their new environment thereby engaging in these high risk behaviour during their early years in the University [10]. Secondly, younger females are more susceptible to *Chlamydia* due to a characteristics of cells that form the lining of the cervical canal (cervical ectopic) which causes the cervix to be more sensitive to microorganisms [11].

*Chlamydia* infection could be easily treated if detected early, but due to its asymptomatic nature in more than 75% of the infected persons and considering that all that tested positive in this screening showed no symptom,

they could infect their partners thereby spreading the infection. This poses a big challenge to the treatment and control of *Chlamydia* infection and with the high prevalence of this infection according to this result, there tends to be a large reservoir of unrecognized infected students capable of spreading the infection thereby risking the reproductive and general health of Nigerian students [12].

There is an urgent need for routine screening for *Chlamydia trachomatis* and other STIs in the university clinics in Nigeria for students in order to help reduce the high prevalence rate of the infections in university campuses. With the availability of SDA a rapid *Chlamydia* Test Device which is cheap but highly sensitive and specific and capable of detecting a minute amount of *Chlamydia trachomatis* in any specimen more than culture method, then routine screening of students for *Chlamydia* infection because they have a high prevalence rate of infection.

## CONCLUSION

The high prevalence rate of *Chlamydia* infection among the university students require and urgent intervention and the need to provide strategic awareness and screening programs for *Chlamydia* and other STIs in our universities to reduce the prevalence rate and help improve reproductive and general health of Nigerian students.

## 4. ACKNOWLEDGEMENT

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## 5. CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

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