

## **Research Article**

# **Prevalence of HIV Infection among Young Visiting a Voluntary Counseling and Testing at Khartoum State, Sudan**

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**Abstract:** Voluntary counseling and testing (VCT) is an important component of the human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) prevention and control interventions. The services in Sudan are available in government health facilities. However, very little is known about the profile and HIV prevalence among VCT clients. This study determined the prevalence of HIV infection among young (15-25) seeking testing in Voluntary Counseling and Testing centers (VCTs) in Khartoum State –Sudan. VCT makes people aware of their HIV serostatus and enables early identification of those who need care. It is an important link to HIV care and support. The main aim of this study is to describe the prevalence of HIV at VCT. A cross sectional study was conducted to estimate the prevalence of HIV infection among young infected. Individuals were enrolled from Khartoum VCT center. Initial HIV screening was done based on current national Rapid HIV screening algorithm. Based on the WHO criteria, those who were identified as HIV-positive were classified as recently infected if < 25 years of age. Moreover the HIV-positive specimens were subjected to confirmatory test by 4TH gen Elisa and other confirmatory test called determine combo. 376 individuals were under inclusion criteria of research according to the age (15-25 years) tested positive among 5862 with the defined algorithm and verified with determine rapid test and then confirmed with fourth generation ELISA and Determine by Combo rapid test. Out of 12470 individuals attended to the free standing VCT center during the study period between November/2011 to October /2012. Of all the screened samples (n=985) were confirm positive by the national algorithm of Sudan. Thus, a total of (n=376) samples were positive by the set algorithm under the criteria of selection (15-25) years of age. Overall HIV-1 prevalence of recent infection was 6.4% (376/5862). Our data suggest that prevention for young remains a challenge and efforts focusing on prevention targeting this population should be prioritized.. Our analysis reveals that more work against young and the need for intensified prevention interventions among middle-aged persons in Sudan.

**Keywords:** Voluntary counseling and testing (VCT), HIV, Khartoum VCT center.

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## **INTRODUCTION**

Decades have passed since HIV/AIDS started to be considered as a major threat in terms of its personal, family and socio-economic consequences. As a result HIV/AIDS has been investigated in many ways ranging from clinical to the public health aspects. The areas of focus include prevention, screening and counselling, stigma and discrimination, care to HIV patients and effectiveness and the complications of therapy. HIV counselling and testing is a major concern and the relationship between counseling and testing and HIV care is an important link to notice [1].

HIV voluntary counselling and testing (VCT) refers to the process of giving people professional counselling before and after the HIV test. VCT provides people with an opportunity to learn and accept their HIV serostatus in a confidential environment with

counselling and referral for ongoing emotional support and medical care [2].

VCT is an entry point for HIV related programs. Knowledge of the quality of services and motivation for undergoing testing by individuals is important for effective understanding of the testing environment [3,4]. It is hence a valuable component of comprehensive HIV/AIDS programming. It is specifically important for individuals and couples to learn about their HIV status and make informed decisions about their future [4, 5]. Additionally, VCT centers can be used for the estimation of the prevalence of HIV infection [6].

Provision of VCT centers, where people can seek out an HIV test, is helpful for those who are self motivated to be tested for HIV infection. Moreover, it is equally

important to coordinate this center with other HIV related services. Early diagnosis of infected individuals and linkage to care are critical to improving an individual's health and to secondary prevention efforts aimed at slowing the HIV epidemic [7].

A strong link between VCT and the HIV care clinic is vital in averting or decreasing untimely mortalities associated with HIV/AIDS showing the link is a critical structure for success in the treatment of people with HIV/AIDS. Moreover, VCT helps decrease late presentations and also assists PMTCT in the early diagnosis of HIV.

Two things are of paramount importance when seeing the role of VCT in the prevention and control of HIV: first is the overall prevalence of HIV positive patients at VCT and second is how effectively the HIV positive patients are linked to the place where care is rendered. Therefore, the main aim of this study is to quantify the burden of HIV at VCT.

To monitor trends in HIV prevalence among young people aged 15 to 24 years as an indicator of the ability of national AIDS control programmes to control the HIV epidemic. Every year, new cohorts of young and uninfected subjects join the group of sexually active individuals. As young people represent a high proportion of the population in developing countries [8], reducing the rate of infection in this group would have an important influence on the overall course of the epidemic.

## **MATERIAL & METHODS**

### **Study Population**

Frozen sera collected from a consecutive sample of individuals from November/2011 to October /2012 (n =12470), recruited from VCT centers located in Khartoum state.

The registration book at the VCT center was used to recruit all people who came to the center for an HIV test from 2011/11 to 2012/10. Data on some variables (client code, age, sex, address,) was taken from the VCT registration book.

The VCT registration book does not include second time HIV positive test results by the same persons. Individuals who came to the center many times and tested positive had their result registered only once.

These sites are the places where any Sudanese citizen can be tested for HIV infection for free, keeping anonymity if desired, with easy access, and in the context of a welcoming environment. They are localized mainly in the Khartoum state, which corresponds to a catchments area of about 8 million people.

Information was obtained from baseline data collection forms, administered in private by trained interviewers. Among the population studied, the records provided information on gender, age and sexual orientation for all individuals. The protocol of the present study did not interfere in any sense with the routine procedures adopted by each one of the VCT centers and in this sense allows for individuals the right to refuse to answer one or more questions they may consider as embarrassing or annoying. Individuals were entitled to be counseled and tested, as defined by the guidelines of the Sudanese Ministry of Health (SMoH), irrespectively of their answers (or the absence of answers) to the short standard form used as a routine procedure in the VCT centers.

### **Data collection**

The purpose and research procedure were first explained to each subject. After a verbal consent to participate in the study, data were collected from each individual under study by interviewed questionnaire. Information was obtained on age, sex, transmission category HIV testing history.

### **Collection of specimen**

Blood samples was collected from each individual positive for HIV, to conduct the standard serological testing., and then stored at -20°C until the delivery of the results of the HIV testing.

### **Laboratory methods**

#### **Serological testing algorithm**

All samples were first tested with the HIV Algorithm (three rapid tests) of Sudan, then confirm the reactive by 4<sup>th</sup> gen rapid test combo and 4<sup>th</sup> gen ELISA.

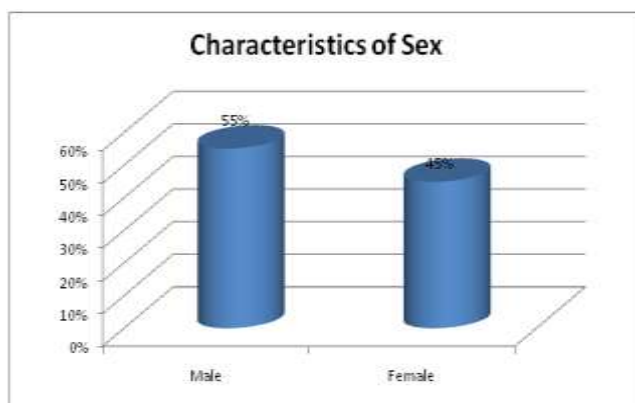
With the goal of enabling this research protocol without disturbing the routine procedures of the VCT centers.

## **RESULTS**

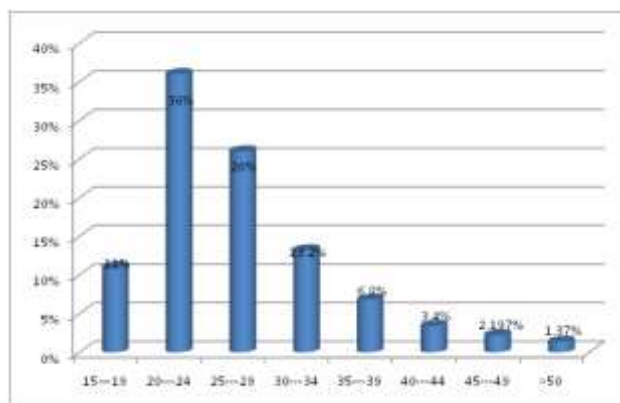
A total of 12470 individuals attended to the free standing VCT center during the study period between November/2011 to October /2012. VCT attendees which fulfill the criteria to assessing the young HIV infection, age 15-25 years, consented to test and with no repeat visit. Among them Females were 44.9% (5596) and males were 55.1% (6874). Out of 12470 there were 985 subjects reactive for HIV, thus the general prevalence among all individuals attended the VCT was 7.9 % (985/12470), and out of 985 there were 376 under criteria of the study populations (age 15-25 years .thus the prevalence of HIV among study population was 6.4 (376/5862) (Table 1). HIV prevalence among male was 3.9% and among female 2.5% table 2.

**Table 1: Attendees**

Characteristics	Frequency	%
<b>Sex</b>	N(12470)	100%
Male	6874	55.1%
Female	5596	44.9%
<b>Age</b>	N(12470)	100%
15—19	1372	11.0
20---24	4490	36.0
25---29	3243	26.0
30---34	1647	13.20
35---39	848	06.80
40---44	424	03.40
45---49	274	02.197
>50	172	1.37



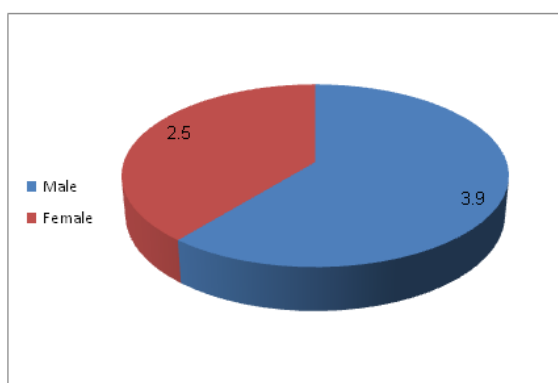
**Fig. 1: Characteristic of sex**



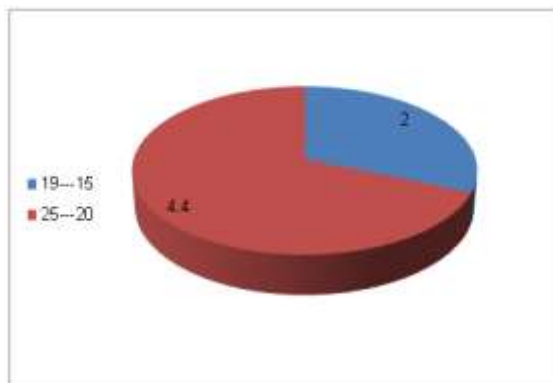
**Fig. 2: Distribution of VCT attendees by Age**

**Table 2: The HIV prevalence among gender and age group , 11/2011 to 10/2012**

Characteristics	Tested positive	Total	
		Total	Prevalence
<b>Over all</b>	376	5862	6.4
<b>Gender</b>			
Male	227		3.9
Female	149		2.5
<b>Age (Years)</b>			
15---19	120		2.0
20---25	256		4.4



**Fig. 3: Prevalence among gender**



**Fig. 4: Prevalence among age group**

## DISCUSSION

Successful impact of interventions can be confirmed often years earlier by observing a decline in HIV-1 prevalence compared, thus providing an important tool for monitoring and evaluation. Voluntary counseling and testing is being advocated so that they can know their status and thus be able to access strategies to reduce the risk of transmission.

The present study have shown, in a total of 12470 subjects with age range 15 to over 50 the HIV prevalence were found to be 7.9 % (985/12470), female 44.9% (5596/12470) and male were 55.1% (6874/12470). Out of 12470 there were 985 subjects reactive for HIV, thus the general prevalence among all individuals attended the VCT was 7.9 % (985/12470), and out of 985 there were 376 under criteria of the study populations (age 15---25 years .thus the prevalence of HIV among study population was 6.4 (376/5862) (Table 1). HIV prevalence among male was 3.9% and among female 2.5%.

The rate of new HIV infections was in young peaks in their earlier age (20-25). One possible explanation for this finding is that this is the age at which young men marry or start sexual relations with young women, some of whom had been infected with HIV earlier. Similar trends have been seen in other African countries like South Africa where the person in younger age bands were found to be more likely to have had sex at younger age than person older than themselves [9].

Prevalence found in our study conducted on VCTs located in the Khartoum State, are in accordance with data from studies conducted among clients seeking HIV testing in VCT services. These studies found a higher prevalence among these clients than in the general population [10-11].

The gender and age distribution of recent HIV infection observed in our study is likely to be a reflection of the HIV epidemic and trends in VCT uptake in the area. Our study found that prevalence of HIV among males was higher than female, Similar results have been obtained from a Asia study in Malaysia female 0.09-0.14 ,male 0.56-0.84, in latin America in Argentina female 0.27-0.40 male 0.7-1.0 and Ukraine from Europe female 0.6-1.1 male 1.4-2.5 [12]. On the other hand there was study done in united state they that Among females, the estimated number of new HIV infection decreased 21%, from 12,000 (95% CI: 10,100–13,900) in 2008 to 9,500 (95% CI: 8,100–10,900) in 2010. In 2010, the rate of new HIV infections among males (30.7) was 4.2 times that of females (7.3) [13].

Our study showed that the prevalence of HIV is related by age and the high prevalence done in age 20-25. One possible explanation for this finding is that this is the age at which young men marry or start sexual relations with young women, some of whom had been

infected with HIV earlier. Similar trends have been seen in other African countries [14].

This study has identified young women and men in their mid forties as other groups that need targeting for intervention. By educating girls especially those who have not reached 18 years of age on the risks of acquisition of HIV-1, many of the new infections among this group could be reduced. This can help in reducing the rate of HIV transmission among acutely infected persons to the susceptible persons in the population. Since VCTs are found in all parts of the country and those visiting these centers are people of different demographic backgrounds, these centres offer excellent facilities for studying the trends of new infections within the country.

## CONCLUSION

This review offers an overview of the current literature on HIV Testing Counseling among young. This overview primarily supports the promotion of young HIV Testing Counseling in order to promote earlier diagnosis and referral to care and treatment. Some evidence presented may also suggest that certain HIV Testing Counseling methods may become more preferable over others--whether due to demonstrated increased uptake or adolescent preferences. Additional research is required to be able to make stronger statements comparing the immediate and long-term impacts of one young HIV Testing Counseling approach versus another. To prevent further HIV infections, comparative analyses are aimed at identifying the risks for HIV transmission and the relevant behavior and attitudes.

Specific approaches will be needed for the most effective implementation of the findings in this review. In countries with generalized epidemics, HIV Testing Counseling models should be geared towards young who've acquired infection and routine Provider Initiating Testing and Counseling may therefore play a more important role in such settings compared to regions of lower prevalence. Benefits from home based VCT might similarly be maximized in epidemic regions, where stigma, fears, and distance to HIV Testing Counseling services may be larger issues than in non-epidemic regions. In low prevalence regions, where infection is often acquired horizontally and is concentrated in high-risk youth populations (MSM, IDU, sex workers, etc.), outreach or venue-based VCT services may better serve to target these young who more typically have poor social networks and access to traditional clinic services.

Due to the fact our data were obtained from a population who actively sought HIV testing, findings cannot be generalized to the general population living in Khartoum.

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