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Shehzad Zareen

Department of Zoology, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan.

Faiz Ur Rehman

Department of Zoology, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan.

Hira Zareen

Department of Zoology, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan.

Hameed Ur Rehman

Department of Chemistry, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan.

Muhammad Zakir

Department of Chemistry, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan.

Aamir Khan

Department of Zoology, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan

Abid Ur Rehman

Department of Zoology, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan.

Javid Khan

Department of Microbiology,
 Abbottabad University of
 Science and Technology
 Pakistan.

Ziafat Rehman

Department of Microbiology,
 Abbottabad University of
 Science and Technology,
 Pakistan.

Correspondence**Shehzad Zareen**

Department of Zoology, Kohat
 University of Science and
 Technology-26000, KPK,
 Pakistan.

Burden of HIV infection among rural and urban population of district Swabi, Khyber Pakhtunkhwa Pakistan

Shehzad Zareen, Faiz Ur Rehman, Hira Zareen, Hameed Ur Rehman, Muhammad Zakir, Aamir Khan, Abid Ur Rehman, Javid Khan and Ziafat Rehman

Abstract

HIV (human immunodeficiency virus) is the causative agent of lowering down human immunity and causes a complication called acquired immunodeficiency syndrome (AIDS). Humoral and cellular immunity is directed by CD4 T lymphocytes. The current study was conducted in rural and urban areas of Swabi, Khyber Pakhtunkhwa province of Pakistan. About 200 blood samples were collected from susceptible males and females as directed by physicians for the diagnosis of HIV infection. RDT was used for HIV screening. A high prevalence (19.04%) was found in youngsters, elevated prevalence of HIV was observed in male population of Total. This study indicates that Population with low monthly income is more affected by HIV as compare to high monthly income. Married populations are at higher risk of HIV infection. Dental care services are considered to be more prone to HIV infection as there is a use of dental equipment which must be sterilized.

Keywords: HIV, AIDS RDT, Swabi

1. Introduction

HIV (human immunodeficiency virus) is the causative agent of lowering down human immunity and cause a complication called acquired immunodeficiency syndrome (AIDS). Humoral and cellular immunity is directed by CD4 T lymphocytes. These lymphocytes are targeted by HIV, as a result of which immunity declines. HIV causes about 25 million mortalities annually throughout the world [1]. Pakistan is at lower risk of HIV infection as compare to other countries [2], but still an outbreak of HIV was reported in 2005 [3]. National incidence of HIV infection was reported 0.064% in 2007 [4]. The major causes of HIV in Pakistan include use of unsterilized syringes for injecting drugs and unprotected/unusual sexual relations. Moreover low awareness about HIV and AIDS is also a reason for the prevalence of this infection [2, 3, 5-7]. General transmission of HIV includes congenital, via infected blood-transfusion, unprotected sexual relation and also through breast feeding by infected mother [8]. There is a misconception about HIV transmission that tears and saliva are also responsible for its transmission, but this is not so [9]. Molecular genetics revealed that the origin of HIV is west-central Africa [10]. CDC (Centre of Disease Control) first documented AIDS in 1981 while its causative agent was discovered later [11]. According to a report published in 2012 about 35.3 million people are infected with HIV while it has caused 36 million mortalities till 2012 [12]. HIV is considered to be a contagion infection which is being spreading continuously [13]. The aim of the research work was to find out the possible solution of HIV Burden Infection among Rural and Urban Population of District Swabi, Khyber Pakhtunkhwa, Pakistan.

2. Materials and Methods

The current study was conducted in 2014 in rural and urban areas of Swabi, Khyber Pakhtunkhwa province of Pakistan. About 200 blood samples were collected from susceptible males and females as directed by physicians for the diagnosis of HIV infection. 3 milliliter blood was collected from subject with their permission informing them the importance of the study. Data / Patient histories were recorded on a questionnaire. RDT (Rapid Diagnostic Test) was performed on the spot to get the results.

Positive samples were confirmed by performing the test repeatedly. Out of 24 samples collected from Charbagh, no one was found positive for HIV infection.

Among 26 samples collected from Tootalia 2/26(7.69%) male while 1/26(3.84%) female was found positive. From Shewa 20 samples were collected, only 1/20(5.00%) male was found positive. No positive sample was recorded out of 30 samples collected in Chota Lahore. 2/42(%) males were confirmed positive from Mansoor. 1/18(5.55%) female was found positive in Ismaila. 1/23(4.34%) female was confirmed positive in Yar Hussain while 1/17(5.88%) male was confirmed positive for HIV infection from Topi.

3. Results

3.1 HIV positive cases in different age groups of both genders

Respondents were divided into 5 different age groups starting from 18 years. A total of 21 samples were collected in age group 18-30, out of which 19.04% were found positive for the HIV infection. Infection in male population was more prevalent (14.28%) as compared to female (4.76%). About 58 samples were collected from age group 31-40, out of which (6.89%) respondents were confirmed positive for HIV

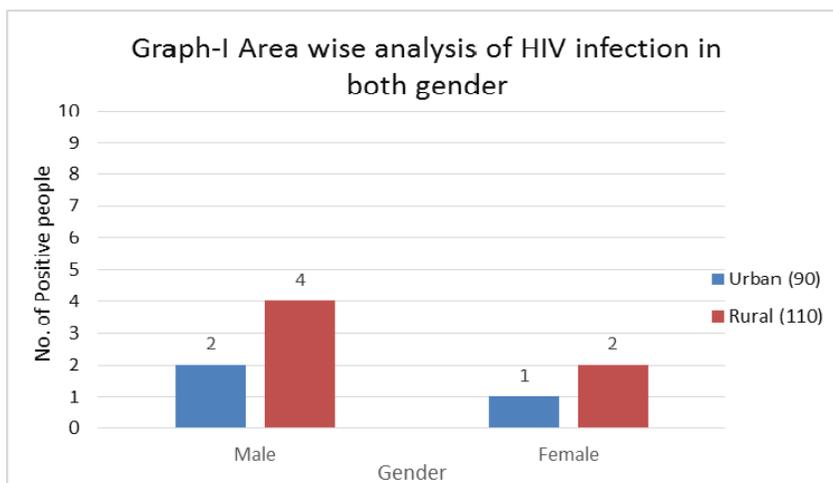
infection, percentage of both gender was equal i.e.3.44%. only one (1.69%) male respondent was found HIV positive in age group 41-50, while no confirm positive case was reported in above 50 years old respondents (Table-I).

Table 1: HIV positive cases in different age groups of both genders

Age Groups (years)	Total No. of Samples n (%)	Positive n (%)		
		Male	Female	Over all
18-30	21(10.50)	3(14.28)	1(4.76)	4(19.04)
31-40	58(29.00)	2(3.44)	2(3.44)	4(6.89)
41-50	59(29.50)	1(1.69)	0(0.00)	1(1.69)
51-60	49(24.50)	0(0.00)	0(0.00)	0(0.00)
61<	13(6.50)	0(0.00)	0(0.00)	0(0.00)
Grand Total	200	6(3.00)	3(1.50)	9(4.50)

3.2 Area wise analysis of HIV infection in both gender

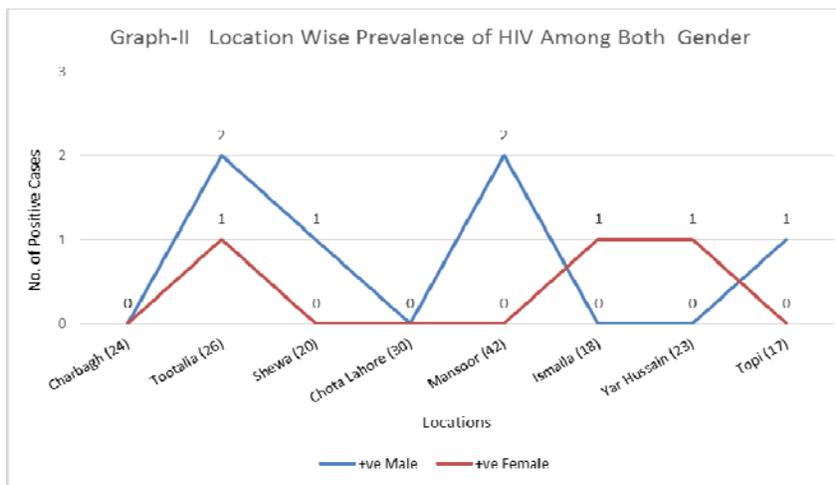
A total of 90/200(45.00%) sample were collected from Urban areas Swabi, 3/9(33.33%) samples were found positive for HIV infection, out of which 2/90(2.22%) were male 1/90(1.11%) was female. About 110/200(55.00%) samples were collected from Rural areas, 6/9(66.66%) were found positive for HIV out of which 4/110(3.63%) were male while 2/110(1.81%) were female (Graph-I).



3.3 Location Wise Prevalence of HIV among Both Genders

Out of 24 samples collected from Charbagh, no one was found positive for HIV infection. Among 26 samples collected from Tootalia 2/26(7.69%) male while 1/26(3.84%) female was found positive. From Shewa 20 samples were collected, only 1/20(5.00%) male was found positive. No positive sample was

recorded out of 30 samples collected in Chota Lahore. 2/42(%) males were confirmed positive from Mansoor. 1/18(5.55%) female was found positive in Ismaila. 1/23(4.34%) female was confirmed positive in Yar Hussain while 1/17(5.88%) male was confirmed positive for HIV infection from Topi (Graph-II)



3.4 Prevalence of HIV Infection in relation to marital status

A high prevalence of HIV infection was found in married population. Overall 6/80 (7.5%) samples were confirmed positive out of which both genders were of same percentage

i.e. 3/80(3.75%). 3/120(2.50%) respondents with single marital status were found positive in this study, out of which 2/120(1.66%) were male while only 1/120(0.83%) was recorded female.

No divorced or widows were included in the study (Table-II)

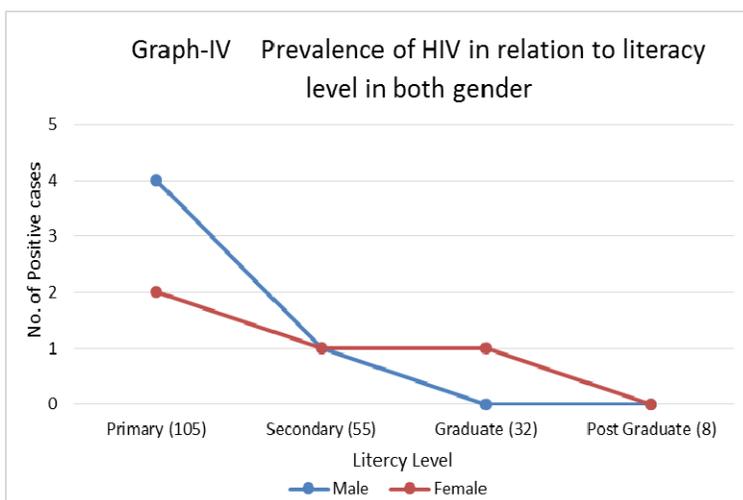
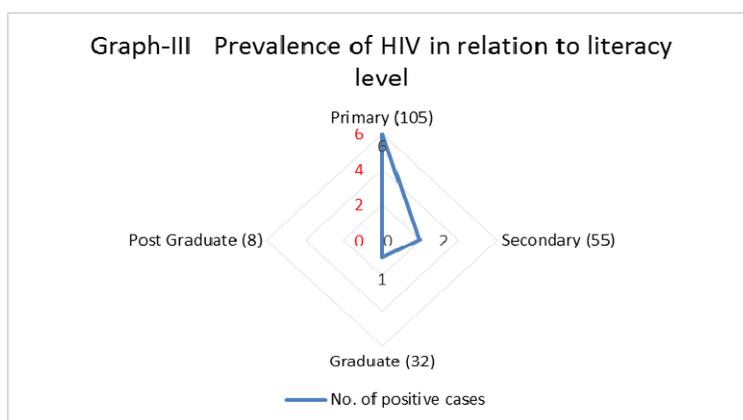
Table 2: Prevalence of HIV Infection in relation to marital status

Marital Status	Total No. of Samples n (%)	Positive n (%)		
		Male	Female	Over all
Single	120(60.00)	2(1.66)	1(0.83)	3(2.50)
Married	80(40.00)	3(3.75)	3(3.75)	6(7.5)
Divorced	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Widow	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Grand Total	200	5(2.50)	4(2.00)	9(4.50)

3.5 Prevalence of HIV in relation to literacy level

About 6/105 (5.7%) positive respondents were reported with Primary literacy level where no. of male was higher (4/6) as compare to female (2/6). 2/55(3.63%) respondents were confirmed positive with Secondary educational level where

ratio of both gender was 1:1. Only one 1/32(3.12%) female was found positive with graduate educational level while no sample of a person with Post graduate level was confirmed positive for HIV infection (Graph-III, Graph-IV)



3.6 Prevalence of HIV in relation to Employment status

A high prevalence of HIV was observed in employed population. Overall 3/40(7.50%) samples were confirmed positive out of which 2/40(5.00%) were male while 1/40

(2.50%) were female respondents. Those who were unemployed were also found positive for HIV infection i.e. 6/160(3.75%). Out of which 4/160(2.50%) were male while 2/160(1.25%) were female.

Table 3: Prevalence of HIV in relation to Employment status

Employment status	Total No. of Samples n (%)	Positive n (%)		
		Male	Female	Over all
Employed	40(20.00)	2(5.00)	1(2.50)	3(7.50)
Unemployed	160(80.00)	4(2.50)	2(1.25)	6(3.75)
Grand Total	200	6(3.00)	3(1.50)	9(4.50)

3.7 Prevalence of HIV in relation to Monthly income

A high prevalence of HIV infection was found in population with low monthly income. About 5/120(4.16%) respondents were found positive who had their monthly income below 20,000 PKR out of which male were with higher percentage (2.50%) as compare to female (1.60%) a comparatively low

prevalence was found in those population who had their monthly income 21000-30000 PKR, overall 3/74(4.05%) respondents were found positive in this group. Population with comparative higher monthly income i.e. 31000 < were least affected with HIV infection, only 1/6(16.66%) female was confirmed positive with HIV Infection.

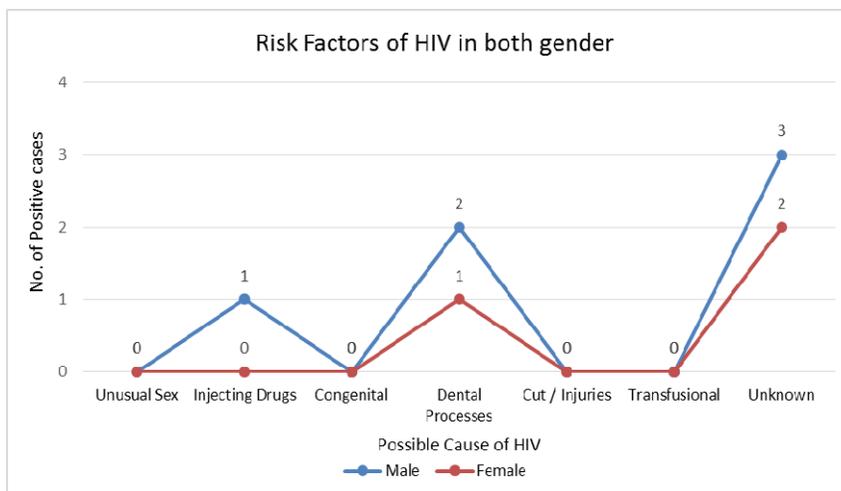
Table 4: Prevalence of HIV in relation to Monthly income

Monthly Income	Total No. of Samples n (%)	Positive n (%)		
		Male	Female	Over all
<20000	120(60.00)	3(2.50)	2(1.60)	5(4.16)
21000-30000	74(37.00)	2(2.70)	1(1.35)	3(4.05)
31000 <	6(3.00)	0(0.00)	1(16.66)	1(16.66)
Grand Total	200	5(2.50)	4(2.00)	9(4.50)

3.8 Possible risk factors of HIV in both genders

About 6 possible risk factors were investigated in this study 1/9(11.11%) HIV positive male was observed as drug addicted, who use to inject drugs with unsterilized needles. 2/9(22.22%) Male while 1/9(11.11%) female was having abnormal dental history, who was visiting dentists to get dental

care services, they reported that unsterilized equipment was being used at that dental care services. Rest of the 3/9(33.33%) positive male and 2/9(22.22%) female didn't have any history related to HIV infection. Nether of the positive infection was reported due to unprotected sex, congenital, by cuts/ wounds or transfusion.



4. Discussion

In current study 3/9(33.33%) respondents were infected by HIV as they had used unsterilized instruments in dental care services, this study is parallel to the study of [6, 4] which denotes the use of unsterilized instruments can lead to HIV infection. In this study male were found more prone to get HIV infection, same results were reported by CDC and NIH [2, 3] in their study where male were found more positive as compare to female. Injecting drugs by unsterilized syringes was found a risk factor for HIV transmission which is related to the study of Addo-Yobo *et al* [5-7]. Youngsters of age group 18-30 as well as population with low income were found at higher risk of HIV infection as in this age most of them are addicted to drugs, frequently visit barber shops for haircut and shaves. Barbers are unaware of HIV infection and sterilization processes. Use of unsterilized scissors and contaminated razors can infect any healthy person. Rural population is always at higher risk of HIV infection due to low literacy level and deficiency of health care services.

5. Conclusion

In current study a high prevalence (19.04%) was found in youngsters i.e. age group 18-30. Male were found more susceptible for HIV infection. While no infection was recorded in aged people. Rural areas are at higher risk of HIV infection. A high prevalence of HIV was observed in male population of Tootalia i.e. 2/26(7.69%) and Mansoor i.e. 2/42(4.76%).

Charbagh and Chora Lahore were observed as safer areas against HIV infection. Married populations are at higher risk of HIV infection i.e. 6/80(7.5%). People with low literacy level are more susceptible to get HIV infection as they don't have knowledge / awareness about this infection, and they don't take any prevention as well. A high percentage (7.50%) of employed population was found infected with HIV. This study indicates that Population with low monthly income is more affected by HIV as compare to high monthly income. This may be because of costly medical facilities which cannot be afforded by population with low monthly income. Dental care services are considered to be more prone to HIV infection as there is a use of dental equipment which must be sterilized. Unfortunately, this practice is not common in our country, many of the dental health service providers do not sterilize their instruments due to shortage of time which leads to infections like HIV.

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