Original Article

# Socio-Demographic Features of HIV/AIDS Patients at DG Khan, Pakistan

**Haroon Bilal,[1] Muhammad Irfan[2]**

*[1]DHQ Teaching hospital, DG Khan, Pakistan. [2]Gujranwala Medical College/Teaching Hospital, Gujranwala, Pakistan*

## Abstract

**Background:** HIV/AIDS remains a major global and national public health challenge. In Pakistan, rising infection rates are largely driven by high-risk behaviors and limited disease awareness. Understanding local socio-demographic patterns and transmission routes is essential for guiding targeted prevention strategies in southern Punjab.

**Objective:** To determine the frequency of socio-demographic features among HIV/AIDS patients and assess their association with AIDS prevalence at Dera Ghazi Khan, Pakistan.

**Methodology:** This retrospective cohort study included 1,395 PCR-confirmed HIV patients treated at DHQ Teaching Hospital, DG Khan, from January 2009 to December 2017. A CD4 count below 200 cells/µL defined AIDS. Socio-demographic variables and transmission routes were analyzed using SPSS version 25, with $p \leq 0.05$ considered statistically significant.

**Results:** Of the 1,395 patients (mean age 31.86 ± 10.03 years), 80.4% (n=1,121) were male and 19.6% (n=274) were female. Most patients were young adults (83.2%, n=1,161) and married (66.7%, n=931). Overall, 14.3% (n=200) had developed AIDS. Intravenous drug abuse was the leading transmission route (40.4%, n=564), followed by multiple sexual partners (27.3%, n=381) and blood transfusions (14.6%, n=204). AIDS occurrence was significantly associated with age group (p=0.014) and mode of transmission (p=0.000), particularly among middle-aged adults and sexually transmitted cases. Gender (p=0.102) and marital status (p=0.083) showed no significant association.

**Conclusion:** HIV/AIDS in DG Khan predominantly affects young, married males, with intravenous drug abuse as the primary transmission mode. Furthermore, patient age and transmission route significantly influence progression to AIDS.

**Keywords:** HIV, AIDS, Socio-demographic features, SPSS

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**Corresponding Author:** Muhammad Irfan **Email:** irfanmed3@yahoo.com

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## Introduction

The human immunodeficiency virus (HIV) is a lentivirus[1] that attacks immune system, resulting HIV infection.[2] In HIV-infected persons, Acquired immunodeficiency syndrome (AIDS) is officially diagnosed when the count drops below 200 cells/µL or when certain opportunistic infections occur.[3]

HIV was first recognized in USA amongst homosexuals in 1981,[4] while in Pakistan in1987.[5,6] In Pakistan, HIV prevalence is 0.1%, where this prevalence is concentrated upto 21% amongst IV drug abusers.[7]

HIV/AIDS is a major public health concern all over the world, where its spread is increasing continuously, especially in developing countries.[8] Prevention requires the awareness about its all socio-demographic features including mode of spread, marital status of the patients, prevalence in different age groups, and predominant gender of the affected patients.[9,10]

It is not a disease of bachelor, rather more percentages include married persons all over the world.[11,12] It is predominantly found in male gender than females worldwide.[13] It is more common among young adults compared to all other age groups.[14] HIV is transmitted from infected persons through direct contact of their body fluids

like blood, semen, vaginal secretions, and breast milk. Saliva, tear, sweet, feces, and urine are non-infectious body fluids regarding HIV transmission.[15] Its modes of transmissions include sexual contact, sharing injection needles or surgical instruments, transfusion of blood products, and mother to child[16] where heterosexuality is the most common mode worldwide.[9,11] International data about socio-demographic features of HIV/AIDS patients is vastly available. Prevention from HIV from our community always requires the detailed info about the socio-demographic characteristics of our people affected with HIV infection.

Therefore, the aim of the present study was to determine the frequency of socio-demographic features of HIV/AIDS patients in DG khan, Pakistan. Our study will also find any association of these features with AIDS prevalence among HIV infected patients so that some significant relation may be find that will be helpful in the societies for awareness.

## Methodology

This retrospective cohort study was conducted in the special clinic, DHQ Teaching hospital, DG Khan from Jan 2009 to Dec 2017. After approval from the ethical review committee (ERC) of the institution, the data was collected retrospectively by purposive sampling using a structured proforma. All the diagnosed HIV / AIDS patients with any age who presented and followed at special clinic were included in this study. The HIV diagnosis amongst these was confirmed by PCR test. The CD4 count below 200 cells/μL was considered diagnostic for AIDS.[3] Hence, HIV patients were grouped into suffering AIDS or not suffering AIDS. The age of the patients was categorized into childhood if < 13 years, adolescence if 13-18 years, young adults if 19-44years, middle aged adults if 45-65 years, and older adults if >65 years.[15,16] Marital status of the patients and different modes of transmission of HIV infection were also noted.

Statistical analysis was performed using the Statistical Package for Social Science (SPSS), version 25. Age of the patients was the only quantitative variable, while gender, age groups, marital status of the patients, and mode of transmission of infection were the qualitative variables. During descriptive interpretation of data, continuous variables were expressed as mean and standard deviation. Frequencies and percentages were computed for different categorical variables. The bivariate analysis was performed to determine the significant relation of different predictive factors with occurrence of AIDS amongst HIV infected patients. While applying chi-square test of independence, a p value of equal to or less than 0.05 was considered as significant. Moreover, odds ratio along with their 95% confidence interval (CI) were also calculated for each association.

## Results

Amongst 1395 patients suffering HIV/AIDS, 1121 (80.4%) were male and 274 (19.6%) were female. Their age ranged between 2 to 67 years with a mean of 31.86 $\pm$ 10.03 years. Regarding difference in age group, HIV/AIDS was most prevalent in young adults (83.2%, n=1161), followed by middle aged adults (11.6%, n=162), adolescents (2.8%, n=39), children (2.3%, n=32), and older adults (0.1%, n=1). (Picture 1).

Amongst 1395 HIV-infected patients, 200 (14.3%) had AIDS, while 1195 (85.7%) had no AIDS. Considering their marital status, 931 (66.7%) were married, 427 (30.6%) were unmarried, 20 (1.4%) were widow, 1 (0.1%) was widower, and 16(1.1) were divorced (Picture 2).

Distribution of mode of transmission of HIV was as follow: IV drug abuse in 40.4% (n=564) patients, sexual contact with multiple partners in 381 (n=27.3%), blood transfusion in 204 (14.6%), through husband in 146 (10.5%), vertical transmission in 26 (1.9%), homosexuality in 19 (1.4%), through spouse in 10 (0.7%), through PAP smear in 2 (0.1%), through tooth extraction in 1 (0.1%), through tattoos marking in 1 (0.1%), and unknown mode in 41 (2.9%) (Picture 3).

Regarding the gender of these patients, 13.6%( 152 out of 1121) males & 17.5% (48 out of 274) females had initial CD4 count below 200 consistent with AIDS, while 86.4% (969 out of 1121) males and 82.5%( 226 out of 274) females had no AIDS. The association of occurrence of AIDS with gender was not statistically significant (p=0.102).

AIDS was the most prevalent in middle aged adults, and least prevalent in older adults. 22.15% (37 out of 161) middle aged adults, 13.5% (157 out of 1161) young adults, 10.3% (4 out of 39) adolescents, 6.3% (2 out of 32) children, and no older adult was suffering AIDS. Rest were HIV infected without AIDS. The association of occurrence of AIDS with different age groups was statistically significant (p=0.014).

While considering the marital status of the patients, 25% (5 out of 20) widows, 15.6% (145 out of 931) married, 11.7% (50 out of 427) unmarried, and no one widower or divorced were suffering AIDS. Rest were HIV infected without AIDS. The association of occurrence of AIDS

with the marital status of the patients was statistically not significant (p=0.083).

Among the patients whose mode of transmission of infection was sex, 20% (111 out of 556) were suffering AIDS, while 80% (445 out of 556) were suffering HIV without AIDS. While among the patients whose mode of transmission of infection was other than sex, 10.6% (89 out of 839) were suffering AIDS, while 89.4% (750 out of 839) were suffering HIV without AIDS. The occurrence of AIDS in group of the patients whose mode of transmission was sex had a statistically significant association (p=0.000) (Table 1).

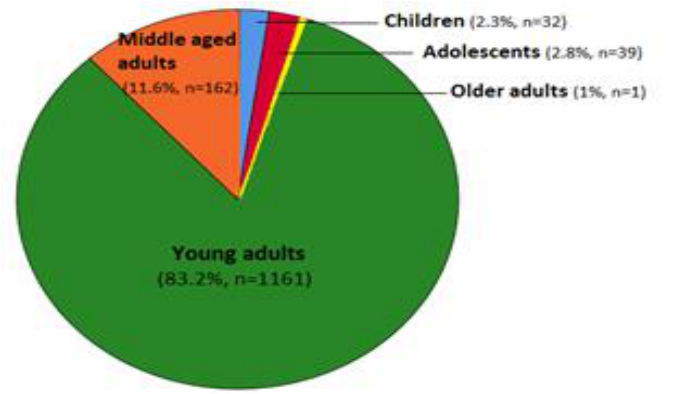


**Figure 1:** *Distribution of HIV/AIDS patients.*

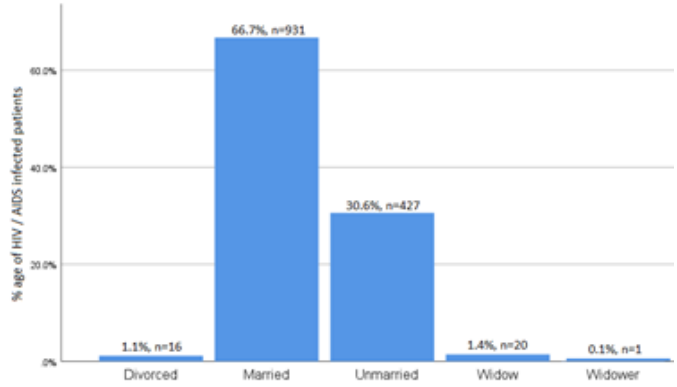


**Figure 2:** *Martital Status of HIV/AIDS Patients.*

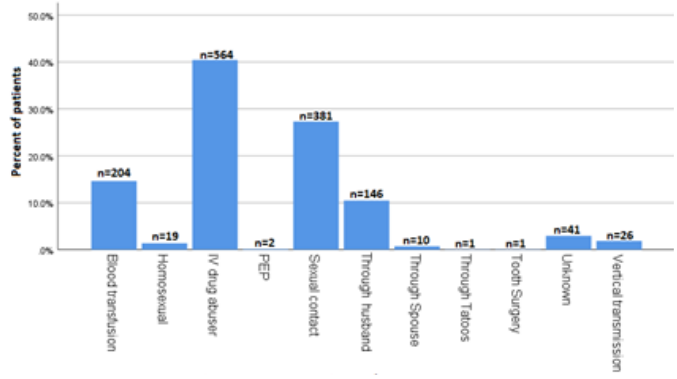


**Figure 3:** *Mode of transmission of HIV/AIDS amongst Patients.*

**Table 1:** *Comparison of Socio-demographic features of HIV infected patients with or without AIDS (n = 1395)*

| Factors | HIV infected patients | | Total | p-value | Odd ratio with 95% Confidence interval |
|---|---|---|---|---|---|
| | With AIDS | Without AIDS | | | |
| **Gender:** | | | | | |
| Male | 152 (13.6%) | 969 (86.4%) | 1121 | 0.102 | 0.739 (0.518-1.054) |
| Female | 48 (17.5%) | 226 (82.5%) | 274 | | |
| **Age groups:** | | | | | |
| Children | 2 (6.2%) | 30 (93.8%) | 32 | | |
| Adolescence | 4 (10.3%) | 35 (89.7%) | 39 | | |
| Young adults | 157 (13.5%) | 1004 (86.5%) | 1161 | 0.014 | * |
| Middle aged adults | 37 (22.8%) | 125 (77.2%) | 162 | | |
| Older adults | 0 (0%) | 1 (100%) | 1 | | |
| **Marital status:** | | | | | |
| Unmarried | 50 (11.7%) | 377 (88.3%) | 427 | 0.083 | |
| Married | 145 (15.6%) | 786 (84.4%) | 931 | | |
| Widow | 5 (25%) | 15 (75%) | 20 | | * |
| Widower | 0 (0%) | 1 (100%) | 1 | | |
| Divorced | 0 (0%) | 16 (100%) | 16 | | |
| **Mode of transmission:** | | | | | |
| Sexual | 111 (20%) | 445 (80%) | 556 | 0 | 2.102(1.553- 2.845) |
| Non-sexual | 89 (10.6%) | 750 (89.4%) | 839 | | |

** Odd ratio can only be computed for 2 X 2 tables*

## Discussion

When we talk about the prevention of HIV in Pakistan, its sociodemographic features require to be evaluated. Two studies from Nigeria showed its more prevalence in female, 68.6% and 59% respectively.[9,11] Similarly, in India, female were affected from HIV/AIDS more than male, 57.66% and 59% respectively.[10,12] However, reverse was observed in our study where 80.4% patients were male. Previous studies from Pakistan also showed more prevalence of the disease in male gender. Siddique and colleagues found 96.2% male among HIV infected patients in Karachi, Pakistan.[17] Hence, prevention from spread of HIV requires addresses to our societies, particularly our male gender.

Our study showed that among all 5 age groups, 83.2% patients belong to young adult age group (19-44years). Similar findings regarding age distribution were found in our neighbor country. In Rajasthan, India, 82.67% HIV patients were in age group 15 to 49 years.[10] While in Chennai, 77.4% HIV patients had their age between 18 to 41 years.[12] HIV /AIDS spread has multiple modes of transmission. The health care providers should be aware of

all of those modes; however which ones are creating a big dug in the society should be known, so that preventive measures should be directed chiefly for them. In our study, IV drug abuse was the commonest mode of transmission of HIV/AIDS, in 40.4% patients. Similarly, in 2007, health ministry also observed that the same mode, being commonest cause for the spread of HIV.[18] In 2009, Siddique et al[17] found that blood transfusion (in 92.3%) was the commonest risk factor for HIV spread, followed by intravenous drug addiction (in 36.5%). Other modes to be addressed are heterosexual intercourse, surgical procedures, tooth extraction, transgender (Hijra), homosexuality, tattoo markings, and vertical transmission.[16] In our study, more affected persons were married (66.7%). 30.6% were unmarried, 1.4% widow, 0.1% widower, and 1.1% were divorced. Ezechi from Nigeria[11] observed that 64% HIV patients were married. Uma from India[12] found that 88% HIV infected patients in her study were married. Ojini from Nigeria[9] found that heterosexual intercourse was the cause of exposure in over 90% patients. Similarly, Kumawat[10] found 86.67% heterosexuality among HIV patients in Rajasthan, India. Hence, our married people should be addressed about this disadvantage of heterosexuality. The awareness should be carried out at a large scale.

In our study, it was found that middle aged adults (45-65years) were significantly affected by AIDS (p=0.014). However, 83.2% HIV patients with or without AIDS belongs to young adult age group, 19-44 years. Hence, sequela of the infection would be bad if preventive or therapeutic measures are not adapted. In our study, it was seen that AIDS was two times more prevalent among patients who had sexual contact as mode of transmission than patients who had other modes for transmission. So, some power is going to decide and differentiate between the accidental, non-sexual prey and overzealous patients with sexual contact being mode of transmission. Hence, sex education has always a vital role in the prevention of HIV /AIDS. The society and the health care providers should play the role.

## Conclusion

The HIV/AIDS was male predominant disease, most prevalent in young adults. Majority of the infected patients were married, and the IV drug abuse was the most common mode of transmission of the disease in the studied population. Significant percentage of middle aged adults had AIDS as compared to HIV without AIDS. Similarly, nature was more crucial for those in which mode of transmission of infection was sex. However, gender and marital status of the patients had no statistical correlation with occurrence of AIDS. There is need of a sustained multi-sectoral preventive effort and the community care initiatives should be stressed keeping in view the socio-demographic features of the disease.

**Ethical Approval:** This study was approved by the Ethical Review Committee

**Conflict of Interest** None

**Funding Source** None

**Authors' Contribution**

**HB:** Conception.

**MI:** Design of the work.

**HB, MI:** Data acquisition, analysis, or interpretation.

**MI:** Draft the work.

**HB:** Review critically for important intellectual content.

All authors approve the version to be published.

All authors agree to be accountable for all aspects of the work

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