



Statistics and Risk Factors of HIV/AIDS: An Unceasing Epidemic in Lahore - Pakistan

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Abstract: Background: Although the degree of spread of HIV/AIDS in Pakistan has been well recognized due to the consistent rise in HIV/AIDS cases in Pakistan, studies need to be done regarding HIV/AIDS prevalence in Lahore, a densely populated city of Pakistan. HIV/AIDS is a serious health concern across the sphere, predominantly in low- and middle-income countries. This research examined the demographics and risk factors of people living with HIV/AIDS in Lahore-Pakistan. **Method:** Demographic history was taken, and risk factors were evaluated. In this study, descriptive research design was used. A purposive sampling approach was used to collect data. A total of 516 sample was taken from a Public Hospital in Lahore. **Results:** Most participants were men, 424 (82.2%). Their mean age was 33 years (range 18-65 years). Married participants were more in number 276(53.5%). 140 (27.1%) HIV-positive participants were injection drug users. The sexual means of HIV transmission was the most common transmission, with HIV being transferred from spouses in 61 (11.8%) cases, while HIV transmitted from a relationship with someone other than a spouse was reported in 204 (39.5%) participants. **Conclusion:** The results revealed that Pakistani men were more likely to be affected with HIV than women. Married people had higher chances of developing HIV/AIDS. History of extramarital sexual relations and using drugs were the most important risk factors identified. These findings imply the need for prospective studies on such determinants to reduce HIV/AIDS.

30 **Keywords:** demographics, HIV /AIDS, demographics, risk factors32 **1. Introduction**

33 Acquired Immuno Deficiency Syndrome (AIDS) is the last stage of the Human Immunode-
34 ficiency Virus (HIV). Human Immunodeficiency Virus (HIV) is a constant threat to young people
35 and the most difficult challenge to public health worldwide (Caldeira et al., 2012). Despite under-
36 standing and knowledge concerning this illness, people living with HIV/AIDS (PLHIVA) are still
37 considered social outcasts and often treated bitterly by the public (Remien & Rabkin, 2001).
38 HIV/AIDS has become the first truly international epidemic, crossing oceans and borders. Despite
39 the improved access to antiretroviral therapy (ART), alongside general care in many regions of the
40 world, millions of people have lost their lives to AIDS (Kumawat et al., 2016).

41 Pakistan is among the republics in the Eastern Mediterranean Region, and new HIV-positive
42 cases are rising at an alarming level there (World Health Organization, (WHO), 2019). In Pakistan,
43 the first HIV infection was reported in 1987, following which the number of cases has unceasingly
44 amplified, ranging from single incidents to massive outbreaks (Tariq et al., 2019). The intense HIV
45 widespread among the key population is among injecting drug users, female sex workers, male sex
46 workers, and hijra sex workers in Pakistan (Pakistan Global, 2014). Transgender people (TGs),
47 locally known as "hijra," "zenana," or "khusra," are a key population defined by the World Health
48 Organization (WHO, 2022) and constitute the highest risk groups for contracting HIV/AIDS in
49 Pakistan (Altaf et al., 2022). The majority of the people are from major cities and minor cities.
50 According to the National Aids Control Program (NACP) (2021), 0.24 million estimated people are
51 living with HIV in Pakistan, amongst which 49,584 are registered and are aware of their status.
52 Among HIV-infected individuals, 26,626 receive treatment like ARV therapy, and 7,056 people
53 inject drugs and are on ARV. The community panic and absence of education regarding HIV/AIDS
54 has led to the blaming of victims, resulting in stigma related to HIV/AIDS (Cobb & Chabert, 2002;



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55 Dodds et al., 2003; Frierson et al., 1989). PLHIVA undergo stigmatization, isolation from the
56 community, and lack of support from family members (Agrawal et al., 2012).

57 Though Pakistan presently represents a country where HIV/AIDS is still low, the apprehen-
58 sions of an extensive HIV/AIDS epidemic are largely because of hazardous, risky practices. In
59 Pakistan, men are more disease-ridden with HIV/AIDS than women, and means of transmission of
60 HIV/AIDS include infectious blood transfusions, drug addiction, and sexual relations (Altaf et al.,
61 2012; Khan & Khan, 2011; Rajabali et al., 2008; Singh et al., 2014). The low occurrence of
62 HIV/AIDS in the Pakistani population, which is approximately less than 0.1% per the recent
63 UNAIDS 2020 progress report, is because of the religious practices of abstaining from non-marital
64 sexual contact. Pakistan's two main provinces, Sindh and Punjab, constitute about 91% of the total
65 figure of PLHIVA in this country. The major centers of PLHIVA comprise the most inhabited
66 cities of Pakistan, such as Lahore, Islamabad, and Karachi (UNAIDS, 2020). Although a world-
67 wide decline in new HIV/AIDS cases was observed, there is an increase in the number of outbreaks
68 in Pakistan, making it among the nations where HIV/AIDS is rapidly spreading (Raza et al., 2022).

69 Considering the existing situation, a comprehensive study to characterize HIV/AIDS in the
70 local population is needed. A communal misapprehension in Pakistan is if one is a Muslim,
71 HIV/AIDS cannot be contracted; forethoughts like this demand constant monitoring and preventive
72 measures to control HIV/AIDS (Singh et al., 2014). This study aimed to determine HIV/AIDS
73 demographics and risk factors in Lahore, Pakistan.

74 Numerous factors are responsible for the spread of HIV/AIDS in Pakistan, and these factors
75 make it a great challenge for healthcare professionals to fight the epidemic. A descriptive case se-
76 ries was done to look for the demographics and clinical features of PLHIVA in a hospital in Ka-
77 rachi-Pakistan. A comprehensive history was taken, the clinical investigation was completed, and
78 risk factors were assessed. The outcomes showed that 52 PLHIVA were admitted during the study,
79 comprising 50 males and two females. The mean age of the PLHIVA was 33.9 years. A common
80 risk factor was the history of blood transfusion in 48 PLHIVA followed by intravenous drug ad-
81 diction in 19 PLHIVA and foreign travel in seven PLHIVA. Common symptoms were weight loss,
82 temperature, diarrhea, and chronic cough (Siddiqui et al., 2009).

83 Similarly, a study was conducted at the Sexually Transmitted Infections clinic in Faisalabad,
84 Pakistan, to investigate the occurrence of HIV/AIDS and its risk factors. A total of 31040 PLHIVA
85 participated in this study. Either they were interviewed, or their medical records were studied. The
86 average age of the PLHIVA was 49.5 years (range: 30-45), with 85.55% male. The majority of the
87 PLHIVA were urban dwellers (87.28%), divorced or widowed (46.82%), and uneducated
88 (50.28%). A large proportion (78%) of PLHIVA was injection drug users. Injection drug use was
89 the major risk factor for HIV/AIDS infection. Perilous practices, i.e., injection drug abuse or in-
90 fectionous blood transmission, must be stopped, and extramarital sexual interactions must be avoided
91 (Mann et al., 2014). Considering this, the aim of the present study is to study the demographics and
92 risk factors of HIV/AIDS in (PLHIVA) in Lahore-Pakistan.

93 2. Materials and Methods

94 This descriptive case series was done in an HIV/AIDS clinic in the Public Hospital of Lahore,
95 Pakistan. A purposive sampling strategy was used to collect data. The population was
96 HIV/AIDS-diagnosed people coming to the HIV/AIDS clinic of a public hospital in Lahore from
97 which sample of 516 PLHIVA was taken. While taking samples only HIV/AIDS diagnosed people
98 were included. The sample was taken from Lahore and its nearby rural areas. Only adults aged
99 18-65 were included. Newly or previously treated people living with HIV/AIDS from inpatient and
100 outpatient department of public hospital in Lahore were included. People living with HIV/AIDS at
101 severe or end stage of HIV and who were unable to participate were excluded. Information was
102 gathered using face-to-face interviews involving questionnaires. Written informed consent was
103 taken, and confidentiality was ensured. The questionnaire included information on demographic
104 characteristics associated with HIV/AIDS. The following demographic characteristics were in-
105 cluded: gender (men, women, not specific), age, education, religion (Muslim, non-Muslim), and
106 marital status (single, married, divorced, or widowed). The co-morbidity of HIV/AIDS with other
107 illnesses was investigated. Reasons for conducting the HIV test were asked, which included the
108 following answer options: (HIV detected due to unrelated blood testing, during blood donation,
109 during a regular check-up, HIV detected when someone in the nearby social circle got diagnosed,
110 and any reason whatsoever). The source of HIV/AIDS illness was enquired, and the following
111 answer options were given: (due to use of drugs by contaminated syringes, transmission by a
112 spouse, sexual relations with prostitutes, dental procedures, previously used razors, accidental
113 pricks, or any other known or unknown reason). Knowledge of HIV status by family members was
114 interrogated, and options to answer included the following: (yes, no, some members know, and
115 some do not). It was also questioned whether PLHIVA faced discrimination at the workplace, and

these were the answer categories: (yes, no, sometimes, they don't know). Results were evaluated by the SPSS 26 version using descriptive statistics.

2.1 Ethical Considerations

In order to complete this study, some ethical concerns were followed:

- An ethical review board letter from Lahore College for Women University was taken.
- The data was collected after getting permission from Punjab Aids Control Program.
- Informed consent was taken from participants to take part in this research.

3. Results

A total of N=516 PLHIVA were included in the study. The average age of the PLHIVA was 33.37 years (Range: 18-65 years), and the majority were males, 424 (82.2%) as compared to the females 78 (15.1%). It was observed that 465(90.1%) PLHIVA were urban dwellers, while 51 (9.9%) were from rural areas. The burden of HIV in the married 276(53.5%) was greater than in unmarried 209(40.5%), while 12 (2.3%) were divorced, and 19 (3.7%) were widowed. HIV was higher in illiterate PLHIVA 160 (31.0%); as far as education was concerned, 60 (11.6%) had primary education, 79(15.3%) were educated till middle school, 56 (10.9%) had passed matriculation, 92 (17.8%) had intermediate education, 45 (8.7%) had graduated that is done bachelors, 21 (4.1%) had completed their masters and 3(0.6%) had completed their MPhil. The majority were 493(95.5%) Muslims, and 23 (4.5%) were non-Muslims. (See Table 1).

Table 1: Socio-demographic Characteristics of Participants (PLHIVA)

Characteristics	N	%
Gender		
Male	424	82.2
Female	78	15.1
Transgender	14	2.7
Marital status		
Single	209	40.5
Married	276	53.5
Divorced	12	2.3
Widow	19	3.7
Education		
Illiterate	160	31.0
Primary	60	11.6
Middle	79	15.3
Secondary	56	10.9
Higher-secondary	92	17.8
Graduation	45	8.7
Masters	21	4.1
MPhil	3	0.6
Religion		
Muslim	493	95.5
Non-Muslim	23	4.5
Residence		
Rural	51	9.9
Urban	465	90.1

Note. N =516. PLHIVA were, on average, 33.37 years old SD = 9.06

In the present study, PLHIVA were asked why they got HIV tests done. The results revealed that some PLHIVA got their test done when they went to get themselves checked for some other illness. HIV detected during testing of other illnesses was found in 331 cases (64.1%), some PLHIVA came to know about their HIV-positive status when they were donating blood, and HIV detected during blood donation was found in 38 cases (7.4%), some PLHIVA became aware of their HIV positive status when they went hospital for regular health check-up and HIV detected during regular check-ups was found in 47 cases (9.1%), some PLHIVA got themselves checked for HIV when some other family member got infected with HIV and HIV detected after a diagnosis in

the family was found in 21 cases (4.1%). HIV detected due to miscellaneous reasons was found in 79 cases (15.3%). PLHIVA were inquired about how they got infected with HIV, and it was shown a large proportion of 140 cases (27.1%) of the participants were injection drug users. HIV transferred from spouses was found in 61 cases (11.8%); multiple partners and extramarital relationships were prominent among PLHIVA, and HIV transmitted from marital relations with someone other than spouses were found in 204 cases (39.5%). HIV transmitted during dentist procedures was found in 10 cases (1.9%), and HIV transmitted due to used razors was found in 4 cases (0.8%). HIV transmitted by accidental pricks was found in 23 cases (4.5%), and HIV transmitted due to some other reason was in 11 cases (2.1%). HIV transmitted due to unknown reasons was found in 63 cases (12.2%). The most common co-morbidity was HCV+ in 103 (20%). PLHIVA were questioned about did their family know about your HIV positive status, and it was revealed that 411 (79.7%) PLHIVA disclosed their status to their families, however, 30 (5.8 %) did not disclose their status to their families, and 75 (14.5%) PLHIVA's disclosed their HIV status to some family members. In the present study, PLHIVA were interrogated about did they face discrimination at their workplace when they revealed their HIV-positive status at their workplace and it was found that 91 (17.6) hid their HIV status. 48(9.3%) faced discrimination at the workplace, while 232(45.0%) did not face any discrimination, 2(0.4%) faced discrimination occasionally, 143 (27.7%) said they hid their HIV status from everyone. Regarding employment status, the majority of PLHIVA were employed, 393 (76.2%), whereas the percentage of unemployed PLHIVA was 123 (23.8 %). (See Table 2)

Table 2: Distribution of PLHIVA according to Reason for HIV test, Risk Factors, Disclosure of HIV/AIDS status, Discrimination faced at workplace and Employment status.

Characteristics	n	%
Reasons		
HIV detected upon tests of other illness	331	64.1
HIV detected during blood donation	38	7.4
HIV detected during regular check-ups	47	9.1
HIV detected after diagnosis in the family	21	4.1
HIV detected due to any other reason	79	15.3
Risk Factors		
HIV infection due to drugs by used drug injection	140	27.1
HIV transferred from the spouse	61	11.8
HIV is transmitted from relation with someone other than the spouse, Man, woman, transgender	204	39.5
HIV transmitted during dentist procedures	10	1.9
HIV transmitted due to using razor	4	0.8
HIV transmitted by accidental prick	23	4.5
HIV transmitted due to any other reason	11	2.1
HIV transmitted due to an unknown reason	63	12.2
Disclosure of HIV/AIDS status		
Yes	411	79.7
No	30	5.8
Some family members know some don't	75	14.5
Discrimination faced at workplace		
PLHIVA who hid their HIV/AIDS status at the workplace	91	17.6
Yes	48	9.3
No	232	45
Sometimes	2	0.4
PLHIVA who hid their HIV/AIDS status from everyone	143	27.7
Employment status		
Unemployed	123	23.8
Employed	393	76.2

4. Discussion

The present study explored the demographics and risk factors of PLHIVA present at Public Hospital, Lahore. Only 78 (15.1 %) PLHIVA in this study were women. According to UNAIDS, in Pakistan, the number of women living with HIV is 41,000 compared to 170,000 men (UNAIDS, 2021). Due to their socio-economic situation, women usually do not reach out to doctors for their symptoms or report for screening, and when they do, they are hesitant to be admitted. This causes a disproportionality in the number of cases between the two sexes.

Marital status, education, age, unemployment, residential area, and profession are socio-economic factors of HIV serostatus. In the present study, married individuals have higher chances of contracting HIV/AIDS. The marital part in spreading HIV/AIDS is required to be

179 emphasized. The results are contrary to the study conducted by Shisana and colleagues (2004),
180 which revealed that the risk of HIV/AIDS is more common in unmarried people than in married
181 people.

182 The percentage or prevalence of PLHIVA was observed to have reverse relationship with the
183 literacy level of individuals in the current study. The incidence reduced as the level of education
184 rose. Lower literacy percentage is a crucial factor in the transmission of HIV/AIDS in developing
185 countries (Bajos et al., 1997). It was found by Kirunga and Ntozi (1997) that education level in-
186 fluences the HIV/AIDS serostatus. Religious and socio-economical frameworks hamper new ed-
187 ucational curriculums, specifically those related to sex education in Pakistan (Ali et al., 1995).

188 In the present study, we hypothesized that unemployed people would be more likely to con-
189 tract HIV/AIDS. However, our results are contrary to what we hypothesized, as most people who
190 were HIV/AIDS infected were employed. Irrespective of the importance of employment, little at-
191 tention is given, particularly in investigating employment status as a social determinant of health.
192 Joblessness is linked with social conditions that are acknowledged to increase both the risk of
193 contracting and the prevalence of HIV/AIDS and added co-morbidities. Research specifies that
194 employment is connected with positive mental and physical health outcomes (Conyers et al., 2021).

195 The urban dwelling was positively connected to HIV serostatus (Hyder & Khan, 1998; Ki-
196 runga & Ntozi, 1997). Most of the PLHIVA were residents of urban areas. Therefore, it can be
197 summated that rural areas are vulnerable to HIV/AIDS to a lesser degree. In addition to this,
198 HIV/AIDS prevention strategies must also focus on urban cities like Lahore. Contrary to present
199 discoveries, Solomon et al. 1998 found minor differences in HIV frequency in rural and urban In-
200 dian HIV/AIDS people.

201 Intravenous drug addiction was a significant risk factor identified in the present study. Due to
202 injection abuse, poor hygiene, and poor quality of life, IDUs serve as a reservoir for infectious
203 diseases. These diseases can include blood-borne diseases as well as normal ones. This remains a
204 serious risk factor in spreading these illnesses, reducing public health quality, and amplifying the
205 death percentage. In a study, the occurrence of HCV, HBV, HIV, and TB was checked within
206 numerous drug rehabilitation centers in Punjab, Pakistan. Data showed that merely 7.2% of par-
207 ticipants were found positive for Hepatitis B. 33.23% of participants tested positive for HCV,
208 8.74% of participants tested positive for HIV, and 0.87% tested positive for TB (Ali et al., 2021).

209 An important factor was HIV detection in blood donations, indicating that people in our
210 country were unaware of their illness. Pakistan, an Islamic state, has people who consider
211 HIV/AIDS and sexual encounters to be taboo. Although conversation regarding these issues is
212 minimal, Pakistan consistently has a growing HIV/AIDS epidemic. In various Islamic countries,
213 HIV/AIDS is linked with homosexuality and promiscuity; nevertheless, it is important to notice
214 that HIV/AIDS can also arise from the unhygienic transfer of blood. The Pakistani population is
215 misinformed in having awareness about the causes of the disease because of the absence of edu-
216 cation (Hussain et al., 2018). Furthermore, routine blood donations and blood transfusions, where
217 hospitals often have inadequate facilities, along with the neglect of blood screening, result in an
218 increased propensity of HIV/AIDS becoming widespread (Haq et al., 2020).

219 The present study showed that the most common co-morbidity experienced by PLHIVA was
220 Hepatitis C (HCV). Co-infection of hepatitis B and hepatitis C with HIV is associated with a poor
221 prognosis. A study evaluated the occurrence of co-infection of HBV/HIV and HCV/HIV in
222 Peshawar, Pakistan. It was found that four-fifths of PLHIVA had co-infections with HBV, while
223 one-fifth had co-infections with HCV (Masroor et al., 2021).

224 HIV/AIDS spreads in people involved in activities that increase the probability of con-
225 tracting it, such as extramarital relationships, homosexual intercourse, or intravenous (IV) drug use
226 (Bint-e-Saif & Shahzad, 2020). Extramarital sexual relations were another prominent factor in the
227 present study. Another source of HIV/AIDS in the present study was the relationship with either
228 MSM, FSW, or Transgender. The HIV/AIDS epidemic in Pakistan is deep-rooted among IDUs,
229 which proposes a slow development of HIV/AIDS in other key populations, including FSWs. This
230 is a significant discovery and must be considered a threatening sign for predominant sex
231 work-driven HIV/AIDS prevalence in regions where HIV/AIDS is already found in epidemiolog-
232 ical proportions among IDUs (Emmanuel et al., 2021).

233 In the present study, most PLHIVA disclosed their status to their families, some PLHIVA did
234 not disclose their status to their families, and few PLHIVA disclosed their HIV status to some se-
235 lective family members due to stigma and discrimination associated with HIV/AIDS. Stigma and
236 discrimination weaken HIV-prevention struggles by making people afraid of looking for medical
237 care; they might stop persons from implementing safe practices, including the use of condoms,
238 disinfected needles, and apprehension about HIV serostatus disclosure (Baingana, Thomas &
239 Comblain, 2005; Catalan, 1999; Gielen, O'Campo, Faden & Eke, 1997).

240 Discrimination faced at the workplace was another factor identified in this study. As em-
241 ployment remains central to a person's existence and the whole family's well-being, stigma, and

workplace discrimination, have effects far beyond the actual work locations (Sprague et al., 2011). Cross-sectional descriptive research evaluated the pervasiveness of workplace stigma and discrimination among PLHIVA in Nigeria. Some PLHIVA were not given time to go to the hospital. The communal fears of PLHIVA were stigmatization and discrimination from fellow workers and death from the disease. Thus, the prevalence of stigma and discrimination in workplaces was high (Aguwa et al., 2016).

5. Conclusion

This study revealed that more Pakistani men were more infected with HIV than women. Married people had higher chances of developing HIV/AIDS. Illiterate people were more prone to developing HIV/AIDS. Unemployed people were more at risk of developing HIV/AIDS. History of extramarital sexual relations and using drugs were the most important risk factors identified. Mostly, PLHIVA belonged to urban areas. HCV was the most common co-morbidity identified. Most of the PLHIVA disclosed their status to families. Still, some were reluctant to disclose their status to their families and workplaces due to the stigma and discrimination associated with HIV/AIDS.

Supplementary Materials: Data was collected from HIV/AIDS clinic from a public hospital in Lahore.

Author Contributions: M.M(Maryam Munawar) and A.M (Amina Muazzam) conceptualized the idea. M.M has conducted the research, collected the data and has written the draft, A.M assisted in writing the draft and supervised the project.

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Institutional Review Board Statement: The study was approved by ethical review committee of Lahore College for Women University, Lahore. (ORIC/LCWU/429)

Informed Consent Statement: Informed consent was taken from all participants.

Data Availability Statement: The data can be provided upon request when needed.

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