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The Prevalence of HIV and its Associated Factors among Prisoners of Central Prison, Larkana, Pakistan

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ABSTRACT

Introduction: HIV/AIDS is one of the major worldwide health problems affecting inmates and a significant concern for government, public health services and prison administration services. The aim of our study was to determine the prevalence of HIV infection among prisoners and its associated factors.

Material and Methods: A descriptive cross-sectional study was carried out among prisoners of Central Prison, Larkana, Pakistan from August 2019 to December 2019. A total number of Seven hundred and eighty-three (N = 783) prisoners were invited to participate. Data were collected by means of the pre-designed and pilot tested study questionnaire and were entered in SPSS version 21 for analysis.

Results: Out of 783 participants initially invited to the study, six hundred (N = 600) of whom fulfilled the criteria. The screening and questionnaire response rate was 81%. During screening three prisoners were found to be HIV positive. Among prisoners, 220 (36.7%) were drug users, 19 (8.6%) used an injectable form of drug, while 506 (84.3%) had never used condoms during the sex. The prevalence of this study was 1.00%

Conclusion: The study revealed the need to educate prisoners for prevention and care measures in prisons. Further studies are needed to observe the situation in other part of the country.

Keywords: HIV, Acquired Immunodeficiency Syndrome (AIDS), Prevalence, Prisoners, Larkana

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INTRODUCTION

Human Immunodeficiency Virus (HIV) or acquired immunodeficiency syndrome (AIDS) is a major public health issue among prisoners in many countries. It is one of the serious challenges for governments, public health services, and prison administration services. and has become a main global challenge. It has quickly affected millions of people irrespective of age and gender throughout the globe (1). The causative agent for AIDS is HIV and its major associated risk factors are unsafe sex, sharing of injectable equipment and infected blood transfusion (2). The AIDS weakens the immune system of the human body; consequently, the body becomes non-resistant to various diseases. As a result, disturbed mental health, compromised social

life, as well as high morbidity and mortality take place (2, 3). Studies have reported that, there are more inmates who are HIV-positive than people in the general population (4-7). According to the Joint United Nations Programme on HIV/AIDS (UNAIDS) globally 38 million people were infected with HIV in 2019, with 22 million of them were under treatment (1). Meanwhile, in Pakistan, 1.9 million people were infected with HIV in 2019 (8). Among the most vulnerable groups to HIV infection are the youth of the age group 15-24 years and half of all new infections are caused globally in this age group every year (9, 10). Annually, the incidence of HIV is approximately two million cases throughout the world (1).

Most of these cases are reported to have spread through saliva, sperm or breast milk (11). After getting entry into the human body, HIV being a lentivirus, also known as “weak virus”, stays in the body for a long period. Simultaneously, it keeps on dividing and entering data into host cell’s DNA. While in the human body, it infects cells of the immune system, such as CD4+ cells, macrophages and dendritic cells. CD4+ cells play a vital role in immune system maintenance, however once they are attacked by HIV virus, their rapid decline in skin and immune system occurs. Consequently, HIV infection turns into AIDS in the human body (12). The outbreak of HIV in Ratodero town, district Larkana, Sindh province in 2019 caught focus of health agencies throughout the world. The World Health Organisation (WHO) declared it as Grade-2 Health Emergency (13).

Prisons are among the most restricted and marginalized populations to access the health services, interventions, and surveys. Whereas they are an endangered population for acquiring infectious diseases particularly the HIV, due to the people from various backgrounds, communities and risk factors are kept together for varying period of time. According to the ministry of law, justice and human rights of Pakistan; the total number of prison facilities in the country are ninety-eight (98), and with a total number of 77,275 prisoners (14) Whereas twenty-four prison facilities are in the province of Sindh. Hence, this study has been carried out in Central Prison of district Larkana, Sindh Prisoners were chosen as the study population because they are a venerable group and are prone to communicable infections like HIV. This study will therefore add on valuable current data regarding prevalence of HIV in this vulnerable population. Identification of HIV cases among prison inmates will sensitize all concerned stakeholders to focus further on the increasing pool of HIV cases among prison inmates and will be helpful in designing new programs and policies to improve health of these prisoners.

The objective of the study therefore was to assess the prevalence of HIV infection among prisoners and its associated factors in Central Prison of Larkana.

METHODS

A descriptive cross-sectional study was conducted in the central prison of District Larkana, in Sindh province, Pakistan (Figure 1) from August 2019 to December 2019. The study population was male prisoners of the central prison, as the prison confined only male prisoners. Every prisoner was informed about the importance of the study. All prisoners of the central prison of Larkana available at the time of study and willing to participate in the study; including those prisoners who had already been diagnosed as HIV positive were included in the study. Seven hundred and eighty-three (783) prisoners were invited to participate. Prisoners who had already been screened in the last two months and found negative, prisoners not willing to participate in the study and the prisoners who seemed incapable of understanding the information about the

survey due to intoxication, drug withdrawal or cognitive impairment were excluded from the study. After checking eligibility, a total number of six hundred (600) prisoners were included in the study. After reaching the jail dispensary with the permission of the superintendent central jail, the principal investigator along with three research assistants went to every barrack for conducting health awareness sessions regarding HIV/AIDS and obtaining verbal informed consent for the study from prisoners. The study participants were asked questions from a pre-designed questionnaire, which was developed through the help of literature as per guidelines of the World Health Organization (WHO) regarding risk factor assessment of HIV (15). The pre-designed questionnaire was pilot tested and revised before the final data collection. The identity of the study participants was kept confidential by excluding identity details in the questionnaire.

The blood technician/paramedic of the study team drew 2cc of the blood sample by using a 3ml auto-disposable syringe from each participant. The blood was preserved in yellow tubes that were brought to the Central Pathology Laboratory, Chandka Medical College, Larkana for testing purposes with due permission from Medical Superintendent, Chandka Medical College Hospital, Larkana. After centrifuging the blood, the serum was tested on WHO approved SD HIV ½ 3.0 Bio Line kit for screening (16). Ethical approval of the study was taken from the Internal Review Board of Health Services Academy (HSA), Islamabad, Pakistan, while a supporting letter was also sought from the concerned health administration/department for further research work. The quantitative data were coded and entered into the database of the Statistical Package of Social Sciences (SPSS-21) for analysis and descriptive statistics methods were applied.

RESULTS

Out of 783 inmates (100%), 600 (76.6%) consented to participate in the study; among them three were found HIV Positive. Among them, 368 (61%) prisoners were aged 17-36 years, 398 (66.3%) of them were illiterate and 539 (89.8%) of them were on private jobs. Prisoners who had been in the jail for less than a year were 399 (66.6%), and the prisoners who had been in jail for the longest period, i.e., more than ten years were 29 (4.8%). Moreover, 220 (36.7%) prisoners had been using drugs in their daily lives. Out of these total 220 (100%) drug-addicted prisoners, 19(8.6%) had been using injectable forms of drugs; however, 190 (86.4%) prisoners did not reply. Meanwhile, among prisoners who had been using injectable forms of drugs 18 (43%) conceded that they had been sharing syringes with other drug addicts. In reply to a question regarding the use of condoms during sex, 506 (84.3%) answered they had never used condom during sex. The prisoners who reported surgical and dental procedure history were 29 (4.8%) and 150 (25%) respectively. Moreover, 111 (18.5%) prisoners had received a blood transfusion

in their lives. Furthermore, 141 (23.2%) prisoners stated that they shared razors. Six prisoners were diagnosed as HIV-positive, (three of them were previously diagnosed) hence the overall prevalence (old and new cases) of this study was 1.00%. The 398 (66.3%) prisoners were illiterate/ uneducated, 82 (13.7%) middle school pass, 81 (13.5%) were high school pass while as others having higher qualification were 39 (6.5%). There were 415 (69.2%) married, 176 (29.3%) single and 9 (1.5%) were divorced. We also

observed that 225 (37.5%) were Sindhi speaker, 109 (18.2%) were Urdu, 54 (9%) were Punjabi, and other languages speakers were 212 (35.3%) i.e. Baluchi, Seraiki, Pashtoon, and Hindko. The majority of the prisoners 539 (89.8%) were doing private jobs, among them almost were on daily wages, 41 (6.8%) are government servants and 20 (3.3%) are farmers in their occupation and profession in nature.

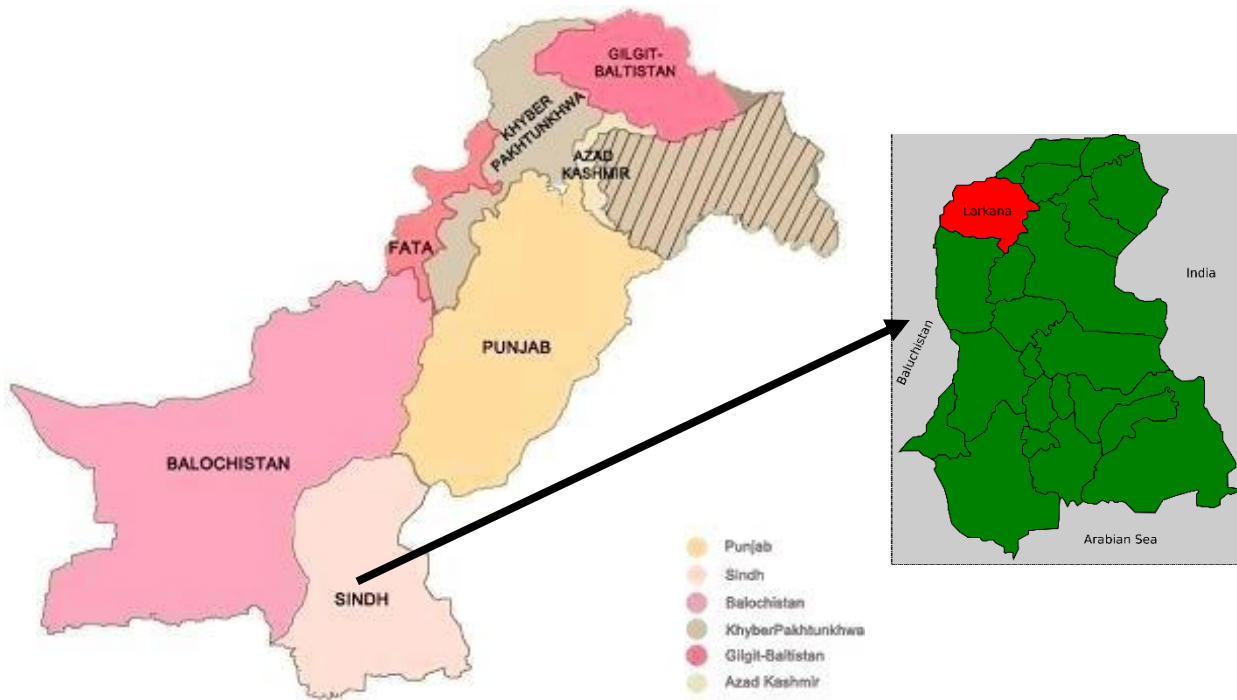


Figure 1. Map of Pakistan (pointer showing the Sindh Province and study district is highlighted in red colour).

Table 1: HIV-associated risk factors among prisoners (N=600)

Drug users	N (%)	Usage of condoms	
Yes	220 (36.7%)	Never	506(84.3%)
No	380 (63.3%)	Rarely	3(5%)
Type of drug used		No reply	91(15.2%)
Tobacco	138 (72.7%)	Surgical history	
Alcohol	19 (8.6%)	Yes	29(4.8%)
Heroin	42 (19%)	No	571(95.2%)
Chavas (Chars)	21 (9.5%)	History of dental procedure	
Injectable drugs used		Yes	150(25%)
Yes	19 (8.6%)	No	450(75%)
No	11(5%)	History of blood transfusion	
Do not reply	190 (86.4%)	Yes	111(18.5%)
Sharing of syringes		No	489(81.5%)
Yes	18 (43%)	History of tattoos	
No	13 (31%)	Yes	53(9%)
Do not remember	11(26%)	No	547(91%)
Age at first time sex		Same razor usage	
9-15 years	248(41.3%)	Yes	141(23.2%)
16-22 years	109(18.2%)	No	459(76.8%)

No reply	243(40.5%)	Usage of condoms	506(84.3%)
Sex for money		Never	3(5%)
Yes	2(3%)	Rarely	91(15.2%)
No	578(96.3%)	No reply	
Do not remember	20(3.3%)	Surgical history	29(4.8%)
		Yes	571(95.2%)
		No	

Table 2: HIV associated risk factors among HIV positive prisoners(N=06)

Drug users	n (%)	History of dental procedure	
Yes	6(100%)	Yes	1(16.7%)
No	0(0%)	No	5(83.3%)
Type of drug used		History of blood transfusion	
Heroin	5(83.3%)	Yes	1(16.7%)
Chars	1(16.7%)	No	5(83.3%)
Injectable drugs used		History of tattoos	
Yes	6(100%)	Yes	1(16.7%)
No	0(0%)	No	5(83.3%)
Sharing of syringes		Same razor usage	
Yes	5(83.3%)	Yes	2(33.3%)
No	1(16.7%)	No	4(66.7%)
Age at first time sex		Sex for money	
9-15 years	2(33%)	Yes	0(0%)
16-22 years	4(66%)	No	6(100%)
No reply	0(0%)		
Usage of condoms		History of surgery	
Yes	0(0%)	Yes	1(16.7%)
No	6(100%)	No	5(83.3%)

DISCUSSION

The study revealed that the most of prisoners were young, i.e. 17-36 years, whereas in another local study, most of the prisoners were in the age range between 15-45 years (17). Another similar study revealed that prisoners more than 50 years of age were the lowest in number among all age groups (18). The results show that the illiteracy rate was very high among prisoners, in contrast to the findings of another study which revealed that 36.5% of inmates were illiterate (18). As illiteracy often leads to poverty, our study revealed that the economic condition of prisoners was also debilitated as a majority of them had earned livelihood through daily wages. The ratio of drug users among prisoners was also high as more than one-third of them stated that they had been using drugs; whereas a similar study conducted in Brazil reported still a higher percentage, i.e. 61% of inmates had been using various forms of drugs (19). However, the majority of them did not reply to the question regarding mode of drug usage. Therefore, chances of high prevalence of injectable drug usage among the prisoners cannot be ignored. Out of 42 (100%) prisoners, who said that they had used injectable drugs, 18 (43%) stated that they shared syringes with other drug addicts. This statement of theirs implies that they had been at high risk of developing lethal diseases such as AIDS. Meanwhile,

with regard to syringe sharing, a previous study reported that half of the study participants had a history of sharing syringes for drug addiction (17). Moreover, the study reveals that early-age sex was not uncommon in the study participants as 248 (41.3%) of the respondents had their first sex in age between 9-15 years; this finding is almost similar to that of a previous study conducted in Karachi where 45.9% prisoners had reported early age sex (20). Also, a large number of prisoners were at risk of sexually transmitted diseases (STDs) including HIV/AIDS due to non-usage of condoms as 506 (84.3%) of the study participants had never used condoms during sex. The overall prevalence of this study was 1.00%, similar to two previous studies that revealed the prevalence of HIV among prisoners as 1% and 1.58% (19, 20). The results revealed that majority of the study participants did not have significant past surgical or dental procedure history. Meanwhile, 111 (18.5%) of the total screened prisoners replied that they had received blood transfusions in their lives; lower percentage of similar finding was noted in a previous study (17). Same razor usage was also not uncommon practice in the lives of prisoners as 141 (23.2%) told they had been using razors used also by other persons, whereas 26% inmates shared razors according to an earlier study (17). We observed that the prison was overcrowded,

which is similar in other prisons in Pakistan, and worst in comparison with rest of the world (21, 22). The overcrowding, and poor living conditions can have negative impact, HIV-positive prisoners are not kept separately to prevent others from spread of HIV, which is not different from the jails for females (23, 24).

STRENGTHS AND LIMITATIONS

Our study has several strengths as well as some limitations. We used cross-sectional study design which is useful for description. The primary investigator along with research assistants collected the data on a pre-designed standardized questionnaire form and interviewed the subjects. Our study was conducted in one prison facility of the Sindh province and the country, whereas the situation in other facilities may be different in other prison facilities. For injectable drug used and age at first sex majority (86.4% and 40%, respectively) of the participants did not reply, hence the non-response rate was high, which may have made the results somewhat biased. Other limitations include the absence of a comparative group and limited time for the study. Since our results may not be generalized to the entire ninety-eight prison's population in the country, further studies with larger population and/or multicentre facilities are necessary in the other geographic areas.

CONCLUSION

High prevalence of HIV risk factors, i.e. drug addiction, intravenous drug usage, sharing of syringes and razors as well as unsafe sexual practices were found among the prisoners. Most of the prisoners were also less educated and economically unsecure. There is dire need to conduct health awareness sessions, with particular focus on sex education, in the prisons. At the same time, vocational training programs should be introduced in the prisons so that, prisoners released from jail can live a better and hygienic life. Additionally, there is need of assessing prevalence of HIV and associated risk factors among prisoners in a broader study setting.

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Authors' Contributions:

MHS has participated in study design, data analysis and interpretation, draft writing, editing and submission. KA and MM participated in study design, data collection, data entry, data interpretation and editing. SAS, MI, TFM, SHK, SP and SM participated in study design, data interpretation and editing. All authors read and approved the final manuscript.

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