

FREQUENCY OF HUMAN IMMUNODEFICIENCY VIRUS HEPATITIS B & C VIRUS AMONG DRUG ADDICTS PRESENTED TO DOST FOUNDATION, PESHAWAR

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Abstract

**Objectives:** To know the frequency of HIV, hepatitis B & hepatitis C Virus infections among drug addicts presented to Dost Foundation, Peshawar.

**Study design:** Cross-sectional (descriptive) study.

**Study Setting and duration:** Samples collection was done from Dost Foundation non-government nonprofit organization in Peshawar Khyber Pakhtunkhwa Pakistan.

**Methodology:** By ICT Rapid Strip Test 291 drug addicts were examined for the Detection of hepatitis B surface antigen (HBsAg), antibodies against hepatitis C virus (Anti HCV) and antibodies against HIV (Anti-HIV antibodies) in the laboratory Dost Foundation, Peshawar.

**Results:** The sample size for this study was 291 in which some patients infected to HIV, HBS, and HCV at one time among which 15(5.2%) was female and 276(94.8%) was male. (Table no3.3) There was not any female included between the ages 13-20.5 was between the groups of 21-30, only 4 female was in age between the groups of 31-40.5 was between the age distribution of 41-50 and 1 was between 51-62. The age-wise frequency distribution of all patients 12.4% of patients was between 13 -20 of age.31.6% was between 21-30.30% was between 31-40.16.8% was between 41-50.8% was between the groups of 51-62. The study concluded that among all 291 patients 197(67.7%) were HCV positive, 118(40.5%) were HBS positive and 64(22%) were HIV positive. Among all these patients 5.5% female and 94.4% male were HCV positive, 5.1% female and 94.9% male was HBS positive, and 9.4% female and 90.6% male was HIV positive.

**Conclusion:** Our results clearly show that HIV infection, hepatitis B infection & hepatitis C infection were common infections present in drug abusers particularly in those drug addicts who are using syringes for drug abuse and in areas that lack education and awareness. These infection rates are significantly high in the general population, but drug users exceed limits compared to them

*because of sharing injecting equipment. HIV was more prevalent in IDU's than non-IDU's. These situations are very disturbing, and drug users can transmit these diseases to their family's and the general population. The law enforcement authorities must do their best to control the use of drugs but condition getting worse day by day.*

## INTRODUCTION

Human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV) infections remain major global public health challenges, particularly among people who use drugs (1). Injection drug use is recognized as one of the most important risk factors for the transmission of blood-borne infections because of unsafe injection practices, including needle and syringe sharing (2). These infections contribute substantially to morbidity and mortality worldwide and impose a significant burden on healthcare systems. Hepatitis C virus (HCV), a member of the Flaviviridae family, is a leading cause of chronic liver disease, liver cirrhosis, and hepatocellular carcinoma. According to the World Health Organization (WHO), millions of people worldwide are living with chronic HCV infection (3). The transmission of HCV occurs primarily through exposure to infected blood, including contaminated syringes, blood transfusions, surgical instruments, and other invasive procedures. Among drug users, particularly injecting drug users (IDUs), HCV infection is highly prevalent because of frequent needle-sharing practices. Similarly, hepatitis B virus (HBV), a member of the Hepadnaviridae family, is a major cause of acute and chronic liver disease (4). Globally, approximately two billion individuals have been infected with HBV, and hundreds of millions suffer from chronic infection. The prevalence of HBV varies geographically, with developing countries carrying a disproportionate burden due to inadequate healthcare resources, limited awareness, and insufficient implementation of infection-control measures (5). Pakistan is considered an intermediate endemic region for HBV infection. Human immunodeficiency virus (HIV) attacks the immune system, specifically CD4<sup>+</sup> T lymphocytes, resulting in progressive immunodeficiency and increased susceptibility to opportunistic

infections. Although Pakistan has historically been categorized as a low-prevalence country for HIV, the increasing number of injecting drug users and unsafe injection practices have raised concerns regarding the spread of HIV infection (6). Drug use injection remains one of the principal routes of HIV transmission in the country. Drug addiction is an important public health issue in Pakistan. The use of injectable narcotics, particularly heroin, has increased considerably over the years, placing drug users at heightened risk of acquiring blood-borne viral infections. Several studies conducted in different countries have reported a high prevalence of HCV, HBV, and HIV among drug addicts, with HCV generally being the most common infection (7). Co-infections involving two or more of these viruses have also been frequently reported among injecting drug users. Despite the growing burden of these infections among drug users, limited data are available regarding their frequency among drug addicts in Peshawar. Reliable local epidemiological data are essential for planning effective prevention strategies, improving screening programs, and reducing disease transmission among high-risk populations (8). Therefore, this study was conducted to determine the frequency of HIV, HBV, and HCV infections among drug addicts presenting to Dost Foundation, Peshawar.

## MATERIALS AND METHODS

A descriptive cross-sectional study was conducted at Dost Foundation, Peshawar, Khyber Pakhtunkhwa, Pakistan, from March 2018 to February 2019. A total of 291 drug addicts presenting for rehabilitation were enrolled through consecutive sampling. Participants with a history of blood transfusion or known spousal infection with HIV, HBV, or HCV were excluded. Approximately 5 mL of venous blood was collected aseptically from each participant. Serum

was separated by centrifugation and screened for hepatitis B surface antigen (HBsAg), anti-hepatitis C virus (anti-HCV) antibodies, and human immunodeficiency virus (HIV) antigen/antibodies using rapid immunochromatographic test (ICT) kits according to the manufacturer's instructions. Demographic data, including age and gender, were recorded using a structured proforma. Data was analyzed using SPSS version 22. Descriptive statistics were applied, and results were presented as frequencies and percentages. Ethical approval was obtained from the relevant Institutional Ethics Review Committee, and informed consent was obtained from all participants before enrollment.

**RESULT**

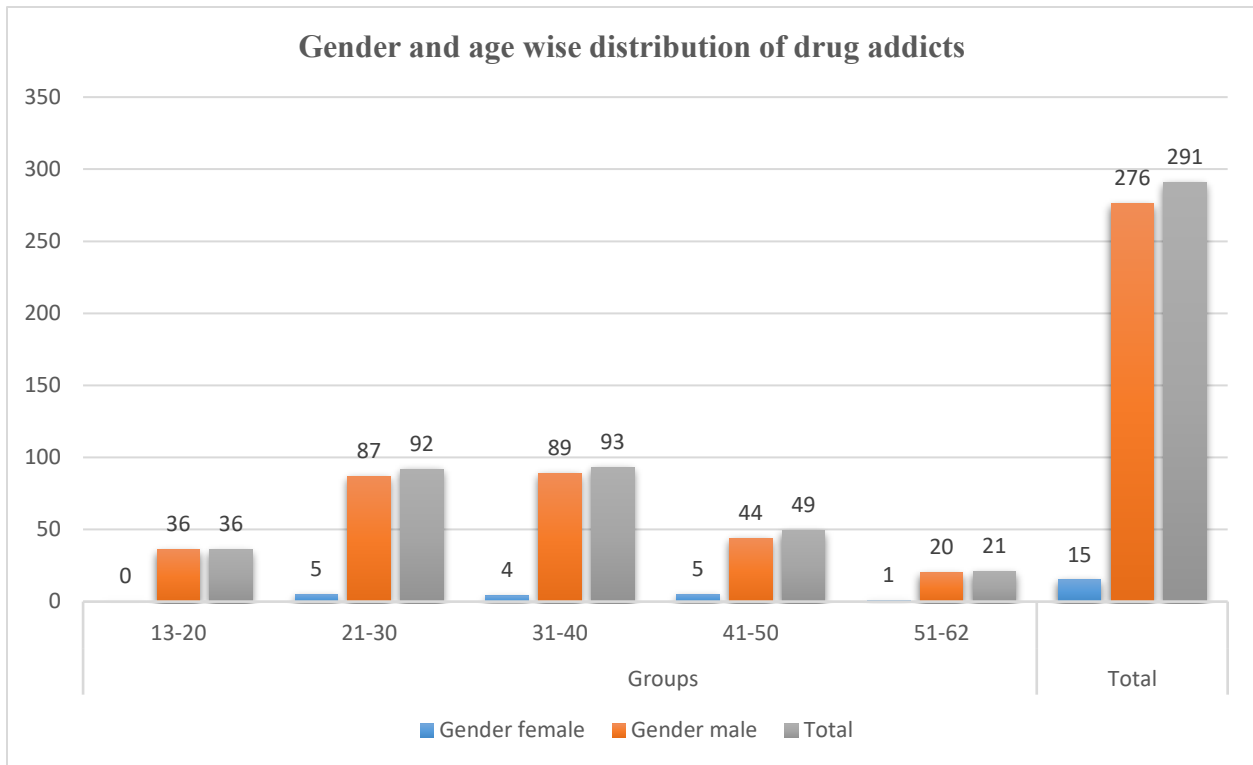
The result showed the total number of 291 patients among which 15(5.2%) were female and 276(94.8%) were male. (Table no 3.3) There was not any female included between the ages 13-20.5 was between 21-30, only 4 female was in age between 31-40.5 was between the age distribution of 41-50 and 1 was between 51-62 (Table No 3.1).

(Table no 3.2) showed the age-wise frequency distribution of all patients 12.4 patients was between 13 -20 of age.31.6% was between 21-30.30% was between 31-40.16.8 was between 41-50.8% was between 51-62. the study concluded that among all 291 patients 197(67.7%) were HCV positive, 118(40.5) was HBS positive and 64(22%) was HIV positive (Table 3.5, 3.6, 3.7).among all these patients 5.5% female and 94.4% male were HCV positive, 5.1% female and 94.9% male was HBS positive and 9.4% female and 90.6% male was HIV positive (Table 3.7, 3.8, 3.9).

3.1 In our study, there is 291 patients which are divided into different age groups and gender-wise. The Table no 3.1 represent the whole data in which the highest number of the patient between the ages of 31-40 (89 male and 4 female), second age group 21-30 (87 male and 5 female), third age group 41-50 (44 male and 5 female). There are only male patients between the ages group 13-20 (36) no female patient.

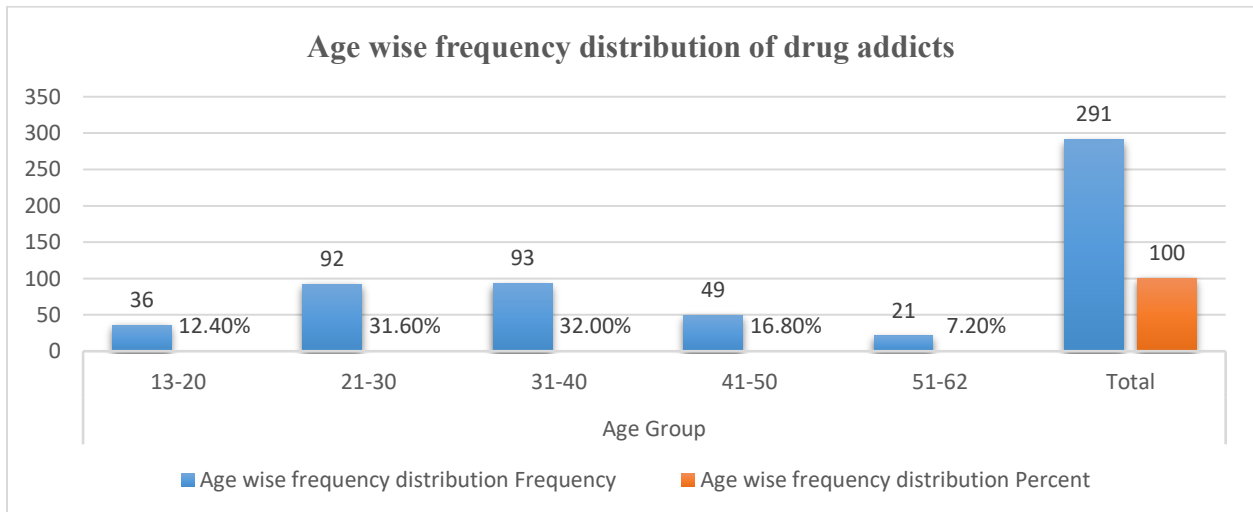
Table no 3.1 Gender and age-wise distribution of drug addicts

Gender and age-wise distribution of drug addicts							
Age		Groups					Total
		13-20	21-30	31-40	41-50	51-62	
Gender	female	0	5	4	5	1	15
	male	36	87	89	44	20	276
Total		36	92	93	49	21	291



Graph no. 3.1 Gender and-wise distribution of drug addicts

Table no 3.2 shows age-wise frequency distribution in our study. The highest frequency in age group 31-40 in 93 patient (32%), second age group 21-30 in 92 patient (31.6%), third age group 41-50 in 49 patient (16.8%), fourth age group 13-20 in 36 patient (12.4%) and lower frequency age group 51-60 in 21 patient (7.2%). These ages' groups represent age-wise frequency in both males and females collectively.



Graph no 3.2 Age-wise frequency distribution of drug addicts

Table no 3.2: Age-wise frequency distribution of drug addicts

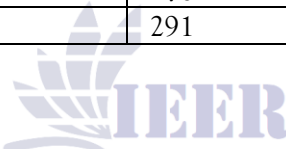
Age-wise frequency distribution of drug addicts			
		Frequency	Percent
Age Group	13-20	36	12.4%
	21-30	92	31.6%
	31-40	93	32.0%
	41-50	49	16.8%
	51-62	21	7.2%
	Total	291	100.0

3.3 According to the table no 3.3 which show gender-wise frequency among the male and female. There is 15 female (5.2%) and 276 male

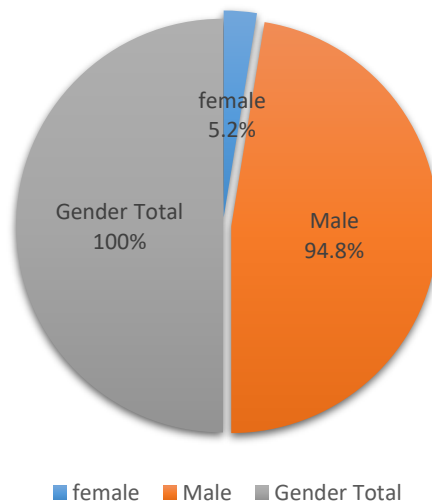
patients. Their ratio among the male is higher than females.

Table no 3.3: Gender wise frequency distribution in drug addicts

Gender wise frequency distribution in drug addicts			
		Frequency	Percent
Gender	female	15	5.2%
	Male	276	94.8%
	Total	291	100%



Gender wise frequency distribution Frequency

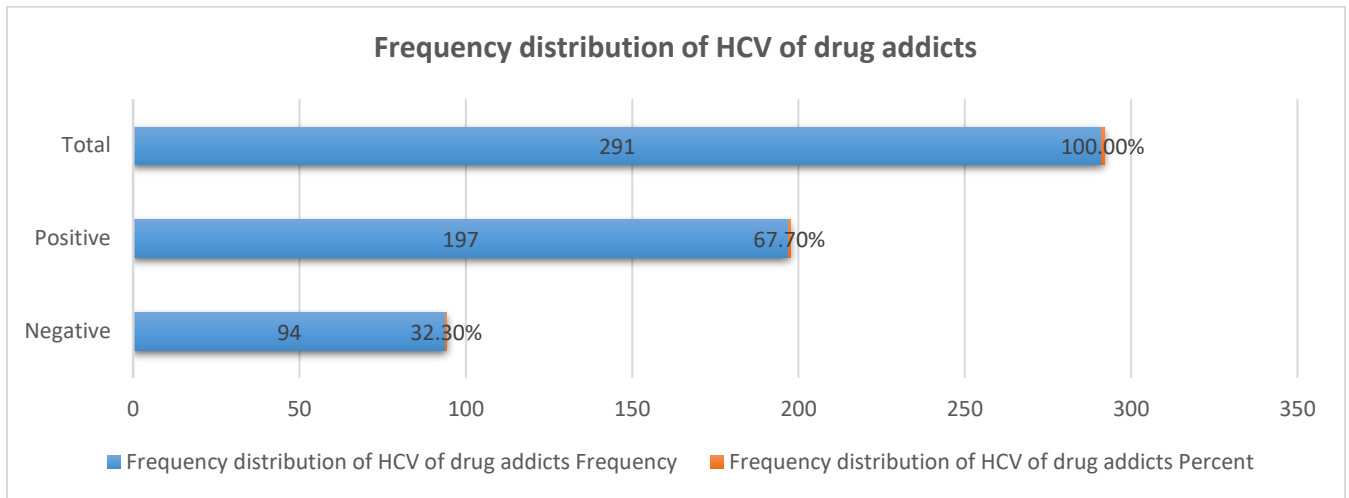


3.4 According to the table, no 3.4 information which shows the frequency of drug abusers about 197 (67.7%) drug abusers are positive to HCV this

percentage is very high than the female which is 94 (32.2%).

Table no 3.4 Frequency distribution of HCV in drug addicts

Frequency distribution of HCV in drug addicts			
		Frequency	Percent
	Negative	94	32.3%
	Positive	197	67.7%
	Total	291	100.0%

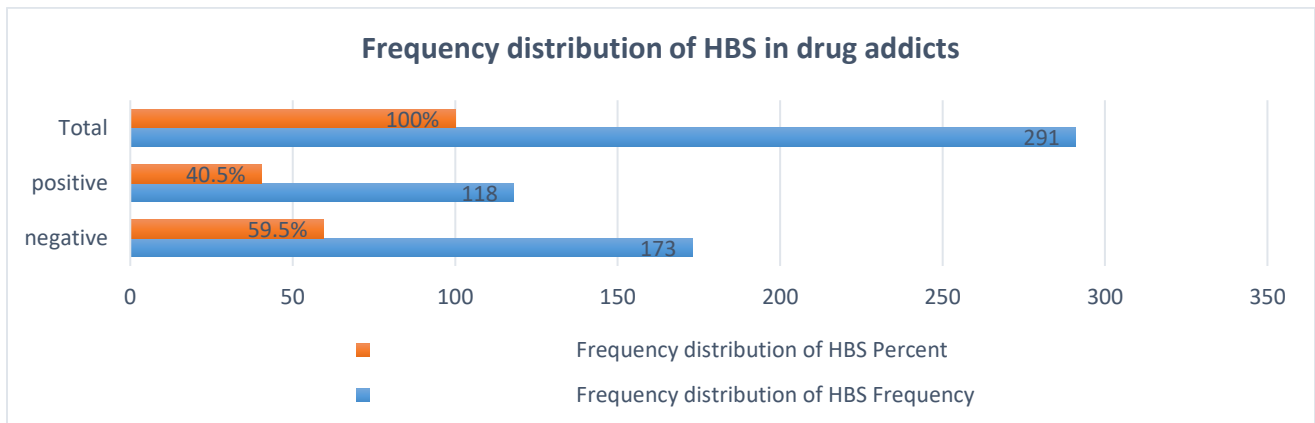


Graph no 3.4 Frequency distribution of HCV in drug addicts

3.5 The table no 3.5 show the frequency of HBS negative to HBS and 118 (40.5%) in drug addicts in drug addicts about 173 (59%) drug abuser are are positive to HBS.

Table no 3.5: Frequency distribution of HBS in drug addicts

Frequency distribution of HBS in drug addicts			
		Frequency	Percent
	negative	173	59.5%
	positive	118	40.5%
	Total	291	100.0



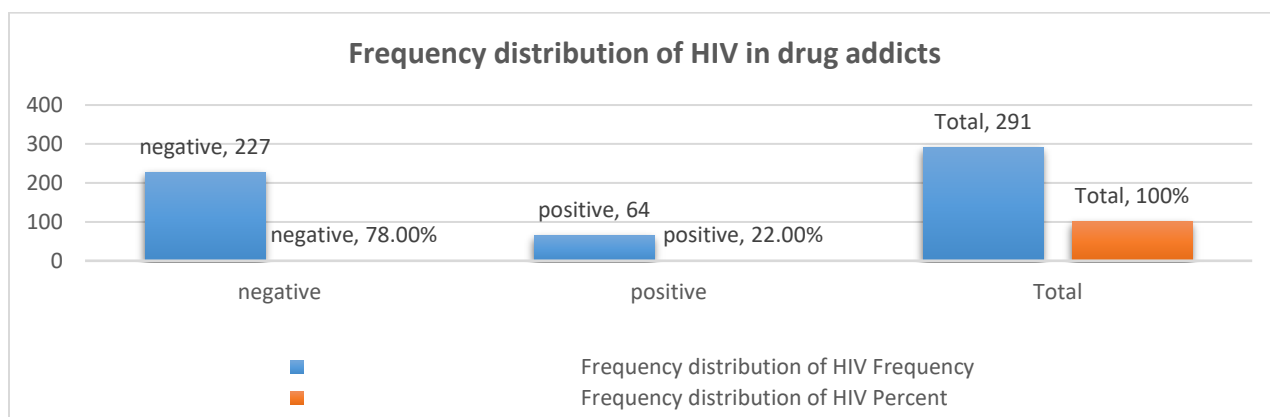
Graph no 3.5 Frequency distribution of HBS in drug addicts

3.6 According to the table, no 3.6 the frequency of HIV among the drug abuser is low than HCV,

HBS about 227 (78%) drug abuser is negative and 64 (22%).

Table no 3.6: Frequency distribution of HIV in drug addicts

Frequency distribution of HIV in drug addicts			
		Frequency	Percent
	negative	227	78.0%
	positive	64	22.0%
	Total	291	100.0



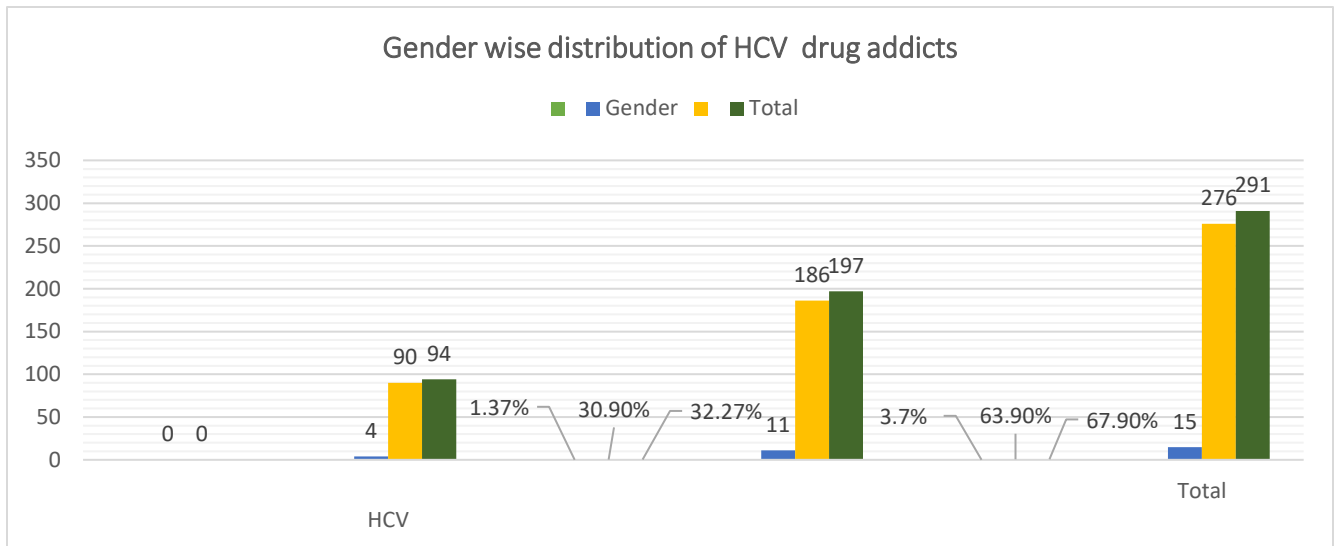
Graph no 3.6: Frequency distribution of HIV in drug addicts

3.7 The table no 3.7 shows gender-wise distribution of HCV in males and females among the drug addicts. The between male drug addicts positive ratio of HCV is high about 186 (63.5%) and female 11 (3.7%) are positive. The negative

ratio in males 90 (30.9%) and females are 4 (1.37%). Overall the positive ratio in both males and females 67.9% is higher than negative 32.27%.

Table no 3.7: Gender wise distribution of HCV in drug addicts

Gender wise distribution of HCV in drug addicts						
		HCV				Total
		negative	percentage	positive	percentage	
Gender	female	4	1.37%	11	3.7%	15
	male	90	30.9%	186	63.9%	276
Total		94	32.27%	197	67.9%	291



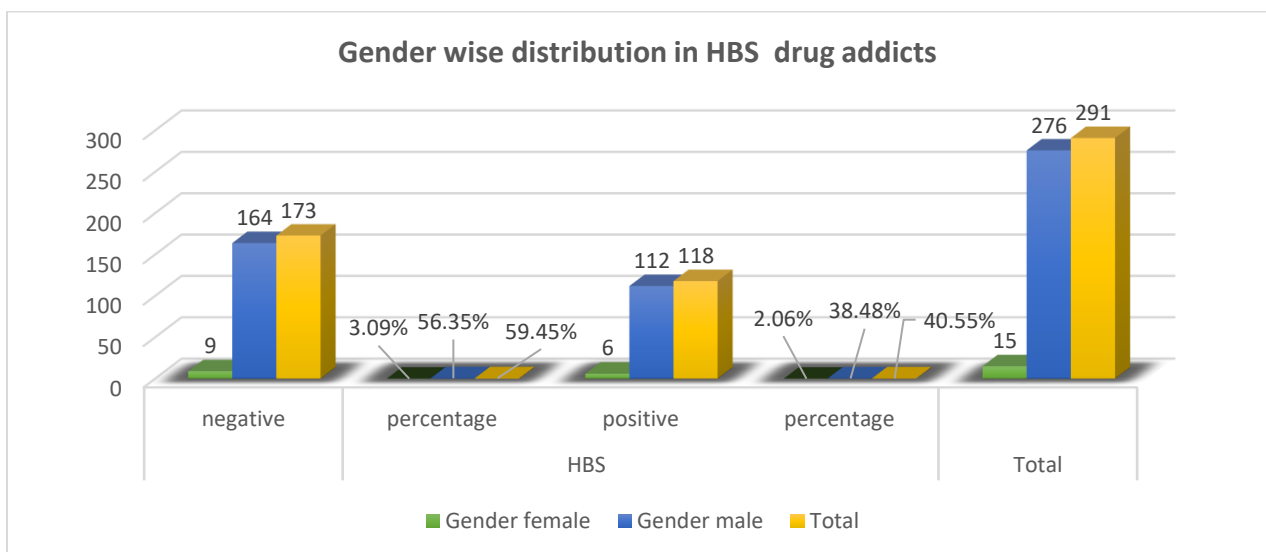
Graph no 3.7 Gender wise distribution of HCV in drug addicts

3.8 The table no 3.8 represents information of HBS in gender about 164 (56.35%) male drug addicts are positive and 122(38.48%) are negative.

The female ratio is 9 (3.09%) positive and 6 (2.06%) negative drug addicts these values are small as compared to the male but still present.

Table no 3.8 Gender wise distribution in HBS drug addicts

		HBS				Total
		negative	percentage	positive	percentage	
Gender	female	9	3.09%	6	2.06%	15
	male	164	56.35%	112	38.48%	276
Total		173	59.45%	118	40.55%	291



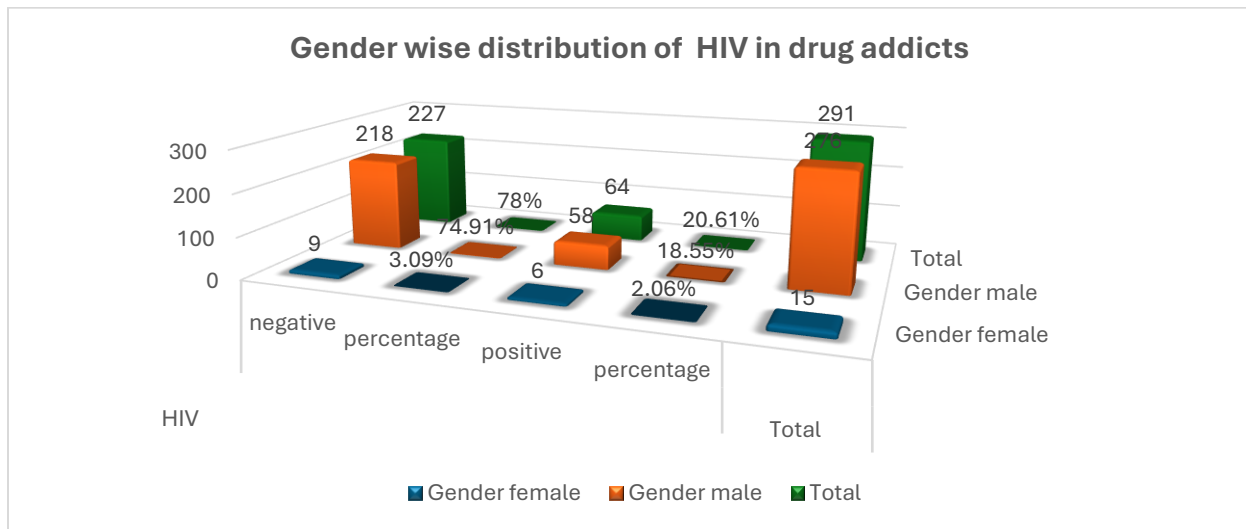
Graph no 3.8: Gender wise distribution in HBS drug addicts

3.9 Gender wise ratio of HIV in drug addicts is low as compare to the hepatitis B & C but between the male have a higher ratio than female about 58

(18.55%) are positive and 218 (74.91%)negative drug addicts and female 6 (2.06%) positive and 9 ( 3.09%) negative drug addicts.

Table no 3.9 Gender wise distribution of HIV in drug addicts

Gender wise distribution of HIV in drug addicts						
		HIV				Total
		negative	percentage	positive	percentage	
Gender	female	9	3.09%	6	2.06%	15
	male	218	74.91%	58	18.55%	276
Total		227	78%	64	20.61%	291



Graph no 3.9: Gender wise distribution of HIV in drug addicts

DISCUSSION

There is roughly assessed valued throughout worldwide is 161 million cannabis, 16 million opiate and 16- 21 million cocaine users. Cannabis most commonly obsessive drug in the world. The opiate user has commonly used injection drugs and so because of this opiate use also plays a major roll in the prevalence of HCV and HIV infection. The Studies recognized that the combination of drugs is a serious risk factor for HBV, HCV and HIV infection (34).

Due to the hepatotoxic nature of bot HBV and HCV infections, they cause life-threatening liver disorders while HIV is a lethal cause of AIDS, by sharing drug injections and unprotected sex. Our study concluded that hepatitis C& B, HIV is dominant between drug users. In a study which is

conducted in (2009) to investigate the prevalence of HCV in drug addicts. 552 drug users were studied and it was concluded that the prevalence of HCV was 65.4% in the overall sample (35).while in our study 67.7 % of drug users were HCV positive.

Similarly, in another study, 250 drug users were studied in 2002. The result showed that 9.6% (24) having HIV 23.6% (59) having HBV while 14.8% (37) having HCV. While the findings in our study showed 67.7% were found to be HCV positive, 40.5% was found to be HBS positive and 22% were HIV positive respectively(36).

The result of the study showed that the prevalence of HCV and HIV contagion and related risk activities mid injected drug users in two northern Mexican cities. HCV and HIV are recognized

extremely dominant about 96% and 2.8% correspondingly both cities. Which showed the difference with the result of our study as we found 22% HIV and 67.7% HCV positive drug users (37).

In another study Overall prevalence of HIV virus were 21.1%, Hepatitis C 34.3% and Hepatitis B 3.2% in drug users. Which result was also different from the present study (38).

There is another study according to their result HBV (38.5%), HCV (12.3%) and HIV (13.85%) in injection drug users (39). There is another serological which is conducted on 260 according to their experience 11.5% (30) are positive to the hepatitis C virus and about 1.5 % (4) are found to positive for both hepatitis B surface antigen and anti-hepatitis C virus(40).

According to the study HIV in general population is at a low level, the prevalence of HIV in injecting drug use was 0.005%; while that of HBV was 0.7% and HCV 0.1%. About 65% of individuals identified with HIV in Iran have stated injected drug addicts. The prevalence of HIV between IDUs differs in diverse provinces and locations. It varies from as low as 6.1% to as high as 23% between community IDUs (41).

The first survey was conducted in 1985 by Pakistan Narcotics Control Board, in their estimation, there were roughly 1.3 million (33 lac) drug users living in Pakistan. Opioid users' assessment with the support of UNODC was done in 2006, by a multiplier/standard method that shows that 624,000 persons were habitual to opioids of which 130,000 citizens were using opioids in injectable form. This was the latest statistics about Pakistan. These numbers are increased for both DUs and IDUs with the passage of time. Infections like HBV, HC, and HIV are quite common in injected drug users due to sharing injections and certain other social malpractices (42).

## CONCLUSION

HIV, hepatitis B & hepatitis C were more dominant between drug abusers particularly those who took drugs through injections and in areas that lack education and awareness. These infection rates are significantly high in the general population but drug users exceed limits compared

to them because of sharing injecting equipment. HIV was more prevalent in IDU's than non-IDU's. These situations are very disturbing and drug users can transmit these diseases to their family's and the general population. The law enforcement authorities must do their best to control the use of drugs but condition getting worse day by day.

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