

## Knowledge about Tuberculosis among Drug Users in Kathmandu Valley

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### Abstract

#### Background

Drug use is a significant risk factor for acquiring tuberculosis (TB) infection and progressing to active TB due to high Human Immunodeficiency Virus (HIV) seroprevalence, low socio-economic status, poor environmental conditions and problems of access to health care. Illicit drug users are at high risk for TB.

#### Objective

To assess the knowledge about TB among drug users whereas the specific objectives are to assess the knowledge about how TB is acquired, transmitted and prevented, the signs and symptoms of TB including diagnosis, curability and the source of information.

#### Methodology

Descriptive cross sectional study among 45 male and 18 female drug users in two centers each of Kathmandu and Lalitpur. Semi structured interview schedule was used to collect data. In Depth Interview (IDI) was conducted among 5 drug service providers using IDI guidelines.

#### Results

Majority of users (42%) were between 25-29 years and male (71%). About 13% respondents had family history of drug use. Major source of information was print media. Only 33% respondents had the correct knowledge about the causes of TB; however knowledge regarding signs and symptoms was found to be good. About 64% respondents had correct knowledge regarding transmission and 44% about its diagnosis. About 97% respondents knew that TB can be cured but not about the medications and treatment duration. Most users (71%) were familiar with preventive measures. In-depth Interview with drug service providers revealed that drug users are at high risk of acquiring TB as their knowledge regarding TB was poor and drug users ignored about TB.

#### Conclusion

Although drug users are at high risk for contracting and spreading TB, the level of knowledge about TB was low. It is necessary to provide them with TB related information and education to reduce the burden of TB.

**Keywords:** knowledge; tuberculosis; drug users; risk; education.

#### Introduction

Drug use is an important risk factor for acquiring TB infection and progressing to active TB. (1) Illicit drug users continue to be a group at high risk for TB. (2) Drug use is associated with increased rates of TB disease and TB infection. (4) Injecting drug use is a primary risk factor for HIV transmission and HIV increases the risk of getting sick with TB. (1) Drug users and injecting drug users in particular, have driven TB epidemics in many countries. Illicit drug users present a unique set of challenges (difficulty completing medical evaluations, adherence to TB treatment, presence of opportunistic infections) for TB diagnosis and control. (2)

Drug users are at high risk for contacting and spreading tuberculosis, due to high HIV sero prevalence, low socio-economic status and poor environmental conditions, and problems of access to primary health care. (3) Illicit drug

use and injection drug use are important factors in the epidemiology of tuberculosis in developed and developing countries. Although the incidence of TB in most industrialized nations has decreased over the past decade, the burden of disease is being increasingly borne by urban subpopulations, including drug users. (2) In addition to the links between drug abuse and other factors that increase vulnerability to TB such as poverty, poor nutrition, homelessness, and infection with HIV, drug use sites can also foster the spread of TB. (1) As drug use is almost universally criminalized, users frequently end up in prisons that pose a risk for TB transmission. Tobacco use also contributes to increased vulnerability to TB. (1)

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The World Health Organization, the Joint United Nations Programme on HIV/AIDS, and the United Nations Office on Drugs and Crime issued a set of guidelines to better coordinate care for TB among drug users in 2008 called "Policy Guidelines for Collaborative TB and HIV Services for Injecting and Other Drug Users, An Integrated Approach." This guideline highlights that, the epidemic of drug use has intertwined with the HIV and the TB epidemics. Drug users have increased rates of TB infection, whether living with HIV or not. HIV infection increases the risk of transition from TB infection to TB disease. People who have TB infection without HIV co-infection have a 5–10% lifetime risk of developing TB disease, whereas people living with HIV have a 5–10% annual risk of developing TB disease. (4)

Illegal drug use is a risk factor for TB. (5) Numerous studies have documented that alcohol abuse and illegal drug use are factors that contribute to TB transmission and act as barriers to TB control and prevention. Researchers said drug addiction was a greater risk factor for TB than HIV infection or homelessness. (6) Persons who use drugs are less likely to seek medical care and initiate, adhere to, and complete treatment for TB infection or TB disease. (5) Drug use among persons with TB is important to public health because it is associated with sputum-smear positivity at diagnosis and failure to complete treatment of TB, both indicators of increased transmission. The use of drugs often takes place in enclosed spaces with poor ventilation and high volumes of human traffic, potentially increasing the likelihood of TB transmission. (5) Studies have shown that there is higher chance for the development of tuberculosis in drug users in comparison to general population of the community. (14)

Drug use is a major risk for Tuberculosis. (1) Drug users and injecting drug users in particular, have driven TB epidemics in number of countries. (5) Thus, drug users should have basic information on TB. This study was conducted to find out the existing level of knowledge on TB among drug users so that drug service providers can provide TB related education and information to reduce the risk of acquiring TB and various programs can be conducted among the group for providing relevant information on TB among drug users. This study has attempted to fill in the gap of the need of tuberculosis education and services among drug users.

## Objectives

The General Objective of the study is to assess the knowledge regarding TB among Drug Users. However, the specific objectives are: to assess the knowledge about how tuberculosis is acquired, transmitted and prevented, to assess the knowledge regarding the signs and symptoms of tuberculosis, to assess the knowledge about diagnosis, curability and source of information regarding tuberculosis and to assess the need of tuberculosis information/education among drug users.

## Methodology

Descriptive cross sectional study using qualitative and quantitative methods and primary data was collected for the study. Youth Vision "Integrated Health Service Center"

and Youth Vision "Program for Female" in Kathmandu, and Youth Vision "Crisis Care Center" and Youth Vision "Margins to Mainstream" in Lalitpur was the universe of the study. The total drug users population in the four centers were 78 (13 in YV Program for Female, 19 in YV Integrated Health Service Center, 28 in YV Margins to Mainstream and 18 in YV crisis care center). Out of the total 78 population, only 63 respondents (N=63) participated in the study which included 9 from YV Program for Female, 14 from YV Integrated Health Service Center, 26 from YV Margins to Mainstream and 14 from YV crisis care center. Information was collected from the drug service providers to assess the knowledge of drug users based on the services provided to the drug users. A total of five drug service providers (one female and four male) were selected by non probability convenient sampling method.

Data was collected through interview using semi structured interview schedule among 63 drug users and in-depth interview guidelines among 5 drug service providers. The interview schedule and in-depth interview guidelines consisted of certain set of predetermined questions, prepared by the researcher, checked by the supervisor and approved by the Department of Sociology and Anthropology of Tri Chandra Multiple Campus. The supervisor, subject experts and colleagues with experiences in the field of TB and drug use were requested to read the interview schedule and guidelines and provided necessary feedback. The questions and guidelines were tested among few colleagues with experience in public health to get their feedback and necessary corrections were made. The questions were structured in a written form to collect information on the knowledge about TB among the drug users. Open ended questions were present in the schedule and probing was done during the interview to clarify and get the clear ideas about the level of knowledge about TB.

## Data Processing and Analysis

For quantitative part, the collected data were coded and filled in dummy tables. The data was then entered in the computer using software SPSS version 16.0 for processing and analyses were carried out to get the necessary results or outcomes. The data were tabulated with various types of single or cross tabulations to analyze the data. Qualitative data was analyzed manually in tables and separate analysis was done using grouping, coding and tabulation. Some important sayings of drug service providers were quoted in their own language in the analysis of qualitative part.

## Results

### Socio-Demographic Characteristics of the study population

The major age group was between 25-29 years with 41.3% and the ratio of male to female was 2.5:1. Newars comprised the highest proportion (31.8%) of ethnicity and 84% were Hindus. Likewise, 60% respondents were unmarried. The educational status revealed that 32% of them had completed their intermediate level education and 19% bachelor's level. The current occupational status revealed that 27% were involved in their own busi-

ness and some 25.4% in some kind of services. More than 95% respondents were currently smoking at least three times a day and 43% were involved in drinking alcohol at least once a day. About 64% of the respondents had someone in the family currently smoking and 68% with someone drinking alcohol. Some 13% respondents had family history of drug use. (Table 1)

### Knowledge about Tuberculosis

All respondents (N=63) had heard about TB. Some 24.7% of total participants were informed from print media which consisted of newspapers, brochures, leaflets, posters, pamphlets, flex, boards and other printed IEC materials, followed by information from friends and health care providers (18.3%). (Table 2)

The indepth interview among drug service providers regarding health education/information provided to drug users about TB, two service providers (n=3) replied that, they provided information about TB as well as TB HIV co-infection, Hepatitis B and C and STI's. One respondent (n=1) replied that no particular information about TB was provided although health education regarding HIV and STI's were provided to the drug users. Another respondent (n=1) told that counseling was provided to the drug users regarding different diseases and infection.

"We provide the drug users with TB education as well. We have TB related brochures and during counseling also we provide them information related to TB." - Drug Service provider no. 1

Regarding TB as a communicable disease, 90.5% (N=57) knew that TB was a communicable disease and 32.6% (N=29) knew that TB was caused due to Mycobacterium tuberculosis, while others responded that smoking, drinking alcohol and hard work was the cause of TB. Five respondents had no any idea about the cause of TB. (Table 3)

When asked about the types of TB, only 6 % (N=4) had the correct knowledge about the types of TB and when asked about TB infection and disease 52% (N=36) said it was the same, while 22 % (N=14) replied it was different and 20% (N=13) had no idea about it. Interestingly, the 22% (N=14) who answered that TB infection and TB disease was different, when asked what the difference, none was able to give the correct answer. About the major symptom of TB, 76% (N=48) knew that cough for more than two weeks was the major symptom and the following responses were made when asked about other signs and symptoms of TB. (Table 4)

Regarding the transmission of TB, around 64% (N=40) had the correct answer as droplet infection which causes the transmission of TB, knowledge and 44.4% (N=28) knew the correct diagnosis method for TB. (Table 5)

Regarding curability of TB, around 97 % (N=61) replied that TB could be cured through proper medications but only 27% (N=17) knew the duration of TB treatment. Concerning the preventive measures of TB, all were familiar with one or more of the preventive measures. All were aware about the preventive measures for TB.

When drug service providers were asked about the health/service seeking behavior of drug users, all (n=5) replied that the health seeking behavior was generally low for drug users because they do not want to get exposed to others. One service provider said that drug use is taken as a very serious issue so, because of the fear of being exposed to others, they generally have low health seeking behavior.

"Most of the drug users have low health seeking behavior. They do not want to seek treatment for having fear of becoming exposed to others. Generally they do not come for services but in institutional settings or for example in our center, since they are familiar with each, they come to ask for help or treatment and also they are told so while counseling. So in institutional settings the drug users tend to show their health seeking behavior but in general practice or overall it is not so." - Drug Service provider 2

About the people at risk for TB, about 70% percent (N=44) replied that anybody could be at risk for TB, while 19% (N=12) replied that Drug users were at risk for TB and 11% (N=7) replied that People Living with HIV AIDS were at risk for TB but only 36.5% (N=23) realized that they were at high risk of TB. The IDI from service providers also showed that the risk of TB among drug users was high (n=5). The main reasons as expressed by them were low immune system (n=3), unmanageable behavior of the drug users (n=1), poor living settings (n=2), environmental factors (n=3), frequent contact with HIV infected people (n=2), high exposure with risk group for TB (n=2), no health consciousness among the drug users (n=1).

"Drug users tend to have low immune system and because of the weakened immune system, they are prone to contract not only TB but other diseases and infections as well." - Drug Service provider no. 3.

Regarding Directly Observed Treatment Short course (DOTS), out of 46% (N=29) who had heard about it, only 34% (N=10) knew what DOTS actually was and 25% (N=16) did not know about the provision of free TB drugs to all TB patients. None of them were familiar with Drug Resistant (DR) TB. About 86% (N=54) knew that TB was not hereditary disease and some 40% (N=25) thought TB would affect relationship with others.

When drug service providers were asked about the knowledge about TB among drug users, two respondents (n=3) replied that they generally have low knowledge about TB. Another respondent (n=1) replied that they generally know it is a communicable disease, whereas one respondent (n=1) answered that they are aware only about the major symptom of TB.

"Most of the drug users know that TB is a communicable disease. Since drug users do not fear about HIV, they neglect about TB." - Drug Service provider no. 4

Table 1: Socio-Demographic Characteristics

Characteristics	Male No. (%)	Female No. (%)	Total No. (%)
<b>Age Group (Years)</b>			
15-19	2 (4.4)	2 (11.2)	4 (6.4)
20-24	5 (11.1)	8 (44.4)	13 (20.6)
25-29	18 (40.0)	8 (44.4)	26 (41.3)
30-34	12 (26.7)	0	12 (19.0)
35-39	8 (17.8)	0	8 (12.7)
<b>Caste/Ethnicity</b>			
Brahmin	2 (4.4)	2 (11.1)	4 (6.3)
Chhetri	12 (26.7)	6 (33.3)	18 (28.6)
Newar	17 (37.8)	3 (16.7)	20 (31.8)
Aadhibasi/Janajati	10 (22.2)	4 (22.2)	14 (22.2)
Dalits	1 (2.2)	0	1 (1.6)
Others	3 (6.7)	2 (11.1)	5 (7.9)
No Response	0	1 (5.6)	1 (1.6)
<b>Religion</b>			
Hindu	39 (86.7)	14 (77.8)	53 (84.1)
Buddhist	3 (6.7)	3 (16.7)	6 (9.5)
Muslim	2 (4.4)	0	2 (3.2)
Christian	1 (2.2)	1 (5.6)	2 (3.2)
<b>Marital Status</b>			
Unmarried	27 (60.0)	11 (61.1)	38 (60.3)
Married	15 (33.4)	7 (38.9)	22 (34.9)
Separated	2 (4.4)	0	2 (3.2)
Widow/Widower	1 (2.2)	0	1 (1.6)
<b>Educational Status (Completed)</b>			
No Formal Schooling	4 (8.9)	2 (11.1)	6 (9.5)
Below Primary Level	5 (11.1)	2 (11.1)	7 (11.1)
Primary Level	5 (11.1)	2 (11.1)	7 (11.1)
Secondary Level	3 (6.7)	1 (5.6)	4 (6.3)
Certificate Level (SLC)	4 (8.9)	2 (16.7)	7 (11.1)
Intermediate Level (10+2)	13 (28.9)	7 (38.9)	20 (31.7)
Bachelors	11 (24.4)	1 (5.6)	12 (19.0)
<b>Cigarette Smoking Habit (at least three times a day)</b>			
Yes	42 (93.3)	18 (100)	60 (95.2)
No	3 (6.7)	0	3 (4.8)
<b>Drinking Alcohol (at least once a day)</b>			
Yes	19 (42.2)	8 (44.4)	27 (42.9)
No	26 (57.8)	10 (55.6)	36 (57.1)

Table 2: Source of Information of TB

Source of Information	N	%
E-media	20	14.1
Print media	35	24.7
Friends	26	18.3
Relatives	5	3.5
Health Care Providers	26	18.3
Teachers	19	13.4
Family Members	11	7.7
<b>Total</b>	<b>142</b>	<b>100.0</b>

N= No of cases (answers based on multiple responses),  
%= Percentage calculated from the total cases of that category

Table 3: Cause of TB

Cause of TB	N	%
Microorganisms (Mycobacterium Tuberculosis)	29	32.6
Smoking	28	31.5
Alcohol	14	15.7
Hard Work	6	6.7
Other factor	7	7.9
Don't Know	5	5.6
<b>Total</b>	<b>89</b>	<b>100.0</b>

N= No of cases (answers based on multiple responses),  
%= Percentage calculated from the total cases of that category



Table 4: Symptoms of TB

Symptoms of TB	N	%
Loss of appetite	23	11.3
Weight Loss	41	20.1
Fever	33	16.2
Sweating	12	5.9
Chest Pain	24	11.8
Difficulty in Breathing	19	9.3
Coughing out Blood	49	24.0
Other Symptoms	3	1.5
<b>Total</b>	<b>204</b>	<b>100.0</b>

N= No of cases (answers based on multiple responses),  
%= Percentage calculated from the total cases of that category

Table 5: Diagnosis of TB

Method for TB diagnosis	No. of Cases	Percent
Sputum Examination	28	44.4
X-ray Examination	23	36.5
Blood Test	5	7.9
Physical Check Up	4	6.3
Don't Know	3	4.8
<b>Total</b>	<b>63</b>	<b>100.0</b>

## Discussions

People who use and inject illicit drugs are at high risk of contracting tuberculosis, whether or not they are infected with the human immunodeficiency virus (HIV). As compared to the general population, people who use illicit drugs have a higher risk not just of getting tuberculosis infection, but also of developing active disease. (10)

The findings of this study is similar to a study in USA among 610 drug users, from March 13, 1995 to January 31, 1996, to evaluate the knowledge of TB found that almost all knew that TB is contagious and more than two thirds knew that TB is treatable and that TB preventive therapy existed. The study found that fewer than half knew that HIV-related TB could be treated, 30% thought TB could be treated without a medical doctor and suggested that TB services could be incorporated into syringe exchange programs. However, several important gaps in TB knowledge existed in this population at high risk of TB, which may impact on adherence and which support the need for TB education for drug users. (7)

The finding of this study is also consistent with the study conducted between November 1992 and February 1993 in New York City among 494 injecting drug users to assess the knowledge on tuberculosis which revealed that more than 90% of subjects understood that tuberculosis can be contracted by breathing contaminated air. One fourth among total 494 subjects understood the distinction between infection and active disease. Most subjects perceived tuberculosis as potentially fatal and understood that HIV-infected persons are more susceptible to it. Knowledge regarding the importance of medication adherence was better and one third of the total was unaware of the problem of Drug Resistant (DR) tuberculosis. (8)

Likewise a study conducted to assess TB knowledge and attitudes, among a group of 79 known drug users in a city with low TB incidence revealed that 32% of 79 drug users thought TB could be prevented by bleaching or not sharing needles/syringes and 51% thought anyone with a positive TB skin test was contagious. Misconceptions about TB transmission were also widespread among them. Drug treatment programs can play a key role by undertaking screening programs that educate about TB and identify infected subjects who would benefit from preventive therapy. (9)

A qualitative study conducted in North Carolina (N=52) to capture and describe knowledge, attitudes, and beliefs about TB among high risk groups for TB infection (Immigrants, Homeless and Person attending alcohol/drug rehabilitation centre) found that all participants (N=52) generally understood that TB is an infectious disease that frequently affects the lungs and can be fatal if untreated. They also knew that a skin test can be used to diagnose TB. However, participants frequently had incorrect beliefs regarding the cause, transmission, and treatment of TB. Many participants thought that TB is transmitted in the same fashion as other infectious diseases such as HIV/AIDS. A general sentiment of fear and aversion toward persons ill with TB was expressed. (15)

A study in Estonia among 407 people with 79% male found that 93% of participants recognized correctly that TB is air-borne infection and 91% that HIV is a risk factor for TB. Only 40% of the participants knew that TB diagnostics and treatment in Estonia are free of charge for everybody whereas this study found that 75% (N=47) knew about the provision of free TB drugs to patients. Among total 407 subjects, 58% reported they knew where to get health care services in case they suspected that they had TB. TB transmission and treatment adherence knowledge was better among those in contact with either health care or harm reduction services. (16)

Drug use is a very serious problem for the society with negative health consequences, individual suffering and economic losses as well as creating a serious threat to the peace and stability of the society. (11) TB is a major public health problem of the country affecting the young and productive age group (15-54 years) of people. (12) The combination of drug use and TB poses a serious threat for the development of the society and this combination can have adverse health effect to the individual and the people around him or her including the surrounding. (13) The available literatures show that Drug users are at high risk of TB but their level of knowledge is low.

## Conclusions

It was seen that males are mostly involved in drug use. Out of the 63 subjects, 45 were male and 18 female, which showed that male population is engaged more in drug use. The youth groups are the most vulnerable group for drug use and the study revealed that majority of the drug users (42%) were between the age group of 25-29 years. People of all socio-economic status and education level can be involved in drug use. People become involved in

use of drug, alcohol and smoking if there is similar family history. The people try to imitate their seniors or elders by doing the same. Print media was the major source of information of TB among drug users.

Drug users are aware only about few aspects of TB like TB as a communicable and curable disease, sign and symptoms of TB, preventive measures but they have less knowledge and lower level of awareness regarding the causes of TB, duration of TB treatment, TB medications, proper diagnosis and transmission of TB. The overall level of knowledge regarding TB among drug users was found to be low. Drug users are a vulnerable group for TB. Their needs of TB related education and information is different from other general people.

Since drug users are at high risk for TB, it is necessary to provide them with TB related information and education so that TB can be prevented that will reduce the burden of TB in drug users.

### Recommendations for Service Providers

The youth populations are the vulnerable group for drug use and hence they should be informed and educated regarding harmful effects of drug use. Drug awareness programs should focus on the youth population. Likewise, there is a need to identify the proper methods and media to provide basic TB related information. There should be maximum use of print media to disseminate information regarding TB and other health related issues including HIV, Hepatitis, and STIs. There is a need to utilize such effective methods and media to disseminate health related information to the general public by the concerned authorities. The concerned and relevant authorities should focus TB related information and education programs especially for drug users in coordination with drug service providers, whereas drug service providers also need to focus on delivering TB related information among drug users.

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