

# High-Risk Sexual Behaviors Among Transgender Individuals in Tehran, Iran

Amir Hossein Jalali Nadoushan<sup>1</sup>, Alaleh Bahramian<sup>1</sup>, Mojgan Taban<sup>2</sup>, Kaveh Alavi<sup>1</sup>, Hamid Sharifi<sup>3</sup>, Mostafa Shokoohi<sup>4</sup>,  
Mehrdad Eftekhari Ardebili<sup>1</sup>

<sup>1</sup> Department of Psychiatry, Mental Health Research Center, Iran University of Medical Sciences, Tehran, Iran

<sup>2</sup> Tehran Psychiatry Institute, Iran University of Medical Sciences, Tehran, Iran

<sup>3</sup> HIV/STI Surveillance Research Center, and WHO Collaborating Centre for HIV Surveillance, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

<sup>4</sup> Division of Social and Behavioral Health Science, Dalla Lana School of Public Health, University of Toronto, Toronto, ON, Canada

Received: 04 Aug. 2020; Accepted: 21 Feb. 2021

**Abstract**- Global evidence indicates that transgender people are disproportionately at risk for HIV infection. However, limited data are available characterizing sexual behaviors and HIV infection among transgender people in Iran. This study aims to determine the prevalence of high-risk sexual behaviors and HIV infection among transgender people in Iran. In 2009, we assessed data of 58 transgender individuals (41 female-to-male (FTM) and 17 male-to-female (MTF)). Their demographic characteristics and risky sexual behaviors, and other risky behaviors such as substance use were gathered using a structured questionnaire. Rapid tests were used to confirm HIV seropositivity. Fifty-four participants who provided blood samples, none were positive (exact 95% confidence intervals: 0.0, 0.07). 75.6% of FTM and 64.7% of MTF reported having sex in the past six months, respectively. Of the sample who reported having sex in the past six months (n=42), only 19% reported using condoms. No participants reported a history of injection. In this study of HIV infection among a small sample of transgender people in Iran, no one was HIV positive. Some reasons for these findings can be outlined as a lack of history of intravenous drug use and related behaviors, limited high-risk relationships and behaviors, and the limited number of males among the samples.

© 2021 Tehran University of Medical Sciences. All rights reserved.

*Acta Med Iran* 2021;59(2):113-117.

**Keywords:** Human immunodeficiency viruses (HIV); Transgender; Risky behaviors; Iran; Acquired immunodeficiency syndrome (AIDS)

## Introduction

The term gender identity disorder (GID) refers to people with a marked incongruence between their experienced or expressed gender, and the one they were assigned at birth, this condition named Gender Dysphoria in Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (1). In a systematic review prevalence of GID were reported as 9.2 per 100,000 population (95% CI=4.9-13.6) for surgical or hormonal gender affirmation therapy and 6.8 (95% CI=4.6-9.1) for transgender-related diagnoses (2). Prevalence for male-to-female GID is estimated to be between 5 and 14 per 1000 adult males (0.015-0.014) and 2 and 3 per 1000 adult females (0.002-0.003) for female-to-male people with GID (3). In Iran,

the total prevalence is estimated to be 1 per 141,000 population (a), and the sex ratio is nearly 1 to 1 (4).

Studies on patients with GID demonstrated their higher engagement in risky behaviors and a lack of awareness about the transmission of infection. (5,6) Therefore HIV infection among Gender Identity Disorder (GID) patients has a considerable prevalence in the entire world, and estimates varied significantly in different countries (7). A systematic review on HIV prevalence among people with GID in America estimated 27.7% male to female transgender people tested positive for HIV infection (8). In a recent systematic review of original English-language research, the prevalence of HIV in male-to-female transgender people ranged from 0-70.3% and 0-8.3% in female-to-male transgenders, respectively

**Corresponding Author:** M. Eftekhari Ardebili

Department of Psychiatry, Mental Health Research Center, Iran University of Medical Sciences, Tehran, Iran  
Tel: +98 9121597872, Fax: +441/14556, E-mail address: [eftekhariardebili.m@iums.ac.ir](mailto:eftekhariardebili.m@iums.ac.ir)

Copyright © 2021 Tehran University of Medical Sciences. Published by Tehran University of Medical Sciences

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license (<https://creativecommons.org/licenses/by-nc/4.0/>). Non-commercial uses of the work are permitted, provided the original work is properly cited

(9). A study in Iran found a 1.9% prevalence of HIV among 104 transgender women (b) (10). A meta-analysis estimated HIV prevalence to be 27.3% in transgender sex workers compared with 15.1% in male sex workers and 4.5% in female sex workers, which indicates their higher vulnerability (11).

Condomless anal sex, coinfection with another sexually transmitted disease, limited awareness of HIV status are some other reasons for the higher prevalence of HIV in this group (12,13). Furthermore, stigma and discrimination may drive transgender women to engage in sex work for economic survival and gender affirmation (14,15).

To the best of our knowledge, there is not enough epidemiologic information about risky sexual behaviors and HIV prevalence in this group. Hence, this study aimed to investigate 1) risky sexual behaviors, 2) HIV infection, and 3) drug use related behaviors among a sample of transgender people in Tehran, the capital of Iran. The findings of the study would be necessary for illustrating a better picture of transgender people in Iran.

## Materials and Methods

This study was cross-sectional, and the project samples were people with GID. Since the Tehran Institute of Psychiatry is the essential counterpart of the coroner's office to diagnose and treat patients with GID, it was chosen as the research environment. The samples were selected with non-probability sampling method. During the year 2009, 58 individuals were referred to the center; 17 male-to-female and 41 female-to-male transgender people. The Inclusion Criteria were diagnosis of GID based on DSM-IV-TR criteria that are made by a psychiatrist and being able to read and talk in Persian (c) and being able to read and speak in Persian. All participants signed an informed consent form before blood sampling and fulfillment of the questionnaires.

The proposed research tool was the Family Health International survey of behavioral control system about the same-sex copulation concerning demographic characteristics, behavioral information, knowledge, and attitude. We do not report the part about behavioral information, knowledge, and attitude in this study. To investigate sexual behaviors and related information of the target group, we used a self-report questionnaire. The questionnaire consisted of 79 questions concerning demographic information and patients' sexual behaviors (their sexual history in the past six months, anal or oral sex, using condoms, and having sex with a sex worker), and other risky behaviors such as alcohol and substance

use.

The respondents were interviewed on a volunteer basis and were examined for HIV Infection diagnosis with the Rapid Test kit. To confirm the definite diagnosis, the respondents' blood samples were taken and studied at the Pastor Institute for anti-HIV antibodies using the ELISA and WESTERN BOLT methods.

Data analysis was done using SPSS version 19. In addition to descriptive analysis, to compare male-to-female and female-to-male individuals, we used chi-square and Fisher's Exact test for dichotomous data. Mann-Whitney test for ordinal variables and Student's T-test for continuous data. A *P* of less than 0.5 was set as statistically significant.

## Results

### Demographic characteristics

Fifty-eight patients with GID, including 17 male to female people with GID (29.3%) and 41 female-to-male persons with GID (70.7%) chosen as respondents. Of 54 persons who answered the age question, the mean age was 27.1(SD=7.23). The demographic characteristics of the samples are provided in Table 1.

### HIV test

Out of the 58 subjects, blood samples were taken from 54 of them as they accepted to be tested for HIV, and none of the test results were positive. (95% CI: 0.0, 0.07)

### Sexual behaviors

Having Sex, Oral Sex, anal sex, having sex with a sex worker within the last six months, and using condoms are sexual behaviors that we assessed.

Having sex in the past 6months: Among 41 FTM persons with GID, 31 (75.6%) had sex in the past six months. (One person had sex with men, seven people with women, and 21 people with both). One person did not answer the question.

Among 17 MTF persons with GID, three of them did not answer the question. Eleven (64.7%) of them had sex in the past 6months. (8 people with men and three persons with both men and women). There was no significant difference between the rates of females and males who had sex in the past six months ( $P=0.934$ ).

Oral sex in the past six months: four (6.9%) people had oral sex with another man. All of them were MTF with GID. None of them used a condom. Five (8.6%) people did not answer the question, and 49(84.5%) people did not have oral sex in this period. Oral sex in the past six months is significantly higher in male transgenders

than in women ( $P=0.005$ ).

**Table 1. Sociodemographic characteristics of transgender people in Tehran, Iran (N=58)**

Variables		Overall (N=58)	FTM (N=41)	MTF (N=17)
Age, mean [SD]		27.1 (SD=7.23)	27.4 (SD=6.99)	26.4 (SD=7.96)
Highest level of education	Less than high school	13 (22.41%)	7 (12.06%)	6 (10.34%)
	High school or more	45 (77.58%)	34 (58.62%)	11 (18.96%)
Current Marital Status	Married	2 (3.44%)	2 (3.44%)	0(0.00%)
	Single	56 (96.55%)	39 (67.24%)	17 (29.31%)

Anal sex in the past six months: 8 people (13.8%) had anal sex with another man. All of them were MTF with GID. Four people did not answer, and 46 people (79.3%) did not have anal sex in this duration. Anal sex in the past six months is significantly higher in male transgenders than female transgenders ( $P<0.001$ ).

Had sex with a sex worker in the past six months: 28 people did not answer the question. Six people choose "I do not know," and 27(46.6%) people said that they did not have sex with a sex worker during this period. Three (5.2%) people had sex with a sex worker (2 MTF with GID and 1 FTM with GID).

Condom Use: Eight people did not answer. Thirty people (51.7%) answered that they do not need a condom. (The sexual relationship between two women). From other subjects, nine people (45%) did not use a condom, and 11 people (55%) used condoms. There was no significant difference between genders, who uses condoms ( $P=0.279$ ).

#### Other risky behaviors

Use of Drugs: among the 58 respondents, only 2 mentioned the use of drugs. One case was the use of opium by a male with GID who claimed to use it at least once a day. The other case was methamphetamine use by a female GID who claimed to use it only four times. None of them had a history of using drugs via injection, had sex after using drugs to obtain drugs, or had a drug abuser as a sex partner.

Blood injection: 2 respondents (3.4%) had histories of blood injection, three people (5.2%) did not remember such a history, and five did not answer the question. The remaining 48 respondents did not have any history of blood injection. From those two with blood injection histories, one claimed that it was not between 1981 and 1991, and the other one could not remember when she/he received the injection.

Consumption of alcohol: 14 respondents (24.1%) had histories of alcohol consumption, and 4 of them (6.9%) did not mention anything about alcohol consumption. Among these 14 respondents, four were male with GID

(out of 17; 23.5%), and 10 were female with GID (out of 37; 27.0%). Consumption of alcohol between these two groups was not statistically significant in the difference (Chi-square Test;  $X^2=0.012$ ;  $P=0.912$ ).

#### Discussion

In this study, none of the 54 respondents who had given consent to be tested was HIV positive. Although the applied test had high sensitivity (98-100%) and high specificity (100%), a negative result does not mean that the subjects are undoubtedly uninfected because sometimes, there could be a delay between virus intrusion and the production of antibody. This is important because, during the six months of assessment, risky behavior that can lead to infection may be seen among the samples.

To the best of our knowledge, there are not referential statistics about the prevalence of risky behaviors in the general population of Iran. However, there are some studies about the prevalence of risky sexual behaviors in other high-risk groups. For example, in a study about the prevalence of risky sexual behaviors in men with substance use disorder, the majority (64.7%) reported at least one lifetime of sexual risky behaviors (16). In a study about patterns of sexual behaviors among prisoners in Iran, of all prisoners, 55 percent ( $n=3,027$ ) had a history of "unsafe sex in the lifetime," of whom 53.4 percent ( $n=1,549$ ) never used condoms during unsafe sex (17). Regarding HIV prevalence, the results of this study differed from the other studies that were conducted in various places around the world. In a study by Hernandez *et al.*, in India (2006), the prevalence of HIV infection among men who had sexual activities with transgender men was reported to be 14% (18). In a systematic review of 24 studies among male to female cases in the United States (2008), the prevalence of HIV was reported to be an average of 27.7% (8). Based on two studies among hijra sex workers in Pakistan, the prevalence of HIV was 6.4%-7.2% (19,20). In India (2012), HIV prevalence was reported to be 18.1 in a probability sampling study (21).

## Transgenders and risky sexual behaviors

The HIV prevalence among females with GID was comparably lower than males (8,22). Furthermore, a study by Jeffrey *et al.*, (2008) on 42 females with GID in the United States showed that none of the samples was HIV positive similar to our study (23).

According to the reports from the Centre for Disease Control (CDC) in the United States of America, the most common ways of HIV transmission are male to male sexual relation (58%), intravenous drug addiction (21%), and sexual behaviors between heterosexuals (11%) respectively (24).

According to the Centre for Disease Control of the Ministry of Health and Medical Education of Iran and the Joint United Nations Programme on HIV/AIDS, the total number of recorded HIV cases in Iran was 61000. The most common way of infection transmission has been drug injection with shared needles (25,26). However, among all the 58 subjects of this study, only 2 had histories of drug use. There was no history of using drugs by injection, engagement in sexual activities for obtaining drugs, or after using drugs or having sexual relations with a sex partner who used drugs. On the other hand, aside from some instances of unprotected sexual relations, histories of other risky behaviors that could cause infection transmission was not prevalent among the subjects. In a study carried out by Khan *et al.*, (2008) in Pakistan, 40% of the subjects had histories of forced sexual activities (27). Besides, in the systematic review performed in the US (2008), a large group of subjects tended towards risky sexual (8). Besides, a study by Pissani *et al.*, (2003) in Indonesia showed that 59.3% of the subjects claimed to have had recent unprotected sexual behaviors (28). Also, in a study by Gama *et al.*, in Portuguese, 22.2% of Male-to-female transgender sex workers had unprotected sex, 26.7% had unprotected sex with non-paying partners in the previous year (29). Therefore, the absence of a history of drug use by injection, related behaviors, and limited risky sexual relations could be the reason for the negative results for the test among the subjects in this study.

In this study, the samples were chosen from the patients who visited the Tehran Psychiatric Institute, mostly for approval of sex reassignment surgery. They may not be representative of all transgender individuals. About 75% of the subjects had a high school diploma or higher qualification, and 90% lived in permanent houses. Hence, such a population could not account for the Iranian GID population and demonstrated somehow a selection bias. Besides, stigma is an important barrier for service utility in this group (17) and can also be a reason for our finding. However, in an unpublished study on men

who had sexual relations with other men, the prevalence of HIV infection was reported to be 15% (Eftekhari *et al.*, 2007).

The main limitation of this study is the few sample size and the selection bias mentioned above. This is one of the first studies about this population and their risky behaviors.

None of the participants in this study was HIV positive. Some reasons for these findings can be outlined as a lack of history of intravenous drug use and related behaviors, limited high-risk relationships and behaviors, and the limited number of males among the samples.

More epidemiological research and health intervention are necessary for this population.

## Acknowledgments

The author acknowledges the help of Dr. Keyhan Azadmanesh for constructive criticisms of an earlier version of this paper.

## References

1. Kaplan HI, Sadock BJ, Grebb JA. Kaplan and Sadock's synopsis of psychiatry: Behavioral Sciences. Clinical Psychiatry. United States: Williams and Wilkins, 2015:468-9.
2. Collin L, Reisner SL, Tangpricha V, Goodman M. Prevalence of transgender depends on the "case" definition: a systematic review. *J Sex Med* 2016;13:613-26.
3. Zucker KJ. Epidemiology of gender dysphoria and transgender identity. *Sex Health* 2017;14:404-11.
4. Ahmadzad-Asl M, Jalali AH, Alavi K, Naserbakht M, Taban M, Mohseninia-Omrani K, et al. The Epidemiology of Transsexualism in Iran. *J Gay Lesbian Ment Health* 2010;15:83-93.
5. Baral SD, Poteat T, Strömdahl S, Wirtz AL, Guadamuz TE, Beyrer C. Worldwide burden of HIV in transgender women: a systematic review and meta-analysis. *Lancet Infect Dis* 2013;13:214-22.
6. Bauer GR, Travers R, Scanlon K, Coleman TA. High heterogeneity of HIV-related sexual risk among transgender people in Ontario, Canada: a province-wide respondent-driven sampling survey. *BMC Public Health* 2012;12:292.
7. Poteat T, Scheim A, Xavier J, Reisner S, Baral S. Global Epidemiology of HIV Infection and Related Syndemics Affecting Transgender People. *J Acquir Immune Defic Syndr* 2016;72:S210-9.
8. Herbst JH, Jacobs ED, Finlayson TJ, McKleroy VS,

- Neumann MS, Crepaz N, et al. Estimating HIV Prevalence and Risk Behaviors of Transgender Persons in the United States: A Systematic Review. *AIDS Behav* 2008;12:1-17.
9. Van Gerwen O, Muzny C, Austin E, Musgrove K, Jani A. 784 Prevalence of STIs and HIV in transgender women and men: a systematic review. *Sex Transm Infect* 2019;95:A335
  10. Moayedi-Nia S, Taheri L, Rouzbahani NH, Rasoolinejad M, Nikzad R, Ardebili ME, et al. HIV Prevalence and Sexual Behaviors Among Transgender Women in Tehran, Iran. *AIDS Behav* 2019;23:1590-3.
  11. Operario D, Soma T, Underhill K. Sex work and HIV status among transgender women: systematic review and meta-analysis. *J Acquir Immune Defic Syndr* 2008;48:97-103.
  12. Nemoto T, Bödeker B, Iwamoto M, Sakata M. Practices of receptive and insertive anal sex among transgender women in relation to partner types, sociocultural factors, and background variables. *AIDS Care* 2014;26:434-40.
  13. Reisner SL, Murchison GR. A global research synthesis of HIV and STI biobehavioural risks in female-to-male transgender adults. *Glob Public Health* 2016;11:866-87.
  14. de Lind van Wijngaarden JW, Schunter BT, Iqbal Q. Sexual abuse, social stigma and HIV vulnerability among young feminised men in Lahore and Karachi, Pakistan. *Cult Health Sex* 2013;15:73-84.
  15. Sevelius JM. Gender affirmation: A framework for conceptualizing risk behavior among transgender women of color. *Sex Roles* 2013;68:675-89.
  16. Merghati-Khoei ES, Rezaei Z, Shojaei-Zadeh D, Azadi NA, Rimaz S, Bayat A, et al. Sexual risk behaviors and condom use barriers in Iranian men with substance use disorders. *Addict Health* 2017;9:40.
  17. Grammaroudi GR, Makarem J, Alavi SS, Abbasi Z. Health related risk behaviors among high school students in Tehran, Iran. *Health Monit J Iran Inst Health Sci Res* 2010;9:13-9.
  18. Hernandez AL, Lindan CP, Mathur M, Ekstrand M, Madhivanan P, Stein ES, et al. Sexual behavior among men who have sex with women, men, and Hijras in Mumbai, India—multiple sexual risks. *AIDS Behav* 2006;10:5-16.
  19. Altaf A, Zahidie A, Agha A. Comparing risk factors of HIV among hijra sex workers in Larkana and other cities of Pakistan: an analytical cross sectional study. *BMC public health* 2012;12:279.
  20. Emmanuel F, Salim M, Akhtar N, Arshad S, Reza TE. Second-generation surveillance for HIV/AIDS in Pakistan: results from the 4th round of Integrated Behavior and Biological Survey 2011–2012. *Sex Transm Infect* 2013;89:iii23-8.
  21. Ramakrishnan L, Goswami P, Subramaniam T, Mathew S, Ramanathan S, George B, et al. Transgender in Tamil Nadu are still highly vulnerable to HIV and STIs: findings from bio-behavioral surveys. *J Int AIDS Soc* 2012;15:154-5.
  22. Clements-Nolle K, Marx R, Guzman R, Katz M. HIV prevalence, risk behaviors, health care use, and mental health status of transgender persons: implications for public health intervention. *Am J Public Health* 2001;91:915-21.
  23. Schulden JD, Song B, Barros A, Mares-DelGrasso A, Martin CW, Ramirez R, et al. Rapid HIV testing in transgender communities by community-based organizations in three cities. *Public Health Rep* 2008;123:101-14.
  24. Piot P. AIDS: from crisis management to sustained strategic response. *Lancet* 2006;368:526-30.
  25. Global AIDS Monitoring 2020, UNAIDS epidemiological estimates, 2020 UnAids. (Accessed at <https://www.unaids.org/en/regionscountries/countries/islamicropublicofiran>.)
  26. Islamic Republic of Iran AIDS Progress Report, National AIDS Committee Secretariat. Ministry of Health and Medical Education, 2015.
  27. Khan AA, Rehan N, Qayyum K, Khan A. Correlates and prevalence of HIV and sexually transmitted infections among Hijras (male transgenders) in Pakistan. *Int J STD AIDS* 2008;19:817-20.
  28. Pisani E, Girault P, Gultom M, Sukartini N, Kumalawati J, Jazan S, et al. HIV, syphilis infection, and sexual practices among transgenders, male sex workers, and other men who have sex with men in Jakarta, Indonesia. *Sex Transm Infect* 2004;80:536-40.
  29. Gama A, Martins MRO, Mendão L, Barros H, Dias S. HIV Infection, risk factors and health services use among male-to-female transgender sex workers: a cross-sectional study in Portugal. *AIDS care* 2018;30:1-8.