

Behaviors Influencing Human Immunodeficiency Virus Transmission in the Context of Positive Prevention among People Living with HIV/Acquired Immunodeficiency Syndrome in Iran: A Qualitative Study

Seyed Ramin Radfar, Abbas Sedaghat¹, Arash Tehrani Banihashemi², Mohammadmehdi Gouya¹, Richard A. Rawson

UCLA Integrated Substance Abuse Programs,
University of California, Los Angeles, USA,
¹Center for Disease Control of Iran, Ministry of
Health and Medical Education, Tehran, Iran,
²Joint United Nations Programme on HIV/AIDS,
Tehran, Iran

Correspondence to:

Dr. Seyed Ramin Radfar,
UCLA Integrated Substance Abuse
Programs, University of California,
11075 Santa Monica Blvd., Suite 200,
Los Angeles, CA 90025, USA.
E-mail: radfar@ucla.edu

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ABSTRACT

Background: Identifying factors, which influence health behaviors is critical to designing appropriate and effective preventive programs. Human immunodeficiency virus (HIV) transmission is highly related to people behaviors and understanding factors influencing healthy behaviors among Iranian people living with HIVs (PLHIVs)/acquired immunodeficiency syndrome (AIDS) is very important to tailor an effective response to HIV/AIDS epidemic.

Methods: This study was conducted as a qualitative study by methods of focus group discussion and in-depth interview in six provinces of Iran with 64 PLHIVs to determine factors influence engagement in positive prevention.

Results: Knowledge and education, feelings of responsibility and positive prevention practices were identified as the primary domains of engagement. These domains were found to be influenced by feelings of ostracism and frustration, poverty, barriers to disclosure of HIV status, access to and utilization of drug abuse treatment services and antiretroviral therapy, adherence to treatment, age, religiousness, sex work, singleness, and incarceration.

Conclusions: Designing new interventions and updating current interventions directed toward the aforementioned factors should be addressed by responsible Iranian authorities in order to have a national effective response on the HIV/AIDS epidemic.

Keywords: Acquired immunodeficiency syndrome, human immunodeficiency virus, Iran, people living with HIVs, positive prevention

INTRODUCTION

Despite valuable medical and research advances aimed at treating and preventing human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) over the course of the past 25 years, the number of people living with HIVs (PLHIVs) continues to increase.^[1] Although rates of new

cases of HIV vary from country to country, or even city to city,^[1] it is estimated that 1000 children are born to HIV positive mothers every day,^[2] a figure which could be significantly reduced by preventive measures. Community-level HIV transmission rates are contingent upon the type and frequency of high-risk behaviors within both community itself and its interconnected communities.^[3-7] These HIV-related risk-taking behaviors are highly influenced by community-specific cultural structures and processes, such as religion, media, customs and education, and it is essential to tailor prevention programs to the individual cultural needs of each community.^[8]

It is critical that the general population, particularly PLHIVs and most-at-risk populations (MARPs), understand and avoid high-risk behaviors. HIV is commonly transmitted as a result of PLHIVs being unaware of or disregarding their HIV status.^[9] Such lack of awareness can lead to unsafe sexual practices, needle sharing, and transmission from mother to child. The positive prevention strategy,^[10] a package of activities aimed at stopping or decreasing the spread of HIV, has the ability to promote safe sex, safer injection practices, and self-disclosure among PLHIVs. However, it is unclear which behavioral and cultural factors influence engagement in positive prevention strategies. This qualitative study aimed to determine which factors influence engagement in positive prevention efforts among Iranian PLHIVs.

METHODS

Study context

This qualitative study was conducted using focus group discussion (FGD) in six of the largest cities

of Iran, within varying geographical and cultural settings [Table 1]. FGDs were run in a private room in the Behavioral Counseling Center, and nobody except the research team and participants had access to the room during FGD.

Participants, eligibility, and process

In each city, participants were recruited from the Behavioral Counseling Center, which is responsible for prevention, care, treatment and support of PLHIVs under the authority of the Ministry of Health in Iran.

FGDs had been conducted by same-sex interviewer, and a gift voucher equal to 15 US\$ delivered to each participant before the starting question, refuse for participation in the FGD had no effect on the amount of incentive. Level of education among male participants were higher than female participants (average years of education: Male 7.2, female 4.1) but average of the age were lower among male participants (36 years for male vs. 44.8 for female participants).

Eligibility criteria included:

- Over 18 years of age
- Live or work in the same city as the counseling center
- Known HIV status for at least 12 months
- Ability to understand the concept of informed consent and willingness to sign the consent form.

A total of 11 FGD were conducted, with two FGD occurring in each city, except Bandar Abbas, which had only one session due to enrichment of ideas. There were 64 total participants of which 16 were females and 48 were males. The minimum number of participants in each FGD was 3 and the maximum was 7.

All the sessions were recorded with the consent of the participants, and participants were free to end participation or recording at any time,

Table 1: Detail of the cities which FGD conducted

City	Geographical position in Iran	Population of city*	No. of FGD	Dominant culture and/or language	Access to participants by
Tehran	Capital town	7,705,000	2	Farsi	Behavioral Counseling Center
Mashhad	North-East	2,400,000	2	Farsi	Behavioral Counseling Center
Esfahan	Central	1,600,000	2	Farsi	Behavioral Counseling Center
Bandar Abbas	South	367,000	2	Farsi	Behavioral Counseling Center
Kermanshah	West	785,000	2	Kurdish/Farsi	Behavioral Counseling Center
Urmia	North-west	577,000	2	Turkish	Behavioral Counseling Center

*Population number is rounded based on census results of 2006 by statistical center of Iran. FGD=Focus group discussion

but none used this option. The main researcher facilitated all the FGD except two in Urmia, which had to be conducted in the Turkish language. All the Farsi sessions were transcribed by a trained transcriptionist and re-verified with recorded voices.

FGD conducted in Turkish followed a similar process, using a research assistant whose first language was Turkish. The FGD facilitators spoke the same language as the participants. Ten of the 12 FGD were conducted in Farsi, while two FGD in Urmia were conducted in Turkish. Facilitators followed a facilitator guide which was edited after the initial FGDs.

Analysis

Analysis of the FGDs was conducted in two phases. The first phase was done after the FGD were completed. Major findings and results were extracted primarily by the main researcher. The second phase was conducted after transcription and re-reading the thematic analysis using a thematic approach. Sentences were coded manually and entered into an excel spreadsheet, and main themes were extracted.

RESULTS

Findings from each of the cities did not show major variation in participant perceptions. Study findings included the following:

- Knowledge and myths about transmission: Almost all the participants knew that HIV was transmitted through shared injection equipment and unprotected sexual intercourse, but only about half of the participants knew about mother to child transmission or transmission through blood transfusion. In some cities, even among female participants, participants believed that fetuses could not be infected although their mothers were HIV positive. Myths regarding transmission have been found to increase risk of HIV transmission.^[11,12] In most of the sessions, participants conveyed some degree of belief in myths about transmission. These included:
 - Ideas regarding different types of the virus: *Male participant, Tehran: "...[transmission] depends on the type of the virus; you can have more than 10 shared injections with the Indian type of the HIV virus and be still clean, but with an Israeli type, you will be positive even with one shared injection; that is what I heard"*
 - Denial of the existence of the virus: *Male participant, Kermanshah: "I know somebody that said HIV is a lie and there is no such virus"*

- Self-transmission: *Male participant, Urmia: "If you inject a drug and keep the syringe with yourself and after 24 h, you inject with that syringe again, you will be HIV positive"*
- Transmission through insects: *Male participant, Isfahan: "If a mosquito stays alive after biting an HIV-positive man, it can transmit the virus. I separated my bedroom from my other family members' because of that"*
- Low risk of transmission in sexual intercourse if a male does not ejaculate into his partner.
- High transmission possibility from those who were HIV-positive, even in commonplace interactions. This belief has the potential to increase stigma and discrimination: *Female participant, Kermanshah: "I do not let my kids use my mug and spoon"*
- The assumption that one experience could be applied to all future experiences: *Female participant, Bandar Abbas: "Pregnant, HIV-positive mothers don't put babies at risk, because I was HIV-positive and I had two healthy kids"*
- Under estimation of shared injection risk in actual life and withdrawal situation: *Male participant, Isfahan "I was introduced into the prison as HIV-positive to the other prisoners by the authorities. I was an injection drug user in the prison. Because the drug was expensive and some of my prison-mates did not have access to syringes, they used my used syringes and believed that they would not be infected"*
- Determining participants' perceptions of the risk of transmission from them to other persons was one of the aims of this study. This aim is important,^[13] as it can be assumed that if PLHIVs have greater awareness of HIV transmission risk factors, and it is possible that they will feel a stronger commitment to practice healthy behaviors. Findings demonstrated that the majority of participants believed that their HIV status made them very dangerous to the health of others. In addition, almost all participants expressed that they personally knew many people with similar risk-behavior histories to their own (e.g., sharing injection equipment, unsafe sexual practices) who had not attended voluntary counseling or testing, and were continually engaged in high-risk behaviors
- A third objective of this research was to obtain participants' opinions regarding the responsibilities of PLHIVs for protecting HIV-negative persons with whom they interacted. Responsibility is one of the most important aspects^[14-16] of positive prevention strategies. Almost all of the participants expressed that they found it to be their

responsibility to protect other persons from HIV. However, all of the participants expressed that they believed that only half of known PLHIVs practice safe sex and that half of PLHIVs might intentionally put others at risk of infection. This idea was prominent especially among female participants. Half of female participants in Bandar Abbas believed that their husbands had transmitted HIV to them intentionally, and had denied their HIV status and practiced unsafe sex. *Female participant, Bandar Abbas: "This center (Voluntary Counseling Center) informed my husband that is HIV-positive and that should not marry, but he married me [without telling me about his situation], and after 8 months I found out that I was positive while I was 7 months pregnant"*

- Commitment on the part of PLHIVs to protect HIV-negative persons with whom they interacted influenced participants' risk-taking behaviors and use of safe practices.^[17] FGD collected participants' opinions and beliefs concerning their commitments to avoiding behaviors, which could put their families and others at risk of contracting HIV, such as denial or lack of disclosure of HIV status to sexual partners. Findings suggest that one-quarter to one-third of participants did not feel any commitment to avoiding such behaviors, although all of them expressed their responsibility in keeping others safe.

Incarceration is known to increase exposure to risk factors for HIV.^[18-20]

Almost all of the participants believed that intentional transmission occurred in prisons.

Male participant, Urmia: "When I was in prison, a friend told me, 'When I came here I was not HIV positive, and now I try to transmit it to everybody else in each way that I can!' He persisted in this behavior until he was killed by the other prisoners"

In this study, the majority of participants believed that unintentional transmission occurred among injection drug users as a result of a combination of withdrawal symptoms, cravings and difficulty accessing clean syringes. Intentional transmission was believed to occur among sex workers, who feel that they are victims in the community.^[21-23]

Male participant, Mashad: "I experienced sex with a sex worker last year, and when I wanted to use condom, she asked me, 'Are you afraid to get HIV?' I told her that I was positive and wanted to protect her, but she answered, 'I am also HIV positive. Take it away. Let's enjoy without the condom.'"

Some research suggests that negative affect has a correlation with HIV sexual risk-taking behaviors,^[24-26] while alternative meta-analyses refute this idea.^[27] Participants in this study

noted that feelings of frustration impacted their commitment to practicing healthy behaviors.

Male participant, Isfahan: "Those (PLHIVs) who do not have enough information and knowledge think that they are done! And that because they are HIV positive, they do not have the right to live and are stuck in a dead end! So if they are dying, they should let everybody else die!"

Determining factors that have the potential to directly influence PLHIVs' engagement in positive prevention practices was one of the primary objectives of this study. Thematic analyses revealed that the majority of participants believed that the factors with the most potential to influence their HIV-related risk taking behaviors included the following:

- Stigma and discrimination, especially on the part of family members:

Male participant, Isfahan: "I decided to make my brother positive because of his very bad manner with me."

- Feeling ostracized, isolated, and frustrated
- Lack of adequate knowledge and information
- Poverty:

Female Participant, Tehran: "A man with HIV and hepatitis sold his kidney to my husband, and this was the starting point of our problems"

Male Participant, Mashad: "I have a friend who says, 'If an organization wanted me to spread the disease among the community, I would be ready to do it, because I have no money in my pockets'"

- Barriers to the disclosure of HIV status also have the potential to increase transmission rates. The majority of participants found the following to be the primary barriers to disclosure:

- Medical discrimination
- Husbands coercing their wives into lying about their HIV statuses:

Female Participant, Kermanshah: "When I had surgery, my husband did not let me tell the doctor that I was HIV positive"

- Fear of unemployment and layoff
- Access to and use of drug abuse treatment, especially methadone maintenance therapy, also assisted PLHIVs in practicing healthy behaviors
- Access to antiretroviral therapy was also believed to have had a positive effect on avoiding high-risk behaviors among PLHIVs, as it increased feelings of hope and self-efficacy
- Age and religiousness were understood to have had a reverse effect on high-risk behaviors
- Sex work and addiction were believed by participants to increase high-risk behaviors

- Most participants believed singleness to increase the number of sexual partners and thus the amount of risk-taking behavior.

CONCLUSIONS

After the analysis process, three major themes and 15 minor themes emerged [Table 2]. Based on the findings of this study, there are three domains that affect Iranian PLHIVs' risk-taking behaviors; these domains can be categorized as:

- Knowledge and attitudes of PLHIVs regarding means of transmission and methods of avoiding transmission, including myths about HIV:

Although participants were aware of their HIV status for a minimum of 12 months (as one of the eligibility criteria), nearly half of them had misconceptions about HIV and HIV transmission which could not only place them and their partners at risk, but could also create further stigma, discrimination and frustration for participants and their families

- Feelings of responsibility for personal health and the health of others:

Participants expressed positive opinions regarding their responsibility for their own health as well as the health of others, yet they believed that many other PLHIVs did not feel committed to the same responsibility. This finding is thought to have contributed

to the third domain, positive prevention practices

- Positive prevention practices include activities PLHIVs engage in to prevent the spread of HIV. Participants listed the following as factors contributing to their use of positive prevention practices:

- Stigma and discrimination, which participants found to be heightened by feeling ostracized, isolated or frustrated
- Poverty negatively impacted the ability to practice positive prevention
- Barriers to disclosure of HIV status, including:
 - Medical discrimination
 - Husbands coercing wives into denying their HIV status
 - Fear of unemployment and layoff
- Access to/utilization of drug abuse treatment services
- Access/adherence to antiretroviral therapy increased engagement in positive prevention practices
- Age; based on our findings, lower age was associated with increased risk-taking behaviors
- Religiousness had a positive effect on engagement in positive prevention practices
- Sex work, especially when accompanied by addiction, was associated with increased risk-taking behaviors
- Singleness was associated with increased risk-taking behaviors
- Incarceration was also found to impact positive prevention practices.

Table 2: Major and minor themes

Major themes	Minor themes
Knowledge and attitude	Knowledge about transmission routes
	Knowledge about non-transmission routes
Responsibility	Myths regarding non-transmission routes
	Responsibility for protection of self-health
	Responsibility for protection of other health
Positive prevention practices	Feeling ostracized, isolation and frustration by PLHIVs
	Poverty
	Barriers for disclosure
	Access/use of drug abuse treatment services
	Antiretroviral therapy access/adherence
	Age
	Religiousness
	Sex work
	Singleness
	Imprisonment

PLHIV=People living with human immunodeficiency virus

The above factors were categorized as independent and dependent variables [Table 3].

Table 3: Extracted variables (dependent and independent)

Independent variables	Dependent variables
Age	Knowledge about transmission routes
Singleness	Knowledge about non-transmission routes
	Myths regarding non-transmission routes
	Responsibility for protection of self-health
	Responsibility for protection of other health
	Experienced stigma and discrimination
	Imprisonment
	Poverty
	Barriers of disclosure
	Addiction
	Sex work
	Religiousness
	Feeling ostracized, isolation, and frustration

It is important to consider all of these factors as a related and intertwining factors in context of the community, as shown in Figure 1, there are many connections between these factors that a few of them has been highlighted, only some of these factors are in direct domain and responsibility of health system authorities but many of them are over the scope of Ministry of Health and need to be addressed by the other governmental and non-governmental organizations in the frame work of national strategic plan to have an effective response to HIV/AIDS.

Providing more support for HIV/AIDS prevention and treatment programs by special attention and coordination with parallel programs in Ministry of Health and Welfare Organization such as drug abuse treatment and prevention activities and harm reduction programs could promote positive prevention practice among Iranian PLHIVs as well as providing appropriate and timely psycho social supports from the other related sectors.

Designing similar programs for urban and rural areas can put rural area to risk of neglecting their needs in health programs, considering the lower availability to drug abuse treatment services and HIV/AIDS facilities in rural areas shows the need to establish integrated facilities for both drug and HIV in rural areas.

Use of new method of communication such as short message services (SMS) and the other aspects of E-health could be an effective and cost benefit approach for increase in PLHIVs adherence which is one of the most important domains in positive prevention.

In short time increased focus on the dependent variables, including knowledge and information, providing increased access to addiction treatment facilities (both in prisons and the community), taking appropriate steps to reduce stigma and discrimination (especially in PLHIVs' families and health care facilities), integration of religious programs into current support programs for PLHIVs, and improving access to antiretroviral therapy, could be effective for better engagement in positive prevention practices by Iranian PLHIVs.

Designing annual surveys for measuring positive prevention practice or integrating this item in bio behavioral surveys in Iran could be a useful approach for further studies in Iran.

Limitation

There were no limitations regarding this study except gathering participants for FGD.

Ethical consideration

This study had been conducted following the recommendations of international ethical guidelines

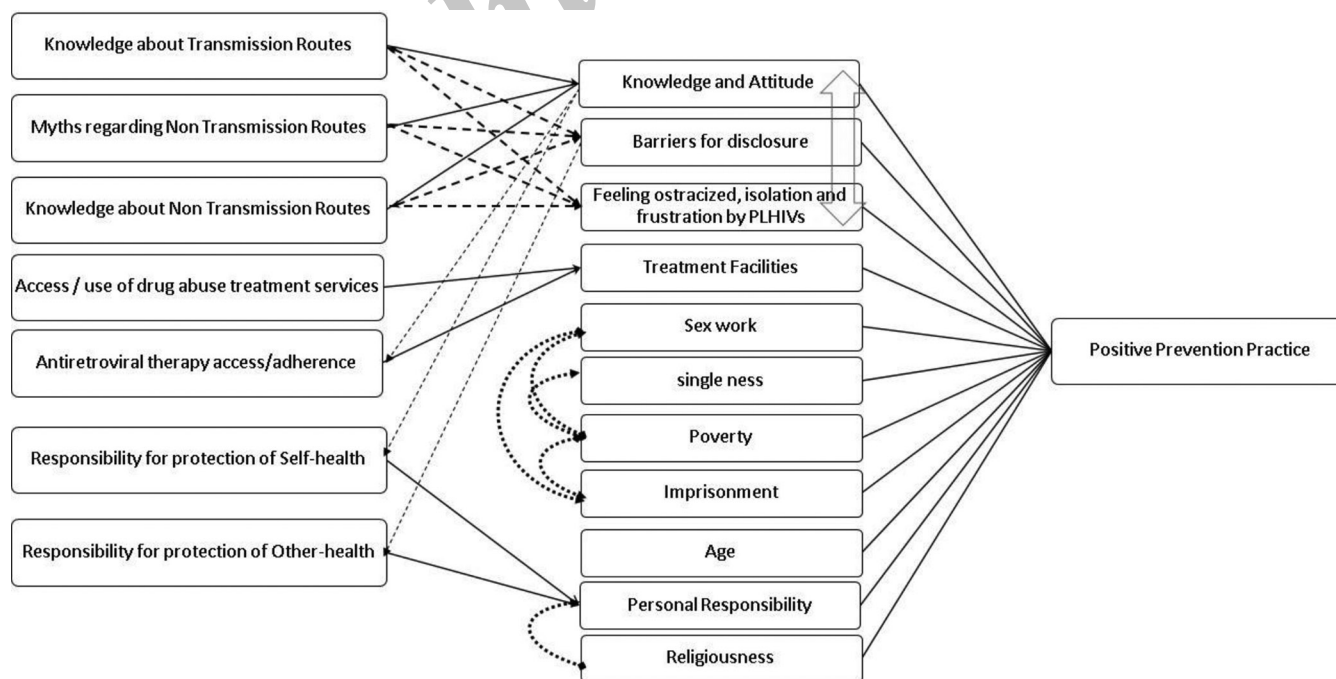


Figure 1: Relation between extracted themes

for biomedical research involving human subjects^[28] and World Medical Association Declaration of Helsinki,^[29] A jury with members from Center for Disease Control from Iranian Ministry of Health and the Joint United Nations Program on HIV/AIDS in Tehran approved the proposal.

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