

Investigating the needs and barriers for prevention, control, and treatment of HIV/AIDS in transgender population: a systematic review of literature

Heshmatollah Sofimajidpour¹, Ghobad Moradi², Hojat Dehghanbanadaki³, Marzieh Mahboobi⁴, Mobin Azami⁵, Parisa Khodakhah², Mohammad Aziz Rasouli^{2,5}, Yousef Moradi²

¹Department of Urology, Faculty of Medicine, Kurdistan University of Medical Sciences, Sanandaj, Iran

²Social Determinants of Health Research Center, Research Institute for Health Development, Kurdistan University of Medical Sciences, Sanandaj, Iran

³Students Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran

⁴Department of Epidemiology and Biostatistics, School of Public Health, Isfahan University of Medical Sciences, Isfahan, Iran

⁵Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran

Abstract

Introduction: The purpose of this systematic review was to identify the health needs related to prevention, control, and treatment of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) in transgender people from the perspective of transgender individuals and health policy-makers.

Material and methods: Original studies (case-control, cohort, cross-sectional), interventional studies, clinical trials, and qualitative studies were included in the review. All international electronic databases, such as PubMed (Medline), Scopus, Web of Sciences, Cochrane, PsycINFO, and Google Scholar (gray literature) were searched from December 1990 to December 2019. Quality of articles was assessed using STROBE (strengthening the reporting of observational studies in epidemiology), CONSORT (consolidated standards of reporting trials), and SRQR (standards for reporting qualitative research) checklists. Search strategy, data extraction, and quality evaluation of papers were performed by two researchers independently.

Results: The results showed that from the perspective of health policy-makers, the needs related to control, prevention, and treatment of HIV/AIDS in transgender population were the need for optimal access to AIDS-related services, such as easy access to diagnostic tests, and the need to increase insufficient awareness of the ways of transmission of the disease and its symptoms. From the perspective of transgender people, the need for more care and attention after surgery, such as access to appropriate therapeutic hormones and disposable syringes, were more important.

Conclusions: According to the results, health policy-makers can develop an appropriate plan for timely access to HIV/AIDS control, prevention, and treatment services for transgender individuals. The drawback of this systematic review is limited access to the full texts of some of the original articles. Moreover, many articles reported brief results only.

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Address for correspondence: Yousef Moradi, PhD of Epidemiology, Social Determinants of Health Research Center, Research Institute for Health Development, Kurdistan University of Medical Sciences, Sanandaj 1598976513, Iran, phone: +98-9183847065, fax: +98-873323000, e-mail: Yousefmoradi211@yahoo.com

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Introduction

Sexual identity is the most important aspect of identifying and valuing each person by himself and environment, which encourages people to reinforce gender-appropriate behaviors. This natural process that is successful in most cases, may take a different course, where a person has doubts about belonging to one of two sexes, or considers oneself completely belonging to the opposite sex, in which case the person is called “transgender” [1-3]. According to studies conducted in the United States, the incidence, prevalence, and burden of human immunodeficiency virus (HIV) in transgender people are higher than those in the general population. Some studies have reported the prevalence of HIV in this population to be 16-68% [3, 4]. HIV prevention in transgender people is one of the main priorities of the national HIV/acquired immunodeficiency syndrome (AIDS) strategy in most countries of the world [5]. Many of these people face stigma, discrimination, and social exclusion, which can prevent them from accessing healthcare, especially AIDS and sexually transmitted diseases (STD)-related care. Given the difficulties in providing and accessing these services, this group appears to be more at risk of HIV/AIDS than other at risk groups, such as gays, lesbians, and bisexuals [6, 7]. Therefore, providing HIV/AIDS-related services to these people is very important. Accordingly, by identifying and determining the needs related to HIV/AIDS in transgender people, it is possible to develop an appropriate plan for timely access to HIV/AIDS control, prevention, and treatment services for these individuals. The present systematic review was designed to achieve two objectives. The first goal was to determine the healthcare needs related to the control, prevention, and treatment of HIV/AIDS in transgender people from the perspective of transgender persons, experts, and health policy-makers in this field. The second goal was to identify barriers to accessing HIV/AIDS control, prevention, and treatment services for transgender people, and to determine solutions from the perspective of transgender persons, experts, and health policy-makers in this field.

Material and methods

PRISMA (preferred reporting items for systematic reviews and meta-analyses) structure and principles [8, 9] were applied to conduct this systematic review.

Search strategy

All international databases, including PubMed (Medline), Scopus, Web of Sciences, Cochrane, and PsycINFO were searched. Conference papers and related journals were also examined as examples of gray literature. Key words related to the topic were first selected to perform the search strategy. MeSH and Emtree were used to select the key words. Search strategy was developed and carried out by two authors independently (YM and MM), and disagreements were resolved by a third more experienced researcher (GM).

Screening and selection

After completing search strategy, duplicates were first evaluated. Then, the articles were screened based on the title and abstract. Finally, the remaining articles were evaluated based on their full text. Inclusion and exclusion criteria were as follow.

Inclusion criteria:

- original studies (case-control, cohort, cross-sectional), interventional studies, clinical trials, and qualitative studies;
- studies, in which statistical population included transgender people;
- studies that examined HIV/AIDS-related needs and barriers to accessing HIV/AIDS-related health services as a major outcome;
- studies published in English only.

Exclusion criteria:

- case report or case series, letter to editor, systematic review, and review article;
- studies that examined non-HIV/AIDS-related public needs as outcomes.

Data extraction

A checklist was first designed to extract data, following the opinion of experts in this field. The checklist questions included authors' names, publication year, type of study, sample size, age range, type of gender change, all kinds of risky behaviors, study purpose, study outcome, identified needs, identified barriers in accessing the needs, existing solutions, involved organizations, and comments. Data were extracted independently by two authors (YM and MM), and disagreements were resolved by a third more experienced researcher (GM).

Quality assessment

STROBE (strengthening the reporting of observational studies in epidemiology) tool was applied to evaluate the quality of case-control, cohort, and cross-sectional studies, and CONSORT (consolidated standards of reporting trials) checklist was used to evaluate the quality of clinical trials [10, 11]. Standards for reporting qualitative research (SRQR) specification was used to assess the quality of qualitative articles [12]. SRQR consists of 21 items, which provide a framework and recommendations for reporting qualitative studies. Given the wide range of qualitative approaches and methodologies, we attempted to select items with broad relevance. The quality of articles was assessed independently by two authors (YM and MM), and any disagreement was resolved by a third more experienced researcher (GM).

Ethical consideration

Intellectual property rights were considered for all the authors. All articles were reviewed in the initial screening.

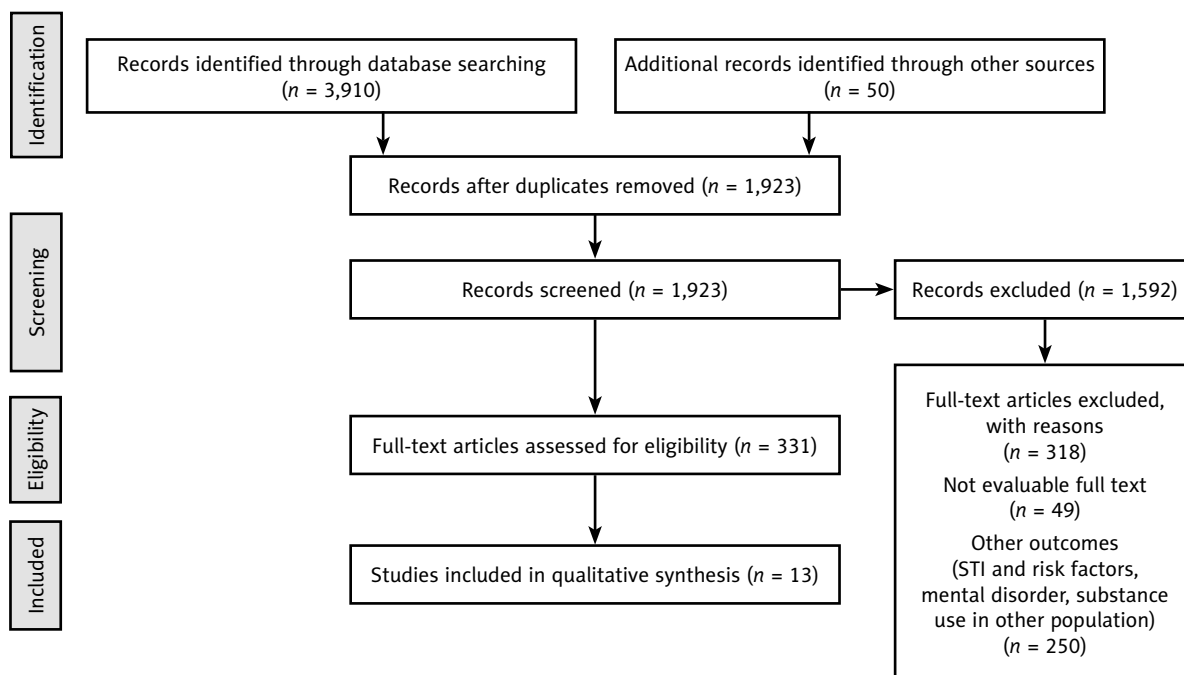


Figure 1. Search strategy and PRISMA diagram

They were not included in the study if they did not comply with inclusion criteria. This study was funded by Vice Chancellor for Research and Technology of Kurdistan University of Medical Sciences, Sanandaj, Iran (No.: IR.MUK.REC.1399.121).

Results

The initial search yielded 3,910 articles from international databases, and 50 papers from gray literature. After removing duplication and irrelevant articles based on title and abstract, 331 documents remained for full-text screening, and 13 papers met all eligibility criteria and were considered for data synthesis. Data from the 13 included articles were extracted completely according to the checklist (Figure 1).

Demographic information and high-risk behaviors in transgender people

The age range of transgender people in the studies included in this systematic review was ranging from 13 to 60 years [13-17]. Five articles examined transgender people under 30 years old, and the rest investigated transgenders over 30 years old. The prevalence of hepatitis B, C, and HIV was higher in males than females. In addition to these diseases, the incidence of high-risk behaviors, such as injecting and oral use of drugs, sex trafficking, and unprotected sex was higher in this population. On the other hand, according to the results of preliminary studies, these individuals are physically and sexually abused in society, which was men-

tioned in a number of studies as the main cause of suicidal thoughts and acts in transgender population [13, 15, 18-28] (Table 1). Most studies reported a high-rate of smoking in this group, while a limited number of articles did not confirm this rate. Results of a study comparing smoking rates in transgender people with a population-based sample of cisgender people in the US showed that prevalence of smoking in transgender people was similar to cisgenders, and that smoking was associated with demographic characteristics, such as education and income level. In this study, transgenders with higher education and better incomes were less likely to smoke cigarettes and tobacco than others.

The review of results of various studies showed that alcohol abuse, drug abuse, and unauthorized use of medicines in transgender people were higher compared with others. A cross-sectional study in Brazil found that the prevalence of alcohol, opiate painkillers, cocaine, marijuana, and methamphetamine usage in these individuals were 71.4%, 16.9%, 7.3%, 3.6%, and 3.6%, respectively. Another study on 314 transgender women in San Francisco found that 58% were using alcohol and 43% were using drugs. The most commonly used drugs in these individuals were marijuana, methamphetamine, and cocaine (Table 1).

Identified needs related to HIV/AIDS control, prevention, and treatment from the perspective of health policy-makers and health professionals

From the perspective of health professionals, practitioners, and policy-makers, the needs associated with HIV

infection in transgender people included appropriate and continuous access to diagnostic tests for HIV and other sexually transmitted infections (STIs), holding training programs, and raising awareness about transmission ways of the infection and its symptoms, control and prevention methods. Other important items are presented in Table 2.

Moreover, barriers to accessing these needs in transgender people from the perspective of health professionals included issues, such as socio-cultural barriers in the community, lower knowledge of transgender service providers about transgenders' issues, lack of access of transgender persons to physicians and transgender specialists in the field of sex change, non-provision of proper information to transgenders about service provision methods, low self-esteem of transgender people in interaction with physicians, nurses, and healthcare providers, insufficient knowledge of transgender people about HIV/AIDS, fear of disclosure of secrets and diseases, and finally, lack of a structured and regular protocol for providing services to transgender people (Table 2). Suggestions to address these needs from the perspective of experts in various studies were also examined in this systematic review and reported in Table 2.

Identified needs related to the control, prevention, and treatment of HIV/AIDS from the perspective of transgender people

From the perspective of transgender people, stigma, social and family discrimination, insufficient knowledge about HIV infection, and fear of disclosure of infection were the major obstacles to access services related to the control, prevention, and treatment of HIV/AIDS.

The majority of articles published worldwide give priority to the need for prevention-related services, including the need for education and information about HIV/AIDS as well as various transmission methods, training for proper use of medical needles, and the need to increase level of awareness in families. Lack of access to legal and healthy needles for hormone therapy and hormonal injections as well as delay in responding to their urgent needs were other barriers (Table 3).

According to transgender people, creating psychiatric counseling centers for this group by the Welfare Organization and Ministry of Health, preparing medical records for transgender individuals with a history of unprotected sex (including the duration and number of long-term and different relationships as well as high-risk behaviors in connection with AIDS) can significantly help solving the problems and obstacles, and meet the needs of these individuals (Table 3).

Discussion

The results of this study showed that the provision of AIDS-related services, proper training of service providers (physicians, nurses, etc.), the need to perform diagnostic

tests for AIDS and other STDs, the necessity to interact with physicians, nurses, staff, and mental health providers, and the need for more care and attention after surgery, such as easy access to therapeutic hormones and syringes, are the most important needs related to the control, prevention and treatment of HIV/AIDS in transgender people.

Studies have shown that the most important cause of AIDS among transgender people living in California was the use of shared needles or syringes to inject substances or therapeutic hormones [13]. In addition to using illegal shared needles for injections, this group did not have access to legal needles for intra-muscular injection of hormones, which led to the joint use of illegal needles for hormonal injections [29].

Access of these individuals to other important AIDS-related care and services can significantly prevent the incidence and transmission of HIV/AIDS. For example, easy and free access to condoms or access to them at a lowest cost and time, can significantly prevent the incidence of STDs and HIV/AIDS.

Transgender people living with HIV/AIDS avoiding entering the community and receiving services due to fear of exposing the disease, fear of stigma, and social discrimination in the community and family. Therefore, having a targeted approach that responds to the prevention-related needs of transgenders seems to be necessary to reduce HIV/AIDS infections in these people. In addition, measures to prevent and eliminate social stigma enable transgender individuals to work to meet their own needs in society [30-32]. A number of social, economic, and legal factors play a role in increasing the risk of HIV infection in transgender people, which, due to marginalization, prevent them from accessing health and other basic AIDS-related services.

The Pehchan project was carried out among transgender people in 18 Indian states, with the aim of increasing their access to health, social, and legal services. The project involved real community participation in all stages of the program, and cooperated with community-based organizations to empower transgender people. The end results of this project were to increase the capacity and ability of community-based organizations to communicate with transgender people, to support these organizations in the prevention, control, and treatment of HIV/AIDS in transgender people, and to create a supportive environment for transgenders by facilitating access to wider social, legal and health services. Launched in October 2010, the program helped 200 community-based organizations providing HIV services tailored to transgender communities. As of August 2015, the program served more than 433,000 transgender people, 60% of whom had never had access to HIV prevention services. This program was able to empower transgender people at any level by recruiting them as employees in organizations and communities to work with experts in different areas [30-32].

Providing sexual healthcare to transgender people is often inadequate in all communities. Therefore, in their national HIV/AIDS strategy, many policy-makers and service providers in many countries have failed to address the needs

Table 1. Characteristics of included studies

Author, publication, year	Type of study (sample size)	Age (sex and study population)	Behavioral factors	Objectives	Identified needs	Identified problems
Edwards <i>et al.</i> [13], 2007	Survey study (2,126)	Mean age, 34.4 years (range, 19-64) 90% transgender, 10% LGBT In this study, 52% tested positive for HIV	One of the most important high-risk behaviors in transgender people is substance use. On the other hand, the most important cause of AIDS among transgender people living in California was the use of shared needles for injection. In addition to using illegal shared needles for injections, this group did not have access to legal needles for intra-muscular injection of hormones, which led to the joint use of illegal needles for hormonal injections. The prevalence of AIDS in transgender people is 21%, but it can vary depending on the race. For example, the prevalence was 63% in Black male transgenders.	Determining demographic status of transgender people and estimating cases of AIDS and the risk of contracting the disease in these people. How to access related health services and care in this group. Level of substance abusers, the rate of using AIDS-related preventive services. In this study, the results showed that services related to the prevention and treatment of AIDS in transgender people for groups who use needles for hormone therapy are more important than transgender people who take hormone therapy orally (with an odds ratio of about 11).	Lack of access to services and lack of adequate training in this group.	Lack of access to legal and healthy needles for hormone therapy and hormonal injections. Insufficient training of transgender people on the proper use of medical needles. Non-classification of different transgender groups to prioritize them in order to receive health services related to AIDS prevention and treatment.
Bauer <i>et al.</i> [14], 2009	Mixed study (85)	Mean age, 18 years (-)	-	Identifying problems in accessing health services, caregivers, and health care providers in transgender people while considering the risk of contracting AIDS.	-	Problems identified in the qualitative and quantitative part of the study included income instability, barriers to accessing healthcare services, including physicians, etc. Insufficient dissemination of information, social barriers, low self-esteem, mental health, challenges of finding help and companionship, interaction with physicians, nurses, staff, and mental health providers. Finding detailed information and access to primary hospital, psychiatric and transfer-related care.

Table 1. Cont.

Author, publication, year	Type of study (sample size)	Age (sex and study population)	Behavioral factors	Objectives	Identified needs	Identified problems
Johnson <i>et al.</i> [15], 2010	Before-after study (51)	Mean age, 21.0 ± 2.3 years (male to female)	Risk of contracting HIV/AIDS	Design of a pre- and post-intervention study to identify and address the needs of young transgender women aged 16 to 24, concerning AIDS prevention in this group and improving life skills. The intervention in this study was 6 training sessions within 3 weeks with topics, such as: <ul style="list-style-type: none"> - pride and self-esteem of transgender people; - communication/coping skills; - general skills (i.e. access to medical care, housing, occupation); - information on HIV/ AIDS specifically for transgender women; - negotiating with a partner, including the issues related to sex work; - developing a personal risk reduction plan. 	The results of this study showed that, after the necessary training and intervention to reduce the incidence of HIV/AIDS high-risk behaviors of young transgender women, such as unprotected sex and having multiple partners, were significantly reduced. It can be concluded that the need for education and access to AIDS-related services is of great importance.	Lack of access to AIDS-related services and care. Insufficient training of this group regarding AIDS and its ways of transmission. Absence of psychological programs related to increasing self-confidence and self-esteem in this group.
Boyce <i>et al.</i> [16], 2011	Qualitative (29) Gay (16) Heterosexual (5) Transgender (5)	Mean age, 29 years (range, 18-59) (-)	Existence of unprotected sex (8 people) Gay (1) Heterosexual (3) Transgender (4)	To determine appropriate and easy solutions for accessing healthy sexual services in clinics and treatment centers for transgender and MSM populations.	The need to have special clinics to access services related to a healthy sex. The need for a safe and peaceful environment in treatment clinics away from discrimination. Access to related tests such as HIV testing.	Problems identified in connection with healthy sex services in transgender people included: - fear of announcing the need for services and identification by the community; - discrimination and fear of AIDS-related stigmas; - medical expenses; - lack of social support.

Table 1. Cont.

Author, publication, year	Type of study (sample size)	Age (sex and study population)	Behavioral factors	Objectives	Identified needs	Identified problems
Beattie <i>et al.</i> [17], 2012	Qualitative (302)	Mean age, 30.5 years (range, 18-59) (-)	High-risk behaviors associated with AIDS, such as not using condoms, high-risk and multiple sex, rape, etc. Suicide attempts after exposure to the disease due to psychological pressures from the community.	To identify individual, inter-personal and organizational challenges in access to HIV testing, identification, prevention, and treatment in LGBT people.	Raising awareness about AIDS and its transmission ways. Raising awareness about the services provided in connection with AIDS and its transmission. To address and provide solutions to reduce discrimination, and family and friends' pressures after disclosure of HIV/ AIDS.	<p>Individual challenges:</p> <ul style="list-style-type: none"> - lack of knowledge about the risks and dangers of HIV; - fear of receiving HIV-related services; - psychological problems associated with a positive HIV diagnosis. <p>Inter-personal challenges:</p> <ul style="list-style-type: none"> - fear of discrimination and rejection by family, friends, school, and workplace if the disease is diagnosed and high-risk sexual behaviors are exposed. <p>Organizational challenges:</p> <ul style="list-style-type: none"> - poor service delivery in sensitive areas; - ineffective and costly treatments; - non-acceptance of treatment; - fear of societal discrimination; - diagnosis without examination; - traveling long distances to receive services; - long waiting time to receive services; - discriminatory attitude of employees working in public health centers, especially towards those who are sex workers, are from sexual minorities and/or are HIV-positive, is the most important factor in preventing FSW and MSM-T people from accessing HIV services; - refusal of employees to provide advice and services to these people, sending them to stand in long queues to receive services, and receiving high and additional costs from these people, are other problems. <p>Another organizational challenge is non-confidentiality of secrets and information of LGBT people during counseling sessions and receiving AIDS services in hospitals.</p>

Table 1. Cont.

Author, publication, year	Type of study (sample size)	Age (sex and study population)	Behavioral factors	Objectives	Identified needs	Identified problems
Bouris et al. [21], 2013	RCT (94 of young Black men who have sex with men and transgender persons YBMSMT)	Range, 13-29 years (-)	-	<p>Project nGage</p> <p>A controlled trial that evaluated the initial effectiveness and assessment of a short intervention to promote adherence to primary HIV care in health network clinics.</p> <p>This project was done in two phases. In the first phase, the team evaluated study protocols according to instructions. In the second phase, 94 HIV-infected people aged 16 to 29 years were included in the study, and randomly divided into two groups to receive intervention. The intervention was delivered in two sessions and lasted 20 and 90 minutes, respectively. Topics mentioned included counseling in the areas of emotional support for these people, information support (counseling about the disease and care provided in related centers), practical and work support, such as providing facilities to these people, financial and employment support, and finally, social support. The first session was individual, and the second session was held in groups with individuals from different organizations that required sponsors. The second session discussed further individual care and the provision of medical services.</p>	<p>The need to reduce social stigma and discrimination.</p> <p>More support for this group.</p>	<p>Challenges identified in this study include the manner of performing intervention, systematic management of intervention for AIDS-related care in these individuals as well as the way of recruiting and employing these people.</p>

Table 1. Cont.

Author, publication, year	Type of study (sample size)	Age (sex and study population)	Behavioral factors	Objectives	Identified needs	Identified problems
Goswami et al. [22], 2013	Cross-sectional (1,218 in round 1 and 1,203 in round 2)	Range, 18 ≥ 40 years (-)	The age of first sexual intercourse in these people was under 14 for 13%, and over 14 years for the rest. 15% of the subjects included in the study were HIV-infected.	Evaluation of AIDS prevention program in MSM and TGs in India using data from a routine monitoring program. Implications of this study: - level of access to AIDS care and services; - investigating the relationship between the access to these services and condom use; - investigating the relationship between the access to these services and the occurrence of other STIs.	The results showed that the access to services can be effective in changing the behavior of these people (e.g., using more condoms). There is a need to provide services of special importance and sensitivity to this group because after providing services and access to the services, despite the behavior change, the prevalence of AIDS did not decrease.	The intervention was provided monthly for 83% of HR-MSM/TG population, and 16% of the population attended STI clinic monthly. HR-MSM/TG who had access to services significantly used condoms continuously with a typical male partner. Continued condom use with a variety of male partners in the second round survey increased significantly compared with the first round. HR-MSM/TG ratio, which tested positive for HIV-1 antibody, was similar in both stages: 15.5% in the first round versus 17.3% in the second round.
Andrasik et al. [23], 2014	Qualitative (42)	Range, 18 – 55 years (-)	Results in terms of self-identified sexual orientation showed that 76.2% were heterosexuals, 4.8% were gays or homosexuals, 11.8% bisexual, and finally, 2.4% were genderqueers.	Given the high prevalence of HIV/AIDS among transgender people, having an effective and reliable vaccine to prevent the disease in these people is very important. but before preparing the vaccine, obstacles and problems need to be addressed, which may exist after vaccinating these people, and solutions must be suggested to solve these problems. The aim of this study was to identify barriers and problems in MTF transgender people to receive the vaccine.	Preparation and delivery of HIV vaccine.	Challenges identified in this study included stigma and social discrimination, unawareness or insufficient information, deprivation from research, distrust in the scientific community, and possible side effects of the vaccine.

Table 1. Cont.

Author, publication, year	Type of study (sample size)	Age (sex and study population)	Behavioral factors	Objectives	Identified needs	Identified problems
Daniels <i>et al.</i> [24], 2017	Exploratory research (18)	Range, 20-29 years (-)	Of the total number of people included in the study, 8 were substance users, 6 were transgenders, and 12 people were MSM.	HIV care is very important in MSM and transgender people. Health-related tools and devices, such as smartphones, can be effective in supporting HIV-related self-care behaviors in these individuals. The present research was an exploratory study among people living with HIV to examine the public use and specific use of smartphones by these people. 18 subjects were included in the study.	The results of this study showed that the use of smartphones can be effective in providing care and reminders in HIV-related behaviors in these people, because most of them have full access to smartphones. Fifteen of the 18 participants in the study had access to cyberspace, such as WhatsApp, and 17 had access to Facebook. On average, over 85% of these individuals received and read HIV-related care and behavioral messages/SMS.	-
Logie <i>et al.</i> [25], 2019	Cross-sectional (51)	Mean age, 26.5 years (-)	-	Investigating measures to prevent HIV in marginalized populations and social processes that create vulnerability.	Acceptance in the community without stigma and violence. Access to proper health services.	Discrimination in receiving healthcare. Lack of resources to prevent HIV due to illegality of homosexuality. Deprivation of transgender people in family, society, education, etc. Institutionalization of stigma and violence, social and economic deprivation. Lack of access to information. All these factors have reduced the resources and services for HIV prevention.
Melendez <i>et al.</i> [26], 2006	Clinical trial (59)	(-) Male-to-female transgenders	Low self-esteem. Substance abuse.	Access to health services of HIV-positive transgender people.	Access to healthcare. Receiving medical advice.	Improper use of antiretroviral drugs.

Table 1. Cont.

Author, publication, year	Type of study (sample size)	Age (sex and study population)	Behavioral factors	Objectives	Identified needs	Identified problems
Logie <i>et al.</i> [27], 2017	Cross-sectional (51)	Mean age, 26.5 years (-)	-	To examine barriers in gender minority participation in HIV prevention programs.	-	Stigma and discrimination targeted sexual minorities and created many barriers to participation in HIV prevention programs. Mistreatment and lack of confidentiality of healthcare providers. Lack of knowledge about people's health and medical needs. Partners' inability to accompany in receiving services.
Newman <i>et al.</i> [28], 2012	Cross-sectional (260)	Mean age, 26.7 years (MSM and transgender women)	Adopting high-risk behaviors associated with HIV infection. Drug use. Use of erectile dysfunction drugs.	Identification of demographic characteristics and behavioral risk factors associated with HIV and its prevention.	-	Low education level. Discrimination and stigma by health workers. 20% of participants had been diagnosed with a STI in the past year. 50% had sex for money. Two-thirds were aware of their HIV status. 43.1% of the participants reported hostility and bad temper of health workers. 31.2% received less attention than other people.

of transgender women as a distinct population from men who have sex with men [33, 34]. According to the research, up to 39% of countries have been able to include and implement HIV/AIDS-related services in a national HIV/AIDS strategy plan for transgender people, but 69% of countries have not taken any action for transgender people in their national HIV/AIDS strategy plans [35, 36]. Other studies conducted to improve transgender people's access to HIV/AIDS prevention, control, and treatment services included a study from Brazil. It is estimated that more than 20,000 transgender people live in Brazil, more than a quarter of whom live in the capital city, Brasilia. Nearly half of transgender women in Brazil at the age of 27 report that their main source of income is selling sex, and the prevalence of HIV among these women in Brasilia is estimated to be 16.2%. In 2014, the Brazilian Ministry of Health, together with some NGOs, designed and implemented a national program to reduce the incidence of HIV among transgender people and other important populations. In this project, three comprehensive centers were established for the prevention of HIV in transgender people. Operated by transgender people, these centers provide basic HIV prevention and healthcare services tailored to the specific needs of transgender people. These include general medical and mental health services, HIV testing, and counseling as well as information on the proper and consistent use of condoms. With this national program, about a quarter of transgender population gained access to the main HIV prevention package in the first six months of 2015.

Barriers identified in accessing services related to HIV/AIDS control, prevention, and treatment in transgender people in the current systematic review were insufficient knowledge of transgender people about HIV/AIDS, ways of transmission, and fear of disease disclosure. Transgender people often live in a society where they experience social exclusion, marginalization, and much criticism from family and friends. In Latin America, between 44% and 70% of transgender women either leave home or feel the need to do so [37]. In the Philippines, parental rejection of transgender women is reported to be 40%. These deprivations and social stigmas can negatively affect the self-esteem of transgender people, and lead to depression, anxiety, substance abuse, and self-harm [38, 39]. In a national study of transgender people in the United States, 41% of respondents reported having attempted a suicide

Table 2. Needs and barriers to accessing AIDS-related health services for transgender people from the perspective of health professionals and policy-makers

Identified needs associated with AIDS	Identified barriers to accessing health services associated with AIDS	Course of action
Proper training of service providers (physicians, nurses, etc.)	Socio-cultural barriers.	Offering training courses at universities for medical students and service providers. Holding workshops and internship courses.
The need to interact with physicians, nurses, staff and mental health providers	Lack of access to physicians. Insufficient distribution of information. Social barriers. Low self-esteem. Challenges of finding help and companionship.	Conducting appropriate research, such as the PULSE project in Canada, to identify the group's problems and obtain more accurate information about this group.
The need to perform diagnostic tests for AIDS and other STDs	Lack of necessary knowledge of these people about these diseases. Fear about disclosing of the disease and insufficient knowledge about provision of services (in service providers) and reception of services (in transgender people). Lack of access to community, information, and data required to conduct appropriate research to design a basic framework for providing services related to these diseases.	Increasing the knowledge of transgender people on high-risk behaviors, and how to access services to control and prevent high-risk behaviors. Holding training courses for service providers (physicians, nurses, health and service center staff, etc.) to identify high-risk AIDS-related behaviors. Creating safe environments away from beatings and social stigmas for these people to live, relax, and even continue their education. Dedicating mobile teams and mobile clinics separate from the existing traditional centers for accessing hard-to-reach populations. Using trained peers to gain the confidence of these people. Providing harm reduction services, such as condom and lubricant distribution services along with diagnostic procedures. Providing medical services, such as hormone therapy counseling and other popular treatment measures along with diagnostic services.
The need for training related to AIDS and its transmission ways and reception of AIDS-related services	Non-classification of different transgender groups to prioritize them in order to receive health services related to AIDS prevention and treatment.	Defining a framework for providing medical, preventive, and educational services to this group in relation to AIDS and its transmission ways. Holding courses to increase the knowledge of transgender people on how to access services and how to use them, types of high-risk behaviors and how to prevent them.

because of social or family rejection. Lack of social and family support makes transgender people vulnerable to economic instability and homelessness. Many countries do not recognize the sex of transgender people, even most of them do not have an official identity card, passport and travel rights, and welfare and marriage rights. They may also have little or no access to education and employment. In the case of transgender women under prosecution, incarceration with male prisoners can expose them to rape, which underscores the importance of HIV/AIDS in these individuals. Discrimination by healthcare providers, insufficient knowledge about transgender needs, and refusal to provide services listed in

national health systems, block transgender people from receiving adequate treatment and care [40].

The results of other searches on related websites and databases, referred to as gray literature, showed that all medical and nursing personnel and medical staff should be provided with constant annual training on gender identity and the needs of transgender people in accordance with modern medical and psychological science. According to the results of this systematic review, the agencies and institutions responsible for resolving barriers to accessing healthcare and AIDS-related services in transgender people include the Ministry of Health, Welfare Organization, Medi-

Table 3. Needs and barriers to accessing AIDS-related health services for transgender people from the perspective of transgender people

Identified needs associated with AIDS	Identified barriers to accessing health services associated with AIDS	Course of action
The need for psychological and psychiatric counseling	Social stigma and discrimination. Shortage of specialists familiar with health issues of sexual minorities. Fear of disclosing illness or disorder.	Establishment of psychiatric counseling centers for this stratum by the Ministry of Health and Welfare Organization. Preparing medical records for transgender people with a history of unprotected sex, including the duration and number of long-term relationships as well as high-risk behaviors in connection with AIDS.
Basic emphasis on providing AIDS-related services	Lack of access to legal and safe needles for hormone therapy and hormonal injections. Insufficient training of transgender groups on the proper use of medical needles. Social discrimination and stigma.	Access to proper legal hormone therapy. Access to AIDS-related care and services, such as training on the proper use of needles or protected sex. Expanding the use of oral hormone therapy instead of injecting. To establish and develop policies for the proper distribution of legal and safe needles. Preparing medical records for transgender people with a history of unprotected sex, including the duration and number of long-term relationships as well as high-risk behaviors in connection with AIDS. Reduction of social discrimination and stigma. Creating a friendly environment for transgender people to receive services.
The need for increased post-operative attention	Delay in responding to emergency needs.	Easy and free access to required hormones and other medications.

cal Council, police, Judiciary, and the Ministry of Education. The government should support the establishment of NGOs, self-help groups, and counseling and caregiving clinics for transgender people as well as to ensure participation and supervision of these institutions in transgender community. The government should also support research and education to prevent and eradicate unjust gender discrimination among transgender people in educational, medical, and public spaces, and disseminate related information. Safe houses for transgender men and women in the age groups from teenagers to adults in need of support should be established with the financial aid of Ministry of Health. Judicial and police agencies should recognize and support these safe houses. The government and other organizations ought to provide the necessary support and measures to establish an emergency hotline for reporting emergencies of acute violence and abuse, homelessness, etc. for transgender people. Transgenders should be recognized in the citizenship rights and other legal documents on people's equal rights of the protection of human dignity. Broadcasting organization should make ongoing programs with the participation of transgender community to raise awareness about these people. The third sex/ other sex should be added to the websites of government and non-government agencies.

One of the strengths of this study is that it was the first systematic review that included a high level of comprehensiveness and extent. The results are also categorized from the perspective of transgender people and health policy-makers in this field. Preliminary studies reported different needs of transgender people, and this review was able to classify and prioritize all of those needs. On the other hand, the study addressed the barriers and problems of transgender people in accessing their needs along with solutions to problems.

Limitations

One of the weaknesses of this study is the limited access to full texts of some of the original articles. Moreover, many papers reported brief results only.

Conclusion and implication to practice

The results of this study showed that providing services related to the control, prevention, and treatment of HIV/AIDS, such as easy and free access to condoms and harm reduction items, workshops and training courses on how to

control, prevent, and treat HIV/AIDS in transgender people, psychological counseling courses to increase self-confidence and reduce stigma and social discrimination, proper training of service providers (physicians, nurses, etc.) on how to address and identify the needs of these people, doing diagnostic tests for AIDS and other STIs in transgender service centers, establishing special centers with appropriate space for transgender people to interact properly with doctors, nurses, staff, and mental health providers, provision of care and paying attention to these people after surgery, such as easy access to therapeutic hormones with required needles and syringes, can all significantly help control, prevent, and treat HIV/AIDS in transgender people.

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