



Journal of Fundamentals  
of Mental Health



Mashhad University  
of Medical Sciences



Psychiatry and Behavioral Sciences  
Research Center

Original Article

## Epidemiological assessment of people with gender dysphoria referred to forensic medicine in Khorasan Razavi, Iran

Seyed Arya Hedjazi<sup>1</sup>; Ali Talaei<sup>2</sup>; Nazila Badiyan Moosavi<sup>3</sup>; Akram Fotovat<sup>4</sup>;  
\*Shabnam Niroumand<sup>5</sup>

<sup>1</sup>Associate Professor of Forensic Medicine, Legal Medicine Research Center, Legal Medicine Organization, Tehran, Iran.

<sup>2</sup>Professor of Psychiatry, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>3</sup>Psychiatrist, Legal Medicine Research Center, Legal Medicine Organization, Tehran, Iran.

<sup>4</sup>Legal. Medicine Research Center, Legal Medicine Organization, Tehran, Iran.

<sup>5</sup>Assistant Professor of Community Medicine, School of Medicine, Mashhad University of Medical Science, Mashhad, Iran.

---

### Abstract

**Introduction:** Considering the increase in prevalence of gender dysphoria during the last decade and few studies in this issue in Iran, this study aimed to assess the epidemiological characteristics of transgender individuals in the northeast of Iran.

**Materials and Methods:** This study is a cross-sectional descriptive study done in Khorasan Razavi Forensic Medicine Organization in 2018-2019. All individuals referred to Forensic Medicine Organization due to gender dysphoria and applying for sex reassignment during 2013-2017 were included in the study. To complete the information, the researchers contacted people using personal information in their case files. One-hundred two cases between 2013 until 2017 were assessed in the psychiatric commission of forensic medicine organization.

**Results:** The frequency of patients with gender dysphoria has decreased from 2013 (24.8%) to 2015 (9.9%), and from this year to 2017 (29.7%) has increased. Most of the transgender individuals were 22 years old. The unemployment rate before sex reassignment surgery was 17.5% and after surgery was 23.2%. Regarding the history of psychotic disease, 20.6% of all transgender individuals had a history of suicide attempt, 15.7% self-cutting, 3.9% tattoo, and 8.8% had substance abuse. Most of the participants had diploma and associate degree (43%), and then bachelor and higher degree (37%).

**Conclusion:** The present study showed that over the five-year period of the study, the most requested sex reassignment was related to the year 2016. This may be due to increased awareness and reduced stigma of this issue in recent years.

**Keywords:** Epidemiology, Forensic medicine, Gender dysphoria.

---

*Please cite this paper as: Hedjazi SA, Talaei A, Badiyan Moosavi N, Fotovat A, Niroumand S. Epidemiological assessment of people with gender dysphoria referred to forensic medicine in Khorasan Razavi, Iran. Journal of Fundamentals of Mental Health 2021 MayJun; 23(3):219-224.*

---

---

### \*Corresponding Author:

Department of Community Medicine, School of Medicine, Mashhad University of Medical Science, Mashhad, Iran.

shabnamniroumand@yahoo.com

Received: Dec. 20, 2020

Accepted: Apr. 05, 2021

## Introduction

The term transsexualism or gender dysphoria became popular after the sex reassignment of George Jensen to Cristian Jensen in 1952. Gender identity forms a principle part of human identity and is defined as a conception that each person has as male or female. This disorder causes distress and significant disturbance in social, occupational, and other aspects of life. Also, it can predispose an individual to risky sexual behaviors. In the diagnostic class of sexual disorders, the DSM-5 uses gender dysphoria for gender identity disorder. This disorder is classified into three categories in the new edition: childhood sexual dysfunction, adolescent and adult sexual dysfunction, and another specific gender dysphoric disorder. In gender dysphoria, a person is dissatisfied with his/her assigned sex and has a strong desire to change his/her gender (1). Sex Reassignment Surgery (SRS) is an incomparable surgery in which existing internal and external genital organs are altered to those of the favorable gender. The current form of SRS as an acceptable treatment for transgenderism has been used since 1952 in the USA (2).

To date, no comprehensive epidemiological study has been conducted to accurately assess the incidence and prevalence of transgender in the world (3), even if the epidemiological studies demonstrate the exact incidence of gender dysphoria worldwide. However, cultural differences in different countries lead to various behavioral manifestations of gender dysphoria and different levels of dissatisfaction (4). Many studies in different countries such as Sweden (5), the Netherlands (6), Germany (7), Belgium (8), and Singapore (9) investigated a different aspect of gender dysphoria. Comparison between these studies is difficult, as each study has its diagnostic criteria and a unique method for collecting data and cultural diversity in different countries and even in different regions of a country. Nevertheless, studies in different countries have reported the prevalence of male-to-female transsexuals from 1: 11900 to 1: 45000 and female-to-male transsexuals from 1: 30400 to 1: 200000 (10,11). According to our literature review, the only study conducted in Iran to assess the epidemiology of gender dysphoria is the study of the Tehran Psychiatric Institute in 2010, which was conducted through cross-sectional method and based on the clients of this institute from 2002 to 2009. Considering the increase in

the prevalence of gender dysphoria during the last decade and few studies in Iran, this study aims to assess the epidemiological characteristics of gender dysphoria in the northeast of Iran.

## Material and Methods

This study is a cross-sectional descriptive study done in Khorasan Razavi Forensic Medicine Organization in 2018-2019. After coordination and licensing of Forensic Medicine Organization and also the approval of the Mashhad University of Medical Sciences Ethics Committee, the files of transsexual people in the Forensic Medicine Organization were reviewed. All individuals referred to Forensic Medicine Organization due to gender dysphoria and applying for sex reassignment between 2013 -2017 were included in the study. In order to complete the information, the researchers contacted people using personal information in their case files-102 cases between 2013 until 2017 were assessed in the psychiatry commission of forensic medicine organization. Inclusion criteria included all those referred to the forensic psychiatry department of Khorasan Razavi due to gender dysphoria and change of identity. The exclusion criteria were non-confirmation of gender dysphoria in the assessment carried out in the Commission Unit and those who did not respond to our phone calls. From an ethical point of view, we assigned the specific code to each file and completed the checklist without a name to keep the information confidential. Statistical analysis was done with SPSS 11.5. Descriptive analysis was used to describe the demographic characteristics of participants, and analytical tests were used to analyze and compare the data. Student T-test or Mann-Whitney U test were used to compare the mean of two groups after assessing the normality condition of data using the Kolmogorov-Smirnov test. In order to compare qualitative variables, Chi-square or Fisher exact test was used. In all statistics, the significant level is considered.

## Results

In this study, 102 files on gender dysphoria and gender identity disorders were reviewed. The 5-years median population of Khorasan Razavi province based on the Iran Statistical Center report was used to calculate the prevalence of gender dysphoria in this province

(Frequency: 102, Prevalence of 100,000: 0.00001). The frequency of clients with gender dysphoria has decreased from 91 (24.8%) to 93 (9.9%) and from this year to 95 (29.7%) has increased. Table 1 indicates the characteristics of clients with gender dysphoria.

As Table 1 shows, most of the transgender individuals were 22 years old. The unemployment rate before sex reassignment surgery was 17.5%, and after surgery was 23.2%. Regarding the history of the psychotic

disorder, 20.6% of all clients with gender dysphoria had a history of suicide, 15.7% self-cutting, 3.9% tattoo, and 8.8% had substance abuse. Most of the participants had a diploma and associate degree (43%) and after that bachelor's and higher degree (37%). In this study, suicide, self-cutting, and substance abuse were higher in women, but tattoos were higher in men. There was no statistically significant relationship between having an older sibling and desire for sex reassignment (Table 2).

**Table 1.** The characteristics of clients with gender dysphoria

Variables		N (%)
Sex at birth	Male	38 (36.3)
	Female	64 (63.7)
Past medical history	Medical	9 (17.3)
	Psychological	18 (32.7)
	History of suicide	21 (20.6)
Psychiatric co-morbidities	Tattoos	4 (3.9)
	Self-cutting	16 (15.7)
	Substance abuse	9 (8.8)
	Under diploma	20 (20)
Education	Diploma and associate degree	43 (43)
	Bachelor and higher	37 (37)
Marital status	Single	69 (67.6)
	Married	8 (7.8)
	Widow/divorced	4 (3.9)
Number of sisters	0	19 (18.6)
	1-2	51 (50)
	>=3	22 (21.6)
Number of brothers	0	18 (17.6)
	1-2	53(52)
	>=3	21 (20.6)
Unemployment	Before surgery	18 (17.5)
	After surgery	24 (23.2)
	Right-handed	52 (78.8%)
Dominant hand	Left-handed	13 (19.7%)
	Both handed	3 (1.5%)
	Age (Year)	25.43 ± 6.34
Min-Max	16-46	

**Table 2.** Different characteristics in two genders

Variable	Male to female (N=38)	Female to male (N=64)	P
History of suicide	6 (16.2)	15 (23.1)	0.4*
Self-cutting	4 (10.8)	12 (18.5)	0.3*
Tattoo	2 (5.4)	2 (3.1)	0.5*
Substance abuse	1 (2.7)	8 (12.3)	0.1*
Having an older sister	16 (43.2)	31 (47.7)	0.18*
Having an older brother	19 (51.4)	37 (56.9)	0.25*
Under diploma	13 (36.1%)	7 (10.9%)	
Diploma and associate degree	17 (47.2%)	26 (40.6%)	0.001*
Bachelor and higher	6 (16.7%)	31 (48.4%)	
Age (Year)	24.83±7.25	25.79±5.78	0.47**

\*P value was calculated with Chi-square test, \*\*P value was calculated with Mann-Whitney U test, normality condition of age variable was checked by Kolmogrov-Smirnov test and its P value was 0.04

## Discussion

The present study demonstrated that a total of 102 sex reassignment applications had been approved in Khorasan Razavi Forensics Medicine Organization for five years. Over the five years of the study, the most requested sex reassignment was related to the year 2016. This may be due to increased awareness and reduced stigma of this issue in recent years .

Psychiatric disorders were observed in 32.7% of participants, maybe due to psycho-biological and social factors. It indicates the need for treatment and paying more attention to this issue, although it requires further studies focusing on psychiatric disorders in these individuals. In this study, 20.6% of all transgender individuals had a history of suicide attempts, 15.7% self-cutting, 3.9% tattoo, and 8.8% substance abuse. Suicide, self-cutting, and substance abuse were more common in women, but tattoos were higher in men compared with women. Similar to our results, another study demonstrated that transgender individuals are physically healthy, but they need more careful psychiatric examination (12). Recently Zucker concluded that the prevalence of transgenderism based on self-reporting was 0.5-1.3, more than the statistics observed in this study (13). Collective information from studies done in different countries such as Spain, Italy, Belgium, Flanders, and the Netherlands reflected a similar prevalence (14-17). Another study conducted in 2013 suggested that the number of transgender individuals in Iran was 2500. Of course, these statistics are not accurate because this issue is still a stigma in Iran, so many of these people do not consult a psychiatrist, some migrate, and some remain in distress for the rest of their lives (2) other evidence demonstrated that the prevalence of gender dissatisfaction is probably higher than previously thought for the following reasons: 1) Patients with gender dysphoria are usually diagnosed when they present with complaints of other associated psychiatric disorders such as anxiety, depression, conduct disorder, substance abuse, identity disorder, borderline personality disorder, sexual dysfunction, and sexual developmental disorders (18,19), 2) Some people who wear the opposite sex and gay women may also have gender dissatisfaction, 3) In some people, the severity of gender dysphoria varies, so that sometimes it meets the criteria for clinical diagnosis and sometimes it

does not (20,21). 3) Inconsistent gender (F to M) is invisible and unrecognizable in many cultures; this is especially important in Western culture, which is the source of most studies on which current incidence and prevalence estimates are based (22,23).

On the contrary, to other studies (6,24), our results demonstrated more requests for a female to male reassignment. Cultural assessment of these issues may be helpful.

In this study, the rate of unemployment after surgery was higher than before it. In another study conducted in Iran indicated that employment conditions significantly improved after sex reassignment surgery. The authors believed that some factors played a considerable role in adopting these individuals to their new situation, such as improving the economic situation, satisfaction with interpersonal and sexual relationships, and existing familial and community support (6).

In this study, in terms of the primary gender of individuals, women had a higher frequency, and the ratio of M to F to F to M was 0.59/1. The mean age of the participants was 25.43 + 6.3 years. In another study done in Tehran in 2014, 57.5% of transgender individuals were men, and similar to our results, the mean age of the individuals was 25.3 years (25). In this study, 19.7% of the participants were right-handed, and 1.5% of them use both hands. This result runs contrary to the general population and those of McGlone et al., who reported that in transgender individuals, left-handedness was more prevalent (26). These findings need more studies on the psychobiology aspect of these individuals' lives and genetics and epigenetics of disorder. Contrary to other studies, 20.6% of transgender individuals had a history of a suicide attempts. Suicide rates in this study were below 25 percent in both men and women, while other studies reported much higher rates. In a study, the risk of suicide in individuals with gender dysphoria was reported 31-50% (27).

This study had some limitations. Requests for gender reassignment to the forensic medicine organization do not reflect the overall prevalence of gender dysphoria in society, and the actual number of these individuals is probably higher. In this study, it was not possible to investigate critical factors such as socioeconomic status due to lack of cooperation in the self-declaration of monthly income. Also, in past psychiatric history, the diagnostic classification of the disorder type was not

correctly feasible due to self-expression. It is suggested that future studies find more transgender people from different sites such as a psychiatric hospitals, psychiatrists' offices, and counseling centers. Also, it is better to investigate the socioeconomic and family status.

### References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5®). Washington, D.C.: American Psychiatric Association Publication; 2013.
2. Ghazanfari F, Khodarahimi S. [Gender dysphoria disorder: Diagnosis, theory and intervention]. *Rooyesh* 2018; 6(4): 9-28. (Persian)
3. White Hughto JM, Reisner SL. A systematic review of the effects of hormone therapy on psychological functioning and quality of life in transgender individuals. *Transgend Health* 2016; 1(1): 21-31.
4. Ruppin U, Pfäfflin F. Long-term follow-up of adults with a gender identity disorder. *Arch Sex Behav* 2015; 44(5): 1321-9.
5. Cohen-Kettenis PT, Pfäfflin F. The DSM diagnostic criteria for gender identity disorder in adolescents and adults. *Arch Sex Behav* 2010; 39(2): 499-513.
6. Alavi K, Eftekhari M, Nadoushan AHJ. Comparison of masculine and feminine gender roles in Iranian patients with a gender identity disorder. *Sex Med* 2015; 3(4): 261-8.
7. Ahmadi Jazi G, Eftekhari M, Mobasher P, Saeedi Tehrani S, Ahmadi K, Rastgouy Fahim M. Surveying the attitudes of transsexual patients referring to Tehran institute of psychiatry toward doctors' empathy, Iran, 2011-2012. *J Med Ethics Hist Med* 2015; 8: 1-6.
8. Defreyne J, Van Schuylenbergh J, Motmans J, Tilleman KL, T'Sjoen GGR. Parental desire and fertility preservation in assigned female at birth transgender people living in Belgium. *Fertil Steril* 2020; 113(1): 149-7.
9. Costa R, Dunsford M, Skagerberg E, Holt V, Carmichael P, Colizzi M. Psychological support, puberty suppression, and psychosocial functioning in adolescents with gender dysphoria. *J Sex Med* 2015; 12(11): 2206-4.
10. Tsujimura A, Kiuchi H, Soda T, Takezawa K, Fukuhara S, Takao T, et al. The pattern of sexual interest of Female-to-Male transsexual persons with gender identity disorder does not resemble that of biological men: An Eye-Tracking Study. *Sex Med* 2017; 5(3): 169-74.
11. Oda H, Kinoshita T. Efficacy of hormonal and mental treatments with MMPI in FtM individuals: cross-sectional and longitudinal studies. *BMC Psychiatry* 2017; 17(1): 256.
12. Crissman HP, Berger MB, Graham LF, Dalton VK. Transgender demographics: a household probability sample of US adults, 2014. *Am J Public Health* 2017; 107(2): 213-5.
13. Zucker KJ. Epidemiology of gender dysphoria and transgender identity. *Sex Health* 2017; 14(5): 404-11.
14. Collin L, Reisner SL, Tangpricha V, Goodman M. Prevalence of transgender depends on the "case" definition: A systematic review. *J Sex Med* 2016; 13(4): 613-26.
15. Becerra-Fernández A, Rodríguez-Molina JM, Asenjo-Araque N, Lucio-Pérez MJ, Cuchí-Alfaro M, García-Camba E, et al. Prevalence, incidence, and sex ratio of transsexualism in the autonomous region of Madrid (Spain) according to healthcare demand. *Arch Sex Behav* 2017; 46(5): 1307-12.
16. Arcelus J, Bouman WP, Van Den Noortgate W, Claes L, Witcomb G, Fernandez-Aranda F. Systematic review and meta-analysis of prevalence studies in transsexualism. *Eur Psychiatry* 2015; 30(6): 807-15.
17. Vetri M, Cataldi A, Naselli A. Epidemiological characteristics of transsexual people referred to a single-center during its first fifteen years in Catania (Italy). *Proceeding of the 21<sup>st</sup> European Congress of Endocrinology*; 2019.
18. Majumder A, Sanyal D. Outcome and preferences in female-to-male subjects with gender dysphoria: Experience from Eastern India. *Indian J Endocrinol Metab* 2016; 20(3): 308-1.
19. Aydin D, Buk LJ, Partoft S, Bonde C, Thomsen MV, Tos T. Transgender surgery in Denmark from 1994 to 2015: a 20-year follow-up study. *J Sex Med* 2016; 13(4): 720-5.
20. Dhejne C, Lichtenstein P, Boman M, Johansson AL, Långström N, Landén M. Long-term follow-up of transsexual persons undergoing sex reassignment surgery: a cohort study in Sweden. *PLoS One* 2011; 6(2): e16885.
21. Dhejne C, Öberg K, Arver S, Landén M. An analysis of all applications for sex reassignment surgery in Sweden, 1960–2010: prevalence, incidence, and regrets. *Arch Sex Behav* 2014; 43(8): 1535-5.
22. Olson J, Schrager SM, Belzer M, Simons LK, Clark LF. Baseline physiologic and psychosocial characteristics of transgender youth seeking care for gender dysphoria. *J Adolesc Health* 2015; 57(4): 374-80.
23. Castilla-Peón MF. [Medical management of transgender children and adolescents]. *Bol Med Hosp Infant Mex* 2018; 75(1): 7-14. (Spanish)

### Conclusion

The present study showed that over the five-year period of the study, the most requested sex reassignment was related to the year 2016.

This may be due to increased awareness and reduced stigma of the disorder in recent years.

24. Leinung MC, Joseph J. Changing demographics in transgender individuals seeking hormonal therapy: Are trans women more common than trans men?. *Transgend Health* 2020; 5(4): 241-5.
25. Mazaheri Meybodi A, Hajebi A, Ghanbari Jolfaei A. Psychiatric axis I comorbidities among patients with gender dysphoria. *Psychiatry J* 2014; 2014: 971814.
26. McGlone AE, Bevan TE. *The Psychobiology of transsexualism and transgenderism: A new view based on scientific evidence*. New York: Springer; 2017.
27. Lloyd A, Brenner S, Fein LA, Rosow D. Applying concurrent multidisciplinary care to gender affirmation in transgender women: A case series. *Clin Case Rep* 2020; 8(11): 2135-7.