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ORIGINAL PAPER

The Epidemiology of Gender Dysphoria in Iran: The First Nationwide Study

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Abstract
Gender dysphoria (GD) is defined as a persistent and distressful incongruence between one's gender identity and one's at-birth-assigned sex. Sex reassignment has been religiously accepted for transgender individuals in postrevolutionary Iran since 1987; however, very little is known about how many individuals seek and receive such treatment annually. This study provides the first nationwide effort to assess the prevalence of GD in Iran as a function of diagnosis. The medical records of all transgender individuals referred to the Iranian Legal Medicine Organization between March 2012 and March 2017 were reviewed. All individuals diagnosed with GD were contacted. A total of 839 medical records meeting study criteria were received and evaluated. The prevalence of transgender individuals was estimated to be 1.46 per 100,000 Iranians with a transwoman (TW)/ transman (TM) ratio of 1:2. The mean age of individuals with GD at the time of referral was 25.22 (SD = 6.25) years for TW and 25.51 (SD = 5.66) years for TM. The findings are twofold. First, gender dysphoria is less prevalent in Iran than has been reported in Western countries. Second, the sex ratio is skewed toward at-birth-assigned females, which differs from what has been reported in Western countries. These findings have been interpreted in light of Iran's legal system, which is based on Islamic penal codes. These findings are of utmost importance for both health providers and legislators, as it can illustrate a more accurate picture of the transgender population in Iran.

Keywords Gender dysphoria · Iran · Epidemiology

Introduction

Gender dysphoria (GD) refers to a distressful incongruence between one's at-birth-assigned sex and gender identity (American Psychiatric Association, 2013). Individuals with GD often seek hormonal, surgical, or other health care services to "transition" to live and be accepted as a person of the experienced gender. The extent to which individuals with GD desire to align their bodies with their gender identities varies; thus, the treatment is individualized (Coleman et al., 2012). However, not everyone who experiences a discrepancy between at-birth-assigned sex and gender identity adheres to a binary gender system. Instead, those who identify as non-binary or gender non-conforming, and who do not wish to transition from one binary to another, may desire different levels of intervention (Scandurra et al., 2019). According to the World Professional Association for Transgender Health (WPATH) Standards of Care (SOC version 7), divergence in terms of gender identity, roles, or expressions from the cultural norms prescribed for people of particular sex without accompanying distress should be considered healthy (Coleman et al., 2012).

The prevalence of GD differs based on the methodology used (Zucker, 2017; Zucker et al., 2016). A meta-analysis on the global prevalence of GD in adults, focusing on clinic referrals, suggested a prevalence of 4.6:100 000; 6.8:100,000 for transgender women (TW) and 2.6:100,000 for transgender men

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(TM) (Arcelus et al., 2015). However, population-based studies suggest a higher prevalence of GD. For example, one study estimated that the current transgender population within the USA is 390 per 100 000 adults, or almost 1 million adults nationally (Meerwijk & Sevelius, 2017), and another study found prevalence of transgender individuals as high as 0.6% in TW and 0.2% in TM within the Dutch population (Kuyper & Wijsen, 2014). Most of published studies about the prevalence of GD have been conducted within Western countries (Arcelus et al., 2015).

One critical aspect of the epidemiology of GD is the sex ratio. Most clinic-based studies demonstrate that the prevalence of adult TW (at-birth-assigned males) is consistently higher than the prevalence of adult TM (at-birth-assigned females) (Zucker, 2017). However, in the case of adolescents and children, growing evidence demonstrates a shift in the sex ratio, from favoring birth-assigned males to favoring birth-assigned females (Aitken et al., 2015). Aitken et al., for example, reported that in at least two gender identity clinics (Toronto and Amsterdam), and in the same periods, the TW/ TM ratios changed from 2.11:1 to 1:1.76 and from 2.21:1 to 1:1.72. Moreover, the sex ratio becomes even more skewed toward at-birth-assigned females when those who identify as transgender, genderqueer, or any other alternative gender identity labels are considered (Zucker, 2019; Zucker et al., 2016).

In Iran, sex reassignment surgery (also called "gender affirming surgery") became religiously accepted in 1987. Although many news outlets and media reports have focused on transgenderism in Iran (Bagri, 2017; Hamedani, 2014), few scientific studies have investigated the demographic, psychological, or mental health characteristics of transgender Iranians. For instance, only one epidemiological study has estimated the prevalence of GD in Iran by reviewing all psychiatric records of subjects referred to the Tehran Psychiatric Institute from April 2002 to March 2009 (Ahmadzad-Asl et al., 2010). In this study, the prevalence of transgender Iranians, calculated by comparing the number of identified individuals to the total population between the ages of 15 and 44, was estimated to be 1:140,000 with rates of 1:145,000 for TW and 1:136,000 for TM. More recent reports, although unofficial, estimate rates between 1:50,000 (Fattahi & Karimi, 2018) and 1:150,000 (Khabaronline, 2014). The more recent estimates may be more realistic, as they are based on population samples (Kuyper & Wijsen, 2014; Meerwijk & Sevelius, 2017).

A critical issue to consider regarding the only previous epidemiological study on Iranians with GD is that not all individuals with GD are referred to Tehran gender clinics for receiving treatment. Iran is a vast country consisting of 31 provinces, and legal and medical issues on GD can be addressed within any of them. However, before 2010, there was no unified nationwide protocol for GD diagnosis and treatment. In 2010, a diagnostic protocol was designed by Iran Legal Medicine Organization (LMO, http://en.lmo.ir/index.php), and all clinics were obliged to follow it (Sanaei Zadeh, 2002). Any Iranian individual with GD in any region of Iran must go through this procedure before becoming eligible for receiving the treatment.

Legal Medicine Organization Protocol for Transgender Individuals in Iran

Figure 1 illustrates all the necessary steps that an individual must take to get permission for sex reassignment treatment in Iran, per the diagnostic protocol of the Iranian Legal Medicine Organization (http://en.lmo.ir/index.php). As an initial matter, individuals with no disorders in sex development (DSD) may seek permission for sex reassignment treatments only when they are 18 years old or older.[1] According to the LMO protocol, any such individual who feels gender dysphoric must be assessed by a psychiatrist or clinical psychologist. The psychiatrist or clinical psychologist then refers the patient to the family court of law, the legal authority responsible for permitting sex reassignment. Based on the psychological assessment, the judge at the family court of law will refer the individual to the LMO for further and more detailed evaluations.

The LMO is an official body of the judiciary system and has at least one medico-legal center in every province of Iran (Sanaei Zadeh, 2002). At the LMO, a set of psychiatric and endocrinological assessments are conducted according to the guidelines proposed by WPATH in Standard of Care, version 7 (Coleman et al., 2012). A committee at the LMO consisting of clinical psychologists, psychiatrists, and social workers will review these assessments, which are based on the diagnostic criteria of gender identity disorder based on the DSM-IV-TR and GD based on the DSM-5 (American Psychiatric Association, 2013). If these assessments indicate the possibility of GD, the individual must attend individual and group psychotherapy sessions for at least 6 months, during which time the individual is permitted to cross-dress, notwithstanding the strict dress codes that are imposed by the Islamic penal code. After this 6-month period, a report of psychotherapy sessions will be provided to the same committee at LMO. The committee will interview the individual and their family members for a second time, and a decision is made either approving the individual's GD diagnosis, denying the individual's GD diagnosis, or extending the individual's psychotherapy period. In the case of the first scenario, an official report will be issued from the LMO to the judge at the family court of law, stating that the individual is gender dysphoric and as such, will benefit from sex reassignment treatment. Based on the LMO report, the judge issues the legal permission for sex reassignment treatment, which is necessary for receiving any kind of treatment, i.e., medical or surgical intervention (Fig. 1).

In addition, after receiving medical and surgical interventions, the individual must change their identity documents. In

[1] Sex reassignment among those below 18 years of age is also possible but only with parental approvement and consent.

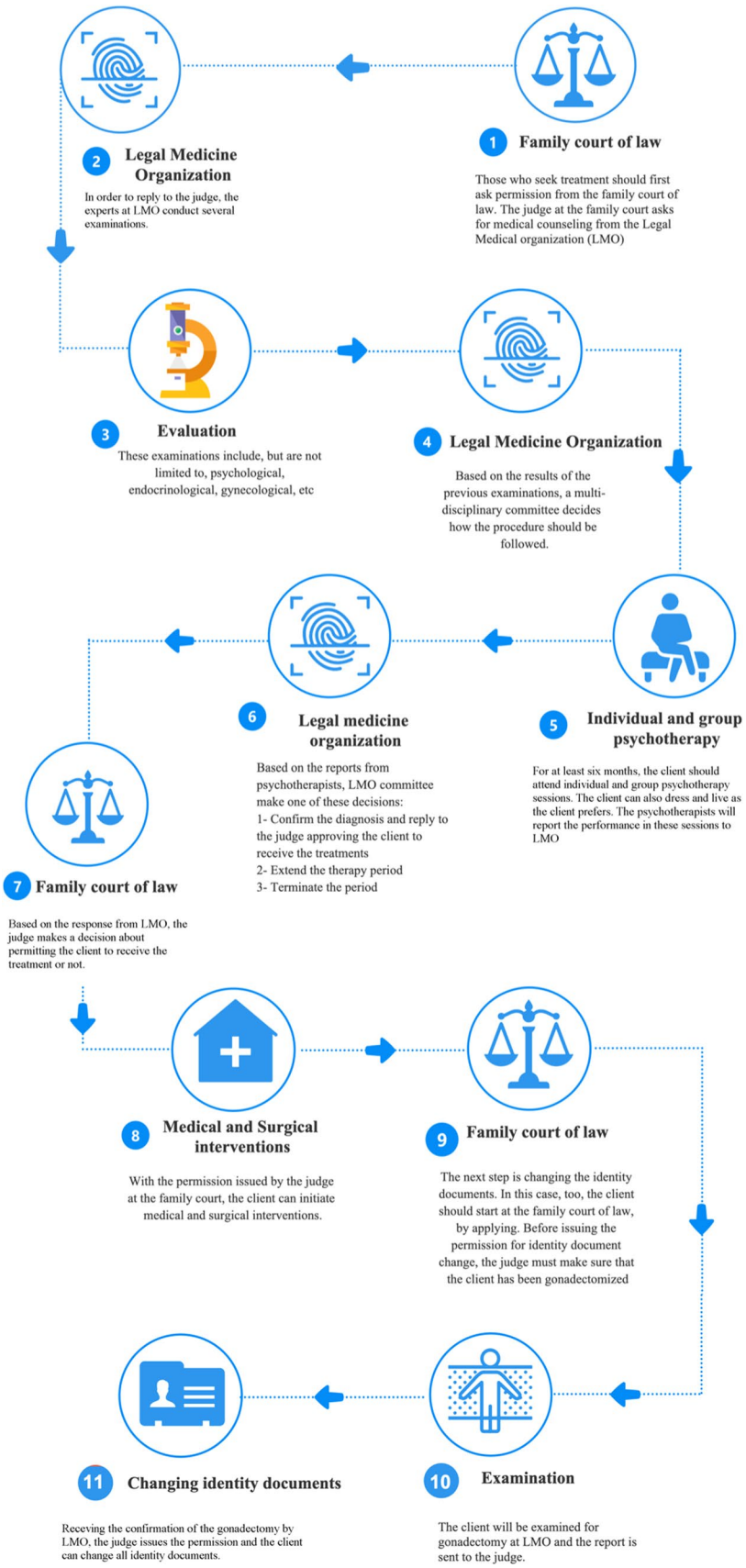

Fig. 1 Steps in the legal process for receiving the sex reassignment treatment and changing the identity documents (extracted from Saberi [2016])

order to do so, another request should be submitted to the family court of law. The judge asks the LMO to confirm the removal of the gonads (which is the only prerequisite for identity document change), and after their confirmation, the legal permission for changing the identity documents is issued (Fig. 1). As an aside, it is crucial to emphasize that since Iran's current regulations are not individualized, people with non-binary GD cannot be permitted to receive any treatment other than full transition or change their identity documents.

Transgender Studies Center

At Mashhad city, the Transgender Studies Center (TSC) was founded in 2014 as part of the Psychiatry and Behavioral Sciences Research Centre at Mashhad University of Medical Sciences (MUMS), to further help clients with GD. TSC is consisted of senior experts of MUMS with various backgrounds from adult and pediatric psychiatry, clinical psychology, gynecology, adult and pediatric urology, adult and pediatric endocrinology and social workers. TSC has been founded to supervise on the diagnostic procedure and facilitate mental and physical health services has been founded to supervise on the diagnostic procedure and facilitate mental and physical health services; provide psychoeducation for individuals and their families; increase transgender awareness among mental health providers through workshops, conferences, etc.; provide advocacy and trans-right activism; and conduct research. TSC helps individuals with GD at various points during their transition.

This study aims to provide the first nationwide epidemiologic estimate of the prevalence of gender dysphoria in Iran using medical records of all clients who have been referred to LMO between 2011 and 2016. This study is of utmost importance for both health providers and legislators as it can illustrate a more accurate picture of the transgender population in Iran.

Method

Subjects

All LMO centers in all of Iran's provinces were contacted and requested to provide the medical records of all individuals with GD who had been assessed according to the diagnostic criteria of gender identity disorder based on the DSM-IV-TR (First et al., 2004) and gender dysphoria based on the DSM-5; had been found eligible for receiving the gender-affirmative treatment; and had a final decision about their case made by the LMO between March 2012 and March 2017. All Iranians who want to change their at-birth-assigned sex, including those with DSD, are required to go through the same procedure at the LMO centers (Saberi, 2016). The records were reviewed so that cases where individuals had a DSD history could be excluded. Based on the contact details in the obtained records, all individuals were contacted via phone, and after obtaining informed consent, they were asked about their current situation in terms of their stage of legal transition.

Statistical Analysis

Continuous variables were presented as mean and standard deviation, and categorical variables were presented in number and percentage. Independent-samples *t*-test was used to compare age between TM and TW groups. The significance level was established at 0.05 level. The prevalence of GD was calculated as the total number of individuals diagnosed with GD between March 2012 to March 2017, as reported by LMO centers, divided by the official Iranian population older than 18 years old at 2017, as retrieved from the Statistical Centre of Iran (https://www.amar.org.ir/english). Data were analyzed using SPSS version 11.5 Chicago software.

Results

LMO centers in all 31 provinces in Iran responded to our inquiry. An initial number of 880 records was received, among which 33 had a DSD history, and 8 had received their final decision before March of 2012 or after March of 2017. A total number of 839 individuals with GD entered the study. Of this population, 32.3% ($n=271$) were TW, and 67.7% ($n=568$) were TM. Table 1 provides detailed characteristics of the studied population.

According to the 2017 statistical report (Statistical Center of Iran, 2017), the population of people over 18 years old in Iran was 57 474 027, consisting of 28 980 697 males and 28 493 330 females indicating a GD prevalence of 1.46 per 100 000 Iranians, with TW having a prevalence of 0.94 per 100 000 Iranians and TM having a prevalence of 2.00 per 100 000 Iranians in this 5-year period. The average age at the first official visit to LMO was 25.22 years (SD = 6.25; range 18–52 years) in TW, which was similar to that of the TM (25.51; SD = 5.66; range 18–55 years) ($p>0.05$). The prevalence of GD in each age group and for TM and TW is shown in Fig. 2.

Of all 31 provinces in Iran, 25 reported having at least one case of GD in this period. Figure 3 shows the geographical distribution of GD prevalence. Nearly one-third (32.4%) of the records came from Tehran, the capital of Iran; 13% from Great Khorasan (a region that includes North Khorasan, Razavi Khorasan, and South Khorasan provinces); 12.2% from Fars, a province located in southwest Iran; and 8.6% from Isfahan, a province located in central Iran.

Out of 839 individuals with GD, 420 responded. Of these 420 individuals, 120 were TW, and 300 were TM. A total number of 373 transgender individuals ($n=101$ TW and $n=272$ TM) had undergone gender-affirmative surgeries and changed their identity documents. Of the remaining individuals, 31 ($n=13$ TW, $n=18$ TM) had received permission from the family law

Table 1 Characteristics of studied population

	Transwomen $N=271$						Transmen $N=568$						p value
Age at first official visit at LMO	Mean: 25.22 SD: 6.25 Range: 18–52						Mean: 25.51 SD: 5.66 Range: 18–55						NS
Transition time (year)	$N=103$ < .5	.5 to 1	1 to 2	to 3	> 3		$N=272$ < .5	.5 to 1	1 to 2	to 3	> 3		NS
	12.6%	22.3%	37.9%	18.4%	8.7%		9.6%	25%	32.7%	16.2%	16.5%		
Years of Education	$N=266$ Mean: 12.63 SD: 3.27						$N=555$ Mean: 13.794 SD: 2.56						< 0.0001
Transition	$N=123$						$N=300$						
	Completed	Waiting for court permission	Waiting for identity documents change	Did not continue the process	Did not receive the court permission		Completed	Waiting for court permission	Waiting for identity documents change	Did not continue the process	Did not receive the court permission		NS
	83.7%	10.6%	0.8%	3.3%	1.6%		90.7%	6%	0.3%	0.7%	2.3%		

TW, transwomen; *TM*, transmen; *LMO*, Legal Medicine Organization

court but had not undergone surgery yet; two ($n=1$ TW, $n=1$ TM) had undergone surgery but had not changed their identity documents; six ($n=4$ TW, $n=2$ TM) did not apply for permission from the family court; and the judge did not issue eight individuals ($n=1$ TW, $n=7$ TM) permission at the family court (despite the medical confirmation at LMO). From the first visit at LMO to the change of all identity documents, the length of the transition process was also sought among the 373 individuals who had completed the whole process. In most cases, the transition process lasted between one to two years ($n=128$), 6 months to 1 year ($n=91$), two to three years ($n=63$), and more than 3 years ($n=54$). Thirty-nine transgender individuals stated that the transition process lasted less than 6 months for them ($n=12$ TW and $n=27$ TM), 19 of them (49%) belonged to the LMO center in Fars province.

Discussion

As the first study of its kind, this study reports all officially registered and confirmed requests for gender-affirmative treatment between March 2012 and March 2017 in Iran. A total number of 839 cases had been found from 25 provinces of Iran. Based on our findings, the rates for TW and TM were 0.94 per 100 000 (0.00094%) and 2.00 per 100 000 (0.002%), respectively. The transition process lasted between one to two years in most cases.

The only other epidemiological study of GD in Iran was published more than a decade and estimated that in Iran, between 2002 and 2009, the prevalence of GD was 0.07 per 100 000 individuals (Ahmadzad-Asl et al., 2010). This estimate has been increased to 1.46 per 100 000 between 2012 and 2017. Nevertheless, these rates are far lower than the global estimates of gender dysphoria prevalence, which is 4.6 in 100 000 (Arcelus et al., 2015).

Several factors may contribute to lower rates of reported GD in Iran, including limited access to care, desire for transition services that do not include full sex reassignment surgery, and stigma. Iran is a vast country with an area of 1.648 million km^2. Although there are specialized gender clinics in all of Iran's metropolises (Tehran, Mashhad, Shiraz, Esfahan, and Tabriz) and all LMO centers in all provinces provide gender identity-related services, most of the health service providers in smaller cities are not sufficiently familiar with GD. This unfamiliarity can create an unfriendly atmosphere in which transgender individuals feel uncomfortable when seeking treatment. As a result, those who live in smaller cities tend to travel long distances to receive better care, as evidenced by the uneven distribution of referrals across LMO centers. Considering the costs of traveling, not all individuals with GD can have full access to these services.

Second, based on existing regulations of LMO, only those gender dysphoric individuals who desire full sex reassignment surgeries could receive permission to change their identity documents legally. As explained above, permission to change identity

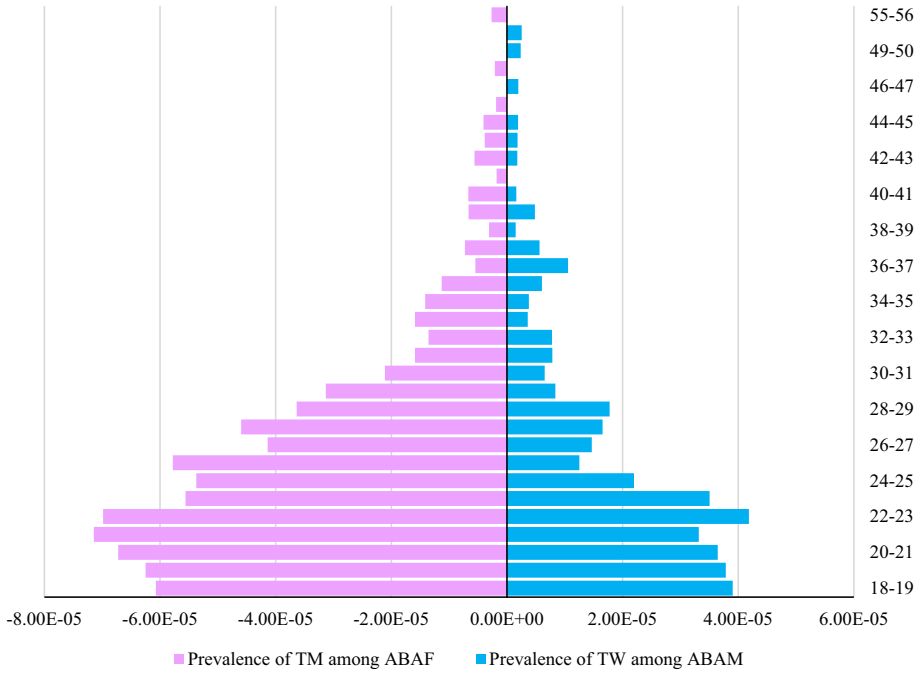

Fig. 2 The prevalence of transgender women (TW) among at-birth-assigned males (ABAM) and transgender men (TM) among at-birth-assigned females (ABAF) in each age group in Iran between 2012 and 2017

documents is issued only after gonadectomy. However, based on the WPATH Standard of Care, version no. 7, GD can exist in varying degrees, and not all transgender individuals desire the same treatment (Coleman et al., 2012). Therefore, studies that report the prevalence of GD based on referrals to gender clinics in Iran could be by default smaller than the true prevalence of GD in the Iranian population.

Third, sociocultural stigma and prejudice may prevent transgender individuals from seeking proper treatment. Although transgenderism became religiously accepted since in 1987, and there have been attempts to reduce the stigma, virtually all transgender people report experiencing varying levels of discrimination and prejudice (Valashany & Janghorbani, 2018). In addition, most young transgender individuals are financially dependent on their families; as such, they cannot afford to receive the proper treatment without their families' help, and they must live with their dysphoria.

Our study also reported the gender ratio of Iranian transgender individuals to be 1:2 (TW: TM). Although few studies have previously reported higher proportions in TM compared to TW in Japan (Baba et al., 2011), Poland (Godlewski, 1988), and Serbia (Vujovic et al., 2009), this finding sharply differs from previous studies in other regions of the world, particularly Western countries where the ratio is mostly skewed toward TW (Arcelus et al., 2015; Zucker, 2017). Several explanations have been proposed for TM-biased ratios in these countries. One explanation is the overdiagnoses of TW due to diagnostic criteria that frequently leads male transvestism to be included with GD. Another explanation is more difficult adaptation situations for TW than TM, which causes them to hide their condition (Baba et al., 2011). Less toleration for effeminate boys than masculine girls (De Cuypere et al., 2007), and small sample sizes (Godlewski, 1988) that yield biased sex ratios are among other explanations. Nevertheless, no consensus explains this difference (Vujovic et al., 2009).

The finding that sex ratio among Iranian transgender individuals is TM-skewed is at odds with previous reports that suggested homosexual men are pushed to undergo sex reassignment surgery; if it were the case, then the TW: TM must have been even more skewed to TW compared to studies in Western countries. Because in addition to those at-birth-assigned males with genuine GD, a group of at-birth-assigned males who are homosexual would have undergone sex reassignment too. Notably, according to the Islamic penal code, homosexual acts between women are not punishable by death.[2] It has also been argued that the increased ratio is due to the legal advantages that men have over women as well as the cultural patriarchy in Iran (Ahmadzad-Asl et al., 2010). While it is true that numerous instances of inequalities exist between the sexes in jurisprudence of Islamic Republic, it is highly unlikely that women undergo invasive surgeries just to benefit from those advantages. Moreover, as a social system, a patriarchy is about assigning certain roles to members of each gender and encouraging them to follow those roles. A patriarchal system praises men and women who comply with their assigned roles and condemns those who refuse to comply;

[2] According to Islamic Penal code, homosexuality in women can be punished by death too only if repeated at least three times.

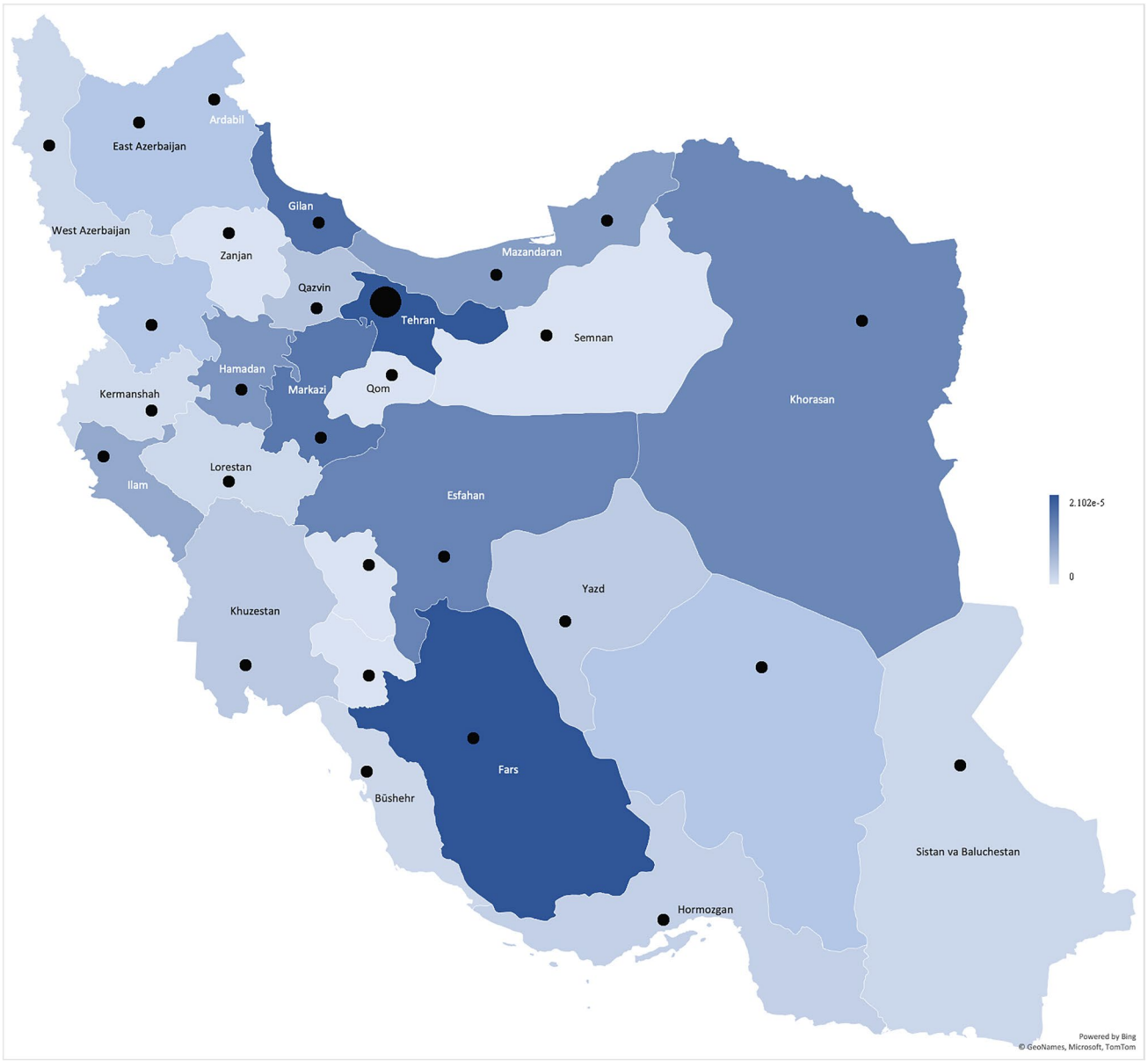

Fig. 3 The prevalence of individuals with GD in each province of Iran between 2012 and 2017. The geographical location of LMO office in each province has been marked

those who seek gender-affirmative treatments, regardless of their sex, are equally condemned under such a system.

There is growing body of evidence, however, showing a shift in the sex ratio of adolescents with GD from one favoring boys (2.11: 1, before 2006) to one favoring girls (1:1.76, 2006–13) in Canadian and Dutch samples (Aitken et al., 2015). A similar trend has been observed elsewhere (Zucker, 2017; Zucker et al., 2019). This trend is, unexpectedly, similar to what we found: While according to our study, the TW/TM ratio has been estimated as 1:2 between 2012 and 2017, this ratio was reported as 0.96:1 between 2002 and 2009, showing that compared to the prevalence of GD in at-birth-assigned males, the prevalence of GD in at-birth-assigned females has doubled. Notably, however, this shift in Western countries has been observed in adolescents, not adults. Moreover, during the past decade, the sterilization requirement has been omitted from the GD treatment protocols in most Western countries. This, in addition to the increased media representation of gender incongruence in Western media may play a role in this sex ratio shift. In Iran, Japan, and Serbia, however, gonadectomy is still a prerequisite for legal identity change (TGEU, 2019). Taking all these factors into account, it is unclear how these shifts in sex ratio of people with GD are etiologically comparable.

To explain the TM-skewed sex ratio in Iran, we propose that non-binary gender identity in at-birth-assigned females is less tolerated compared to at-birth-assigned males according to jurisprudence of Islamic Republic of Iran, leading to a higher prevalence of the former seeking sex reassignment. For example, based on the Islamic penal code, it is not a punishable offense for a man to dress like a woman (by wearing a scarf), but it is a punishable offense for woman to dress like a man (by not wearing a scarf). This asymmetrical tolerance may cause a higher rate of dysphoria among at-birth-assigned females who do not fully identify with those feminine roles encouraged and enforced by the Islamic Republic.

Conclusion

The prevalence of GD in Iranian population is increasing with more at-birth-assigned females seeking gender-affirmative treatment. The prevalence of GD in at-birth-assigned females appears to have doubled in the last decade. We believe, however, the current estimates are still far from the true prevalence of GD in Iran. Lack of proper care for all transgender people living in all regions of Iran; stigma and discrimination against them; and limited definitions of GD in the law are among the challenges in estimating the true prevalence of GD in Iran. Augmenting public knowledge on GD, psychoeducation for families, focusing on GD in the training of health services providers, and providing accessible health care in all regions of Iran are crucial in advancing the standards of transgender-related care in Iran.

Author Contributions AT and BSK participated in the concept and design, analysis, and interpretation of data, drafting and revising of the article. AH, NBM, MD, and NL participated in data collection, analysis, interpretation of data, and revising of the article. All authors approved the article as submitted.

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Declarations

Conflict of interest They have no conflicts of interests to declare.

Ethical Approval The study was conducted with the formal approval of the Ethics committee of the authors' university, and active consent was obtained from all participants before they could access the survey.

References

Ahmadzad-Asl, M., Jalali, A. H., Alavi, K., Naserbakht, M., Taban, M., Mohseninia-Omrani, K., & Eftekhar, M. (2010). The epidemiology of transsexualism in Iran. *Journal of Gay and Lesbian Mental Health*, *15*, 83–93. https://doi.org/10.1080/19359705.2011.530580

Aitken, M., Steensma, T. D., Blanchard, R., VanderLaan, D. P., Wood, H., Fuentes, A., Spegg, C., Wasserman, L., Megan Ames, C., Fitzsimmons, L., Leef, J. H., Lishak, V., Reim, E., Takagi, A., Vinik, J., Wreford, J., Cohen-Kettenis, P. T., de Vries, A. L. C., Kreukels, B. P. C., & Zucker, K. J. (2015). Evidence for an altered sex ratio in clinic-referred adolescents with gender dysphoria. *Journal of Sexual Medicine, 12*(3), 756–763. https://doi.org/10.1111/jsm.12817

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596.893619

Arcelus, J., Bouman, W. P., Van Den Noortgate, W., Claes, L., Witcomb, G., & Fernandez-Aranda, F. (2015). Systematic review and meta-analysis of prevalence studies in transsexualism. *European Psychiatry*, *30*(6), 807–815. https://doi.org/10.1016/j.eurpsy.2015.04.005

Baba, T., Endo, T., Ikeda, K., Shimizu, A., Honnma, H., Ikeda, H., Masumori, N., Ohmura, T., Kiya, T., Fujimoto, T., Koizumi, M., & Saito, T. (2011). Distinctive features of female-to-male transsexualism and prevalence of gender identity disorder in Japan. *Journal of Sexual Medicine, 8*(6), 1686–1693. https://doi.org/10.1111/j.1743-6109.2011.02252.x

Bagri, N. T. (2017). *"Everyone treated me like a saint"—In Iran, there's only one way to survive as a transgender person*. Retrieved from https://qz.com/889548/everyone-treated-me-like-a-saint-in-iran-theres-only-one-way-to-survive-as-a-transgender-person/

Coleman, E., Bockting, W., Botzer, M., Cohen-Kettenis, P., DeCuypere, G., Feldman, J., Fraser, L., Green, J., Knudson, G., Meyer, W. J., Monstrey, S., Adler, R. K., Brown, G. R., Devor, A. H., Ehrbar, R., Ettner, R., Eyler, E., Garofalo, R., ... Zucker, K. (2012). Standards of care for the health of transsexual, transgender, and gender-nonconforming people, Version 7. *International Journal of Transgenderism*, *13*, 165–232. https://doi.org/10.1080/15532739.2011.700873

De Cuypere, G., Van Hemelrijck, M., Michel, A., Carael, B., Heylens, G., Rubens, R., Hoebeke, P., & Monstrey, S. (2007). Prevalence and demography of transsexualism in Belgium. *European Psychiatry*, *22*, 137–141. https://doi.org/10.1016/j.eurpsy.2006.10.002

Fattahi, M., & Karimi, N. (2018). *Iran's transgender people face discrimination despite fatwa*. Retrieved from https://apnews.com/a66b2167bb1744e6b12ba8ff1ef97c21

First, M. B., France, A., & Pincus, H. A. (2004). *DSM-IV-TR guidebook*. American Psychiatric Publishing Inc.

Godlewski, J. (1988). Transsexualism and anatomic sex ratio reversal in Poland. *Archives of Sexual Behavior, 17*(6), 547–548. https://doi.org/10.1007/BF01542342

Hamedani, A. (2014). *The gay people pushed to change their gender*. Retrieved from https://www.bbc.com/news/magazine-29832690

Khabaronline. (2014). Iranian transgender population. Retrieved from https://www.khabaronline.ir/news/444201/ناراى-ىسنج-تىوه-لالتخا-نارامىب-تىعمج-رفن-رازه-۱۵۰

Kuyper, L., & Wijsen, C. (2014). Gender identities and gender dysphoria in the Netherlands. *Archives of Sexual Behavior, 43*(2), 377–385. https://doi.org/10.1007/s10508-013-0140-y

Meerwijk, E. L., & Sevelius, J. M. (2017). Transgender population size in the United States: A meta-regression of population-based probability samples. *American Journal of Public Health, 107*(2), e1–e8. https://doi.org/10.2105/AJPH.2016.303578

Saberi, M. (2016). *Law and medicine*. Tehran, Iran: Legal Medicine Organization Research Center. Retrieved from http://ketab.ir/bookview.aspx?bookid=2084888

Sanaei Zadeh, H. (2002). Modern forensic medicine and the medico-legal system in Iran. *Journal of Clinical Forensic Medicine, 9*(1), 12–14. https://doi.org/10.1054/jcfm.2002.0533

Scandurra, C., Mezza, F., Maldonato, N. M., Bottone, M., Bochicchio, V., Valerio, P., & Vitelli, R. (2019). Health of non-binary and

genderqueer people: A systematic review. *Frontiers in Psychology, 10*, 1453. https://doi.org/10.3389/fpsyg.2019.01453

Statistical Center of Iran. (2017). *Iran statistical year book 2016–2017*. Tehran, Iran.

TGEU. (2019). *Trans rights Europe & Central Asia Map & Index*.

Valashany, B. T., & Janghorbani, M. (2018). Quality of life of men and women with gender identity disorder. *Health and Quality of Life Outcomes, 16*(1). https://doi.org/10.1186/s12955-018-0995-7

Vujovic, S., Popovic, S., Sbutega-Milosevic, G., Djordjevic, M., & Gooren, L. (2009). Transsexualism in Serbia: A twenty-year follow-up study. *Journal of Sexual Medicine, 6*(4), 1018–1023. https://doi.org/10.1111/j.1743-6109.2008.00799.x

Zucker, K. J. (2017). Epidemiology of gender dysphoria and transgender identity. *Sexual Health*, *14*, 404–411. https://doi.org/10.1071/SH17067

Zucker, K. J. (2019). Adolescents with gender dysphoria: Reflections on some contemporary clinical and research issues. *Archives of Sexual Behavior, 48*(7), 1983–1992. https://doi.org/10.1007/s10508-019-01518-8

Zucker, K. J., VanderLaan, D. P., & Aitken, M. (2019). The contemporary sex ratio of transgender youth that favors assigned females at birth is a robust phenomenon: A response to the Letter to the Editor re: "shifts in assigned sex ratios at gender identity clinics likely reflect change in referral patterns" [Letter to the Editor]. *Journal of Sexual Medicine*, *16*, 949–950. https://doi.org/10.1016/j.jsxm.2019.03.406

Zucker, K. J., Wood, H., Wasserman, L., VanderLaan, D. P., & Aitken, M. (2016). Increasing referrals for gender dysphoria [Letter to the Editor]. *Journal of Adolescent Health*, *58*, 693–694. https://doi.org/10.1016/j.jadohealth.2016.02.015