Child and Adolescent Psychiatry and Mental Health

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Evaluation of the quality of life among transgender men before and after gender reassignment surgery: a survey from Iran

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Abstract

Background Gender dysphoria, characterized by a misalignment between one's gender identity and assigned sex, propels individuals towards medical interventions like gender reassignment surgery (GRS) to harmonize their bodies with their gender. This process aims to enhance overall quality of life (QoL), functioning, and body image. Recognizing the importance of cultivating a positive body image for transgender individuals navigating societal norms, this narrative highlights the ongoing debate surrounding QoL post-GRS. In response, our study is outlined, aiming to scrutinize QoL and self-image among transgender men post-GRS, offering valuable insights into societal perceptions and psychological well-being in this context.

Method This cross-sectional survey focused on transgender men aged 15 to 35 who underwent gender reassignment surgery (GRS) in 2018–2022 in Shiraz, Iran. Participants, after passing psychiatric evaluations, completed World Health Organization Quality of Life (WHOQOL-100) questionnaires pre- and at least one-year post-surgery. The scores of the Brief-WHOQOL questionnaire were evaluated in four domains of physical health, psychological health, social relationships, and environmental health.

Results A total of 60 individual who underwent GRS completed our questionnaire. The average age of the patients was 24.1 ± 3.8 years. Following GRS, the most increase was observed in the psychological factor (by 25.6%). The increase in score was statistically significant in all subgroups ($P < 0.001$) after operation. Urban living location had a significant association with higher increase in physical health ($P < 0.010$), psychological health ($P = 0.005$), and environmental health ($P = 0.012$) after GRS. In regards to physical health, the low socioeconomic group had a significantly less physical score improvement in QoL compared to the moderate group ($P = 0.024$) following GRS. In regards to environmental health, the high socioeconomic groups had significantly higher improvement in QoL compared to the low ($P = 0.006$) and moderate ($P < 0.001$) group after operation.

Conclusion The results demonstrate that GRS brings about improvements across all aspects of QoL. However, this enhancement is less pronounced among patients hailing from low socioeconomic backgrounds and rural areas.

Keywords Gender reassignment surgery, Gender dysphoria, Quality of life

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Background

Gender dysphoria is a is described as a persistent and distressing misalignment between gender identity and the sex assigned at birth [1]. To alleviate the physical incongruence and distress associated with gender dysphoria, there is often a strong desire for medical and surgical interventions to align the body more closely with one's experienced gender [2]. The prevalence of gender dysphoria seems to be increasing globally [3–5].

Transgender individuals often experience a sense of being trapped in the wrong gendered body and typically seek hormonal and surgical reassignment to align with their identified gender. Many desire the removal of the uterus and ovaries promptly to alleviate the stress of menstrual occurrences and reduce estrogen production, facilitating the effectiveness of exogenous androgen therapy [6].

Quality of life (QoL) is characterized as an "individuals' perceptions of their position in life concerning their goals, expectations, standards, and concerns in the context of the culture and value systems in which they live." This encompasses a broad concept influenced by factors such as physical health, psychological well-being, level of independence, social relationships, personal beliefs, and the connection to significant aspects of their environment. The intricate interplay of these elements contributes to the overall understanding of an individual's quality of life. [7–10]

Gender reassignment surgery (GRS) is widely acknowledged for enabling transgender individuals to embrace their identified gender fully, marking it as the most effective treatment option [11]. Both GRS and hormonal treatment (HT) have demonstrated enhancements in quality of life (QoL), overall functioning, and body image perception. Despite variations in hormonal treatment dosages in some studies and the absence of standardized assessments for hormonal status, positive effects have been observed. Additionally, some experts suggest that GRS and HT might contribute to a reduction in the risk of suicidal attempts among transgender individuals [11–14].

Transgender individuals should have the opportunity to cultivate a positive body image [15]. For transgender people, body image serves as a means of self-expression and enables them to navigate their transgender identity in a world that often perceives gender in binary terms. This dynamic gives rise to a complex interplay of desire, authenticity, and the need to avoid societal stigma. Achieving a positive body image is crucial for trans people as it empowers them to assert their identity and cope with the challenges posed by societal norms and expectations. [16]

There exists a lack of consensus in the field regarding QoL, particularly post-gender reassignment surgery [17]. Some earlier studies indicate that transgender individuals exhibit lower QoL compared to the general population [17–19], while others report no significant differences in QoL or psychological functioning between transgender individuals and the general population [14, 20–22]. Poor sexual life quality post-surgery can negatively impact psychological well-being, causing considerable distress [23]. Thus, this study seeks to assess the quality of life and self-image among transgender men following gender reassignment surgery (GRS), aiming to contribute valuable insights to the ongoing discourse in this area.

Homosexuality is banned in Iran, but gender reassignment (GR) has been religiously permitted since 1987 after the Iranian revolution. Iran stands as the sole Islamic nation endorsing and financially supporting GRS procedures. As per the Family Protection Law since 2012, any individual in Iran may submit their request for gender matching to the family court there. According to Ahmadzadeh's study between 2002 and 2009, the annual application rate for transgender women was approximately 1 in 145,000, and for transgender men was around 1 in 136,000. In 2022, this figure was accompanied by a two-fold increase in requests by transgender men compared to transgender women, highlighting the increasing prevalence of gender reassignment in Iran. [24, 25].

This study marks a significant milestone as it is the first of its kind conducted among Iranians, shedding light on the quality of life and self-image among transgender men post-GRS. It is noteworthy to mention that this research highlights the cultural and religious context that is still evolving, with acceptance by families being a recent development and societal integration still in progress. The strengths of this study lie in its comprehensive examination of various aspects related to transgender healthcare within an Iranian cultural framework, offering valuable insights into the experiences of transgender individuals in a society where such topics are relatively emerging.

Material and method

In this cross-sectional survey study, we included transgender men participants who underwent GRS between 2018 and 2022 (4 years) at Shahid Faghihi, Zeinabiyyeh, Peyvand, Ali-Asghar and Madar-kodak Hospitals, the five major hospitals affiliated with Shiraz University of Medical Sciences in Shiraz, Iran. GRS was performed among the participants through the laparoscopic hysterectomy and bilateral salpingo -oophrectomy method. All participants underwent a psychiatric evaluation to ensure the absence of severe psychiatric disorders, excluding any lifetime history of organic mental disorders, mental retardation, psychotic disorders, bipolar disorders, substance abuse, and severe Axis II psychopathology (cluster A personality disorder, antisocial personality disorder,

and borderline personality disorder) according to the DSM-V [26].

Before undergoing surgery to remove the uterus and ovaries, individuals had already undergone mastectomy and were living with a man. A new birth certificate will be issued to them immediately following the hysterectomy. Patients often avoided discussing surgery related to external genitalia, despite it being a crucial aspect of the GRS. This could be due to the fact that, talking about genitalia in Iran is culturally sensitive, leading to reliance on non-verbal cues for sexual communication and seeking satisfaction in sexual roles.

The questionnaires were administered twice during the study period, once before the surgery and once at least one year after undergoing GRS. patients were contacted through a telephone survey, and after explaining the aim and details of the study, they provided verbal informed consent. All patients agreed to the participation in the study, sharing and publishing their information and questionnaires.

We utilized the Persian version of the WHOQOL-BREF questionnaire for the purpose of our study [27, 28]. The WHOQOL-BREF is a 26-item tool with four domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items), including QOL and general health items. Each item is rated on a five-point ordinal scale (1 to 5), and scores are linearly transformed to a 0–100 scale [29, 30]. In the physical health domain, items assess mobility, daily activities, functional capacity, energy, pain, and sleep. The psychological domain covers self-image, negative thoughts, positive attitudes, self-esteem, mentality, learning ability, memory concentration, religion, and mental status. Social relationships involve personal relationships, social support, and sex life. The environmental health domain addresses financial resources, safety, health and social services, living physical environment, opportunities for skills and knowledge, recreation, general environment (noise, air pollution, etc.), and transportation. Cultural differences do not influence the importance of the domains. The scores ranged from 1 to 5 for each question, and ranged from 7 to 35 for physical health, 6 to 30 for psychological health, 3 to 15 for social relationships, and 8 to 40 for and environmental health (8 items).

The questionnaire has been translated and validated in Persian language [27]. Subjects rate each item on a Likert scale ranging from 1 to 4 or 1 to 5 [31]. We also added two extra questions of "Do you have any issues in your sexual life" and "To what extent are your sexual needs met?". The answers consisted of "not at all/very poor/ very dissatisfied/ never as 0, not much/poor/ dissatisfied/seldom as 1, moderately/neither poor nor good/ neither satisfied nor dissatisfied/ quit often as 2, a great deal/good/ satisfied / very often as 3, and completely/very good/ very satisfied/ an extreme amount/ always as 4. Score calculation was performed according to the WHOQOL manual [28].

All analyses were performed using the Statistical Package for Social Science (SPSS v.27.0 software). Distribution was summarized through means and standard deviations (mean ± SD) or median and interquartile range (IQR). Descriptive statistics are reported as frequency and percentage (%). Wilcoxon signed test was applied to evaluate differences between the responses before and after surgery. Statistical significance was accepted at the two-tailed $P<0.05$ significance level.

Results

A total of 60 transgender men individual who underwent GRS completed our questionnaire. The average age of the patients before operation was 24.1 (SD: 3.8; range: 13–31). Table 1 demonstrated the demographic features of the patients in our study. None of our participants were married.

The participants filled out the Brief-WHOQOL questionnaire at two phases of before operation and after operation. The median interval between the filling of questionnaire was 3 years. The descriptive frequency of the responses in our study is demonstrated in Table 2.

As shown in Table 2, and accounting for reverse scoring in several questions (F1.4, F11.3, F8.1, and Extra 1), the responses demonstrated overall improvement in all questions. The increase was significant in all questions following GRS ($P<0.05$) except three questions: "Have you enough money to meet your needs?", "How available to you is the information that you need in your day-to-day life?", and "How satisfied are you with the support you get from your friends?". The highest improvement was in the question "Are you able to accept your bodily appearance?" by 113%.

The scores were evaluated in four domains of physical health, psychological health, social relationships, and environmental health. Figure 1 demonstrates the average

Table 1 Demographic features of participants undergoing gender reassessment surgery

Variable		Value; $N=60$
Age (years); mean ± standard deviation		24.1 ± 3.8
Marital status; n (%)	Single	53 (88.3)
	Divorced	7 (11.7)
Education level; n (%)	Under Diploma	1 (1.7)
	Diploma	33 (55.0)
	Masters and above	26 (43.3%)
Residence; n (%)	Urban	37 (61.7)
	Rural	33 (38.3)
Financial status; n (%)	Low	12 (20.0)
	Moderate	30 (50.0)
	High	18 (30.0)

Table 2 Frequency of responses of patients undergoing gender reassessment surgery based on quality of life before and after surgery

WHO Code	Questions	Preoperative score					Post-operative score					Change**	
		1	2	3	4	5	1	2	3	4	5	Average (%)	*P*-value
G1	How would you rate your quality of life?	0 (0)	11 (18.3)	46 (76.7)	3 (5.0)	0 (0)	0 (0)	1 (1.7)	20 (33.3)	28 (46.7)	11 (18.3)	33.1	< 0.001
G4	How satisfied are you with your health?	0 (0)	1 (1.7)	43 (71.7)	16 (26.7)	0 (0)	0 (0)	14 (23.3)	27 (45.0)	19 (31.7)	0 (0)	25.6	< 0.001
Ph; F1.4	To what extent do you feel that (physical) pain prevents you from doing what you need to do? *	10 (16.7)	38 (63.3)	11 (18.3)	1 (1.7)	0 (0)	22 (36.7)	28 (46.7)	10 (16.7)	0 (0)	0 (0)	−12.2	0.016
Ph; F11.3	How much do you need any medical treatment to function in your daily life? *	8 (13.3)	43 (71.7)	19 (15.0)	0 (0)	0 (0)	22 (36.7)	31 (51.7)	7 (11.7)	0 (0)	0 (0)	−13.2	0.008
Psy: F4.1	How much do you enjoy life?	2 (3.3)	32 (53.3)	26 (43.3)	0 (0)	0 (0)	0 (0)	2 (3.3)	35 (58.3)	21 (35.0)	2 (3.3)	41.0	< 0.001
Psy: F24.2	To what extent do you feel your life to be meaningful?	1 (1.7)	37 (61.7)	22 (36.7)	0 (0)	0 (0)	0 (0)	0 (0)	42 (70.0)	17 (28.3)	1 (1.7)	41.1	< 0.001
Psy: F5.3	How well are you able to concentrate?	1 (1.7)	20 (33.3)	39 (65.0)	0 (0)	0 (0)	0 (0)	7 (11.7)	31 (51.7)	22 (26.7)	0 (0)	23.4	< 0.001
En; F16.1	How safe do you feel in your daily life?	1 (1.7)	9 (15.0)	50 (83.3)	0 (0)	0 (0)	0 (0)	8 (13.3)	34 (56.7)	17 (28.3)	1 (1.7)	13.0	< 0.001
En; F22.1	How healthy is your physical environment?	0 (0)	12 (20.0)	47 (78.3)	1 (1.7)	0 (0)	0 (0)	6 (10.0)	33 (55.0)	17 (28.3)	4 (6.7)	17.8	< 0.001
Ph; F2.1	Do you have enough energy for everyday life?	0 (0)	30 (50.0)	30 (50.0)	0 (0)	0 (0)	0 (0)	2 (3.3)	40 (66.7)	14 (23.3)	4 (6.7)	33.3	< 0.001
Psy: F7.1	Are you able to accept your bodily appearance?	28 (46.7)	30 (50.0)	2 (3.3)	0 (0)	0 (0)	0 (0)	9 (15.0)	27 (45.0)	18 (30.0)	6 (10.0)	113.8	< 0.001
En; F18.1	Have you enough money to meet your needs?	0 (0)	14 (23.3)	43 (71.7)	2 (3.3)	1 (1.7)	1 (1.7)	12 (20.0)	38 (63.3)	7 (11.7)	2 (3.3)	4.12	0.090
En; F20.1	How available to you is the information that you need in your day-to-day life?	0 (0)	15 (25.0)	42 (70.0)	3 (5.0)	0 (0)	2 (3.3)	13 (21.7)	34 (56.7)	10 (16.7)	1 (1.7)	4.17	0.194
En; F21.1	To what extent do you have the opportunity for leisure activities?	0 (0)	26 (43.3)	34 (56.7)	0 (0)	0 (0)	0 (0)	17 (28.3)	30 (50.0)	12 (20.0)	1 (1.7)	14.9	< 0.001
Ph; F9.1	How well are you able to get around?	0 (0)	5 (8.3)	41 (68.3)	14 (23.3)	0 (0)	0 (0)	1 (1.7)	9 (15.0)	35 (58.3)	15 (25.0)	29.1	< 0.001
Ph; F3.3	How satisfied are you with your sleep?	0 (0)	19 (31.7)	40 (66.7)	1 (1.7)	0 (0)	0 (0)	11 (18.6)	11 (18.6)	27 (45.8)	10 (16.9)	31.5	< 0.001
Ph; F10.3	How satisfied are you with your ability to perform your daily living activities?	1 (1.7)	8 (13.3)	48 (80.0)	3 (5.0)	0 (0)	0 (0)	5 (8.3)	19 (31.7)	31 (51.7)	5 (8.3)	24.8	< 0.001
Ph; F12.4	How satisfied are you with your capacity for work?	0 (0)	12 (20.0)	46 (76.7)	2 (3.3)	0 (0)	0 (0)	4 (6.7)	0 (0)	31 (51.7)	25 (41.7)	51.2	< 0.001
Psy: F6.3	How satisfied are you with yourself?	0 (0)	2 (23.3)	42 (70.0)	4 (6.7)	0 (0)	0 (0)	0 (0)	15 (25.0)	37 (61.7)	8 (13.3)	37.1	< 0.001
Sc: F13.3	How satisfied are you with your personal relationships?	2 (3.3)	27 (45.0)	31 (51.7)	0 (0)	0 (0)	0 (0)	11 (18.3)	29 (48.3)	19 (31.7)	1 (1.7)	27.5	< 0.001
Sc: F15.3	How satisfied are you with your sex life?	11 (18.3)	38 (63.3)	11 (18.3)	0 (0)	0 (0)	6 (10.0)	15 (25.0)	23 (38.3)	14 (23.3)	2 (3.3)	46.2	< 0.001
Sc: F14.4	How satisfied are you with the support you get from your friends?	0 (0)	2 (45.0)	29 (48.3)	4 (6.7)	0 (0)	4 (6.7)	24 (40.0)	23 (38.3)	6 (10.0)	3 (5.0)	1.9	0.655
En; F17.3	How satisfied are you with the conditions of your living place?	1 (1.7)	13 (21.7)	34 (56.7)	12 (20.0)	0 (0)	0 (0)	11 (18.3)	22 (36.7)	21 (35.0)	6 (10.0)	14.1	< 0.001
En; F19.3	How satisfied are you with your access to health services?	0 (0)	6 (10.0)	36 (60.0)	18 (30.0)	0 (0)	0 (0)	4 (6.7)	17 (28.3)	34 (56.7)	5 (8.3)	14.6	< 0.001
En; F23.3	How satisfied are you with your transport?	0 (0)	5 (8.3)	32 (53.3)	23 (38.3)	0 (0)	0 (0)	2 (3.3)	0 (0)	29 (48.3)	29 (48.3)	33.8	< 0.001
Psy: F8.1	How often do you have negative feelings such as blue mood, despair, anxiety, depression? *	0 (0)	0 (0)	26 (43.3)	31 (51.7)	3 (5.0)	2 (3.3)	21 (35.0)	21 (35.0)	15 (25.0)	1 (1.7)	−20.7	< 0.001

Table 2 (continued)

WHO Code	Questions	Preoperative score					Post-operative score					Change**	
		1	2	3	4	5	1	2	3	4	5	Average (%)	*P*-value
Extra 1	Do you have any issues in your sexual life? *	0 (0)	0 (0)	6 (10.0)	40 (66.7)	14 (23.3)	11 (18.3)	16 (26.7)	21 (35.0)	7 (11.7)	5 (8.3)	−35.9	<0.001
Extra 2	To what extent are your sexual needs met?	19 (31.7)	37 (61.7)	4 (6.7)	0 (0)	0 (0)	10 (17.2)	15 (25.9)	24 (41.4)	8 (13.8)	1 (1.7)	41.9	<0.001

* Questions have reverse scoring

** Change is assessed based on mean difference compared to the pre-operative scores, and analyzed based on the Wilcoxon signed test

Values are presented as frequency (percentage (%))

En: Environmental; Ph: Physical; Psy: Psychological; Sc: Social

score of the participants before and after surgery. The most increase was observed in the psychological factor (by 25.6%), followed by physical health (19.1%), social relationships (13.2%), and environmental health (10.9%). The increase in score was statistically significant in all subgroups ($P<0.001$).

When evaluating the amount of change in the subgroups, based on the participants demographic features, we observed no significant association with age, marital status, or educational level. Living location had a significant association with physical health ($P<0.010$), psychological health ($P=0.005$), and environmental health ($P=0.012$), but not social relationships ($P=0.088$), with urban residents demonstrating higher level of change. The socioeconomic status of the participants also had a significant association with physical health ($P=0.023$) and environmental health ($P<0.001$), but not psychological health ($P=0.596$) or social relationships ($P=0.684$). Based on the post-hoc test results, in regards to physical health, the low socioeconomic group had a significant lower physical score compared to the moderate group ($P=0.024$), however, there was no significant difference between the moderate and high group ($P=1.000$) or the low and high group ($P=0.070$). In regards to environmental health, the high socioeconomic groups had significantly higher improvement compared to the low ($P=0.006$) and moderate ($P<0.001$) group.

Discussion

A total of 60 transgender men who underwent GRS completed our questionnaire. The average age of the patients before operation was 24.1, which was lower to similar studies [20, 32]. The majority of participants were educated, which is in accordance to a previous study by Cardoso da Silva et al. [32]. Most participants resided in urban areas (61.7%) and had a moderate (50%) or high (30%) socioeconomic status. Our results indicated an increase in QoL after GRS, which is line with previous reports [32, 33]. Dhiordan et al. conducted a pre-post survey assessing GRS impact on transgender women in Brazil. Their findings revealed improvements in the psychological social relationships of the WHOQoL-BREF after stereotactic radiosurgery when comparing post-surgery results to pre-surgery evaluations [32]. We observed that the QoL significantly increased, both in overall scores and also in subgroups of physical, psychological, social, and environmental health. These changes were unrelated to patients age, marital status, and education, and more influenced by their socioeconomic status and living location. This demonstrates the importance of the environment and living situation and culture which can influence the individuals' beliefs and QoL. The patients with a low socioeconomic status demonstrated the lowest change in their physical and environmental health

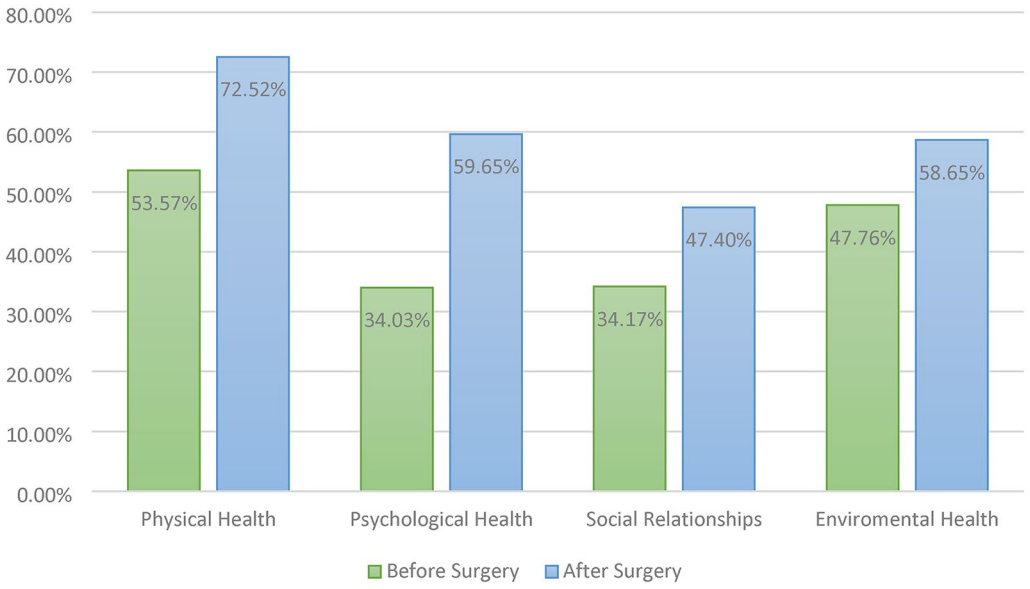

Fig. 1 Quality of life subsection score before and after surgery

factors. On the other hand, patients with high socioeconomic status demonstrated significant improvement in their environmental health. Also, urban living residents compared to rural residents showed significantly higher improvement in physical, psychological, and environmental health factors. Our study is the first of its kind conducted in Iran, offering a groundbreaking exploration into the quality of life and self-image of transgender men post-GRS within the Iranian context. By comprehensively examining various aspects of their experiences, this study fills a crucial gap in existing research and provides valuable insights into the challenges and successes faced by transgender individuals in Iran. Additionally, its thorough investigation contributes to the advancement of knowledge and understanding in both academic and clinical settings, paving the way for further research and improved support for transgender individuals in Iran and beyond.

In a more detailed evaluation of the responses, the increase in QoL was significant in all questions except three questions: "Have you enough money to meet your needs?", "How available to you is the information that you need in your day-to-day life?", and "How satisfied are you with the support you get from your friends?". These questions represent the socioeconomic status, availability of information, and social support of the participants, respectively. The observable traits of transgender individuals, such as their voice and facial features, along with the behaviors of their friends and family, plays a crucial role in their post-surgery interactions within the community. Transgender women were identified to experience greater limitations and challenges in this regard [34]. Factors like disapproval from family and the community may expose transgender individuals to vulnerability, gradually influencing their QoL and potentially contributing to the onset of depression [35]. Rezaei et al. demonstrated that aspects such as family function, emotional fusion, behavior control, and emotional responsiveness can play a crucial role in facilitating the acceptance of their new sexual role among transgender individuals [36].

Engaging in a range of social activities due to gender reassignment has been observed to enhance the sociability and activity levels of transgender individuals, fostering stronger social connections and helping them overcome social isolation. This enhancement in social relationships has the potential to elevate their overall QoL [37, 38].

A notable aspect of focus in this study is sexual activity, which showed improvement after GRS through the two additional questions we provided. This finding has also been supported in previous studies [32]. One potential explanation for this observation could be linked to a heightened sense of personal fulfillment post-surgery and an enhanced acceptance of one's body. This is also evident in our study, which the highest improvement was in the question "Are you able to accept your bodily appearance?" by 113%. Bartolucci et al. [23] asserted that GRS serves as a cornerstone for individuals with gender dysphoria, not only addressing their gender dysphoria but also leading to an enhancement in sexual satisfaction.

This study has various limitations, notably the short-term evaluation period post-GRS, the varying recovery times of patients after surgery, and the diverse levels of QoL among individuals. Consequently, we underscore the importance of conducting additional follow-up trials to comprehensively assess satisfaction with GRS.

Conclusion

Our study stands as one of the initial reports to assess the outcomes of surgical interventions in transgender individuals in Iran. Additionally, it adds value to the limited body of literature by employing the WHOQOL-BRIEF instrument both before and after GRS. The results demonstrate that GRS brings about improvements across all aspects of QoL. However, this enhancement is less pronounced among patients from low socioeconomic backgrounds and rural areas. Therefore, an increase in targeted support and resources for individuals from these demographics is warranted.

Acknowledgements
None to declare.

Author contributions
T P, E A, E R, Sh M and S A designed the study. E R collected the data; E R analyzed the data; E A and E R interpreted the results; E A, Sh M and T P conceived and designed the study. E A, E R and Sh M wrote the manuscript. All authors discussed the results and revised the manuscript. All authors read and approved the final manuscript.

Funding
None.

Availability of data and materials
The datasets used and analyzed during the current study are available from the corresponding author on reasonable request and with permission of the Research Ethics Committee of the Shiraz University of Medical Sciences.

Declarations

Ethics approval
The study was approved by our Institutional Review Board (Ethical Code: IR.SUMS.MED.REC.1401.499). Permission to carry out the study and access patient records was sought from the respective university administrators, and the study was conducted in compliance in accordance with the relevant guidelines and regulations and the Declaration of Helsinki and was also approved by the ethics committee of the university.

Consent for publication
Not applicable.

Consent to participate
Written informed consent for participation was obtained from the patients..

Competing interests
The authors declare no competing interests.

Received: 18 May 2024 / Accepted: 5 August 2024
Published online: 10 August 2024

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