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Quality of Life Changes in Iranian Patients Undergoing Female-to-Male Transsexual Surgery: A Prospective Study

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Abstract

Background: Gender identity disorder (GID) is associated with various adverse health outcomes as well as psychiatric problems. Quality of life (QOL) in patients after surgery is an important issue, as some cases report dissatisfaction and regret after surgery. The present study compared QOL in female-to-male (FTM) GID patients before and after gender reassignment surgery (GRS) in an Iranian population. In the present study, 42 natal female patients with Gender Disorder diagnosis, who were referred to the Fertility Research Center of Tehran University of Medical Sciences for GRS from December 2014 to December 2015, were prospectively recruited.

Methods: The demographic characteristics, including age, body mass index (BMI), occupational and marital status, educational level, and family support were recorded. Then, participants were asked to complete the Persian version of the 36-Item Short Form Health Survey (SF-36) questionnaire under supervision of the researcher, once at baseline and once 6 months after surgery.

Results: The changes in SF-36 scores and association with the demographic variables were then evaluated using SPSS 16 at significance level of 0.05. Mean age of patients was 34.17 ± 5.58 years with a mean BMI of 43.14 ± 6.91 kg/m². Most were single (54.8%), had primary school education (50.5%), and acceptable family support (59.5%). Total mean score of QOL significantly improved from 26.43 ± 6.81 to 37.52 ± 8.67 ($P < 0.001$), 6 months after surgery and also in all domains ($P < 0.001$), although the increase in emotional problem was not statistically significant ($P = 0.05$).

Conclusion: In conclusion, as the results of the present study highlight, FTM GD patients have a low QOL before surgery that is significantly improved after surgery.

Keywords: Gender identity, Quality of Life, Sex reassignment surgery, Transgender persons

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Introduction

Gender dysphoria (GD) is defined as dissatisfaction about the currently assigned sex, insisting to belong to the opposite sex, cross-sexual orientation, and impairment of social functioning.[1-3]

The prevalence of GD varies among nations and based on various definitions used.[4] In New Zeeland, its prevalence is reported at 1 in 6000, with a 6-fold higher prevalence in male individuals.[5] The actual prevalence of transgender patients is estimated to be even higher than this.[6] In Iran, the prevalence of patients with GD is unknown and studies mainly focus on patients who refer for gender reassignment surgery (GRS) which shows necessity for large-scale epidemiologic studies on prevalence of GD in Iran.[7]

Patients with GD suffer from important health issues, including hormone-related disorders like insulin resistance, and higher risk of specific cancers, like breast cancer in natal male and females.[8, 9] Moreover, they suffer from psychological disorders,[10] such as personality disorders (narcissistic and borderline personality disorders),[11] depression,[12] autism,[13] higher rate of lifetime positive history of suicidal ideation and self-mutilation, adjustment disorder, and anxiety disorder.[14] Moreover, the psychiatric problems that people with GD experience in Iran may be much greater than in other countries, due to lack of social acceptance of people with GD, low public awareness, financial restrictions, and stigmatization of cross-dressing behavior in the Iranian society.[15,16] The affected individual may hence experience sense of guilt and submission to God's will and are mainly rejected by the religious community.[17]

The main treatments for patients include hormonal therapy and GRS, which is a complex surgical procedure that may include genital procedures.[18] Genital procedures includes Vaginoplasty, clitorolabioplasty, penectomy

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and orchidectomy in male-to-female (MTF) and penile and scrotal reconstruction in female-to-male (FTM) individuals.[18,19] In addition to nongenital procedures on face, breasts, chest, etc.[19]

Quality of life (QOL) in patients with GD before and after surgery is an important issue that has been reported to increase in most cases,[20-22] while some cases report decreased QOL,[23] low mental health improvement,[24] lower general health, role limitation, physical limitation, and personal limitation,[25] dissatisfaction and even regret after surgery.[26] Therefore, GRS is an important complex surgery and various factors, such as physical and functional results, have been identified as indicators of patient satisfaction after GRS.[27,28]

Due to the differences in surgical details, surgeon's experience, and additional procedures, in addition to the specific socio-cultural status in Iran and the fact that patient QOL after GRS has not been studied in Iran so far, the present study compared the QOL of FTM GD patients before and after surgery in an Iranian population.

Materials and Methods
Study Design
In the present study, all female patients with GD who were referred to the Fertility Research Center of Tehran University of Medical Sciences for GRS from December 2014 to December 2015 were prospectively recruited.

Respondents (N = 42) were selected from the female patients that had GD, diagnosed by a gynecologist based on the criteria, and were referred to the Fertility Research center of Tehran from December 2014 to December 2015 for sex reassignment surgery were included into the study by a convenient sampling method.

The criteria for sex reassignment surgery are (*a*) gender binary defying surgery, (*b*) gonad retention for save fertility before surgery (*c*) 2 separate mental health expert evaluation before surgery and (*d*) have a least age of 18 years old.[29]

The demographic characteristics, including age, body mass index (BMI), occupational and marital status, educational level, and family support were recorded. Then, participants were asked to complete the Persian version of short form of 36-Item Short Form Health Survey (SF-36) questionnaire under supervision of the researcher to provide them with explanations about the questionnaire. The questionnaire was also completed 6 months after the surgery. For this purpose, the researcher referred to the patients, when they referred to the clinic for their 6-month follow-up.

The Persian version of short form of SF-36 questionnaire was validated by Montazeri et al with a Cronbach's α coefficients of 0.77–0.90.[30] The SF-36 questionnaire, designed by Ware et al in 1992,[31] is a reliable instrument for assessment of general QOL that measures eight health-related domains: physical functioning (PF-10 items), role

limitations due to physical problems (RP-4 items), bodily pain (BP-2 items), general health perceptions (GH) (5 items), vitality (VT) (4 items), social functioning (SF) (2 items), role limitations due to emotional problems (RE) (3 items), and perceived mental health (MH) (5 items), and health transition (HT) (1 item).[30] Each section is scored based on a 0-100 Likert scale and higher scores indicate better health.

Statistical Analysis
Data were analyzed using SPSS 16 software. Descriptive analyses performed included frequencies, percentages, means, and standard deviations (SD). Comparison of Sf-36 scores before and after surgery was compared using paired samples *t* test and the association between SF-36 items and demographic variables was compared using Independent T-test. Linear regression (backward method) was used to investigate the association between patients' QOL and demographic characteristics. Transformed scores were used for statistical analyses in all items and the level of significance was set at $P < 0.05$ for all analyses. The reliability of the SF-36 items and overall QOL were assessed using Cronbach α (0.70 and over were deemed acceptable). Pearson correlation coefficient was used to determine the level of agreement between four items of SF-36. Backward multiple linear regression analysis was performed to investigate significant factors associated with changes in mean score of the QOL.

Results
A total of 42 patients completed the questionnaire before surgery and 6 months later at their postsurgical follow-up. Mean age of patients was 34.17 ± 5.58 years and mean BMI was 43.14 ± 6.91 kg/m². Most were single (54.8%), had primary school education (50.5%), and acceptable family support (59.5%). The details of the demographic characteristics of the study population are shown in Table 1.

Total mean score of QOL significantly improved from 26.43 ± 6.81 to 37.52 ± 8.67, 6 months after surgery ($P < 0.001$) and also in all domains: Mean physical function improved from 23.12 ± 4.58 to 40.36 ± 10.22, social functioning from 19.55 ± 6.05 to 38.48 ± 14.74, physical problem from 20.71 ± 4.14 to 40.17 ± 10.97, mental health from 21.17 ± 4.41 to 40.14 ± 11.46, energy and vitality from 23.36 ± 5.01 to 42.05 ± 13.38, bodily pain from 19.50 ± 4.61 to 37.79 ± 11.85, general perception of health from 20.38 ± 5.72 to 40.14 ± 13.53 (all $P = 0.001$), while the increase in emotional problem from 38.67 ± 10.46 to 48.10 ± 29.58 was not statistically significant (Table 2).

The improvement in SF-36 scores was not associated with age ($P = 0.349$), marital status ($P = 0.886$), occupational status ($P = 0.876$), and family support ($P = 0.083$) of the patient, but mean difference of the score was

Table 1. Demographic Characteristics of the Study Population

Variable		Number	Percent
Marital status	Single	23	54.8
	Divorced	13	31.0
	Widow	6	14.3
Educational level	Illiterate	1	4.2
	Primary school	8	19.0
	High school graduate	22	52.4
	Academic education	11	26.2
Occupational status	Housekeeper	21	50.0
	Employee	12	28.6
	Worker	6	14.3
	Non-specific	3	7.1
Family support	Acceptable	25	59.5
	Inacceptable	17	40.5

higher in patients with academic education (21.19 ± 5.69) vs. primary school educated (13.38 ± 5.29), high school graduates (5.32 ± 4.98), and the illiterate person (9.00 ± 0.0) ($P < 0.001$). Backward multiple linear regression showed significant associations between age and education, with physical health, and education with psychological health, while other variables were not correlated with domains of SF-36 (Table 3).

Table 4 shows the results of backward multiple linear regression analyses of significant factors associated with changes in mean score of the QOL. Age and education

are the factors that significantly affect the Changes in total physical health (correlation coefficients; -0.271, 0.830 respectively, and P value for both <0.05). Education can also significantly affect changes in total psychological health (correlation coefficients = 0.964, $P < 0.001$).

Discussion

In the present study on an Iranian FTM candidates of GRS, mean score of QOL of total and all domains ($P < 0.001$) significantly improved, except emotional problems ($P = 0.05$). These results are consistent with the results of previous studies worldwide,[21,22,31] while Iranian studies addressing the QOL of patients with GD seem insufficient. Therefore, in this study, we evaluated the feasibility of assessing QOL of Iranian patients with GD by SF-36 and the effect of surgical treatment of these patients on their QOL. Although the acceptability of GRS has increased after 2003–2004 in Iran[32] through increased attention of media and legal rules,[33] few studies have addressed this issue. Vasegh-Rahimpour et al compared th QOL in 46 FTM GD patients after surgery with 184 matched controls (non-GD women) using SF-36 and showed no difference between QOL of the 2 groups,[34] which confirmed improved QOL in Iranian women with GD after FTM GRS. These results are consistent with the results of the current study although mean total score in

Table 2. Comparison of Mean Scores of SF-36 Domains Before and After Surgery

Domains	Before Surgery (n = 42)	6 Months After Surgery (n = 42)	Mean Change of the QOL Domains Score ± SD	P Value*	95% CI	
					Lower	Upper
Physical function	23.12 ± 4.58	40.36 ± 10.22	17.23±9.56	0.001	13.79	20.67
Social functioning	19.55 ± 6.05	38.48 ± 14.74	18.69±13.59	0.001	14.03	23.82
Physical problem	20.71 ± 4.14	40.17 ± 10.97	18.92±15.84	0.001	15.85	23.05
Emotional problem	38.67 ± 10.46	48.10 ± 29.58	19.45±10.12	0.055	0.20	19.06
Mental health	21.17 ± 4.41	40.14 ± 11.46	18.97±13.26	0.001	15.17	22.74
Energy and vitality	23.36 ± 5.01	42.05 ± 13.38	16.95±9.95	0.001	14.30	23.07
Bodily pain	19.50 ± 4.61	37.79 ± 11.85	18.28±12.61	0.001	14.38	22.19
General perception of health	20.38 ± 5.72	40.14 ± 13.53	19.76±14.23	0.001	15.25	24.27
Total physical health	20.63±2.90	39.19±11.30	18.55±11.11	0.001	15.08	22.01
Total psychological health	21.73±2.17	40.25±10.17	18.51±9.68	0.001	15.50	21.53

*Analysis was performed by paired samples t test.

Table 3. Backward Multiple Linear Regression Analyses of Significant Factors Associated with Quality of Life

SF-36 domains	Variables	Correlation Coefficients	P Value	95% CI	
				Lower	Upper
Total physical health	Age	-0.207	0.041	-0.849	-0.019
	Education	0.866	0.001	10.053	16.083
Total psychological health	Education	0.914	0.001	10.748	14.100

Table 4. Backward Multiple Linear Regression Analyses of Significant Factors Associated with Changes in Mean Score of the Quality of Life

SF-36 domains	Variables	Correlation Coefficients	P Value	95% CI	
				Lower	Upper
Changes in total physical health	Age	-0.271	0.014	-0.997	-0.122
	Education	0.830	0.001	9.120	15.536
Changes in total psychological health	Education	0.964	0.001	10.804	14.136

GD women in their study was 69.98 ± 17.4 that was much higher than mean total score of our patients 6 months after surgery (37.52 ± 8.67). This difference can be due to the fact that they did not limit the sample selection to a specific duration after surgery that might act as a confounder while we evaluated patients exactly 6 months after surgery to obtain a homogenous sample.

In addition, another Iranian study on 168 GD patients showed higher QOL in patients with higher education,[35] which is consistent with the results of the present study. Significant association has been reported between educational level and PF, occupational status with SF and GH, history of psychiatric problems with MH, and income sufficiency with GH.[34] This difference could be due to the difference in demographic characteristics of participants.

Another Iranian study has also reported appropriate psychosocial status and sexual role in transsexual patients 6 years after GRS with no cases of dissatisfaction or regret.[36] Although the overall results of Hejazi's study is in line with the results of the present study, the small sample size (n = 12) in Hejazi's study (3 FTM GD patients), as well as different research tools, makes a proper comparison difficult. Further studies are required on Iranian GD patients to elucidate the different aspects of this issue in the Iranian population since the issue of transsexualism has some different aspects in Iran relative to other countries. Iranian studies have reported a higher QOL in FTM candidates than MTF participants,[35] as well as lower social acceptance for MTF GRS,[37] which might be justifiable through higher social respect towards men in the Iranian society. This fact might also be contributed to the improvement of QOL in FTM patients of our study. Moreover, the dominance of a religious culture also affects GD patient and they might experience a sense of guilt and may be rejected by the community after surgery.[15,17] A recent observational study suggested various problems for GD patients in Iran, including lack of acceptance in the society, social and financial restrictions, family matters, and mental-health problems and required urgency to pay attention to transsexual matters in Iran.[16] Therefore, the results of the present study can motivate researchers towards further research and give physicians and policy-makers a wider view towards this issue.

The strengths of the present study included comparing QOL of Iranian GD patients before and after surgery with adequate sample size and validated research tool for the first time in Iran. On the other hand, the present study had some limitations, including the possible effect of several confounders, such as differences in income level and cultural beliefs of participants. In addition, patients were selected non-randomly from one referral center which decreases the generalizability of the results. Moreover, sexual function is an important aspect in GD patients, which is not included in SF-36 and was therefore not evaluated in the present study. The above-mentioned limitations suggest the necessity of larger multicenter studies to address this issue more specifically, although, as far as the authors are concerned, this is the first prospective report of QOL in GD patients before and after GRS on Iranian transsexuals.

In conclusion, as the results of the present study highlight, FTM GD patients have a low QOL before surgery that is significantly improved after surgery. Therefore, it is suggested that female GD patients be motivated to undergo GRS for QOL improvement. The results showed QOL in Iranian GD patients with statistically significant correlations among all dimensions of SF-36.

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