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WHOQOL-100 Before and After Sex Reassignment Surgery in Brazilian Male-to-Female Transsexual Individuals

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ABSTRACT

Introduction: The 100-item World Health Organization Quality of Life Assessment (WHOQOL-100) evaluates quality of life as a subjective and multidimensional construct. Currently, particularly in Brazil, there are controversies concerning quality of life after sex reassignment surgery (SRS).

Aim: To assess the impact of surgical interventions on quality of life of 47 Brazilian male-to-female transsexual individuals using the WHOQOL-100.

Methods: This was a prospective cohort study using the WHOQOL-100 and sociodemographic questions for individuals diagnosed with gender identity disorder according to criteria of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition.* The protocol was used when a transsexual person entered the ambulatory clinic and at least 12 months after SRS.

Main Outcome Measures: Initially, improvement or worsening of quality of life was assessed using 6 domains and 24 facets. Subsequently, quality of life was assessed for individuals who underwent new surgical interventions and those who did not undergo these procedures 1 year after SRS.

Results: The participants showed significant improvement after SRS in domains II (psychological) and IV (social relationships) of the WHOQOL-100. In contrast, domains I (physical health) and III (level of independence) were significantly worse after SRS. Individuals who underwent additional surgery had a decrease in quality of life reflected in domains II and IV. During statistical analysis, all results were controlled for variations in demographic characteristics, without significant results.

Conclusion: The WHOQOL-100 is an important instrument to evaluate the quality of life of male-to-female transsexuals during different stages of treatment. SRS promotes the improvement of psychological aspects and social relationships. However, even 1 year after SRS, male-to-female transsexuals continue to report problems in physical health and difficulty in recovering their independence.

Key Words: Quality of Life; Transsexuality; Transsexualism; Gender Dysphoria; Sex Reassignment Surgery

INTRODUCTION

Transsexual individuals often experience stigma and discrimination because they are a different gender than expected by the culture in which they live. This prejudice can affect almost every aspect of their lives, including physical security, psychological well-being, access to services, and basic human rights. Therefore, transsexual individuals often seek medical services to make their bodies more congruent with their gender identities.[1,2]

Since 1998, the Gender Identity Program (PROTIG) of the Hospital de Clínicas de Porto Alegre, Universidade Federal do Rio Grande do Sul (Porto Alegre, Brazil) has provided public assistance to transsexual individuals.[3] This program offers psychosocial support, medical assistance, and family guidance and refers patients for sex-reassignment surgery (SRS) when indicated. To undertake this surgery, individuals must undergo a multidisciplinary follow-up for at least 2 years, have a minimum age of 21 years (a federal requirement for this specific surgical procedure), have a positive psychiatric or psychological report,

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and be diagnosed with gender identity disorder (Mistério da Saúde, 2013).[4]

The World Health Organization (WHO)[5] defines quality of life (QOL) as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectation, standards and concerns." Based on this concept, the WHO developed an instrument to measure QOL, the 100-item WHO Quality of Life Assessment (WHOQOL-100). The WHOQOL-100 was previously validated for the Brazilian Portuguese by Fleck et al.[6,7] This instrument assesses six domains, namely physical health, psychological health, level of independence, social relationships, environment, and spirituality, religion, and personal beliefs. The WHOQOL-100 is widely used to evaluate the treatment response to many medical conditions.[8,9]

In a systematic review and meta-analysis of QOL and psychosocial outcomes in transsexual people,[10] researchers verified that sex reassignment with hormonal interventions more likely corrects gender dysphoria, psychological functioning and comorbidities, sexual function, and overall QOL compared with sex reassignment without hormonal interventions, although there is a low level of evidence for this.

Recently, Castellano et al[11] assessed QOL in 60 Italian transsexuals (46 transwomen and 14 transmen) at least 2 years after SRS using the WHOQOL-100 (general QOL score and quality of sexual life and quality of body image scores) to focus on the effects of hormonal therapy. Overall satisfaction improved after SRS, and QOL was similar to the controls. Bartolucci et al[12] evaluated the perception of quality of sexual life using four questions evaluating the sexual facet in individuals with gender dysphoria before SRS and the possible factors associated with this perception. The study showed that approximately half the subjects with gender dysphoria perceived their sexual life as "poor/dissatisfied" or "very poor/very dissatisfied" before SRS.

Nevertheless, there are no prospective studies about QOL using the WHOQOL-100 before and after SRS of male-to-female (MtF) transsexual persons. Accordingly, this study investigated the impact of surgical interventions on QOL for Brazilian MtF transsexual persons using the WHOQOL-100 at two time points, at entrance to the PROTIG (T1) and at least 1 year after SRS (T2).

METHODS

Participants

In this prospective cohort study, MtF transsexual persons were recruited from May 2000 through August 2006, and they were monitored after SRS. All patients underwent the classic penile inversion vaginoplasty, the surgical gold standard for MtF individuals, with an inverted penis skin flap used as the lining for the neovagina. All surgeries were performed by a single surgeon, with many years of experience in this technique.

The inclusion criteria were diagnosis of transsexualism (*International Classification of Diseases, Tenth Revision*) or gender identity disorder (*Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*) determined by the clinic mental health team and age older than 16 years. The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* diagnostic criteria are no longer used; however, data collection was carried out from 2000 through 2006, when the criteria were applicable. Patients with axis I psychotic disorders, mental retardation, or substance addiction were excluded from the study. All patients signed an informed consent form for the study, which was approved by the research ethics committee (CEP HCPA number 98-319). All procedures involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

During this period, 190 patients were evaluated in the clinic. Of these, 160 completed the presurgery questionnaire, 48 underwent SRS, and 47 completed the questionnaire before and after SRS. All MtF transsexuals who underwent SRS and hormonal treatment during this period were selected for the study. Some who underwent SRS underwent additional procedures. These interventions were intended to repair functional or esthetic concerns and resolve complications of the original procedure. Among the most frequent new interventions were urethroplasty (nine patients, 19.14%) and vaginoplasty (six patients, 12.76%). The new vaginoplasty was performed using a suprapubic free skin graft. The urethroplasty was performed for urethral meatal stenosis. An individual who underwent SRS did not complete the questionnaire. Figure 1 shows the loss of participants who started the evaluation.

Procedures

The WHOQOL-100 questionnaire was administered to patients at T1 and at T2. For a minimum of 2 years, the transsexual individuals participated in supportive group therapy sessions for at least 1 hour, weekly or fortnightly. Demographic data, such as age, educational level, marital status, place of birth, and sexually transmitted infections (STIs), were obtained from the PROTIG database.

The Brazilian Portuguese version of the questionnaire was developed in the WHOQOL Center of the Psychiatry and Forensic Medicine Department at the Universidade Federal do Rio Grande do Sul by Fleck et al.[6,7]

The WHOQOL-100 questionnaire, a self-administered questionnaire, is divided into 6 domains and 24 facets:

Domain I—physical health: 1 = pain and discomfort; 2 = energy and fatigue; 3 = sleep and rest

Domain II—psychological: 4 = positive feelings; 5 = thinking, learning, memory, and concentration; 6 = self-esteem; 7 = bodily image and appearance; 8 = negative feelings

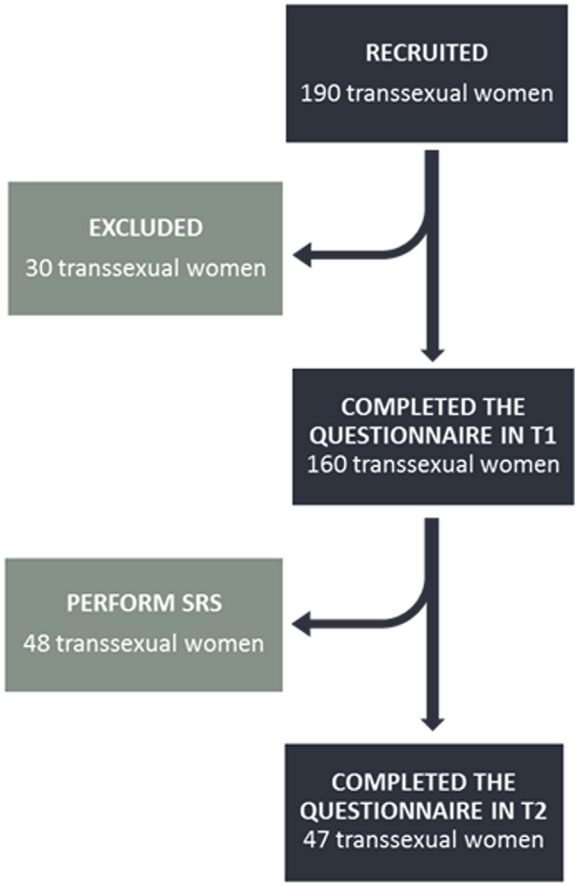

Figure 1. Participants in study. SRS = sex-reassignment surgery; T1 = when a transsexual person entered the ambulatory clinic; T2 = at least 12 months after sex-reassignment surgery. Figure 1 is available in color online at www.jsm.jsexmed.org.

Domain III—level of independence: 9 = mobility; 10 = activities of daily living; 11 = dependence on medical substances or medical aids; 12 = work capacity

Domain IV—social relationships: 13 = personal relationships; 14 = social support; 15 = sexual activity

Domain V—environment: 16 = physical safety and security; 17 = home environment; 18 = financial resources; 19 = health and social care: accessibility and quality; 20 = opportunities for acquiring new information and skills; 21 = participation in and opportunities for recreation and leisure; 22 = physical environment (pollution, noise, traffic, and climate); 23 = transport

Domain VI—spirituality, religion, and personal beliefs: 24 = religion, spirituality, and personal beliefs

The responses are analyzed using a Likert scale (1 to 5, with a higher score indicating a better QOL).

Statistical Analyses

Statistical analyses were performed using SPSS 18.0 (SPSS, Inc, Chicago, IL, USA). The Kolmogorov-Smirnov test was used to assess the distribution of variables (normal distribution) and descriptive and frequency statistics (mean and SD). The Student t-test was used to compare the paired samples at T1 and T2 (domains and facets). In the second phase, the Student t-test was used to calculate QOL for the group that underwent new surgical interventions and the group that did not during the year after SRS. For statistical analysis, all results were controlled for variations in demographic characteristics. The significance level for this analysis was set at 5% ($P < .05$).

RESULTS

The sample was comprised of 47 MtF transsexual individuals whose mean age was 31.23 years when they entered the PROTIG (SD = 9.82 years; median age = 31 years; age range = 16–54 years). Forty-two patients (89.4%) were single, whereas 5 (10.6%) were in stable relationships. For educational level, 5 (10.6%) had received less than 8 years of formal education, and 12 (25.5%) had completed 8 years of formal education. Twenty-three patients (48.9%) completed more than 8 years of formal education, and 7 (14.9%) attended a university. Twenty-four patients (51%) resided in Porto Alegre and the metropolitan region, whereas 20 (42.6%) were from the Rio Grande do Sul countryside and 3 (6.4%) were from other states. For STIs, seven (14.9%) were HIV positive, and five (10.6%) were positive for venereal disease. Age, educational level, marital status, place of birth, STI, and hormonal therapy were not significantly associated with the results of the WHOQOL-100 domains (Table 1).

Domains II (psychological) and IV (social relationships) were improved significantly after SRS. In contrast, domains I (physical health) and III (level of independence) were significantly worse after SRS. Domains for the environment and spirituality, religion, and personal beliefs domains did not change after SRS (Table 2).

When considering the facets, sexual activity, freedom, physical safety and security, financial resources, and health and social care were improved after SRS, whereas energy and fatigue, sleep and rest, negative feelings, mobility, activities of daily living, and physical environment worsened (Table 3).

For the surgical procedures, only 16 (34.04%) did not undergo new interventions 1 year after SRS (Table 4). Individuals who underwent surgical procedures during the 1-year follow up period after SRS showed worsening in domains II (psychological) and IV (social relationships; Table 5).

DISCUSSION

To our knowledge, this is the first cohort study in transsexual individuals using the WHOQOL-100 to compare patients before and after SRS. Our results are consistent with those of other studies showing that SRS improves QOL for these individuals.[10-21] Two domains showed changes in patients' QOL, specifically domains II (psychological: positive feelings, thinking, learning, memory and concentration, self-esteem, bodily image

Table 1. Sociodemographic characteristics

Variables	N*	Mean or % (SD)
Age (y)	47	31.23 (9.82)
Age when hormone therapy began (y)	47	19.16 (5.80)
Schooling (y)		
<8	47	5 (10.6)
8	47	12 (25.5)
>8	47	23 (48.9)
University	47	7 (14.9)
Marital status		
Single	47	42 (89.4)
Stable relationship	47	5 (10.6)
Place of birth		
Porto Alegre	47	19 (40.4)
Metropolitan area	47	5 (10.6)
State countryside	47	20 (42.6)
Other states	47	3 (6.4)
STIs		
HIV positive	47	7 (14.9)
VDRL positive	47	5 (10.6)

STIs = sexually transmitted infections; VDRL = Venereal Disease Research Laboratory test.
*Total sample.

and appearance, and negative feelings) and IV (social relationships: personal relationships, social support, and sexual activity). These results showed significant improvement in the ability to develop relationships, greater professional acceptance, and, for this reason, a greater sense of being part of a society, whereas previously they felt like outsiders.

In studies reviewing the transsexual population, only part of the WHOQOL-100 was applied to the phases before[12] or after[11] SRS. Surveys that evaluated QOL for transsexuals through other questionnaires also showed improvements in psychological and social aspects after SRS.[13-21] Wierckx et al[13] published a self-report on physical and mental health (Dutch version of the Short Form-36

Table 2. WHOQOL-100 questionnaire results comparing T1 and T2

	Transsexual sample (N = 47)	
WHOQOL-100 domain	Mean (SD)	*P* value
Domain I—physical health	1.23 (2.61)	.002*
Domain II—psychological domain	−0.75 (2.44)	.041*
Domain III—level of independence	0.82 (2.52)	.031*
Domain IV—social relationships	−1.16 (2.79)	.007*
Domain V—environment	−0.30 (1.51)	.178
Domain VI—spirituality, religion, personal beliefs	−0.20 (2.25)	.547

T1 = when a transsexual person entered the ambulatory clinic; T2 = at least 12 months after sex-reassignment surgery; WHOQOL-100 = 100-item World Health Organization Quality of Life Assessment.
*Statistically significant by Student t-test for paired samples (T1 and T2), with 95% CI of the difference.

Table 3. Facet results at T1 and T2

	Transsexual sample (N = 47)			
Facets for T1 and T2	Mean	SD	t Value*	*P* value
Facet 1—pain and discomfort	−0.33	3.63	−0.62	.541
Facet 2—energy and fatigue	1.81	3.42	3.63	.001†
Facet 3—sleep and rest	1.55	4.37	2.44	.019†
Facet 4—positive feelings	−0.23	2.37	−.68	.502
Facet 5—thinking, learning, memory and concentration	−0.40	3.22	−.860	.394
Facet 6—self-esteem	−0.66	2.43	−1.87	.069
Facet 7—bodily image and appearance	−1.34	4.78	−1.92	.061
Facet 8—negative feelings	1.11	3.67	2.07	.045†
Facet 9—mobility	1.30	4.37	2.04	.048†
Facet 10—activities of daily living	1.19	3.54	2.30	.026†
Facet 11—dependence on medical substances and medical aids	−0.74	3.19	−1.60	.117
Facet 12—work capacity	0.04	3.18	0.09	.927
Facet 13—personal relationships	0.02	2.67	0.056	.957
Facet 14—social support	0.30	2.99	0.68	.498
Facet 15—sexual activity	−3.80	4.92	−5.29	.000†
Facet 16—freedom, physical safety and security	−1.32	2.77	−3.27	.002†
Facet 17—home environment	0.43	2.69	1.08	.284
Facet 18—financial resources	−1.15	2.99	−2.63	.012†
Facet 19—health and social care: accessibility and quality	−1.02	2.56	−2.74	.009†
Facet 20—opportunities for acquiring new information and skills	−0.39	2.99	−0.89	.377
Facet 21—participation in and opportunities for recreation/leisure	−0.70	2.49	−1.93	.060
Facet 22—physical environment	1.32	2.55	3.55	.001†
Facet 23—transport	0.42553	3.33	0.877	.385
Facet 24—religion, spirituality, personal beliefs	−0.20	2,25	−0.606	.547

T1 = when a transsexual person entered the ambulatory clinic; T2 = at least 12 months after sex-reassignment surgery.
*Student t-test value.
†Statistically significant by Student t-test for paired samples (T1 and T2), with 0.05 CI of the difference.

Question Health Survey version 2) using data on QOL and sexual health 8 years after SRS and testosterone treatment in 49 transsexual men. Most participants had an increase in the frequency of masturbation, sexual arousal, and ability to achieve orgasm. Surgical satisfaction was high, despite a relatively high complication rate.

Kuhn et al[14] evaluated QOL and patient satisfaction in 52 MtF and 3 female-to-male transsexual persons 15 years after SRS compared with healthy controls using King's Health

Table 4. Percentage of individuals who underwent intervention after SRS

Procedure	Transsexual sample (n = 46), n (%)
Only SRS	16 (34.8)
Intervention after SRS	30 (65.2)

SRS = sex-reassignment surgery.

Questionnaire. The study showed that QOL was similar to controls except for the domains of general health, role limitation, and physical and personal limitation.

Psychological, social, and occupational factors were analyzed in 62 Dutch transsexual persons (35 MtF and 27 female-to-male transsexuals) after SRS. After SRS, fewer patients attempted suicide, but that percentage remained higher than the average of the general population. The two groups reported that their social life improved after SRS. This study showed positive psychological and social outcomes associated with SRS, with no difference between MtF and female-to-male patients. However, despite positive results, most of these patients remained fragile because the percentage of suicide attempts was high and they had a hard time finding work.[15]

In contrast to those results, domains I (physical health: pain and discomfort, energy and fatigue, and sleep and rest) and III (level of independence: mobility, activities of daily living, dependence on medical substances or medical aids, and work capacity) were significantly worsened after SRS. These negative results are easily justified by the recovery that all patients underwent during the first year after SRS. The surgical procedure is complex and involves the possibility of surgical complications and other esthetic procedures. Consistent with this, individuals who underwent new medical interventions during the 1-year period showed significant worsening of domains II (psychological) and IV (social relations) compared with individuals who did not undergo new procedures (Tables 4 and 5).

When analyzing the facets separately before and after SRS, sexual activity, freedom, physical safety and security, financial resources, and health and social care were improved. Accessibility and quality also were improved after SRS, whereas energy and fatigue, sleep and rest, negative feelings, mobility, activities of daily living, and physical environment worsened. Demographic variables (age, educational level, marital status, place of birth, and STI) did not influence QOL before and after SRS.

One special point of interest in this study is sexual activity; it improved after SRS. One explanation for this finding could be related to the sense of personal fulfillment with surgery and better acceptance of the body. Bartolucci et al[12] stated that SRS is considered the mainstay for subjects with gender dysphoria, not only to resolve their gender dysphoria but also to achieve an improvement in sexual satisfaction.

Therefore, the WHOQOL-100 is an important instrument to evaluate QOL for transsexual individuals during the different stages of treatment. The use of other instruments to evaluate QOL or even the adaptation of this instrument for this group of patients, as previously used for other specific populations (the elderly and patients with HIV), could confirm its usefulness to assess this population.

There are several limitations of this study, including the evaluation period, which was 1 year after SRS, the postoperative recovery time of the patients, and different levels of QOL among individuals; therefore, we emphasize the need for additional follow-up trials to assess satisfaction with SRS.

CONCLUSION

This is the first study that to evaluate the result of surgical interventions in transsexual individuals in Brazil. In addition, it advances the still small literature that used the full WHOQOL-100 before and after SRS. The WHOQOL-100 is an important instrument to evaluate QOL in Brazilian MtF individuals during the different stages of treatment. Using the WHOQOL-100, we found that SRS promotes the improvement of psychological aspects and social relations. However, even 1 year after SRS, MtF

Table 5. Individuals who underwent intervention after sex-reassignment surgery in relation to WHOQOL-100 domains

	Transsexual sample (n = 46)								
			t-Test						
	Levene test							95% CI of difference	
Domains	F	Significance	t value	df	Significance (2-tailed)	Mean difference	SE of difference	Lower	Upper
I	1.47	0.23	1.700	44	0.09	0.98	0.57	−0.18	2.14
II	3.68	0.06	2.625	44	0.01*	10.66	0.63	0.38	2.94
III	1.56	0.21	1.409	44	0.16	0.95	0.67	−0.40	2.31
IV	0.66	0.41	2.059	44	0.04*	10.45	0.70	0.03	2.87
V	2.19	0.14	1.978	44	0.05	0.98	0.49	−0.018	1.99
VI	0.00	0.98	−0.920	44	0.36	−0.70	0.77	−2.26	0.84

SE = standard error; WHOQOL-100 = 100-item World Health Organization Quality of Life Assessment.
*Statistically significant by Student t-test for paired samples (when a transsexual person entered the ambulatory clinic and ≥12 months after sex-reassignment surgery), with 0.05 CI of the difference.

persons continue to report problems in physical health and difficulty in recovering their independence.

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