Psychological Pathologies and Sexual Orientation in Transgender Women Undergoing Gender Confirming Treatment

Nikolaos A. Papadopulos, MD, PhD,† Jean-Daniel Lellé, MD,*‡ Dmitry Zavlin, MD,*§ Peter Herschbach, PsyD, PhD,|| Gerhard Henrich, PsyD, PhD,|| Laszlo Kovacs, MD, PhD,* Benjamin Ehrenberger, MD,* Hans-Guenther Machens, MD, PhD,* and Jürgen Schaff, MD‡*

Background: There are few studies evaluating depression, self-esteem, and mental health after gender confirming treatment of transgender women. Most of these studies include different surgical techniques and nonvalidated questionnaires. With our survey, we are aiming to assess psychopathologies and mental health as well as sexuality among a group of patients treated by the same surgeon performing our self-developed combined surgical technique. This vaginoplasty approach is characterized by constructing the vaginal cavity with parts of the penile and scrotal skin as well as the longitudinally incised urethra.

Materials and Methods: Forty-seven transgender women who underwent gender confirming treatment between 2007 and 2013 were included in a retrospective study. The assessment of our study group was performed by means of self-developed indication-specific questionnaires and 3 standardized questionnaires that can be compared with norm data.

Results: Preoperative psychotherapy was mostly considered as helpful by the patients, yet postoperatively, only a third of our study participants were still under therapeutic treatment. Furthermore, we could show a change in sexual preference toward a more bisexual orientation. Gender confirming treatment satisfied the expectations for most of the patients and, in their opinion, should have been performed earlier. Results of the standardized Patient Health Questionnaire 4, a short depression screening questionnaire, did not significantly differ from healthy norm data. The Freiburg Personality Inventory, Revised, revealed normal emotionality and sane self-assessment within our study group. High self-esteem and significantly higher scores than norm data were found for the Rosenberg Self-esteem Scale.

Conclusions: Gender confirming treatment with the combined technique is an important part of a multi-structured treatment of transgenders and does have effects on psychological well-being. It seems to decrease psychopathologies and implicates several ameliorations for transgender women. Findings need to be verified in prospective studies including preoperative evaluations.

Key Words: gender dysphoria, sex reassignment surgery, depression, transgender, quality of life

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From the *Department of Plastic and Hand Surgery, University Hospital Rechts der Isar, Munich Technical University, Munich, Germany; †Department of Plastic Surgery and Burns, Alexandroupoli University Hospital, Democritus University of Thrace, Alexandroupoli, Greece; ‡Department of Plastic Surgery, University Teaching Hospital Rotkreuzklinikum München, Munich Technical University, Munich, Germany; §Institute for Reconstructive Surgery, Houston Methodist Hospital, Weill Cornell Medicine, Houston, TX; and ||Department of Psychosomatic Medicine and Psychotherapy, University Hospital Rechts der Isar, Munich Technical University, Munich, Germany.

N.A.P. and J.-D.L. contributed equally to the article as first authors.

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Reprints: Nikolaos A. Papadopulos, MD, PhD, Department of Plastic Surgery and Hand Surgery, University Hospital Rechts der Isar, Munich Technical University, Ismaningerstr. 22 81675 Munich, Germany. E-mail: nikolaos.papadopulos@mri.tum.de; Department of Plastic Surgery and Burns, Alexandroupoli University Hospital, Democritus University of Thrace, 68100 Alexandroupoli, Greece. E-mail: npapado@med.duth.gr.

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There are several ways to assess the quality and benefits of elective plastic surgery. Beyond measuring surgical outcome and complications, it is becoming more important to understand patients' underlying desires before surgery and their achievement after surgery. This multitude of patient-reported outcome measures is often summarized as patient satisfaction. In this context, changes in patient satisfaction eventually affect their overall quality of life (QOL). By general agreement, QOL is a concept based on the common subjective assessment of social, psychological, emotional, and spiritual components according to the World Health Organization.[1] The authors' previous studies showed an improvement of QOL within patients who have had plastic and esthetic surgery.[2,3] These findings were confirmed in studies focusing on separate indications for plastic surgery specifically, for example, breast augmentations, abdominoplasties, and other procedures.[4–9]

An approach to gender dysphoria and sex reassignment surgery or gender confirming treatment (GCT) should not only cover the aforementioned multidimensional structure of QOL but especially also focus on its psychological aspects. The outcome of GCT is often rated as *successful* or *unsuccessful* merely by looking at surgical measurements, such as complication rates.[10] Another common instrument is to ask patients about their satisfaction with the physical outcome or about any regrets after the operation. Because gender dysphoria is primarily a psychiatric disease, screening for depression and other psychiatric and psychological disorders is a key step in the management of those patients.[11] High prevalence of depressive episodes and dissociative symptoms have been reported for patients suffering from gender dysphoria.[12] On the other hand, the positive effect of GCT on mental health is well-known in literature.[13,14] These effects often depend on the surgical outcome, patient satisfaction, and improved QOL as a subjective patient-reported measurement.[15] However, despite high satisfaction with the esthetics, patients after GCT sometimes remain mentally unstable and need further psychotherapeutic support.[16,17] Unfortunately, these patient-reported outcome measures are addressed in only quite a few clinical studies without validity for transgenders.[18] Furthermore, the surgical outcome of GCT is hard to objectify because there are many different surgical techniques leading to discrepancies in methods and terminology regarding physical examinations and follow-up.[19]

Sexuality of transgender people is another point of interest in current research. A change of sexual orientation is often reported without having detected a reason for this behavior yet.[20] A possible biological reason of gender dysphoria and sexual orientation is a matter of an ongoing debate. Today, multiple genetic, hormonal, and cellular processes are believed to be controlling the determination of gender identity.[21]

In our previous study, we could show an improvement of QOL and satisfaction with body image for transgender women, that is, male-to-female (MTF) transsexuals or (to cope with the ongoing nomenclature debate) transgenders, which were assigned male at birth after CGT with our self-developed combined surgical technique.[22] This current study, however, was worked out to detect psychological changes and pathologies within our study group. In world literature, studies such as those mostly include transgender women and transgender men mixed together and contain parameters that might prevent clear and more detailed results. For instance, different surgical techniques and surgeons are often united in one report. To

our knowledge, our study is the first psychological evaluation of transgender women with standardized validated questionnaires after GCT with a consistent surgical technique and a single team of surgeons.

METHODS

Patients

This study was performed by our QOL research group at our department that is specializing in GCT. We included only transgender women who had undergone GCT with the combined vaginoplasty technique and a second mandatory revision surgery. This self-developed surgical technique allows to construct a neovagina with sufficient length and depth without any skin tension. It consists of the penile skin flap, scrotal skin grafts, and the longitudinally incised urethra. A detailed operative description is available elsewhere in our previous report.[22] A second operation is typically performed to address minor esthetical improvements, for example, breast augmentation or dog-ear resection. This second surgery generally takes place about 6 months after the first GCT. All procedures were performed by the same highly experienced team of surgeons between 2007 and 2013.

Participants were asked to fill out a questionnaire set anonymously during a postoperative follow-up appointment or were contacted via phone. For the latter, the questionnaires were sent by mail with a stamped return envelope. Patients who have had GCT performed by other surgeons before were excluded. Informed consent was obtained from all individual participants via phone call. Furthermore, this observational study was approved by our university's ethics committee (approval number 252/14 TUM) and adheres to the 1964 Helsinki declaration and its later amendments. Of 121 patients that met the inclusion criteria, 83 could be contacted. Altogether, 69 patients agreed to participate in the survey. Of those, 47 patients returned a fully answered set of questionnaires (return rate, 68%).

SPSS 21.0 (SPSS Inc, Chicago, IL) was used for statistical analysis. Group differences were analyzed with the unpaired t test and the χ^2 test with an overall statistical level of significance set at $P < 0.05$.

Questionnaires

The questionnaire set consisted of self-developed indication-specific questions addressing health and sexuality as well as psychological related issues. The patients responded to several standardized validated questionnaires with norm data: the Patient Health Questionnaire 4 (PHQ-4), the Freiburg Personality Inventory, Revised (originally German: *Freiburger Persönlichkeitsinventar*, FPI-R), and the Rosenberg Self-esteem Scale (RSES).

Patient Health Questionnaire 4

The PHQ-4 is a common standardized instrument to efficiently assess depression and anxiety.[23] Patients are asked to evaluate how often they have had depressive feelings or thoughts within the past 2 weeks on a scale from 0 to 3 ("not at all" to "nearly every day"). Total sum scores between 0 and 2 represent a normal psyche, scores of 3 to 5, 6 to 8, and 9 to 12 hint to a mild, moderate, and severe depression, respectively. German norm data are available in literature and was used to compare with our results.[24]

Freiburg Personality Inventory, Revised

To assess emotional stability and personality, we used the Emotionality module of the revised version of the FPI (FPI-R), a standardized and validated questionnaire. Fourteen given statements had to be rated as *correct* or *incorrect* with regards to the patient's individual situation. This questionnaire allows to categorize the participants as emotionally most stable (scores 0–2), more stable (3–50, stable (6–7), and rather unstable (scores >8). Norm population data for Germany are provided by the authors of the questionnaire and was matched with our results.[25]

Rosenberg Self-esteem Scale

Patients' self-esteem is often assessed in QOL research by using the RSES, a standardized questionnaire with norm data provided for several countries individually.[26] It consists of 10 items and statements, each to be rated with 1 (strongly disagree) to 4 (strongly agree) points. The sum score can be interpreted by using the aforementioned norm data. This study took data of the German norm population into consideration. High self-esteem can usually be assumed with sum scores higher than 30.

RESULTS

Demographic and Clinical Characteristics

Forty-seven patients with an average age of 38.3 years (range, 18–57 years) were included in this study. The questionnaires were filled out between 6 and 58 months after having had last surgery, an average of 19 months. Fourteen patients stated to have chronic diseases before surgery. Among those, hypertension (n = 6), bronchial asthma (n = 2), and psoriasis (n = 2) were the most common ones. One patient was suffering from depression. Preoperatively, our study group was living in their desired female gender role for an average of 68 months (8 months to 48 years). Most of our patients (98%) opted for psychotherapy before GCT, averaging at 25 months (0–96) of duration. Seventy-five percent considered this treatment as helpful. After GCT, only 36 percent were still having regular psychotherapeutical sessions (average of 9 sessions, 2–25). The patient who was suffering from depression preoperatively had been under psychotherapeutic treatment for 96 months. After sex reassignment surgery, she was not having sessions anymore.

Self-Developed Indication-Specific Questions

Patients were asked to rate given statements with 1 ("I don't agree at all") to 5 ("I fully agree") points concerning their situation after

TABLE 1. Rating of Given Statements After GCT

Statement: "Since having undergone plastic surgery…"	Min	Max	Mean	SD
I feel more liberated in choosing clothes	1	5	4.27	1.136
I feel better	3	5	4.62	0.650
I feel better at the swimming pool	1	5	4.40	0.979
I feel more balanced	1	5	4.32	0.912
I am more content with my body	3	5	4.56	0.659
I have more confidence with my job	1	5	3.00	1.512
it is easier for me to look into a mirror	1	5	3.96	1.167
life has totally changed	1	5	3.93	1.136
social life has changed	1	5	3.89	1.191
I am more effective	1	5	3.22	1.347
I have more self-confidence	1	5	4.13	1.014
I feel more attractive	1	5	3.91	1.019
I live in a happier relationship	1	5	3.20	1.470
I have a better relationship to family	1	5	2.57	1.453
I am more communicative	1	5	3.53	1.408
I feel better in company	1	5	3.23	1.327
I enjoy an improved sexual life	1	5	3.88	1.269
I am more stress-resistant in my job	1	5	2.64	1.428
I have improved finances	1	5	2.14	1.390

Rated statements on a 1- to 5-point scale ("I don't agree at all" to "I fully agree").

GCT (Table 1). Mean values higher than 4 can be found for eight statements. Thirty-three patients rated the statement "The operation was worth the struggle" with 5 points (mean, 4.70; SD, 0.55), and 37 fully agreed with "The operation should have been done earlier" (mean, 4.70; SD, 0.77). Table 2 shows advantages of GCT that patients longed for. We asked the patients to tick the boxes when those applied for their preoperative situation. Next, we asked for the occurrence of these advantages after GCT.

The overall transition of sexual affinity after GCT was statistically significant ($P = 0.019$). Nine patients (19.1%) changed their sexual preferences from female to bisexual (Table 3).

Patient Health Questionnaire

The mean sum score of our study group for the PHQ-4 was 2.20 (SD, 1.89), which can be interpreted as a mild positive score for depression and anxiety. With $P = 0.315$, this score does not significantly differ from norm data (Table 4). The patient who previously stated to suffer from depression showed the lowest positive score of depression for PHQ-4: 3 of 12 points.

Freiburg Personality Inventory

Normal emotionality and a sane self-assessment among our study group resulted from a score of 5.9 (SD, 2.97). This score does not statistically differ from the mean provided by available norm data (Table 5).

Rosenberg Self-esteem Scale

Because the overall average score of 32.8 (SD, 5.9) is greater than 30, a postoperative high self-esteem can be suggested within our study group. In comparison with German norm data, our patients reach significantly higher values ($P = 0.029$) (Table 6).

DISCUSSION

Surgical and psychological outcomes in transgender QOL research are often evaluated by the means of questionnaires. In our opinion, results and scores are most valuable when making use of validated and standardized questionnaires. Furthermore, the achieved scores should be compared with norm data to gain more objectivity. A recent review shows quite an amount of reports in this particular field but also mentions a lack of standardization, which leads to not comparable results between different study populations.[19] Keeping this in mind, we would like to emphasize the psychological issues that transgender women have to deal with and the necessitiy to assess them with standardized questionnaires. Transgender people suffer from several mental health problems, especially in the preoperative setting, that need to be addressed by psychotherapists, surgeons, and social workers.[27]

TABLE 3. Change of Sexual Orientation

Preoperative	n (%)	Postoperative	n (%)*
Gynephilic	22 (47)	Gynephilic	10 (45)
		Androphilic	3 (6)
		Bisexual	9 (41)
Androphilic	12 (26)	Androphilic	10 (83)
		Bisexual	2 (17)
Bisexual	11 (23)	Bisexual	9 (82)
		Androphilic	2 (18)
Neither	2 (4)	Bisexual	1 (50)

The figures indicate an overall statistically significant change of sexual orientation ($P = 0.019$).

*Percentage of preoperative orientation.

The number of our participants is intermediate compared with similar studies.[16,28,29] This may be owing to rather strict inclusion criteria and the surgical technique used. All surgeries have been performed by the same team of surgeons and nurses. This allows to minimize bias due to different surgical staff, techniques, and facilities.

Psychotherapy treatment is mandatory for transgenders according to the guidelines provided by the World Professional Association for Transgender Health. It is seen as a possibility to improve stability and reduce negative impacts of gender dysphoria and stigmatization.[30] However, psychotherapy is a sensitive and complex topic because these patients do not consider their gender dysphoria as a disease.[31] Nevertheless, our data underline the important aspect of preoperative psychotherapy, as most of the patients appreciated it. Psychiatrists and psychologists experienced in gender dysphoria are also a valuable resource for medical, bureaucratic, and legal guidance. Postoperatively, only a third of our patients has been under psychotherapeutic treatment with mostly few sessions. This endorses the positive impact of GCT on psychological well-being and the decrease of psychopathologies, an argument shared by other authors as well.[32,33]

The questionnaire that assessed patients' desires before and their occurrence after GCT can be separated into 2 main groups: body image

TABLE 2. Preoperatively Desired Advantages of GCT and Their Postoperative Occurrence

	Preoperatively Desired	Postoperative Occurrence	Postop/Preop Ratio
	n (%)	n (%)	%
To be content with my body	43 (91.5)	42 (89.4)	97.7
To feel feminine	35 (74.5)	35 (74.5)	100
To feel more balanced	35 (74.5)	38 (80.9)	108.6
To look without shame into a mirror	25 (53.2)	24 (51.1)	96
To feel more free in choosing clothes	28 (59.6)	29 (61.7)	103.6
To be more appealing to my partner	13 (27.7)	11 (23.4)	84.6
To visit a swimming pool without inner inhibition	34 (72.3)	33 (70.2)	97.1
Improvement of well-being	41 (87.2)	41 (87.2)	100
Improvement in family/partnership	15 (31.9)	12 (25.5)	80
Improvement in job/finances	11 (23.4)	10 (21.3)	90.9
Improvement of social life	21 (44.7)	18 (38.3)	85.7
Improvement of sexual life	33 (70.2)	29 (61.7)	87.9

Postop, postoperative; preop, preoperative.

TABLE 4. Patient Health Questionnaire

	Study Group			Norm Data Löwe et al[24]			*t* Test
	Mean	SD	No.	Mean	SD	No.	*p**
Score	2.20	1.89	44	1.76	2.06	5003	0.315

*Significant statistical differences at $P < 0.05$ (unpaired *t* test).

TABLE 6. Evaluation of RSES

	Study Group			Norm Data Schmitt and Allik[26]			*t* Test
	Mean	SD	No.	Mean	SD	No.	*p**
Score	32.81	5.94	47	30.85	4.82	16,998	0.029

*Significant statistical differences at $P < 0.05$ (unpaired *t* test).

and well-being. Preoperatively, improvements of both aspects were highly expected. The postoperatively increased patient satisfaction with their body and feminity was the most impressive finding. Similar results were also shown in a prospective study for MTF and female-to-male (FTM) transsexuals.[34] Furthermore, most patients stated more balance in life and an improved well-being as one of the postoperative advantages. Improvements in financial issues and family life were not expected and could ultimately not be found for most of our patients. A lack of social support has been pointed out by an older study as a factor predictive of regret after GCT.[35] Our data cannot prove Landen's findings but show that social support is still a serious necessity for transgender patients. This perception was also found in a recent study.[28] In addition, the benefit of social and familial support was reported by other authors as well.[36,37]

In this study, we analyzed the dynamics of sexual orientation of transgender women before and after GCT. Forty-eight percent initially showed an attraction to women. This figure decreased to less than half (21%) postoperatively. Most participants considered themselves as bisexual after surgery, a finding reported in our previous study.[3] Preoperative data similar to ours are published in several studies.[38] Furthermore, De Cuypere et al[16] detected the same decrease in attraction toward females. In a different study, 78% were attracted to men only postoperatively.[17,39] Our data describe a change of transgender women away from the formerly expected role of a man attracted exclusively to women: after GCT, patients are mostly bisexual or androphilic. Research involving the sexuality of patients with gender dysphoria undergoing GCT is still a matter of ongoing debate. On the one hand, our findings may confirm results shown in a recent review and an associated study.[40,41] On the other hand, it is in contrast to Weyers et al[29] who stated that 74% did not change their sexual preferences.

The outcomes of the PHQ-4 indicate still existing depression and anxiety in some patients after GCT. Although before surgery, only 1 patient stated to suffer from depression, it is reasonable to assume that even more patients were having depressions (although they may not be diagnosed). Transgenders are at increased risk for high-grade depression and anxiety and therefore would display higher preoperative PHQ-4 scores.[14] Postoperatively, this particular patient only had a mildly positive score for depression in the PHQ-4 and did not have any further psychotherapeutic sessions. A higher risk for depression was found for 22.6% of MTF transsexuals without GCT in a recent study.[42] A screening for postoperative depression may be useful to aim for a multidisciplinary treatment, as surgery cannot solve deep psychological issues per se. Nevertheless, the mildly positive score and the nonsignificant contrast to norm data advocate GCT as a therapeutic procedure. A so-called *reduction in psychopathologies* after reassignment treatment was also found in a current prospective study.[32]

The FPI-R questionnaire revealed normal emotional stability and suggests satisfaction with life, a lack of deeper inner conflicts, and an optimistic perspective on the patients' future. This is remarkable because gender dysphoria is considered as a psychological disease with an underlying conflict between the natural sex and the feeling of belonging to the opposite sex.[11] Our findings may support the hypothesis that GCT decreases these feelings of incongruence. To our knowledge, there is only 1 study that used the FPI-R questionnaire among transgender patients before.[43] Their 10-year-long follow-up study showed a decrease of FPI-R scores, especially in the *emotionality* module, after sex reassignment treatment for a study group of MTF and FTM. Those results of even higher emotional stability may be owing to the longer period between GCT and the completion of the questionnaire. For instance, these patients may have adapted more to their new life situation and developed even greater stability than we could show for our study group. Nevertheless, this is contrary to increased emotionality, which may be caused by hormone therapy. However, this is well accepted by patients looking forward to living their new life in a female body.[44]

The results of the RSES can be interpreted as a proof of high self-esteem within our postoperative study group. The RSES has been used in transgender research before but only preoperatively or, in other reports, for a small number of postoperative patients. In literature, we can find scores varying from 14.8 to 29.4 that are below ours.[45–47] Therefore, we conclude a measurable improvement of self-esteem after GCT. The patients seem to identify well with the surgical outcome and develop a high self-esteem that is significantly greater than norm data.

Because of our retrospective study design, this report is not without certain limitations on comparing preoperative and postoperative changes of psychopathologies. Furthermore, this study does not try to give valid results for all transgender patients but gives an overview of postoperative depression and mental health after GCT of transgender women.

Future prospective studies may help to confirm our findings and rule out bias due to the retrospective interrogation. The sample size of this study may also have effects on the presented results. The size of the population, nevertheless, comes along with the rather strict inclusion criteria. Studies by other research groups using standardized questionnaires as well may result in a better comparison and more weighted conclusions.

TABLE 5. Evaluation of Freiburg Personality Inventory

				t Test
	Mean	SD	n (%)	*p**
Study Group	5.89	2.97	47	0.490
Norm Data Fahrenberg et al[25]	6.20	3.60	2035	
Most stable (1–2)			6 (12.8)	
More stable (3–5)			16 (34)	
Stable (6–7)			11 (23.4)	
Rather unstable (>8)			14 (29.8)	

*Significant statistical differences at $P < 0.05$ (unpaired *t* test).

CONCLUSIONS

Based on our study results, patients who underwent GCT with the combined vaginoplasty technique suffer from less depression and other psychopathologies. Postoperatively, they seem to have high self-esteem with stable emotionality and sane self-assessment. Our study group needed fewer psychotherapy sessions after GCT, and numerous of their preoperative desires did come true after undergoing surgery. Next to psychotherapy, GCT takes a major role in an interdisciplinary process of gender reassignment and has a positive influence not only on the physical satisfaction but also on the psychological well-being. This favorable outcome also applied for the 1 patient who has had

depressions preoperatively. After GCT, she did not consult psychotherapists anymore and scored low on the PHQ-4.

The retrospective study design comes along with limitations as to preoperative and postoperative changes of psychopathologies. Researchers should be reinforced to lay out larger prospective studies to detect and treat psychopathologies of transgender people.

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