Quality of Life and Satisfaction in Transgender Men After Phalloplasty in a Retrospective Study

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Background: Partly as a result of the increasing attention directed toward transgender individuals and despite much research work on the topic of quality of life (QOL) of transgender, there is still a lack of studies using standardized questionnaires in their evaluation.

Aims: We designed a survey to evaluate the influence of surgery after phalloplasty (osteofasciocutaneous fibula free flap or osteofasciocutaneous radial free forearm flap) on QOL, emotional stability, self-esteem, and psyche of postoperated transgender men.

Methods: The present study included 32 transgender men who had undergone gender-affirming surgery (GAS) exclusively in our department between 2000 and 2012. Apart from our self-developed, indication-specific questionnaire with questions on socioeconomic and demographic data as well as postoperative satisfaction, the testing instrument included 4 frequently used, standardized testing instruments, which we compared with normative data. These included (*a*) a self-assessment test Fragebogen zur Lebenszufriedenheit with questions on QOL consisting of 3 modules (general satisfaction, satisfaction with health, and satisfaction with body image/outer appearance), (*b*) the Freiburg Personality Inventory, (*c*) the Rosenberg Self-Esteem Questionnaire, and (*d*) the Patient Health Questionnaire 4.

Findings: Our self-developed, indication-specific questionnaire showed that 88% of our patients were very satisfied with the aesthetic result, 75% have had sex after surgery, and 72% were very satisfied with sexual function after GAS. Eighty-one percent had a strong improvement of QOL, and 91% would undergo the same treatment again. Eighty-four percent would recommend GAS to others. All patients lived as men fulltime.

Discussion: Our study reveals that GAS plays an important part in the interdisciplinary treatment of transgender individuals as it improves the QOL in transgender men in most aspects of everyday life and has a positive influence on the patients' psyche and self-esteem in a retrospective study.

Key Words: transgender, phalloplasty, self-esteem, psyche, questions on life satisfaction

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Transgender individuals are assigned a different gender at birth. This may often cause distress in their everyday lives from early childhood on, affecting areas such as relationships with family, friends, partnership, job, mental health and sex life, and significantly influencing a person's quality of life (QOL). Affected people have the desire to change their phenotype and often, adjusting their bodies to their internal disposition is the only way out of their suffering. In the transition process, hormone replacement therapy and gender-affirming surgery (GAS) play an important role. The World Professional Association for the Health of Transgender offers standards for the treatment of transgender individuals.[1]

Aesthetically pleasing external appearance of the penoid, satisfactory sexual functioning, and enabling voiding while standing are the desirable goals in transgender man GAS. Successful GAS is an essential condition for successful gender affirmation,[2] whereas it is critical to choose the respective method for every patient individually. In close consultation with the patient, all advantages and disadvantages associated with particular treatments are carefully weighed against each other to identify the most suitable method for the individual concerned. Gender-affirming surgery still is and will remain a challenging surgical procedure in the transition process of both transgender men and transgender women.

A series of studies on QOL conducted by our research group by means of standardized questionnaires have shown a positive effect on patient's QOL after plastic, reconstructive, and aesthetic surgery.[3–8] Although we have recently reported on QOL improvements and positive developments in transgender women in both retrospective as well as prospective studies using standardized questionnaires,[9,10] the study at hand focuses on QOL in transgender men. Andréasson et al[11] and Passos et al[12] mentioned that there is still paucity of standardized measures in studies about QOL after GAS. Hence, to obtain more detailed investigation results, our assessment includes not only a self-developed indication-specific questionnaire but also standardized testing instruments.

Because it does not seem reasonable to equate 2 radically different surgical procedures (vaginoplasty and phalloplasty), we highly recommend to consider both groups separately in evaluation. Postoperative complications, for example, those happen to occur in one of the said methods, comparably often might have a negative effect on the patients' evaluation, thus falsifying the overall results. In our department at a university teaching hospital, we perform both the osteofasciocutaneous fibula free flap (FFF) and osteofasciocutaneous radial free forearm flap (RFFF). The procedure consists of 3 steps that have already been addressed sufficiently in academia.[13–17] Furthermore, this study could help in finding global accepted standards in the challenging evaluation process of QOL of transgender individuals.

METHODS

Fifty-nine diagnosed transgender men who fulfilled our inclusion criteria were recruited and asked to take part in our study. All of

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TABLE 1. Sociodemographic Information

	n (%)	Mean (SD)	Median
Age		33.7 (8.31)	33
Body mass index		25.06 (3.72)	24.2
Family status			
Single	19 (59.4)		
Married	8 (25)		
Divorced	5 (15.6)		
Education			
No graduation	1 (3.1)		
Main school	4 (12.5)		
Secondary education*	26 (81.3)		
University	1 (3.1)		
Health situation			
Very good	13 (40.6)		
Good	14 (43.8)		
Moderate	5 (15.6)		
Bad	0 (0)		
Very bad	0 (0)		
Job			
Employed	23 (71.9)		
Unemployed	4 (12.5)		
Student	2 (6.3)		
Autonomous	2 (6.3)		
Retired	1 (3.1)		
Living as male, mo	90.6		

*For example, general certificate of secondary education, high school, diploma, and O level.

them underwent GAS in our department between 1990 (1 patient, the rest after 2000) and 2012 and received either a free sensate FFF or RFFF. We only included German-speaking patients and excluded those who already had an operation in a different, external department. The mean follow-up time was 5 years with a minimum of one and a half and a maximum of 12 years. Fifty-nine patients were suitable for our study. Those were contacted at least 6 months after their last step in GAS. Only 36 (61%) who met the inclusion criteria were contactable (by phone or via post), and 32 (54%) agreed to participate (8 with FFF, 24 with RFFF). Finally, our questionnaire was sent by mail to each of these 32 patients. In addition to our assessment documents, the mailing contained a stamped return envelope. If the participant did not send back the completed questionnaires within 15 days, a phone call was made. If the assessment documents were not sent back after a further 15 days, another reminder phone call was made to nonresponders.

This study has been carried out in accordance to the 1964 Helsinki Declaration and its later amendments and has been approved by our university's ethics committee (Approval Number 252/14 TUM).

We used the SPSS software for all statistical analyses (2016, IBM SPSS Statistics for Windows Version 24.0; IBM Corp, Armonk, NY). The statistical significance for all tests was set at a P value of 0.05 or less using the unpaired t test. For multiple testing, we corrected with the Bonferroni test.

MAIN OUTCOME MEASURES

The 22-page questionnaire consisted of our self-developed, indication-specific questionnaire with questions on socioeconomic (family/friends/partner/job), sex life, demographic data, and postoperative satisfaction. We included a test on life satisfaction (Fragebogen zur Lebenszufriedenheit [FLZ^M]) the Freiburg Personality Inventory (FPI-R), the Rosenberg Self-Esteem Questionnaire (RSES), and finally a 4-item measure of depression and anxiety (Patient Health Questionnaire-4 [PHQ-4]). The latter four are standardized questionnaires, which can be compared with normative data.

The FLZ^M was developed in our Department of Psychosomatic Medicine. It consists of 3 modules: "general satisfaction," "satisfaction with life," and "satisfaction with outer appearance/body image." The FLZ^M is a widely used, validated testing instrument, which can be compared with normative data from German-speaking countries.[18] Unfortunately, for the module "satisfaction with outer appearance/body image," no norm data for a healthy population were available. We therefore compared our results of QOL with preoperative data of a prospective study from our study group.[6]

The FPI-R is a standardized testing instrument, which is widely used in German-speaking countries.[19] For our study, we used only the item "emotionality" to gain information about the patients' character and emotional stability.

TABLE 2. FLZ^M–General Satisfaction*†

	Norm Data			Study Group				t‡	
	n	M	SD	n	M	SD	↑/↓	P	Results
Friends	2536	8,5	5.8	32	10.5	7.5	↑	0.15	NS
Free time/hobbies	2531	6.9	5.6	32	7.1	5.6	↑	0.87	NS
Health	2541	9.3	7.1	32	10.1	8.2	↑	0.37	NS
Income/financial situation	2573	5.6	7.1	32	4.7	7.5	↓	0.52	NS
Job	2462	5.7	7.4	32	5.8	8.0	↑	0.98	NS
Living conditions	2533	9.1	6.2	32	9.4	7.6	↑	0.83	NS
Family/children	2519	9.7	7.3	32	6.6	7.9	↓	0.03	NS
Partnership/sexuality	2509	7.6	7.8	32	7.9	10.2	↑	0.85	NS
Sums core	2534	62.5	36.7	32	62.6	41.1	↑	0.99	NS

*Henrich and Herschbach[18] (2000).

†Test on life satisfaction.

‡Statistically significant difference with $P < 0.006$ with Bonferroni correction (unpaired t test).

M, mean; NS, not statistically significant.

Another popular and internationally used standardized questionnaire is the RSES, which gathers more information about the patients' self-esteem.[20] Normative data are available from another study with results from 53 different countries.

The PHQ-4[21] is a simple and brief 4-item standardized measure of depression and anxiety to detect depressive symptoms in an individual (German normative data n = 5003).[22] It is a combination of the first 2 questions of the GAD-2 for anxiety[23] and the first 2 questions of the PHQ-2 for depression.[24] It is based on the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Diseases, Fourth Edition*, criteria for depressive episodes.

RESULTS

Self-developed, Indication-Specific Questionnaire

Table 1 shows all important sociodemographic information. Eighty-eight percent were very satisfied with the aesthetic result. A further 75% had sexual intercourse after surgery, and 72% were very satisfied with sexual function after GAS. Moreover, 81% reported a marked improvement in QOL and 91% would undergo the same treatment again. In addition, 84% would recommend GAS to others. Equally importantly, all patients now live as men fulltime, with 91% not regretting GAS, 2 sometimes regretting, and 1 regretting it. The highest complication rate was seen within urologic problems such as urethral fistula (30%) and stricture (28%), and 2 patients reported a total loss of the penoid.

The FLZ^{M}

Regarding the results of the module "general satisfaction," improvement was apparent for 5 items and the sum score but with no statistically significant influence (Table 2).

Regarding the module "satisfaction with health" (Table 3), there was a not statistically significant higher sum score (91.7) compared with norm data (74.5, $P = 0.01$). Higher values with statistical significance were apparent for the items "mobility" ($P < 0.0001$), "vision/hearing" ($P = 0.04$), and "freedom from anxiety" ($P = 0.002$).

For the module "outer appearance/body image" (Table 4), higher values with not statistical significance were reached for the 17 items including the sum score.

The FPI-R, RSES, and PHQ-4

The results of the FPI-R indicated that patients' emotionality after GAS was very well balanced and the results of the RSES showed up high self-esteem for the participants in our study. The PHQ-4 demonstrated a "normal psyche" in our patients (Table 5).

DISCUSSION

The term "gender identity disorder," which describes a mental illness, was replaced by "gender dysphoria." People experiencing gender dysphoria, like transgender people, often have to cope with stress, anxiety, and depression. This is what the treatment of transgender people has to deal with. The Utrecht Gender Dysphoria Scale and the Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults are 2 examples to measure gender dysphoria.[25] The used standardized questionnaires in our study might be helpful in developing generally accepted, validated, and standardized tools in measuring gender dysphoria and the effects of its surgical treatment.

Willingness for Participation and Respondent Rate

We recruited 59 patients living in Germany suitable for our study. Sixteen patients changed address, 7 changed their phone number, and 4 did not want to participate because they wanted to put this period of life behind them. In the end, our study numbered 32 (54%). Similar results were found in other study groups, with a response rate of 37% to 64%.[2,26–30]

In the context of the literature dealing with QOL focusing only on transgender men, the present study has a large number of respondents. We found only a few recent studies, which do not comingle transgender men and women,[27,31,32] but participants of Costantino et al[31] did not receive phalloplasty. Most other studies treat both groups homogeneously.[26,29,33–37] Researchers would be well advised not treat transgender men and women as a homogeneous group in their investigations as they are strictly speaking 2 very different patient groups. Of course, both groups have the desire to change their phenotype (ie, to be seen as a real cisman or ciswoman) in common, but they may have very different expectations. The 2 different surgical procedures, phalloplasty and vaginoplasty, should not be mixed in the evaluation of QOL in transgender individuals after GAS, because these have different complications and also different complication rates, which might produce an unwarrantedly negative impression on the participant and thus falsify the results. Because research work exclusively focusing on either

TABLE 3. FLZ^{M}–Satisfaction With Health*†

	Norm Data			Study Group				t‡	
	n	M	SD	n	M	SD	↑/↓	P	Results
Fitness	2220	8.1	7.0	32	9.1	6.2	↑	0.39	NS
Ability to relax	2214	7.4	6.5	32	7.3	7.3	↓	0.95	NS
Energy	2215	9.1	6.5	32	10.0	8.1	↑	0.57	NS
Mobility	2210	9.1	7.0	32	14.2	6.4	↑	$P < 0.0001$	SS
Seeing and Hearing	2217	11.0	7.0	32	13.5	6.5	↑	0.04	NS
Freedom from anxiety	2204	8.1	6.7	32	11.7	6.2	↑	0.002	SS
Freedom from pain	2217	9.1	7.4	32	9.2	8.5	↑	0.97	NS
Independence from assistance	2215	12.4	6.7	32	16.8	4.9	↑	$P < 0.0001$	SS
Sum score	2218	74.5	41.5	32	91.7	35.4	↑	0.01	NS

*Henrich and Herschbach[18] (2000).

†Test on life satisfaction.

‡Statistically significant difference with $P < 0.006$ with Bonferroni correction (unpaired t test).

M, mean; NS, not statistically significant; SS, statistically significant.

TABLE 4. FLZ^{M}–Body Image*†

	Norm Data			Study Group				*t**	
	n	M	SD	n	M	SD	↑/↓	*P*	Results
Hair	130	6.7	6.4	32	7.0	7.9	↑	0.94	NS
Ears	130	7.9	5.5	32	8.4	5.9	↑	0.65	NS
Eyes	130	9.8	6.2	32	13.4	5.3	↑	0.002	NS
Nose	130	6.9	7.0	32	9.2	6.1	↑	0.07	NS
Mouth	130	11.2	21.3	32	10.7	6.2	↓	0.80	NS
Teeth	129	7.7	6.8	32	9.9	6.9	↑	0.11	NS
Facial hair	120	5.9	7.0	32	6.6	8.0	↑	0.68	NS
Chin/neck	130	5.7	5.8	32	7.7	6.5	↑	0.12	NS
Shoulders	130	6.1	5.0	32	8.5	7.3	↑	0.09	NS
Breast	129	−2.4	14.2	32	4.7	7.1	↑	0.0001	SS
Belly	127	1.7	8.1	32	3.3	7.3	↑	0.29	NS
Waist	129	3.4	7.3	32	1.8	8.4	↓	0.33	NS
Hip	127	2.6	6.7	32	1.7	7.7	↓	0.56	NS
Penis	122	6.1	5.5	32	8.3	6.8	↑	0.09	NS
Bottom	129	4.1	6.9	32	4.9	6.8	↑	0.55	NS
Thigh	130	2.6	6.9	32	6.2	7.4	↑	0.01	NS
Feet	130	5.3	6.0	32	6.7	6.1	↑	0.25	NS
Hands	129	7.9	5.8	32	9.3	7.5	↓	0.33	NS
Skin	129	7.3	6.9	32	8.1	6.2	↑	0.52	NS
Body hair	127	4.9	6.3	32	5.9	5.6	↑	0.36	NS
Height	128	5.1	5.4	32	1.2	7.3	↓	0.007	SS
Weight	130	3.8	7.6	32	2.2	6.9	↓	0.26	NS
Sum score	130	121.0	81.4	32	146.0	90.1	↑	0.16	NS

*Papadopulos et al[6] (2007).

†Test on life satisfaction.

‡Statistically significant difference with $P < 0.002$ with Bonferroni correction (unpaired *t* test).

M, mean; NS, not statistically significant; SS, statistically significant.

transgender men or women is still underrepresented in literature, we chose to evaluate both groups separately.[8,10]

In addition, most studies focusing only on transgender man and combining transgender men and women in their evaluation mostly have a lower number of female to male participants than the present study.[26,27,34–38] The number of 32 transgender men included in this study may, prima facie, seem low, but given the low numbers of participants in other research work and bearing in mind the rareness of gender dysphoria, with an estimated incidence of transgender in Germany of 0.3%,[39] it may be considered high.

Sociodemographic Results

The mean age of this study group of transgender men was 33.9 years at the time of entry (youngest 19 years, oldest 49 years). In their study, De Cuypere et al[36] had similar findings; Motmans et al[28]

TABLE 5. Results of the FPI-R, RES, and PHQ-4*

	Norm Data			Study Group				*t*†	
	n	M	SD	n	M	SD	↑/↓	*P*	Results
FPI-R‡	2035	6.2	3.6	32	5.3	4.1	↓	0.226	NS
RES§	782	31.7	4.7	32	35.1	4.7	↑	0.0004	SS
PHQ-4‖	5003	1.8	2.1	32	1.6	2.2	↓	0.9	NS

*Four-item measure of depression and anxiety.

†Statistically significant difference with $P < 0.05$ (unpaired *t* test).

‡Fahrenberg et al[19] (2002).

§Schmitt and Allik[20] (2005).

‖Loewe et al[22] (2010).

M, mean; NS, not statistically significant; SS, statistically significant.

TABLE 6. FLZ^M–Body Image (Divided Into 2 Groups, <170 cm and ≥170 cm)*

	Norm Data			Study Group				*t*†	
	n	M	SD	n	M	SD	↑/↓	*P*	Results
Height	128	5.1	5.4	32	1.2	7.3	↓	0.007	SS
Group‡	128	5.1	5.4	17	−2	7.5	↓	0.007	SS
Group§	128	5.1	5.4	15	4.7	5.2	↓	0.7	NS

*Test on life satisfaction.

†Statistically significant difference with $P < 0.025$ with Bonferroni correction (unpaired *t* test).

‡Group with patients <170 cm.

§Group with patients ≥170 cm.

M, mean; NS, not statistically significant; SS, statistically significant.

and Wierckx et al[32] found a higher mean age. Recent research work by our study group reported a mean age of 38.6 and 38.3 years for transgender women.[9,10] Generally, in literature, the mean age of transgender women at study entry was higher.

With 81.3% of the participants having completed secondary education, their educational level was generally high. Only 13% of the participants were unemployed. This differs from the global literature, where the numbers waver between 6 and 69.[40] In 2 previous studies by our research group, we found similar results compared with our study.[9,29] Potential reasons for the high level of education and the high socioeconomic status might be linked to indirect positive selection because of the low rate of participation. Furthermore, strict compliance with criteria for the diagnosis of gender identity disorder—and thus the decision for GAS—might follow from high educational level and the high socioeconomic status.

Surgical Complications

Phalloplasty is seen as the procedure with the highest complication rates.[26] Ninety-one percent of our patients had postoperative complications. In this study, urologic complications such as urethral fistula and stricture (31% and 28%) were the most frequent, whereas total loss of the penoid was low. This is comparable with early research.[41,42] Despite the relatively high complication rates in phalloplasty, the patients had a better QOL after GAS and 91% would choose the same operations again. One patient regrets and 2 sometimes regret GAS not because of wish for detransition but the fact that they would choose a different operative method. Van de Grift et al[26] found a context between postoperative satisfaction and psychological characteristic. Patients with an instable psyche preoperative might score worse compared with patients with a well-balanced psyche. This might be one of the reasons for the good overall satisfaction after GAS as 85% of our patients had frequently seen a psychologist before operation and all patients had an intense medical briefing by a surgeon preoperative. This highlights the need for a close cooperation between surgeons and psychologist to guarantee patients high attention preoperative.

Sex Life

Quality of life is a multidimensional construct, and mental health is an important part of multidimensionality in the assessment of QOL.[43,44] To our knowledge, most studies in global literature lack information on postoperative satisfaction with sex life. De Cuypere et al[36] showed that satisfying sexual function is an important part of mental health. There are a few studies dealing with this issue.[26,27,32,34–37] De Cuypere et al[36] and Klein et al[34] focused on sexual functioning after GAS but did not take most other important parts of the multidimensional construct of QOL into consideration. Wierckx et al[32] reported 93% of their patients reaching orgasm through masturbation and 78% through sexual intercourse. Those results are comparable with this study, with 93% reaching orgasm through masturbation and 75% reaching orgasm by having sex. A reason for less participants reaching orgasm through sexual intercourse might be anxiety in doing harm to the penoid. This might cause loss in sexual functioning by inhibiting arousal and sexual desire and therefore in attaining orgasm. Seventy-two percent of the transgender men were very satisfied with their sexual functioning postoperatively, and this is in accordance with the findings of most other authors. The validity of the results of the present study concerning the sexual satisfaction after GAS might be limited, as questions on this item were self-developed and there was no comparison with normative data.

General Satisfaction, Satisfaction With Health, and Satisfaction With Outer Appearance/Body Image

The sum score of the general satisfaction with life was above norm. This differs from one of our previous studies (Zimmermann et al,[29] 2006), where the sum score was significantly lower than the result of the norm population. A lower sum score was also found in a recent investigation by our study group on transgender women but was without statistical significance.[9] Furthermore, Van de Grift et al[27] reported a significantly lower outcome in general satisfaction compared with a control group by using the Satisfaction With Life Scale. Not statistical significant deterioration was evident in the subitem "family/children" showing that more intimate parts of life, such as family life, were disturbed. However, this seems to be contradictory as a very high acceptance within the family was reported in our self-developed, indication-specific questionnaire. The dissatisfaction apparent in the result might be explained by the desire for a picture-perfect family with children. Only 2 of our participants reported having at least 1 child. We further found improvement in the subitem "partnership/sexuality," which differs from a previous study.[29] A possible reason for the positive outcome of the study group in this research might be the satisfactory sexual functioning and thus satisfactory sex life. Abramowitz[45] concludes that the most positive increase is achieved in sexual and social relations and decrease occurs in the aspects "financial situation" and the "situation in the job." Our results differed from those in the study by Abramowitz[45] as we found evidence of a better outcome for our patients regarding the item "job." This might be influenced by a high acceptance by colleagues and a low rate of unemployed respondents. The dissatisfaction within the item "income/financial situation" might be resulting from the pursuit of a "typically male" job and the required retraining leading to financial loss.[29] Furthermore, a long transformation process could cause a possible break in climbing the career ladder followed by lower salary compared with an employee in the same profession and of the same age.

Regarding the module "health," our patients were more satisfied than the norm data, which were shown by a higher sum score. Except for the subitem "ability to relax," all other subitems showed higher values. The worse outcome of our patients in the item "ability to relax"

seems to be contradictory as another standardized assessment tool in this research (FPI-R and PHQ-4) showed participants to have well-balanced emotionality and normal psyche. Kuhn et al,[38] Wierckx et al,[32] and Motmans et al[28] reported bad general and mental health after GAS, which we could not confirm. All 3 used standardized measurements in their evaluation, the latter two used the Symptom-Checklist 90.

For transgender individuals who wish to migrate gender, appearance is especially important, which makes surgery exceptionally challenging. Besides our recent research on transgender women,[9] we found only a few studies in the international medical literature concerning "body image/outer appearance."[27,46,47] Regarding the results of the FLZ module "body image/outer appearance," our patients were very satisfied with their external appearance, which resulted in a higher sum score compared with the norm population. We found improvement in 16 items. Five items showed worsening, "height" with statistical significance. We divided our patients into 2 groups (height < 170 cm and ≥170 cm). Both groups were still below the norm population (Table 6), but the second group no longer had statistical significance. The mean height for women aged 30 to 35 years in Germany is 167 cm, whereas for men, it is 180 cm (Statistisches Bundesamt, 2018).[48] Height is a natural factor, which is determined by genes and also by gender and cannot be influenced by GAS (Table 6).

The FPI-R, RSES, and PHQ-4

Apart from our own study and those cited,[26–28,35,38] we found no others dealing with emotional stability, self-esteem, and psyche. In our research, the patients had very balanced emotionality, higher self-esteem compared with norm data, and "normal psyche." Van de Grift et al[27] used the Body Image Scale for the evaluation of body image and self-esteem and the Hospital Anxiety and Depression Scale for the evaluation of psychological symptoms. They could not find any difference before GAS and norm data in the items depression, self-esteem, and anxiety. Both Wierckx et al[32] and Motmans et al[28] used the Short Form Health 36 questionnaire, which contains 36 questions on 8 subitems including "general mental health" and "role limitations due to emotional problems." In both studies, transgender men scored significantly lower in the subitem "mental health" and had worse, but not significantly, outcome in the subitem "role limitations due to emotional problems."

CONCLUSIONS

According to the results of our study, transgender patients who received GAS with phalloplasty (either a FFF or a RFFF) had an improvement of QOL postoperative. This includes a better sex life, satisfactory cosmetic results, as well as a stable psyche with a higher self-esteem and stable emotionality. Furthermore, we could show that there might be a context between an intense medical briefing and a psychiatric/psychotherapeutical treatment preoperative, which might have a positive influence on results after GAS.

Thanks to the extensive progress in microsurgery, autologous penile transplantations might become a potential alternative to phalloplasty, but there are obstacles to overcome not least of which are finding a donor and the profound ethical issues involved.[49]

Future investigations should be based on preoperative and postoperative data and should include a control group, for example, unoperated transgender individuals or patients with a different technique (eg, metoidioplasty) as postoperative goals differ from technique to technique. Another limitation of this study could be the low number of participants and the long-term follow-up. Future work should comply with a strict time of follow-up including participants in the same postsurgical stage and potentially a second examination of the same patients a few years later (eg, first investigation 2.5 years and a second investigation another 2.5 years after GAS). Finally, universal established and well-validated testing instruments are needed in the evaluation process of transgender individuals to achieve higher validity and comparability.

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