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ORIGINAL ARTICLE / ARTICLE ORIGINAL

Long-term follow-up: psychosocial outcome of Belgian transsexuals after sex reassignment surgery

Suivi à long terme : résultats sur le plan psychosocial de la réassignation de sexe chez les transsexuels belges

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Transsexual;
Gender identity disorder;
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Outcome;
Psychosocial functioning, SCL-90;
Psychopathology

Abstract
Background. — To establish the benefit of sex reassignment surgery (SRS) for persons with a gender identity disorder, follow-up studies comprising large numbers of operated transsexuals are still needed.
Aims. — The authors wanted to assess how the transsexuals who had been treated by the Ghent multidisciplinary gender team since 1985, were functioning psychologically, socially and professionally after a longer period. They also explored some prognostic factors with a view to refining the procedure.
Method. — From 107 Dutch-speaking transsexuals who had undergone SRS between 1986 and 2001, 62 (35 male-to-females and 27 female-to-males) completed various questionnaires and were personally interviewed by researchers, who had not been involved in the subjects' initial assessment or treatment.
Results. — On the GAF (DSM-IV) scale the female-to-male transsexuals scored significantly higher than the male-to-females (85.2 versus 76.2). While no difference in psychological functioning (SCL-90) was observed between the study group and a normal population, subjects with a pre-existing psychopathology were found to have retained more psychological symptoms. The subjects proclaimed an overall positive change in their family and social life. None

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of them showed any regrets about the SRS. A homosexual orientation, a younger age when applying for SRS, and an attractive physical appearance were positive prognostic factors.
Conclusion. — While sex reassignment treatment is an effective therapy for transsexuals, also in the long term, the postoperative transsexual remains a fragile person in some respects.

MOTS CLÉS
Transsexualisme ;
Réassignation de sexe ;
Suivi à long terme ;
Psychopathologie ;
Fonctionnement psychosocial ;
SCL-90

Résumé
Objectif. — Pour évaluer l'effet de la réassignation sexuelle hormonochirurgicale chez des personnes qui ont un trouble de l'identité de genre il est nécessaire de faire des études de suivi comprenant un grand nombre de patients transsexuels ayant subi l'opération.
But. — Les auteurs veulent savoir comment fonctionnent les transsexuels traités par le genderteam multidisciplinaire de Gand depuis 1985, et cela sur le plan psychologique, social et professionnel après plusieurs années. Ils vont à la recherche de facteurs qui leur permettent de faire un pronostic positif ainsi que d'adapter la procédure.
Méthode. — Parmi 107 transsexuels néerlandophones ayant subi la réassignation chirurgicale de sexe entre 1986 et 2001, 62 sujets (35 MF et 27 FM) ont complété plusieurs questionnaires et ont été interviewés personnellement par des chercheurs qui n'étaient pas impliqués dans le diagnostic et le traitement des sujets.
Résultats. — Le score de la GAF (Axe 4 du DSM-IV) était plus élevé chez les FM que chez les MF (85,2 vs 76,2). On ne pouvait pas observer de différence sur le plan psychologique entre les sujets d'étude et une population normale. En revanche, les sujets qui avaient une psychopathologie antérieure au traitement, gardaient beaucoup plus de symptômes psychologiques. Il y avait une évolution positive au niveau familial et social. Aucune personne n'avait de regrets après la réassignation. Une orientation homosexuelle, un âge jeune au moment de la demande et une apparence physique attirante étaient des facteurs positifs pour le pronostic.
Conclusion. — Le traitement de réassignation sexuelle pour les transsexuels est une thérapie efficace même à long terme. Néanmoins le transsexuel opéré reste une personne fragile en certains domaines.

Version abrégée

Introduction

Une discussion entre ceux qui sont d'avis que la dysphorie de genre est un symptôme psychotique et ceux qui ont la conviction que cette dysphorie est un trouble primaire dont le traitement consiste en une réassignation de sexe (traitement hormonal et chirurgical) est toujours en cours (à Campo et al., 2003). La thérapie de réassignation de sexe chez des personnes avec un problème d'identité de genre reste donc un sujet de controverse. C'est pourquoi il est nécessaire de faire des études de suivi comprenant un grand nombre de patients transsexuels ayant subi ce traitement. La littérature n'offre que peu d'articles incluant plus de cent patients (Smith, 2002, Lawrence, 2003).

Notre genderteam multidisciplinaire de Gand (Belgique), effectuant des thérapies de changement de sexe, est actif depuis 1985. Nous avons adopté les Standards of Care, développés par la Harry Benjamin Gender Dysphoria Association (Meyer et al., 2001). Dans notre team le rôle du psychiatre est crucial dans l'évaluation psychologique des patients pour le diagnostic. Ceux qui souffrent d'un délire sont exclus. Le « real life test » est considéré comme un test complémentaire important.

Le but des auteurs est de savoir comment fonctionnent les transsexuels traités par ce team, et cela sur le plan psychologique, social et professionnel après plusieurs années. Ils vont à la recherche de facteurs qui leur permettent de faire un pronostic positif ainsi que d'adapter la procédure.

Méthode

Sujets

Parmi 107 transsexuels néerlandophones ayant subi la réassignation chirurgicale de sexe entre 1986 et 2001, 30 personnes n'ont pas pu être contactées, 15 personnes ne se sont pas montrées coopérantes. Soixante-deux sujets (35 MF et 27 FM) ont complété plusieurs questionnaires et ont été interviewés personnellement par des chercheurs qui n'étaient pas impliqués dans le diagnostic et le traitement des sujets.

Mesures

Plusieurs items issus d'un questionnaire biographique rempli au moment de la demande (partenaire, travail, contacts sociaux, actes suicidaires et autres) ont été réintroduits pour cette recherche.

Les questionnaires et échelles employés à ce moment étaient : l'UGS (Utrecht Gender Scale), une échelle pour mesurer le degré de la dysphorie de genre (restante), l'échelle GAF (Global Assessment of Functioning — axe 4 du DSM) et la version néerlandaise du SCL-90 (Symptom Checklist). La crédibilité dans le nouveau sexe désiré a été mesurée indépendamment par les trois chercheurs, à la suite de quoi la moyenne a été calculée. Les personnes ont aussi rempli une interview semi-structurée, visant prin-

cipalement à révéler l'évaluation du traitement et les regrets possibles.

Résultats

Dysphorie de Genre
Il n'y avait pas de différence de degré restant de dysphorie de genre entre notre population et la population néerlandaise décrite par Smith (2002).

GAF-score
Les FM atteignaient un score plus élevé que les MF (85,2 vs 76,2). Les personnes les plus jeunes (au moment de leur demande) fonctionnaient le mieux.

SCL-90
On ne pouvait pas observer de différence sur le plan psychologique entre les MF et les FM, ni par rapport à une population normale. En revanche, les sujets qui avaient une psychopathologie antérieure au traitement, gardaient beaucoup plus de symptômes psychologiques.

Tentatives de suicide
Nous constatons qu'après la réassignation de sexe, moins de personnes font une tentative de suicide par rapport à la situation antérieure, mais ce pourcentage reste plus élevé comparé à la population moyenne.

Apparence physique
Les FM sont plus crédibles dans le sexe voulu que les MF. Plus les personnes sont crédibles, moins elles présentent de problèmes sur le plan psychologique.

Résultats sur le plan social
Aussi bien les MF que les FM trouvent que leur situation sociale après leur réassignation s'est améliorée. Davantage de personnes étaient capables d'établir une relation émotionnelle stable. 17,1 % des MF et 14,8 % des FM ne trouvaient pas de travail, soit un pourcentage plus élevé que la moyenne en Belgique.

Satisfaction avec la réassignation de sexe
88, 6 % des MF et 85, 2 % des FM se sentaient heureux, même très heureux après la chirurgie de réassignation. Le pourcentage regrettant la réassignation était très bas : seulement une personne (MF) regrettait son changement, mais continuait à vivre en femme. Cette personne avait eu des épisodes délirants avant sa demande, et avait peu de crédibilité en femme.

Analyse de régression multiple
Une orientation homosexuelle, un âge jeune au moment de la demande et une apparence physique attirante étaient des facteurs positifs pour le pronostic.

Discussion

Une faiblesse de cette recherche est que nous n'avons pas eu la possibilité d'atteindre plus de 60 % des personnes opérées, un pourcentage semblable aux autres recherches de suivi à long terme (Pfäflin et Junge, 1998). Au cours des interviews et à l'aide des questionnaires et les évaluations, nous avons pu constater que cette réassignation de sexe à des résultats positifs aussi bien sur le plan psychologique que sur le plan social. La différence entre les MF et les FM dans cette étude n'a pas été confirmée. Malgré ces résultats positifs, la plupart de ces personnes restent fragiles : le pourcentage des tentatives de suicide reste élevé et davantage de personnes transformées sont incapables de trouver du travail. Les sujets sont plus fragiles s'ils sont moins crédibles dans le sexe voulu et s'ils ont (eu) des problèmes psychiatriques (des troubles de personnalité). Une politique de réassignation prudente est à conseiller ainsi qu'une évaluation permanente durant le traitement hormonal et le real-life test.

Conclusion

Le traitement de réassignation de sexe pour les transsexuels est une thérapie efficace même à long terme. Néanmoins le transsexuel opéré reste une personne fragile en certains domaines.

Full version

Introduction

The benefit of Sex Reassignment Surgery (SRS) has been subject of an ongoing discussion between those who believe gender dysphoria to be a symptom of some psychotic disorder that should be treated psychiatrically and those who hold that gender identity disorder is a primary disorder that should be treated by sex reassignment therapy including hormonal therapy and surgery (À Campo et al., 2003). Unlike in the DSM-III-R, the DSM-IV criteria established for gender identity disorder (GID) do not exclude psychotic features and therefore the diagnosis does not provide any guidelines for therapy. Most gender clinics follow the Standards of Care (SOC) drawn up by the Harry Benjamin International Gender Dysphoria Association (HBIGDA), a professional organization devoted to the understanding and treatment of GID. The SOC provide flexible directions for the treatment of GID with hormone therapy and SRS (Meyer et al., 2001).

To establish the benefit of SRS, follow-up studies comprising large numbers of operated transsexuals are needed. The literature offers only few articles involving more than 100 patients (Lawrence, 2003; Smith, 2002). All these follow-up studies come to the conclusion that SRS is an effective and reliable method to treat transsexuals, except one study by Meyer and Reter (1979). Besides reducing the gender dysphoria, i.e. the distress that originates from the difference that is experienced between one's biological sex and one's basic sense of being a male or a female, what is the mean purpose of SRS, numerous studies also report a better psychological and social functioning after surgery as well as a lower incidence of suicide attempts (Pfäfflin and Junge, 1998; Rehman et al., 1999; Michel et al. 2002, Smith, 2002). Regret-rates after surgery range from 0% to 3.8% (Landen et al., 1998) and 6–8% (McCauley and Ehrhardt, 1984). As SRS is irreversible, it is very important for

the professional to be aware of the negative prognostic factors: higher age at first request, heterosexual orientation, late onset of the gender conflict, lack of support from the family, psychological instability and/or social isolation, less attractive physical appearance, and poor surgical results (Landen et al., 1998). None of these factors, if isolated, proves to be a real contra-indication, but the more negative prognostic factors are present, the less prognosis is certain.

Our multidisciplinary team of the Gender Identity Clinic in Gent has been active since 1985. We have adopted the SOC developed by HBIGDA. In our team, the psychiatrist's role is crucial in evaluating the applicant's mental health and the eligibility and readiness for sex reassignment therapy. Applicants for SRS who are found to be psychotic are excluded from SRS. In cases where some other co-morbidity is found, the following SOC readiness criterion is applied before hormone treatment or surgery is allowed: "The patient has made some progress in mastering other identified problems leading to improving or continuing stable mental health (this implies satisfactory control of problems such as sociopathy, substance abuse and suicidality)" (Meyer et al., 2001). During the 2-year real life test that is required as an additional diagnostic test, the applicants' mental functioning is assessed continuously, which allows for a subtle decision-making process of the wish for a sex change.

The objective of this study was multiple. We wanted to establish how the transsexuals were functioning in the longer term and in different areas: psychological, social and professional. We also wanted to find out whether anyone regretted the operation and whether there were any functional differences between the male-to-female transsexuals and the female-to-male transsexuals. The final aim of the study was to deduce some prognostic factors associated with improved psychological functioning and psychiatric status.

Method

Subjects

One hundred and seven Dutch-speaking transsexuals (63 male-to-females and 44 female-to-males) who had undergone SRS between 1986 and 2001 were eligible for inclusion in our clinical study with a minimum postoperative delay of one year. This one-year period is often called the honeymoon period and does not present a representative picture of the long-term emotional and psychological status. Of these eligible 107 individuals, 30 persons could not be reached (28%, 22 male-to-females and eight female-to-males). Fifteen persons (14%, six male-to-females and nine female-to-males) refused to cooperate because they did not wish to be confronted with their past, six agreed to cooperate on condition they were not required to come to the clinic. The latter completed the questionnaires that were sent to them and returned them by mail. The 56 other participants (33 male-to-females and 23 female-to-males) were personally interviewed by two psychologists and examined by a surgeon and an endocrinologist. None of the investigators had been involved in these subjects' initial assessment or treatment.

Table 1 Age at various moments
Âge lors des différentes étapes

	MF (N = 35)		FM (N = 27)		
	Mean	S.D.	Mean	S.D.	P
Age at first consultation	35.6	9.2	23.5	5.6	**<0.001**
Age at time of SRS	37.7	9.2	27.4	7.1	**<0.001**
Age at time of the study	41.4	9.1	33.3	6.8	**<0.001**
Follow-up period	4.1	3.8	7.6	7.1	0.117

Mann–Whitney U-test showed the male-to-females were significantly older than the female-to-males at the time of assessment ($P < 0.001$), at the time of SRS ($P < 0.001$) and at the time of the study ($P < 0.001$) (Table 1). The mean follow-up period (the time between genital surgery and the study) was different for the male-to-females and female-to-males, with a longer follow-up period for the latter ($P = 0.117$).

While a Kruskal–Wallis test showed that neither on the age at first consultation ($P = 0.579$) nor on the age at the time of SRS ($P = 0.755$) our subjects differ significantly from the overall population of 107 people we had tried to contact for this study, a Mann–Whitney U-test demonstrated that the age at the time of the study was significantly higher ($P = 0.018$), and that the follow-up period was significantly longer ($P = 0.017$) for those we did not reach than for those who participated. This supported our hypothesis we did not reach those people because they had left the centre for a much longer time.

All participants gave written informed consent for participation in this study, which was approved by the Ethical Committee of the Ghent University Hospital.

Measures

As all the persons with a gender identity disorder (GID) had been interviewed during the standard intake procedure in our clinic, we used some biographical data derived from their clinical files: partners, employment, social contacts, feelings of loneliness, and suicide attempts. These items were re-introduced in our study. As part of the intake procedure, all patients had been clinically diagnosed following the DSM-IV with special attention for comorbidity on Axis I (clinical disorders) and Axis II (personality disorders). It appeared that 45.7% of the male-to-female transsexuals and 14.8% of the female-to-males were diagnosed with co-morbidity on Axis I, while 40% of the male-to-females and 22.2% of the female-to-male transsexuals showed a personality disorder.

The Utrecht Gender Scale (UGS) (Smith, 2002) was used to measure the degree of gender dysphoria after transition. On this 12-item scale, the subject rated his/her agreement on a 5-point scale. The scores ranged from 12 to 60: the higher the score, the more gender dysphoria remained. There was a version for the male-to-females and one for the female-to-males. The internal consistency was high for both versions: Cronbach $\alpha = 0.83$ for the male-to-female version and $\alpha = 0.84$ for the female-to-male version.

The global assessment of functioning scale (DSM-IV) was used to evaluate the general functioning in daily life. The GAF-scale is divided into ten different aspects of functioning. These aspects were assessed by the interviewers on a hypothetical continuum from mentally healthy to psycholo-

gically disturbed. This scale ranged from 0 to 100: the higher the figure, the better the global functioning.

The Dutch version of the Symptom Checklist (SCL-90) (Arrindell and Ettema, 1986; Derogatis et al., 1973) is a 90-item inventory inquiring about the presence of various psychological and physical complaints the week prior to the interview, scored on a five-point scale. The subscales are: agoraphobia, anxiety, depression, somatization, obsession/compulsion, suspicion and interpersonal sensitivity, hostility and sleeping problems. Some extra items are not part of any subscale (Others). A total score of the subscales and the extra items gave us the scale Psychoneuroticism, an indicator of overall psychopathology. The reliability and validity of this list was good. The internal consistency in our population was very high, for the male-to-females (α = 0.99) as well as for the female-to-males (α = 0.98).

All subjects were screened for credibility in the new gender by three researchers independently on a 100-point scale, scoring for physical appearance, voice and global appearance. The mean of these three observations was calculated. The internal consistency was very good (α = 0.95 and α = 0.94).

The subjects also completed a semi-structured interview on treatment outcome, experiences during and after SRS, treatment evaluation, and possible feelings of regret. For the purpose of this study, the three following items were used: "Do you have doubts concerning your female/male appearance" (four-point category) "Do you feel happy?" (four-point category) and "Do you currently regret to have undergone SRS?" (Yes, no, sometimes).

Statistical analysis

The statistical program SPSS 11.0 was used for data processing. Since most of our data were distributed in a skewed manner, non-parametric tests have been used.

Results

Gender dysphoria (UGS)

No significant difference could be shown for the gender dysphoria left after SRS between the male-to-females and a Dutch female control group without gender dysphoria (mean = 15.7; *N* = 87) (*P* = 0.415); neither did the female-to-males and a Dutch male control-group without gender dysphoria (mean = 14.2; *N* = 58) (*P* = 0.510) (12) (Table 2). The male-to-females had a higher degree of gender dysphoria left after SRS than the female-to-males (*P* = 0.002).

GAF-score

Female-to-males scored significantly higher on the GAF-score (*P* = 0.008) (Table 2). No significant difference between our total population and a comparable group of 86 Norwegian transsexuals was shown (mean = 78.0) (*P* = 0.265) (Haraldsen and Dahl, 2000). The younger the applicants were at the time of their first consultation, the better they functioned in daily life after SRS (r_S = -0.34, *N* = 42; *P* = 0.029).

SCL-90

There was no significant difference between female-to-males and male-to-females on the total score or on the subscales (Table 3). On all scales, except on the Hostility scale, the male-to-females scored slightly above and the female-to-males scored slightly under average. There was no significant difference between our scores and the scores from the general Belgian population (Wetenschappelijk Instituut Volksgezondheid, 2001) neither from the scores of a group of 133 Dutch transsexuals in follow-up (Smith, 2002) (Table 4). A Mann–Whitney *U*-test with the SLC-90 on the one hand and the co-morbidity on Axis I (clinical disorder) and II (personality disorder) on the other hand, indicated how persons with a psychiatric problem in their preoperative history, diagnosed on Axis I (*P* = 0.018) or on Axis II (*P* = 0.001) retained more psychological symptoms postoperatively.

Table 2 Results of the Utrecht Gender Scale (UGS) and Global Assessment of Functioning (GAF)
Résultats de l'échelle de Genre d'Utrecht (UGS) et de l'échelle d'évaluation globale du fonctionnement (EGF)

	MF			FM			
	N	Mean	S.D.	*N*	Mean	S.D.	*P*
UGS [a]	35	16.6	6.3	27	13.7	3.9	**0.002**
GAF [b]	29	76.2	14.3	22	85.2	9.9	**0.008**

[a] a higher score indicates stronger gender dysphoria / les scores les plus élevés indiquent les dysphories de genre les plus fortes.
[b] a higher score indicates better general functioning/ les scores les plus élevés indiquent le meilleur fonctionnement global.

Suicide attempt rate

Although the suicide attempt-rate dropped significantly from 29.3% to 5.1% (McNemar test, *N* = 58, *P* = 0.004), it was definitively higher than in the average population (0.15%) (Van Heeringen et al., 2002).

Physical appearance

The credibility in the new gender (Table 5) was significantly higher for the female-to-males. A strong correlation was noticed between global and physical appearance (r_S = 0.96, *N* = 48, *P* < 0.001). The correlation between physical appearance and voice was the weakest (r_S = 0.81, *N* = 48, *P* < 0.001). We also found a significant negative cor-

Table 3 Results of the Symptom Checklist (SCL-90) [a]
Résultats de la Symptom Check-List SLC 90-R

	MF (*N* = 35)		FM (*N* = 27)		
	Mean	S.D.	Mean	S.D.	*P*
Psychoneuroticism	136.3	67.9	128.3	52.9	0.330
Anxiety	15.0	8.8	14.3	7.2	0.800
Agoraphobia	9.8	5.9	8.9	4.1	0.377
Depression	26.0	13.0	23.4	11.7	0.174
Somatization	17.7	7.9	16.2	4.4	0.850
Obsession/Compulsion	13.7	7.1	13.3	6.1	0.718
Suspicion and Interpersonal Insensitivity	28.6	15.8	27.8	14.7	0.336
Hostility	7.7	3.2	7.9	3.8	0.858
Sleeping problems	5.2	3.4	4.9	2.8	0.761

[a] a higher score indicates a higher overall psychopathology and mental distress-/ les scores les plus élevés indiquent une plus grande psychopathologie globale et une détresse psychologique.

Table 4 Comparison of the study group with a comparable group of 133 Dutch transsexuals in follow-up (one sample rank-sum test)
Comparaison du suivi du groupe étudié avec un groupe comparable de 133 transsexuels hollandais (caractéristiques comparées avec le rank-sum test)

	N	Reference value	*P*
Psychoneuroticism	60	119.7	0.457
Anxiety	61	12.9	0.568
Agoraphobia	61	8.5	0.078
Depression	60	22.3	0.586
Somatization	60	16.7	0.227
Obsession/Compulsion	60	13.4	**0.043**
Suspicion and Interpersonal Insensitivity	60	24.2	0.883
Hostility	61	7.4	0.107
Sleeping problems	60	4.6	0.324

relation between global appearance and the Psychoneuroticism-scale (r_S = –0.41, *N* = 46, *P* = 0.005): the better the subjects were judged in their global presentation, the fewer psychological symptoms they presented. In contrast, neither in the male-to-female group (r_S = 0.28, *N* = 27, *P* = 0.153), nor in the female-to-male group (r_S = –0.15, *N* = 21, *P* = 0.521) was there any significant correlation between the interviewers' judgment of subjects' physical appearance and the doubts the subjects themselves had about their male/female appearance (self-perception). Obviously, there is an inconsistency between the subjects' self-perception and the perception by others.

Social functioning

Socially our subjects had experienced a positive change. A Wilcoxon signed ranks test showed that both the male-to-females (*P* = 0.001) and the female-to-males (*P* < 0.001) were significantly more satisfied with their social relationships than they had been before SRS (Table 6). At the time of the long-term follow-up study, 4.9% of the postoperative population were (very) dissatisfied with their social relations. A one-sample signed-rank sum test showed no difference with the overall Belgian population, 7% of whom reported dissatisfaction with their social relations (*P* = 0.459). The latter figure was calculated in a representative sample of the Belgian population on the question 'how do you rate your social contacts?' with replies ranging from very satisfied to very dissatisfied. A McNemar test proved significantly more people had established a stable relationship after SRS in comparison to before (*N* = 58, *P* = 0.049), but this only applied to the male-to-females (*N* = 35, *P* = 0.039). More than 80% of the female-to-male transsexuals had found employment (significantly more after than before SRS–McNemar test: *N* = 22, *P* = 0.012), while the employment rates for the male-to-females had not changed after SRS (*N* = 35, *P* = 0.774). No fewer than 14.8% of the female-to-males and 17.1% of the male-to-females had been unable to find a job, which was above the rate of unemployment in the general Belgian population. Altogether 16.1% had lost their job during the sex reassignment therapy: 20.0% of the male-to-females and 11% of the female-to-males.

Table 5 Credibility in the new gender
Crédibilité dans le nouveau genre

	MF (*N* = 27)		FM (*N* = 21)		
	Mean	S.D.	Mean	S.D.	*P*
Physical appearance	74.5	13.6	88.0	9.0	**0.001**
Voice	69.5	15.2	86.7	12.6	**<0.001**
Global appearance	73.9	13.5	88.8	8.5	**<0.001**

Satisfaction with SRS

Most of our male-to-females (88.6%) and female-to-males (85.2%) felt happy to very happy after surgery. The regret rate was low: only one male-to-female regretted the treatment occasionally, but she went on living as a woman nevertheless. She had had psychotic periods before SRS (axis I diagnosis: delusional disorder—erotomanic type) and scored very low on credibility. A female-to-male who expressed feelings of regret, subsequently requested masculine hormone treatment. At the time of the interview, he was emotionally troubled by a break-up with his girlfriend. Intensive psychotherapy provided him with some stability.

Multiple regression analysis with prognostic factors

A regression-analysis with five factors was computed: sexual orientation (self-definition being homosexual versus non-homosexual referring to their biological sex), social support, age at first consultation, credibility in the new gender (physical appearance) and psychiatric co-morbidity (Table 7). The model for the SCL-90 proved significant (*P* = 0.014). S*exual orientation* and *age at first consultation* were significant factors; *credibility in the new gender* was merely a tendency. Subjects had fewer psychological problems when they were homosexual, started gender-reassignment consultation at a younger age and one's physical

Table 6 Satisfaction with social life before and after treatment [a]
Satisfaction de la vie sociale avant et après traitement

	MF (*N* = 34)				FM (*N* = 27)			
	before		after		before		after	
	N	%	*N*	%	*N*	%	*N*	%
Very satisfied	7	20.6	18	52.9	6	22.2	16	59.3
Satisfied	8	23.5	11	32.4	7	25.9	7	25.9
Moderately satisfied	9	26.5	3	8.8	9	33.3	3	11.1
Dissatisfied	6	17.6	1	2.9	3	11.1	1	3.7
Very dissatisfied	4	11.8	1	2.9	2	7.4	0	0.0
Comparison before and after SRS		**P = 0.001**				**P < 0.001**		

[a] Data from questionnaire at time of study / données du questionnaire au moment de l'étude.

appearance was more credible in the new gender. The GAF model was also significant (P = 0.007); only *credibility in the new gender* factor was significant. We also performed a stratified regression-analysis for the male-to-females and the female-to-males (Table 7). Although analysis was done on both groups, a separate analysis for the female-to-males was not meaningful because of the low number of subjects and the distribution of the subjects over some factors, such as sexual orientation. The model for the male-to-females on the SCL-90 proved not to be significant (P = 0.153), while the model for the GAF proved significant (P = 0.035). Only the *credibility in the new gender* factor was shown to be significant.

Discussion

The response-rate remains a difficult point in follow-up studies. Nearly 60% of our study population could be traced and was willing to cooperate, a number comparable to the series in Pfäfflin and Junge (1992). Like in that study, more male-to-females were unable to be contacted because many had moved away without leaving any possibility to be traced. They obviously wanted to put their past behind them. Many had abandoned their familiar surroundings and friends. The longer the postoperative period, the lower the response-rate. Unfortunately, this implies a bias that is difficult to avoid, as an investigator can never obtain the current profiles of those who fail to respond.

One of the aims of this study was to evaluate how the transsexuals functioned psychologically after a longer period. The initial complaint and symptom called gender dysphoria, essential to the diagnosis of gender identity disorder, had virtually disappeared after the transition. The distress and impairment in social, occupational and other important areas as a result of the gender dysphoria appeared to have vanished. During the interviews the subjects emphasized that even after all these years, they felt themselves more “real”, happier and more confident in their own possibilities compared to before SRS (Cole et al., 1997). Also, the GAF-score, allocated by the investigators, showed a rather satisfying picture of our patient population. However, in line with the data from the literature, female-to-males performed better in everyday life than male-to-females. In general, the younger the applicants had been at the time of their first consultation, the better they performed in daily life after SRS. The difference in psychological functioning between the male-to-female and the female-to-male group could not be proven (as shown by the SCL-90 scores). This is in contrast with the data from literature. In spite of the positive results on the GAF-score and the SCL-90 and a lowering of the suicide attempt rate, postoperative transsexuals remain fragile. They often react auto-aggressively when frustrated. The postoperative male-to-females gave the following reasons for their suicide attempts: the end of a relationship (which they perceived as a challenge to their new gender), postoperative complications or an unease with their looks. They are more fragile when they are less credible in their new gender and when they have more pre-morbid psychiatric problems, especially personality disorders. Also, special caution is called for when faced with requests for SRS by people with psychotic episodes in their personal history, even if they fail to meet the criteria for schizophrenia.

Although postoperative transsexuals experience a positive change in their relationship, family and social life, unemployment rate is above the general average. Our study population proved to be particularly vulnerable in this area.

The majority of the study group (86%) was (very) happy, even after several years. The only male-to-female who regretted the operation occasionally, had posed a diagnostic dilemma to the gender team at the time of requesting SRS, because of prior psychotic episodes. A positive evolution, without psychotic relapse, during three years of continuous evaluation, made us confident about our decision to positively advise SRS.

Our multidisciplinary gender team has adopted a cautious policy. We advise a dual-phase hormonal schedule, with a first reversible part in which sex-specific features are suppressed, together with the start of a real-life test. Not until in the second part, cross-hormones are given that result resulting in irreversible feminization or masculinization (T’Sjoen et al., 2000). Our data confirm that our policy is recommendable and that psychiatric counseling throughout the sex change is not an additional luxury. Even postoperative psychotherapy is sometimes needed. If there is a positive relationship with the psychiatrist pre-operatively, he or she finds it easier to return to this psychiatrist.

Table 7 Regression analysis
Analyse de regression

	SCL-90 (N = 30)		GAF (N = 32)	
Total group	T	P	t	P
Sexual orientation	2.60	**0.015**	0.34	0.735
Social support	-0.20	0.840	1.63	0.114
Age at first consultation	-2.66	**0.014**	0.81	0.426
Credibility in the new gender	-1.94	0.063	2.52	**0.018**
Psychiatric comorbidity	0.93	0.364	-0.56	0.735
	SCL-90 (N = 19)		GAF (N = 21)	
MF	T	P	T	P
Sexual orientation	1.13	0.280	0.38	0.711
Social support	-0.80	0.439	1.44	0.170
Age at first consultation	-1.76	0.100	1.78	0.094
Credibility in the new gender	-2.10	0.055	2.77	**0.014**
Psychiatric comorbidity	0.11	0.918	-0.35	0.730

More than for any other type of surgery, sex reassignment surgery elicits enormous expectations in the patient. Postoperative complications and unsatisfying aesthetic results can pose a serious challenge for the transsexual.

Conclusion

SRS proves to be an effective therapy for transsexuals even after a longer period, mainly because of its positive effect on the gender dysphoria. Even after several years, they feel happy, adapt well socially and feel no regrets. In contrast with other studies, we found no considerable difference between the male-to-females and female-to-males as far as well-being, complaints or social life were concerned. Male-to-females cope with stress more frequently by attempting to commit suicide. Persons with pre-operative psychiatric problems have more complaints and do not feel as satisfied after SRS, in comparison to those without a previous psychiatric diagnosis. Sexual orientation, younger age when applying for SRS and attractive physical appearance are definitely positive prognostic factors. The better the surgical result, the better the psychological outcome. A larger proportion of patients can benefit from psychotherapeutic support after SRS and should be encouraged to do so.

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