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Transsexualism—General Outcome and Prognostic Factors: A Five-Year Follow-Up Study of Nineteen Transsexuals in the Process of Changing Sex

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Nineteen transsexuals, approved for sex reassignment, were followed-up after 5 years. Outcome was evaluated as changes in seven areas of social, psychological, and psychiatric functioning. At baseline the patients were evaluated according to axis I, II, V (DSM-III-R), SCID screen, SASB (Structural Analysis of Social Behavior), and DMT (Defense Mechanism Test). At follow-up all but 1 were treated with contrary sex hormones, 12 had completed sex reassignment surgery, and 3 females were waiting for phalloplasty. One male transsexual regretted the decision to change sex and had quit the process. Two transsexuals had still not had any surgery due to older age or ambivalence. Overall, 68% (n = 13) had improved in at least two areas of functioning. In 3 cases (16%) outcome were judged as unsatisfactory and one of those regarded sex change as a failure. Another 3 patients were mainly unchanged after 5 years. Female transsexuals had a slightly better outcome, especially concerning establishing and maintaining partnerships and improvement in socioeconomic status compared to male transsexuals. Baseline factors associated with negative outcome (unchanged or worsened) were presence of a personality disorder and high number of fulfilled axis II criteria. SCID screen assessments had high prognostic power. Negative self-image, according to SASB, predicted a negative outcome, whereas DMT variables were not correlated to outcome.

KEY WORDS: transsexualism; sex reassignment; outcome; prognostic factors.

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INTRODUCTION

Transsexualism is defined by three criteria: (i) persistent discomfort about one's assigned sex; (ii) persistent preoccupation for at least 2 years with getting rid of one's sex characteristics and acquiring the sex characteristics of the other sex; and (iii) the individual must have reached puberty (DSM-III-R; American Psychiatric Association [APA], 1987). Prevalence estimates vary between 1:12–37,000 for male-to-female transsexuals (M–F) and 1:30–150,000 for female-to-male transsexuals (F–M). The male/female sex ratio also varies but is generally estimated to about 3:1 (Walinder, 1971; Ross *et al.*, 1981; Bakker *et al.*, 1993). In Sweden, there are about 10–15 transsexuals per year accepted for sex reassignment surgery (SRS). More biological men than biological women apply for sex reassignment, but since more men are excluded there are at the end an equal sex ratio of transsexuals approved for sex change.

Transsexualism represents an extreme expression of gender dysphoria. Gender dysphoria (Fisk, 1974) is a wider concept, including not only transsexualism but also nonfetishistic transvestism and homosexual conditions with gender identity problems, i.e., Gender Identity Disorders, Non Transsexual Type (GIDAANT). In DSM-IV (APA, 1994), these conditions are all labeled as Gender Identity Disorders (GID).

Core (or primary) transsexualism is described by Burns *et al.* (1990) as a subgroup within the concept of transsexualism. It is defined as a group of transsexuals with debut in earlier age (before puberty), lack of sexual arousal in cross-dressing, and usually homosexual orientation. Core transsexuals are more often accepted for SRS and have also shown the best outcome.

A large number of follow-up studies of sex-reassigned patients have been published and the general conclusion is that overall outcome has improved over the years to the degree that about 80% of the patients are satisfied and only 2% regret their sex change (Green and Fleming, 1990; Walinder and Tuwe 1975; Sorensen, 1981; Blanchard *et al.*, 1989; Mate-Kole *et al.*, 1990). Lundstrom *et al.* (1984), in a review article, summarized that 71–88% of male transsexuals had a satisfactory outcome. According to Pauly (1981), Walinder and Thuwe (1975), and Kockott and Fahrner (1988), the outcome of sex reassignment is consistently better in F–M compared to M–F transsexuals, despite the fact that surgical results are more beneficial for M–F. Social functioning, psychological adjustments, and the quality of relationships with partners and siblings are slightly better for sex-reassigned biological women than for biological men. F–M transsexuals establish stable partnership more frequently solely with the same biological sex and are more satisfied sexually. On follow-up, M–F transsexuals are as

integrated socially as their F–M counterparts, but the differences in partnership behavior are not altered as a result of surgery. Male transsexuals, in general, have difficulties in social integration, but after sex reassignment they also become more sexually satisfied. Hunt and Hampson (1980) assessed 17 male transsexuals at a mean duration of 8 years after surgery and found that 60–70% had improved or stayed at a high level of functioning. There were modest gains in socioeconomic status (SES) and relationships and no changes were seen regarding levels of psychopathology or in MMPI scores. The authors used the "standardized rating format for post-surgical transsexuals" and concluded that the individual's adjustment before surgery predicted the outcome best and that sex change did not change personality.

Poor outcome is often connected with atypical cases such as gender dysphoric transvestites with or without fetishism, concomitant personality disorders, lack of social and psychological support, and especially for F–M transsexuals surgical shortcomings and complications. Walinder *et al.* (1978) add to this that older age at onset and inappropriate physical build are risk factors.

Factors predicting positive outcome after sex reassignment are not fully known, but there are indications that female sex, early debut, high level of social functioning before surgery, personal stability, restricted inclusion criteria, and supportive programs are essential for a favorable outcome. The quality of partnerships and ability to achieve a satisfactory sex life without functional genitalia also seem to be of importance.

In summary, sex reassignment surgery is the treatment of choice in transsexualism, but a positive outcome relies on other factors than solely a good surgical match.

In previous studies we examined personality traits and disorders, additional Axis I disorders, self-image, psychological defenses, and coping mechanisms among patients with gender identity disorders. We found marked differences between core and atypical (e.g., GIDAANT) transsexuals on all these factors. Genuine transsexuals showed significantly less fulfilled Axis II criteria, higher GAF scores (Axis V), and positive self-image with self-love in contrast to GIDAANT patients. We postulated these factors to be of predictive importance for the outcome of changing one's bodily sex and gender role (Bodlund *et al.*, 1993; Bodlund and Armelius, 1994; Sundbom *et al.*, 1995).

The present prospective study examines the social, psychological, and psychiatric outcome after 5 years in the process of changing sex and aims at evaluating whether personality pathology, specified psychological defenses, and self-image have predictive value for the outcome in a group of core transsexuals approved for sex reassignment.

Table I. Baseline Characteristics of Transsexual Patients Accepted for Sex Reassignment

Patients	Age (years)	Sex	Partner	Stage in sex change	Axis I diagnosis	Axis II diagnosis	Axis V GAF value
1	54	M	Yes	Hormones	—	Dependent	65
2	34	F	Yes	Horm. + surgery	Social phobia	Borderline	60
3	24	F	No	Hormones	—	—	65
4	30	M	No	Name shift only	Dysthymic	Borderline	70
5	29	F	Yes	Name shift only	Adjustment	—	80
6	38	F	Yes	Complete SRS	—	—	70
7	55	M	No	Horm. + surgery	—	—	80
8	33	M	Yes	Complete SRS	—	Narcissistic	80
9	36	M	No	Horm. + surgery	—	—	70
10	25	F	No	Hormones	Adjustment	—	75
11	38	M	No	Hormones	Adjustment	—	80
12	34	M	No	Name shift only	—	—	65
13	19	F	No	Name shift only	Adjustment	—	75
14	34	M	Yes	Name shift only	Adjustment	—	75
15	28	F	No	Horm. + surgery	—	Narcissistic	65
16	20	M	No	Hormones	—	—	70
17	39	F	Yes	Horm. + surgery	Alcohol abuse	—	72
18	22	M	No	Name shift only	—	Obsess.-comp.	68
19	42	F	Yes	Name shift only	Panic	—	68

MATERIALS AND METHOD

Subjects

All current patients diagnosed (according to DSM-III-R) as genuine transsexuals in two regions of Sweden (1989/1990) were included in the study. These patients represent the total population of all known transsexuals in the process of sex reassignment in these two regions. Two psychiatrists responsible for the assessment of all patients requesting sex reassignment had judged 19 patients to be core transsexuals. Eleven gender dysphoric patients, also applying for sex reassignment, were excluded at baseline assessment because of other diagnoses as GIDAANT, transvestism, and effeminate homosexuality. These patients are described more closely in an earlier study (Bodlund and Armelius, 1994). Patients with overt psychotic symptoms or severe personality disorders with concomitant gender identity problems had also been excluded.

All patients included in the study were approved for sex reassignment by the National Board of Health and Welfare. At baseline all had changed their first name in accordance with their new gender role and were trying to live fully in that role. Some had also started hormone therapy and surgery (mastectomy, sterilization/castration). Two transsexuals had obtained reconstructive plastic surgery of the genitals (see Table I). The group comprised 10 biological males with a mean age of 37.5 (range 21–55) and 9 biological females with a mean age of 31.7 years (range 19–42). All completed baseline assessments and follow-up evaluation 5 years later.

Baseline Procedure

All patients were clinically assessed according to DSM-III-R Axis I, II, and V. Sociodemographic data were collected by personal interviews and clinical records. The 19 transsexual patients were also tested according to the following instruments:

SCID Screen: Spitzer *et al.* (1992) introduced the SCID interview, designed to evaluate DSM-III-R personality disorders. A self-report screening instrument is connected to the interview. The questionnaire includes 124 questions to be answered yes or no, covering altogether 103 criteria for paranoid, schizotypal, schizoid, borderline, histrionic, narcissistic, avoidant, dependent, obsessive-compulsive, passive-aggressive, self-defeating, and antisocial personality disorders. The SCID screen was used (i) to score the number of fulfilled criteria in order to describe *personality traits* in a dimensional approach. The proportion of fulfilled criteria was calculated for

each personality disorder and as a global index of personality pathology distress (GBI) and (ii) to make categorical diagnosis of *personality disorders* according to the methodology described in previous studies (Bodlund *et al.*, 1993; Ekselius *et al.*, 1994).

Structural Analysis of Social Behavior. The SASB (Benjamin, 1993) is a questionnaire with 36 statements about the patient's attitude toward himself. The patient agrees or disagrees to these statements on a scale from 0 to 100. Eight different clusters (of statements) are extracted. In accordance with psychodynamic theory a normal self-image should be consistent and characterized by self-love and self-control and by low conflict in either of these dimensions. Results using SASB for different diagnostic groups and controls confirm this idea (Benjamin, 1993; Ohman and Armelius, 1990; Bodlund and Armelius, 1994). In the present prospective study we focused only on the transsexuals' scores on clusters indicating positive self-image (Cluster 2 = self-accepting, 3 = self-loving, 4 = self-nourishing) and negative self-image (Cluster 6 = self-blaming, 7 = self-hating, 8 = self-neglecting), respectively.

Defense Mechanism Test. The DMT is a percept-genetic instrument developed by Kragh (1955). From a clinical point of view, it represents an alternative to the Rorschach test and has been used in several studies in Scandinavia (Smith and Danielsson, 1982; Sundbom *et al.*, 1989). DMT is a projective test based on psychoanalytic and percept-genetic theory. The test consist of a TAT-like picture with a hero to identify with and a threatening older person in the background (peripheral person). The picture is presented tachistoscopically with exposure times from 5 ms up to 2 sec. The scoring is based on reported deviations from the stimulus picture and is recorded according to a manual. The deviations are assumed to represent attempts by the patient to manage, in terms of psychological defenses, the anxiety provoked by the pictures. The patterns of distortions in perception are diagnostic for different psychopathologies (Sundbom and Kullgren, 1992). From a previous study (Sundbom *et al.*, 1995) a few theoretically crucial DMT variables were selected (e.g., total sum of distortions on DMT, patient's ability to identify the threat in the picture, threshold values of meaningful perception, and variables indicating problems and defensive strategies in deciding the sex of the hero and the peripheral person).

Follow-Up Procedure

Most of the patients included maintained contact with their psychiatrist throughout the 5 years. One patient had moved out of the area by the end of the study, but could be interviewed via her new psychiatrist. Follow-up

Table II. Five-Year Outcome and Global Improvement Among Transsexual Patietns

	Outcome							
Patients	SES	Work/studies	Social- and family relat.	Partnership	Psychiat. care	GAF difference	Patient's evaluation	Global improvement
1	+	—	0	0	0	0	0	No
2	0	—	0	0	0	0	0	No
3	+	+	+	+	+	+	+	Yes
4	0	0	0	0	+	0	0	No
5	0	+	+	0	+	0	+	Yes
6	+	+	0	0	0	0	+	Yes
7	0	0	+	+	0	+	+	Yes
8	0	0	0	0	+	0	+	Yes
9	0	+	0	0	0	0	+	Yes
10	+	0	0	0	+	0	0	Yes
11	0	—	—	0	0	—	0	No
12	0	0	0	0	0	+	+	Yes
13	0	0	0	+	0	0	+	Yes
14	0	—	0	—	0	0	—	No
15	0	0	0	0	+	0	0	No
16	0	0	0	0	+	+	+	Yes
17	0	0	0	0	+	+	+	Yes
18	+	+	0	0	+	+	+	Yes
19	+	+	0	0	+	0	+	Yes
				Outcome summary[a]				
(+) Improved	6 (32)	6 (32)	3 (16)	3 (16)	10 (53)	6 (32)	12 (63)	13 (68)
(0) Unchanged	13 (68)	9 (47)	15 (79)	15 (79)	9 (47)	12 (63)	6 (32)	3 (16)
(-) Worsened	0	4 (21)	1 (5)	1 (5)	0	1 (5)	1 (5)	3 (16)

[a]No. of patients, percentage in parentheses.

assessment was based on personal interviews and clinical records and was facilitated by the fact that all patients were well-known by the two psychiatrists.

As the outcome measure we used a modified version of Hunt and Hampton's Standardized Rating Format (1980). Evaluation of the surgical result and sexual adjustment were not included. The areas of SES, work or studies, social and family relations, quality of partnership, the need for psychiatric care, GAF difference, and patient's subjective opinion were scored as worsened/lower (–), stable/unchanged (0), or improved/higher (+) (see Table II). *Global improvement* was defined as improvement in at least two areas and not worsened in any.

Statistics

Student's *t* test was used to analyze group and mean differences. Outcome predictors were calculated as correlation coefficients (Pearson's *r*) and Relative risk estimate between different baseline data and outcome data. All analysis were made in the SPSS.

RESULTS

Baseline characteristics are shown in Table I. There were no significant differences between males and females with respect to age, stage in the process, or GAF scores. More female transsexuals had a partner (56 vs. 30%) and additional Axis I diagnoses were more prevalent among females. On the other hand, twice as many men had a clinically evident personality disorder. In the total group of 19 transsexuals, 8 had a partner 12 had not yet had any surgery, and all lived more or less permanently in the opposite gender role. The mean GAF score was 70.7 (range 65–80).

The outcome after 5 years is summarized in Table II. All but 1 were at follow-up continuously treated with contrary sex hormones and 12 had pursued and completed SRS. Three F–M transsexuals had chosen to postpone their final phalloplasty. Thee patients had not had any surgery because of older age in Case 1, and 4 was ambivalent about surgery. Case 14 regretted the sex change decision and had quit the process. At follow-up, 13 (68%) of the transsexuals had improved in at least two out of seven outcome variables (positive outcome). Six patients (32%) were stable or worsened in their social, psychological, and/or psychiatric functioning (negative outcome). One male patient regarded the sex change as a failure. In 3 (16%) cases (2, 11, and 14), the outcome was judged unsatisfactory.

Table III. Correlation Coefficients (Pearson's *r*) Between Different Diagnostic Variables and Positive Outcome Among Transsexuals Patients

Variable	Pearson's *r*	*p*-value
Dimensional scores on SCID screen		
Total fulfilled criteria, GBI	−0.41	0.08
Fulfilled cluster A criteria	−0.56	0.01
Fulfilled cluster B criteria	−0.06	0.81
Fulfilled cluster C criteria	−0.46	0.05
Personality Disorders according to SCID screen		
Total number of PD	−0.55	0.02
PD in cluster A	−0.25	0.29
PD in cluster B	−0.54	0.02
PD in cluster C	−0.48	0.04
Self-image according to SASB		
Positive self-image	+0.27	0.26
Negative self-image	−0.45	0.05

They showed no improvement at all and had worsened in some areas. Concerning global improvement there were no significant sex differences, but as regards SES, work ability, and partnership, F–M did better than M–F transsexuals. The opposite was true for GAF scores. Considering all outcome variables there was a nonsignificant tendency towards a better outcome for F–M transsexuals.

Prognostic factors for positive outcome are listed in Table III. The most important ones were low proportions of fulfilled Cluster A and C criteria and absence of categorical personality diagnoses according to SCID screen. Low scores in SASB clusters concerning negative self-image were also significantly correlated to positive outcome ($r = .45$ $p < 0.05$). In addition, having a partner early in the process emerged as a prognostic favorable factor ($r = .37$, $p = 0.12$) and the presence of a clinically evident personality disorder was a negative prognostic factor ($r = -.44$, $p = 0.06$). Age, biological sex, stage in the process of sex reassignment, and initial GAF score or Axis I disorder at baseline assessment were not statistically significant predictive factors, according to Pearson's *r*.

DMT variables, analyzed separately or in different theoretical constellations, showed no significant correlation with any outcome variables. Improved ($n = 13$) and nonimproved ($n = 6$) individuals were compared with respect to personality traits according to SCID screen and self-image according to SASB. In the dimensional approach there was a significant difference between groups ($p < 0.05$) in the proportion of fulfilled Axis II criteria for schizoid, schizotypal, avoidant, obsessive-compulsive, and self-defeating personality disorders (Fig. 1). Total fulfilled Axis II criteria (GBI) was 24% in the improved group compared to 34% among nonimproved

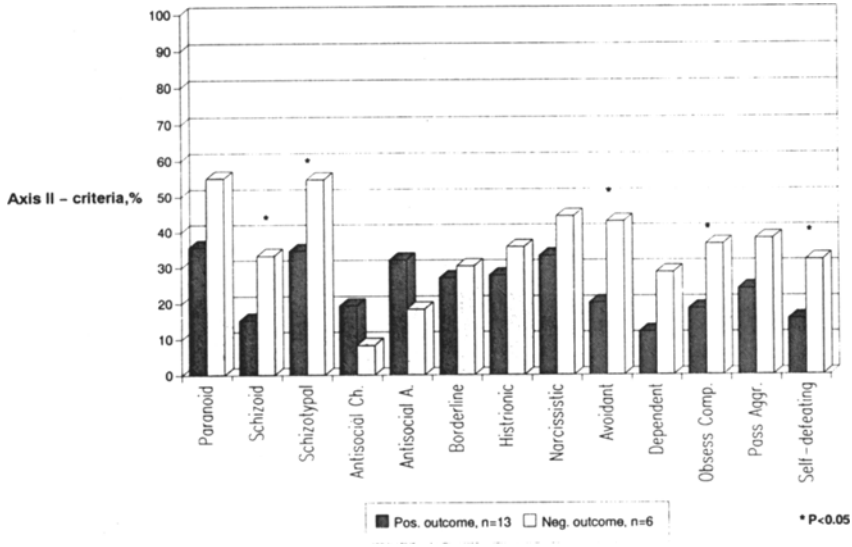

Fig. 1. Outcome and proportion of fulfilled Axis II criteria (SCID screen) in different personality dimensions among transsexuals.

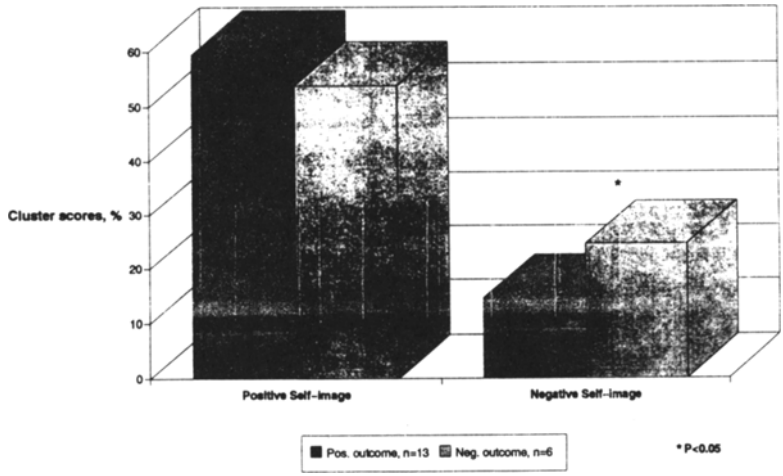

Fig. 2. Outcome and self-image according to SASB among transsexuals.

Table IV. Risk Factors for Negative Outcome of Sex Reassignment

Baseline characteristic	Relative risk
Categorical PD according to SCID screen	24.0
High scores in cluster A (SCID screen)	8.0
Clinical evident PD	5.5
High total score (GBI) on SCID screen	3.2
High scores on negative self-image (SASB)	3.2
Low scores on positive self-image (SASB)	3.2
No partner at base-line	3.2
Male biological sex	2.3
High scores in cluster C (SCID screen)	2.3

individuals ($p = 0.1$). Categorical Axis II diagnoses according to SCID screen also differed significantly. Personality disorders, especially within Clusters B and C, were more frequent among the transsexuals who did not improve The group showing positive outcome had significant lower scores in SASB variables measuring negative self-image compared to those with negative outcome (Fig. 2). The "failure group" includes 3 patients and was too small for statistical analyses, but was characterized by a high degree of fulfilled Axis II criteria and negative self-image. Two patients were males who developed increasing ambivalence toward complete sex reassignment.

Predictive factors for negative outcome are expressed as Relative Risk in Table IV. Continuous variables were divided in a high and a low portion by means of "median split" and related to negative outcome. Due to the small number of subjects only the first listed variable, concerning categorical personality disorder, reaches statistical significance. The number 24, for example, means that, if a personality disorder is present according to SCID screen, the risk for negative outcome is 24 times higher.

DISCUSSION

This study evaluates the outcome for transsexuals in different phases of the change-of-sex process and not the outcome after SRS. The 5 year outcomes for these transsexuals are in accordance with earlier reports. In the present study about 70% improved in different social, psychological, and psychiatric aspects. Only 16% had an unsatisfactory outcome and one case regretted the decision to change sex. This patient had fulfilled the rigorous inclusion criteria and showed no ambivalence at the starting point.

At baseline the group as a whole showed mild to moderate psychopathology on Axis I and II and a rather high level of social functioning. This is representative for transsexuals approved for SRS in Sweden and

this sample corresponds to what is called core transsexuals. The findings indicate that careful assessment, strict inclusion criteria, treatment measures according to "Standards of Care" (1985) for transsexuals, and adequate surgery contribute to positive outcome of sex reassignment.

Even though outcome in general is favorable, 30–40% did not seem to benefit fully from SRS. To further improve the selection of suitable candidates we have chosen to focus on personality-related factors which have been shown to be important prognostic factors in other disorders (Reich and Vasile, 1993; Kullgren and Armelius, 1990). Our previous studies on gender identity disorders indicated that SCID screen as well as DMT and SASB have a discriminating capacity. Hypotheses were put forward that personality traits, self-image, and psychological defenses are important prognostic factors. The present study adds support to the first two hypotheses. The DMT, however, has no predictive power.

In a previous study, self-image according to the SASB discriminated between core transsexuals and atypical GID cases. The transsexuals displayed a normal self-image, characterized by self-love and balanced self-control (Bodlund and Armelius, 1994). When examined as a prognostic factor, in the present study, deviations of self-image were associated with negative outcome.

Personality traits and disorders as measured by SCID screen turned out to be surprisingly valuable both for diagnostic assessment and for prediction of outcome. An advantage with SCID screen is its capacity to generate both dimensional and categorical diagnostic information. High degree of fulfilled Axis II criteria overall, as well as presence of a personality disorder, indicated a less favorable outcome. One seemingly contradictory finding was that presence of a categorical Cluster B diagnosis correlated to negative outcome, whereas the overall number of fulfilled Cluster B criteria did not. As illustrated in Fig. 1, this is explained by the fact that transsexuals who improve show more subthreshold antisocial traits. Perhaps being somewhat antisocial facilitates adaptation in the new gender role. Relative risk estimates further verify the usefulness of SCID screen. A categorical SCID screen diagnosis seems to have more prognostic power than a personality diagnosis from a clinical interview.

We have earlier shown that among transsexuals there are only marginal differences between sexes as regards personality traits, self-image, and in DMT distortions (Bodlund and Armelius, 1994; Sundbom *et al.* 1995). Nevertheless, in the present study, there is a tendency for better outcome for female transsexuals. Biological women are more successful in areas as partnership and work ability. These sex differences are consistent with findings from other outcome studies.

In summary, results are in agreement with previous findings that transsexuals in the process of changing sex have fairly positive outcome in several important areas of functioning. This is probably attributed to professional assessments with exclusion of atypical cases, long observation periods (real-life test), and supportive follow-up. The contrary gender identity in transsexualism appears to be persistent and psychologically well integrated. Clearly, sex reassignment surgery is the treatment of choice.

The study gives further support to previously suggested prognostic factors. In addition, self-image according to SASB and personality traits according to SCID screen emerge as important predictive factors. The latter instrument has in addition good screening properties to guide the clinician in his diagnostic interview. In this study, projective tests, as the DMT, were not of any prognostic value. These instruments could be valuable tools for clinicians in this field, who in the end have to make the crucial decision to sanction SRS or not.

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