

# A Five-Year Follow-Up Study of Swedish Adults with Gender Identity Disorder

Annika Johansson · Elisabet Sundbom ·  
Torvald Höjerback · Owe Bodlund

Received: 30 April 2008 / Revised: 27 August 2009 / Accepted: 27 August 2009 / Published online: 9 October 2009  
© Springer Science+Business Media, LLC 2009

**Abstract** This follow-up study evaluated the outcome of sex reassignment as viewed by both clinicians and patients, with an additional focus on the outcome based on sex and subgroups. Of a total of 60 patients approved for sex reassignment, 42 (25 male-to-female [MF] and 17 female-to-male [FM]) transsexuals completed a follow-up assessment after 5 or more years in the process or 2 or more years after completed sex reassignment surgery. Twenty-six (62%) patients had an early onset and 16 (38%) patients had a late onset; 29 (69%) patients had a homosexual sexual orientation and 13 (31%) patients had a non-homosexual sexual orientation (relative to biological sex). At index and follow-up, a semi-structured interview was conducted. At follow-up, 32 patients had completed sex reassignment surgery, five were still in process, and five—following their own decision—had abstained from genital surgery. No one regretted their reassignment. The clinicians rated the global outcome as favorable in 62% of the cases, compared to 95% according to the patients themselves, with no differences between the subgroups. Based on the follow-up interview, more than 90% were stable or improved as regards work situation, partner relations, and sex life, but 5–15% were dissatisfied with the hormonal treatment, results of surgery, total sex reassignment procedure, or their present general health. Most outcome measures were rated positive and substantially equal for MF and FM. Late-onset transsexuals differed from those with early onset in some respects: these were mainly MF (88 vs. 42%), older when applying for sex reassignment (42 vs. 28 years),

and non-homosexually oriented (56 vs. 15%). In conclusion, almost all patients were satisfied with the sex reassignment; 86% were assessed by clinicians at follow-up as stable or improved in global functioning.

**Keywords** Transsexualism · Gender identity disorder · Sex reassignment · Outcome

## Introduction

### Diagnosis

A transsexual person has a cross-gender identity in relation to his or her biological sex. Gender Identity Disorder (GID) is the diagnostic classification according to the most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) (American Psychiatric Association, 2000), describing persons with cross-gender identity, gender dysphoria, and concomitant persistent psychological distress or functional impairment. In Sweden, the ICD-10 (World Health Organization, 1992) diagnosis of “transsexualism” (TS) is used in clinical settings.

Early and late onset transsexualism are clinical classifications, constructed to divide the spectra of transsexualism into subgroups. Early-onset TS refers to people who early in life (childhood) have a strong wish to become the opposite sex, while late-onset TS refers to individuals whose cross-gender identification begins at puberty or later and who gradually develop a wish for sex reassignment (SR). The age of 12 has been suggested as the division point between early and late onset (Doorn, Poortinga, & Verschoor, 1994). Among male-to-female (MF) transsexuals with late onset, some have passed through a period of transvestic fetishism (Docter, 1988). From another theoretical framework, TSs can be categorized into subgroups on the basis of sexual orientation, i.e., homosexual

A. Johansson (✉) · T. Höjerback  
Department of Psychiatry, Sexology Clinic,  
St. Lars-omr, MC-huset, 221 85 Lund, Sweden  
e-mail: annika.johansson@skane.se

A. Johansson · E. Sundbom · O. Bodlund  
Department of Clinical Sciences, Division of Psychiatry,  
University of Umeå, Umeå, Sweden

or non-homosexual in reference to biological sex (Blanchard, 1989).

### Incidence

Since 1972, when Sweden passed legislation regulating surgical and legal sex reassignment, 10–15 people have completed the reassignment procedure annually, which means an incidence of 0.19 per 100,000 inhabitants over 15 years of age (Olsson & Möller, 2003). However, there has been a marked increase in the last 8 years. In 2006 and 2007, about 50 people applied and were accepted for SRS. This corresponds to a yearly incidence of approximately 1/100,000 in the age bracket of 18–65 (personal communication, Swedish National Board of Health and Welfare). This increase over the last few years concerns mainly younger MF.

### Outcome of Sex Reassignment Surgery

In a review of studies from 1961 to 1991, covering 70 studies and 2,000 patients (Pfäfflin & Junge, 1998), the conclusion was that, despite differences in methodology and the choice of outcome variables, SRS basically resolved gender dysphoria problems. Early reports showed positive outcome for about 71% of the MF TSs and 89.5% for the female-to-male (FM) TSs and, in more recent studies, even more favorable outcome rates of 87 and 97%, respectively (Cohen-Kettenis & Pfäfflin, 2003). Disparities in study methodology lead to different conclusions concerning outcome and predictive factors, but most agree that female biological sex is a predictor for positive outcome. In several studies, early-onset TS, and consequently cross-dressing in childhood and younger age at SRS, are also considered predictors for positive outcome (Cohen-Kettenis & Pfäfflin, 2003; Lundström, Pauly, & Wålinder, 1984). Furthermore, homosexual orientation is a positive predictor for outcome (Blanchard, Steiner, Clemmensen, & Dickey, 1989).

Negative outcome includes the very few actual regrets (estimated at 1–2%) (Cohen-Kettenis & Pfäfflin, 2003; Kuiper & Cohen-Kettenis, 1998; Pfäfflin & Junge, 1998). In a previous Swedish study, 3.8% during the years 1972–1992 regretted their SRS. Factors associated with regrets showed that lack of support from the patient's family and belonging to the group of people with late-onset TS were predictive of regret of SRS (Landén, Wålinder, Lambert, & Lundström, 1998). Other risk factors for negative outcome often mentioned in studies are poor social support, severe psychopathology, unfavorable physical appearance, and poor surgical result (Cohen-Kettenis & Pfäfflin, 2003; Lawrence, 2003; Smith, van Goozen, Kuiper, & Cohen-Kettenis, 2005).

Lawrence (2003) concluded that results of surgery may be more important for global outcome than preoperative factors, such as transsexual typology or procedure compliance. Eldh, Berg, and Gustafsson (1997) also reported that the participants'

dissatisfaction was associated with unsatisfactory physical and functional results after surgery.

These predictive factors for favorable vs. unfavorable outcome were pointed out by Swedish researchers in the 1970s and 1980s (Lundström et al., 1984; Wålinder, Lundström, & Thuwe, 1978; Wålinder & Thuwe, 1975), and later by Landén et al. (1998). In another Swedish study, focusing on personality factors, Bodlund and Kullgren (1996) described a group of 19 patients who had been approved for SRS. At follow-up after 5 years, 13 (70%) patients had improved in relation to social, psychological, and psychiatric aspects. One person regretted the SR and three (16%) had an unsatisfactory outcome in the sense that their psychosocial functioning had not improved or in some aspects had worsened. Prognostic factors associated with positive outcome were an absence of personality disorder diagnoses, having a positive self-image, and having a partner early in the process.

In a recent review, Gijs and Brewaeys (2007) report a favorable outcome in 96% of cases according to the patients themselves, and they argue that the patients' opinion regarding satisfaction may, in fact, be the decisive measure for outcome.

### Aims of the Study

This study investigated outcome in terms of clinicians' and patients' evaluation of the process of sex reassignment. The study was prospective and longitudinal and focused on relief of gender dysphoria, satisfaction with the SR process, social functioning, work, relationships, and sexuality after a minimum of 5 years in the process and/or 2 years after SRS. The study also examined if outcome differed in regard to sex, age group, and diagnostic group (i.e., early vs. late-onset and homosexual vs. non-homosexual TSs).

### The Swedish Procedure

According to Swedish national law, a person with transsexualism can apply for and get the necessary treatment for sex change within the public health care system. The procedure is often initiated by referral from a local psychiatric clinic to a specialized psychiatrist and gender team in order to obtain psychiatric assessment for a certificate of approval, following the patient's personal application for sex reassignment. There are six teams and two surgery clinics in Sweden for this purpose. The gender team provides a diagnostic evaluation, evaluates personal resources and the social situation, offers personal support, and authorizes the various examinations and treatments needed, such as physical exams, hair removal, speech training, hormone treatment, and surgery. After at least 1 year of so-called real-life experience, the patient's situation is re-evaluated and, if deemed suitable, hormone treatment is initiated, usually by the psychiatrist. At a minimum of 2 years, sex reassignment can be completed (Landén, Bodlund, Ekselius, Lambert, & Lundström,

2001). Most medical costs are subsidized by the Swedish government, so the total cost for the patient will not be more than about 300 USD per year.

The professional view in Sweden is that transsexualism is an authentic identity and that sex reassignment is the treatment of choice. Full treatment, in addition to hormones, involves sterilization and genital and plastic surgery. A complete sex change (according to the law) means that the patient has changed his or her first name, is on hormonal treatment, and has received a new national identity number indicating the new gender affiliation. The patient must also have been sterilized (or castrated), but not necessarily have had genital plastic surgery.

## Method

### Patients

The patients in this study were consecutively selected from two geographic regions of Sweden, one in the north and one in the south. At the time of inclusion, both centers had about five new referrals per year that were approved for SRS. About the same number of patients was excluded yearly from the SR process, due, for instance, to other diagnoses. The inclusion criteria for the follow-up study were fulfillment of the diagnostic criteria for transsexualism (or GID) and having been approved for sex reassignment since 5 years back or more, and/or completed sex reassignment since 2 years or more. Of the total population of 60 former patients (39 MF and 21 FM), 42 (70%) agreed to participate. Eighteen patients, 14 MF and 4 FM, were not included: one had died from complications of the SR surgery, eight were not reachable or did not respond to the request to participate, and nine said they were unwilling, mainly for integrity reasons. The dropouts were predominately MF (77.8%) and had a slightly lower score on the GAF-scale (Global Assessment of Functioning, Axis V in the DSM-IV) at index (63 vs. 71,  $p = .001$ ), but did not differ from the patients as regards age, diagnostic subtype (early or late onset) or sexual orientation. Sixteen (88.9%) of the dropouts had completed SRS.

The follow-up group consisted of 25 MFs (59.5%) and 17 FMs (40.5%). Twenty-six (61.9%) patients were diagnosed by the clinician (based on the patients' own reports) as early onset and 16 (38.1%) as late onset.

As shown in Table 1, 32 (76.2%) patients had completed SRS, five were still in the process, and five (4 MF/1 FM) had discontinued further surgery. All were late-onset TSs and four of these last-mentioned five were still on hormones. Among the four MF who had discontinued surgery, two (see Table 2, No. 10 and 15) wanted only breast enlargement but not genital surgery, one (No. 12) was ambivalent, and the fourth (No. 14) had changed his mind about completing SRS since he had found a partner who accepted that he had double identities. The FM (No. 35) described herself as transgendered living with double

identities and also very ambivalent about completing SRS. All of the discontinuers had stopped before castration and genital plastic surgery.

The FMs were significantly younger than the MFs at first assessment (index), follow-up, and at the time for SRS ( $p < .05$ ). Among the MFs, late-onset TS dominated (56%) compared to 11.8% among FMs ( $p = .003$ ). Half of the MFs (48%) were non-homosexually oriented compared to 5.9% of the FMs ( $p = .003$ ). For the entire group, the time span between index and follow-up assessment was 4–16 years, with a mean of 9.0 years. Half of the group had completed SRS within 4 years before follow-up.

### Procedure

At index, when the patients applied for treatment, all were clinically assessed by multiple methods: psychiatric, psychological, and somatic. They were interviewed, diagnosed according to ICD-10, and assessed regarding cognitive resources, personality traits, and disorders. Sociodemographic data were collected as well as data about partner experience, sexual orientation, and related issues. The patients also completed various self-report questionnaires.

At follow-up, after 5 years or more in the process or at least 2 years after SRS, the patients were contacted by the same psychiatrist (OB or TH) who had handled the index assessment and their application. The patients were interviewed and asked to complete the same questionnaires and tests as they did at index, which they complied with. This repeated procedure allowed us to compare status before and after SR.

### Measures

#### *The Interview*

The semi-structured interview at follow-up focused on a variety of areas of functioning, with questions chosen by the researchers on the basis of their clinical experiences and from earlier Swedish studies (Bodlund & Kullgren, 1996; Eldh et al., 1997). The questions covered employment situation, financial situation, partner, family of origin and other significant relations, sexual functioning and orientation, and physical and mental health. There were also questions about how the subjects perceived their gender role and how they experienced the SR procedure as a whole and the outcome of hormonal treatment and surgery. There were a total of 55 pre-formulated questions about changes from index to follow-up. The patient's ratings were made on a 3- or 5-point ordinal scale, with 3 indicating "good" and 1 "poor" on the 3-point scale and 5 = "much better" and 1 = "much worse" on the 5-point scale. In addition, general health aspects and medication were rated by both the clinician and the patient. The five-point categories were then

**Table 1** Description of the follow-up group

Description	Male-to-female (MF) <i>n</i> = 25 (59.5%) <i>M</i> (Range)	Female-to-male (FM) <i>n</i> = 17 (40.5%) <i>M</i> (Range)	Total <i>n</i> = 42 <i>M</i> (Range)
Age at index (in years)	37.3 (21–60) <sup>a</sup>	27.8 (18–46)	33.4 (18–60)
Age at SRS (in years)	38.2 (22–57) <sup>b</sup>	31.4 (22–49)	35.2 (22–57)
Age at follow-up (in years)	46.0 (25–69) <sup>b</sup>	38.9 (28–53)	43.1 (25–69)
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Early-onset transsexualism	11 (44) <sup>a</sup>	15 (88.2)	26 (61.9)
Late-onset transsexualism	14 (56) <sup>a</sup>	2 (11.8)	16 (38.1)
Homosexual orientation	13 (52) <sup>a</sup>	16 (94.1)	29 (69.1)
Completed SRS	18 (72) <sup>ns</sup>	14 (82.4)	32 (76.2)

<sup>a</sup> Student's *t*-test  $p < .01$

<sup>b</sup> Student's *t*-test  $p < .05$

transformed into three categories: better/improved-unchanged-worse/impaired.

### Standardized Rating Format

The format for the clinicians' evaluation of the outcome from index to follow-up was inspired by Hunt and Hampson's (1980) Standardized Rating Format, as well as the work of Wålinder and Thuwe (1975) and the modification of the format previously described by Bodlund and Kullgren (1996). The format was supplemented by a GAF estimation (Axis V in the DSM-IV) made by the clinician at both index and follow-up. An increase in GAF points of five or more was considered to be an improvement and a decrease of  $\geq$  five points was considered as worse. Each clinician collected all available information from medical records, personal knowledge of the patient over the years, and data from index and follow-up interviews, and used this information to make their evaluation of the outcome as regarded socioeconomic status, work/study status (including sick leave, disability pension, etc.), partner/family/friend relationships (i.e., changes in the quality of significant relations), actual use of psychiatric care, and global functioning according to the GAF scale and whether it was lower/worsened, stable/unchanged, or improved/higher. In addition, the patients' own opinion on the outcome was included in the format, which means that the patient's and the clinician's evaluations were not fully independent of each other. Global outcome was defined as positive/favorable if at least two of these six areas were improved and not worse in any functional area. Conversely, global outcome was defined as negative if at least two or more areas were worse/impaired and not improved in any. In our earlier study from 1996, we showed good inter-rater reliability (with a Cohen's kappa of about 0.80, unpublished data) between these two clinicians regarding their judgment of global outcome according to this rating format. Gathering all available data over several years and from different areas

of functioning, a summary of the outcome of SR for each individual is shown in Table 2.

## Results

At follow-up, 16 (38.1%) patients, 9 of the MFs (36%) and 7 of the FMs (41%), had a partner. Twenty-six (62%) patients were employed or involved in studies, compared to 21 at index. Among the other 16 patients, two were unemployed, two were retired, and 12 lived on disability pensions (compared to nine on disability pensions at index).

### Clinicians' Evaluation of Global Outcome

As shown in Table 2, the clinicians rated 26 patients (62%) as globally improved, 10 (24%) as unchanged, and six (14%) as worse. Three out of five of those still in the process and all of those who had discontinued from further surgery were rated as improved.

According to the clinicians evaluation (Table 3), more MFs were rated as improved compared to FMs ( $p = .04$ ), but there was no significant difference in outcome between the subgroups (early- vs. late-onset TSs and homosexual vs. non-homosexual sexual orientation).

### Patients' Evaluation of Global Outcome

In Table 2, it is also evident that the patients' own assessments of global outcome were more positive than the clinicians'. Forty (95%) patients rated themselves as improved and only two viewed the outcome as negative. None of the patients who were still in the process rated the outcome as negative thus far. Also, those five who had interrupted the SR process seemed to be content with their decision to do so.

**Table 2** Clinicians' and patients' evaluation of *global outcome of SR* according to the standard rating format

Patient no	Biol. sex	Years from index to follow-up	Diagnosis TS-typology	Sexual orientation	Soc-econ status	Work/ studies	Significant relations	Psychiatric care	GAF-difference $\geq 5$ points	Global outcome-Patients' evaluation	Global outcome-Clinicians' evaluation
1	M	8	Late onset	Homo	+	+	0	0	-	+	0
2	M	12	Early onset	Non-HS	0	0	0	0	0	+	0
3	M	8	Late onset	Homo	+	+	+	+	+	+	+
4 <sup>a</sup>	M	8	Late onset	Non-HS	0	+	0	+	0	+	+
5	M	16	Late onset	Non-HS	-	-	0	0	+	+	0
6 <sup>a</sup>	M	7	Late onset	Homo	+	+	0	0	0	+	+
7	M	4	Late onset	Non-HS	-	0	0	-	-	+	-
8	M	5	Late onset	Homo	0	0	+	0	0	+	+
9 <sup>a</sup>	M	14	Late onset	Non-HS	-	-	0	0	0	+	-
10 <sup>b</sup>	M	5	Late onset	Non-HS	+	+	0	0	0	+	+
11	M	15	Early onset	Homo	+	+	0	0	+	+	+
12 <sup>b</sup>	M	5	Late onset	Homo	0	0	+	0	0	+	+
13	M	15	Early onset	Homo	+	0	+	+	+	+	+
14 <sup>b</sup>	M	5	Late onset	Non-HS	+	0	+	+	+	+	+
15 <sup>b</sup>	M	8	Late onset	Non-HS	+	+	+	0	+	+	+
16	M	5	Early onset	Homo	0	0	0	0	-	+	0
17	M	15	Late onset	Homo	0	0	0	0	+	+	+
18	M	6	Early onset	Homo	+	+	0	0	0	+	+
19	M	8	Early onset	Homo	+	+	+	0	0	+	+
20	M	7	Late onset	Non-HS	0	0	+	0	0	+	+
21	M	13	Early onset	Non-HS	0	0	+	+	+	+	+
22	M	10	Early onset	Homo	0	0	-	0	+	+	0
23	M	4	Early onset	Homo	+	+	+	+	+	+	+
24	M	7	Early onset	Non-HS	+	0	+	+	+	+	+
25	M	5	Early onset	Non-HS	+	+	0	+	+	+	+
26 <sup>a</sup>	F	10	Early onset	Homo	-	-	-	0	0	+	-
27	F	5	Early onset	Homo	0	0	+	0	0	+	+
28 <sup>a</sup>	F	6	Early onset	Homo	0	0	0	0	+	+	+
29	F	9	Early onset	Homo	0	0	-	0	0	+	0
30	F	14	Early onset	Homo	0	0	0	0	+	+	+
31	F	13	Early onset	Homo	+	+	+	+	+	+	+
32	F	15	Early onset	Homo	0	0	-	0	-	+	-
33	F	16	Early onset	Homo	+	+	0	0	+	+	+
34	F	15	Early onset	Homo	+	+	0	0	0	+	+
35 <sup>b</sup>	F	5	Late onset	Non-HS	+	+	+	0	0	+	+

Table 2 continued

Patient no	Biol. sex	Years from index to follow-up	Diagnostic TS-typology	Sexual orientation	Soc-econ status	Work/studies	Significant relations	Psychiatric care	GAF-difference $\geq 5$ points	Global outcome-Patients' evaluation	Global outcome-Clinicians' evaluation
36	F	11	Early onset	Homo	0	0	0	0	0	+	0
37	F	10	Early onset	Homo	0	0	0	0	0	+	0
38	F	7	Late onset	Homo	-	-	0	0	-	-	-
39	F	8	Early onset	Homo	0	0	-	+	Missing	+	0
40	F	10	Early onset	Homo	0	-	+	0	+	+	0
41	F	15	Early onset	Homo	0	-	-	-	0	+	-
42	F	5	Early onset	Homo	0	0	+	+	+	+	+
Sum	M 25 F 17	Mean 9.0 Range 4–16	Early 26 Late 16	Homo 29 Non-HS 13	17 (40%) 20 (48%) 5 (12%)	15 (36%) 21 (50%) 6 (14%)	16 (38%) 20 (48%) 6 (14%)	11 (26%) 29 (69%) 2 (5%)	19 (46%) 17 (42%) 5 (12%)	40 (95%) 0 (0%) 2 (5%)	26 (62%) 10 (24%) 6 (14%)
Improved	(+)										
Unchanged	(0)										
Worsened	(-)										

<sup>a</sup> Not completed SRS, still in the process <sup>b</sup> Discontinued from genital surgery (SRS). Non-HS = heterosexual orientation relative biological sex

Patients' Evaluation of Specific Aspects of Outcome

On the question of their gender identity at follow-up, there were no patients who identified themselves with their biological sex. Thirty-three (79%) patients identified themselves according to their preferred gender identity and felt that others also perceived them in the same way and not according to their biological sex. Nine (21%) identified themselves as just transsexuals, of which eight were MFs. These patients had not yet completed the SR procedure or had interrupted the process, and stated that they felt ambivalent due to a perceived lack of acceptance from other people or dissatisfaction with their physical appearance, which still indicated their biological sex.

Table 4 shows that the patients were extremely satisfied with the SR process as a whole, with no differences between the sexes. As many as 95.2% of the patients (40 out of 42) were satisfied. Two (one MF and one FM) were dissatisfied because of shortcomings in the genital surgery.

Few patients rated their work situation, partner relation or sex life as impaired at follow-up, with no significant differences between the sexes. Three experienced some impairment in their work situation. One, a MF, had a typically masculine job and experienced difficulties coping at work as a woman. Another MF had previously held a job but was unemployed at the time of the follow-up study. The third case, also a MF, was an unemployed former student.

Regarding impaired partner relations, two (MF) gave sexual reasons. One claimed that the hormonal treatment led to a negative effect on her sex drive and the other reported that her vagina was not functional for intercourse. The third patient (FM) expressed social problems in trying to live in a masculine role and was also slightly depressed.

Current sex life, compared to before SR and hormone treatment, was rated as improved or unchanged by 95% of the patients. Two MFs expressed "impaired sex life" because of lower sex drive and lack of partner, respectively.

There was, however, a significant difference between the sexes regarding their sexual orientation. Twelve of the MFs (48%) preferred a female partner compared to only one among the FMs (6%), who had a preference for a male partner ( $p = .004$ ), i.e., non-homosexuality in relation to biological sex. There was also a significant correlation (Pearson  $r = .45$ ,  $p = .01$ ) between male sex, late onset, and non-homosexual orientation.

The initiation of hormonal treatment is a crucial part of the SR process and often functions as a confirmation of the prospective of the procedure. Thirty-five (89.7%) patients were, in general, satisfied with the hormonal treatment, three stated neither/nor, and one was dissatisfied because she was forced to cease treatment due to an allergic reaction.

The general evaluation of the surgery treatment showed that of 33 patients (32 with genital surgery and one with only mastectomy), 22 (66.7%) were satisfied, seven (21.2%) were



**Table 3** Clinicians' evaluation of global outcome, in relation to sex and type of TS

	MF <i>n</i> = 25	FM <i>n</i> = 17	Early-onset TS <i>n</i> = 26	Late-onset TS <i>n</i> = 16	Homosex orientation <i>n</i> = 29	Non-homosex <i>n</i> = 13
Improved	18 (72%) <sup>a</sup>	8 (47%)	15 (57.6%)	11 (68.8%)	17 (58.6%)	9 (69.2%)
Unchanged	5 (20%)	5 (29.4%)	8 (30.7%)	2 (12.5%)	8 (27.6%)	2 (15.4%)
Worsened	2 (8%)	4 (23.5%)	3 (11.5%)	3 (18.7%)	4 (13.8%)	2 (15.4%)

<sup>a</sup> Student's *t*-test *p* = .04

**Table 4** The patients' statements according to the follow-up interview concerning satisfaction with the SR process and outcome in regard to work, partner relationships, and sex life

	MF	FM	All
SR process as a whole	<i>n</i> = 25	<i>n</i> = 17	<i>n</i> = 42
Satisfied	24 (96%)	16 (94.1%)	40 (95.2%)
Neither/nor	0	0	0
Dissatisfied	1 (4%)	1 (5.9%)	2 (4.8%)
Work situation	<i>n</i> = 23	<i>n</i> = 15	<i>n</i> = 38
Better	9 (39.1%)	8 (53.3%)	17 (44.7%)
Unchanged	11 (47.8%)	7 (46.7%)	18 (47.4%)
Worsened	3 (13.1%)	0	3 (7.9%)
Partner relations	<i>n</i> = 23	<i>n</i> = 14	<i>n</i> = 37
Better	16 (69.6%)	7 (50%)	23 (62.2%)
Unchanged	5 (21.7%)	6 (42.9%)	11 (29.7%)
Worsened	2 (8.7%)	1 (7.1%)	3 (8.1%)
Sex life	<i>n</i> = 24	<i>n</i> = 16	<i>n</i> = 40
Better	16 (66.7%)	12 (75%)	28 (70%)
Unchanged	6 (25%)	4 (25%)	10 (25%)
Worsened	2 (8.3%)	0	2 (5%)

neither/nor, and four (12.1%) were dissatisfied. Three of these latter four were FMs.

The patients were also interviewed about changes from index to follow-up in their general health, psychiatric distress, and use of psychotropic medication. The majority (55.4%) rated their general health as improved, 28.5% stated "no change," and 16.1% felt that their overall health was impaired. There were no sex differences, but the impaired group was slightly older. A common response associated with improvement was better psychological well-being. Half of those who rated their health as "unchanged" meant they were still in good health. As for psychological problems, 30–50% stated they had suffered from insomnia, depression or anxiety in the last year, but only five out of 42 (12%) were on antidepressants or tranquilizers. Only three patients (7.1%) were receiving ongoing psychiatric treatment (for other reasons than the SR procedure).

When comparing the outcome (according to statements in the interview) for early onset vs. late-onset TSs, some significant differences were found, as shown in Table 5.

Most late-onset TSs were MF, much older when applying for SRS, and less satisfied with their sex life. Only 15.4% of TSs

**Table 5** Significant differences between TSs with early versus late onset

	Early-onset TS <i>n</i> = 26 (61.9%)	Late-onset TS <i>n</i> = 16 (38.1%)	<i>t</i> -test
Male sex (MF)	11 (42.3%)	14 (87.5%)	<i>p</i> < .01
Age at index (years)	28	42	<i>p</i> < .01
Satisfied with sex life at follow-up	20 (76.9%)	8 (50%)	<i>p</i> < .05
Non-homosexual orientation (relative to biological sex)	4 (15.4%)	9 (56.2%)	<i>p</i> < .01

with early onset had a non-homosexual orientation, compared to more than half of those with late onset. The same pattern emerged when comparing homosexual to non-homosexual TSs: 92% of the latter were MF, older at index (37 vs. 32, ns), and significantly less satisfied with their sex life (*p* = .003). In addition, the majority (62%) were late-onset TS (*p* = .005). However, there were no differences within these two subgroups regarding satisfaction with current work situation, financial status, general health, or hormonal or surgical treatment. Over 90% in both groups were satisfied with the SR process as a whole.

## Discussion

The study aimed at describing the outcome of SR from both the patient's and the professional's perspective. According to the clinician, more than 60% of the patients were judged as globally improved, compared to 95% according to the patients' own judgment. In a previous study by Bodlund and Kullgren (1996), the corresponding findings, respectively, were 68 and 63%. In other studies, using a variety of outcome measures, the average positive outcome was between 71 and 97% (Cohen-Kettenis & Pfäfflin, 2003). The discrepancy between the clinicians' and the patients' evaluation can be explained by different standards when evaluating changes over several years and by the fact that the clinician took into account several more objective and, as we see it, relevant outcome factors, such as work situation, social relationships, financial situation, partnership, GAF value, etc. Furthermore, it is not easy for the patient to openly regret such an

irreversible decision as change sex. On the other hand, it can be argued that the only legitimate basis for judging outcome is the patient's satisfaction (Gijs & Brewaeys, 2007). However, the outcome was very encouraging from both perspectives, with almost 90% enjoying a stable or improved life situation at follow-up and only six out of 42 (according to the clinician) with a less favorable outcome.

No significant difference in outcome between early and late onset or between homosexual and non-homosexual oriented TSs was found, but there was a more positive outcome for MFs compared to FMs. These findings differ from most other studies and are difficult to explain. More FMs were impaired as concerned socioeconomic status, work, and partner situation, but they rated themselves as equally satisfied with the outcome as the MFs did. One explanation could be that FMs were already well functioning at index in many areas, which is in accordance with our clinical impression, and that MFs had more to gain in terms of social and psychological functioning during the SR process.

The clinician also rated the outcome as less favorable than the patients did themselves in the interview, especially concerning "partner relationship." This may be because the clinician's evaluation had a broader meaning, covering relationships with friends and family as well as partner relationships. A similar discrepancy was seen regarding the work situation, which we interpret as differing valuations of, e.g., a disability pension.

The vast majority of patients identified themselves with their preferred sex and the few who called themselves transsexuals were those who had interrupted or were still in the process. This finding supports the idea that the treatment goal is a complete SRS.

When interviewed about how content they were with the SR process as a whole, almost all the patients (95%) rated themselves as satisfied and no one regretted the SR. However, four patients were discontent with the surgery, three of which were FMs. For FMs, genital surgery is more complicated and the result is more cosmetic than functional. On the other hand, there were only two patients (5%) who said that their sexuality was impaired after SRS, and they were MFs. So the surgical result is not always decisive for sexual functioning or satisfaction.

The outcome data displayed few sex differences. FMs were younger at application, mainly reflecting the fact that 15 out of a total 17 were early-onset TS, which implies an earlier onset of cross-gender orientation. Only one of the FMs reported a non-homosexual orientation compared to half of the group of MFs. As in previous studies, we found an expected connection between male biological sex, late-onset TS, and non-homosexual orientation.

As stated above, we could not verify that late-onset TS would have a less favorable outcome despite the fact that the late-onset TSs were older, mostly MF, and more often single, non-homosexual oriented, and less satisfied with their sex life. This does not seem to interfere with their assessment of being as satisfied and well-functioning as early-onset TSs. However,

these results are supported by Lawrence (2003) who showed that diagnostic typology is not entirely decisive for outcome. There is nonetheless a problem in comparing different studies according to the different views of how to categorize the spectra of transsexualism into subgroups. When dichotomizing into early/late onset, MF/FM, and homo/non-homosexual, there is always a risk of losing statistical power when the groups become small. As shown in Tables 2 and 3, there was no robust connection in this study between sexual orientation, age of onset, and outcome.

Of the total population of 60 individuals who had changed sex in these two regions of Sweden, 42 completed the follow-up procedure. This response rate of 70% allows for generalizations. As for the eight dropouts who declined to participate, we can only speculate on the following reasons, perhaps among others: (a) a long time had passed since SRS and they no longer had contact with the TS team, (b) they were dissatisfied with the procedure and/or result and/or clinician, or (c) they would like to preserve their anonymity and not risk being revealed to close relations or friends who may not be aware of their earlier life situation.

The strengths in this study were the prospective longitudinal design, which allowed the clinicians to develop extensive knowledge of their patients over several years of contact ( $M = 9$  years), and the fact that both the clinician's and the patient's perspective were considered in the evaluation of outcome. On the other hand, the results may have been biased by the fact that we were investigating our own patients, which may have challenged our objectivity. Another possibility is that the patients may tend to want to please their clinician because of their dependency, for instance, on future support and prescriptions (of hormones). Another limitation was the small number of patients, which is a constant problem in this specific research area. However, it is noteworthy that we managed to follow-up and evaluate as many as 70% of all treated transsexuals in these two geographic areas.

In this study we did not aim at investigating the patients who were not approved for SR due to other diagnoses, instability in personality or situation etc. But clinically we are guided by a previous Swedish study by Lundström (1981) who made a follow-up of a group of patients not accepted for SR. His conclusion was that there was new strong evidence for the complexity of the male group regarding diagnoses, and that many patients in the rejected group had persistent cross-sex feelings and were more dissatisfied with life, yet some of them thought the decision was right. The study also pointed out which patients could benefit from SR and which could adjust without. The situation today in Sweden is that a much smaller proportion is excluded from SRS, mainly because a more rigorous evaluation is made before being referred to the gender team, and possibly also because an ongoing shift in diagnostic thinking. However, there is a need for renewed and recurring follow-up of these rejected patients.



In the past few years, the number of applicants for SR in Sweden has increased dramatically. Contributing factors to this increase are probably a higher tolerance in our society, extensive and more easily spread information about treatment options and legal aspects via the Internet and other mass media, and possibly also interacting cultural trends. A likely consequence of this increase will be a larger proportion of atypical cases applying for SR, which in turn will challenge our current clinical procedure for inclusion and exclusion. However, the ambition will still be to maintain the overall positive outcome of SRS and hopefully with no regrets.

**Acknowledgments** This study was supported by grants from the Sjöbring Foundation and the Lindhaga Foundation, the University Hospital of Lund, and the Department of Psychiatry at the University Hospital of Umeå, Sweden.

## References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (Fourth ed., text rev.). Washington, DC: Author.
- Blanchard, R. (1989). The classification and labeling of nonhomosexual gender dysphorias. *Archives of Sexual Behavior*, 18, 315–334.
- Blanchard, R., Steiner, B. W., Clemmensen, L. H., & Dickey, R. (1989). Prediction of regrets in postoperative transsexuals. *Canadian Journal of Psychiatry*, 34, 43–45.
- Bodlund, O., & Kullgren, G. (1996). Transsexualism: General outcome and prognostic factors. *Archives of Sexual Behavior*, 25, 303–316.
- Cohen-Kettenis, P. T., & Pfäfflin, F. (2003). *Transgenderism and intersexuality in childhood and adolescence: Making choices*. Thousands Oaks, CA: Sage.
- Docter, R. F. (1988). *Transvestites and transsexuals: Toward a theory of cross-gender behavior*. New York: Plenum Press.
- Doorn, C. D., Poortinga, J., & Verschoor, A. M. (1994). Cross-gender identity in transvestites and male transsexuals. *Archives of Sexual Behavior*, 23, 185–201.
- Eldh, J., Berg, A., & Gustafsson, M. (1997). Long term follow up after sex reassignment surgery. *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery*, 31, 39–45.
- Gijs, L., & Brewaeys, A. (2007). Surgical treatment of gender dysphoria in adults and adolescents: Recent developments, effectiveness, and challenges. *Annual Review of Sex Research*, 18, 178–224.
- Hunt, D., & Hampson, J. L. (1980). Transsexualism: A standardized psychosocial rating format for the evaluation of results of sex reassignment surgery. *Archives of Sexual Behavior*, 9, 255–263.
- Kuiper, A. J., & Cohen-Kettenis, P. T. (1998). Gender role reversal among postoperative transsexuals. *International Journal of Transgenderism*, 2. Available at <http://www.symposion.com/ijtj/ijtj0502.htm>.
- Landén, M., Bodlund, O., Ekselius, L., Lambert, G., & Lundström, B. (2001). Bytt är bytt, kommer aldrig igen. Könabyte för närvarande bästa metoden för transsexuella [Done is done and gone is gone; sex change presently the best remedy for transsexuals]. *Läkartidningen*, 30–31(98), 3322–3326.
- Landén, M., Wålinder, J., Lambert, G., & Lundström, B. (1998). Factors predictive of regret in sex reassignment. *Acta Psychiatrica Scandinavica*, 97, 284–289.
- Lawrence, A. A. (2003). Factors associated with satisfaction or regret following male-to-female sex reassignment surgery. *Archives of Sexual Behavior*, 32, 299–315.
- Lundström, B. (1981). *Gender dysphoria: A social-psychiatric follow-up study of 31 cases not accepted for sex reassignment*. Doctoral dissertation, Department of Psychiatry, University of Gothenburg, Gothenburg, Sweden.
- Lundström, B., Pauly, I. B., & Wålinder, J. (1984). Outcome of sex reassignment surgery. *Acta Psychiatrica Scandinavica*, 70, 289–294.
- Olsson, S., & Möller, R. (2003). On the incidence of transsexualism in Sweden, 1972–2002. *Archives of Sexual Behavior*, 32, 381–386.
- Pfäfflin, F., & Junge, A. (1998). Sex reassignment: Thirty years of international follow-up studies. A comprehensive review, 1961–1991. *International Journal of Transgenderism*. <http://www.symposion.com/ijt/books/index.htm>.
- Smith, Y. L. S., van Goozen, S. H. M., Kuiper, A. J., & Cohen-Kettenis, P. T. (2005). Sex reassignment: Outcomes and predictors for adolescents and adult transsexuals. *Psychological Medicine*, 35, 89–99.
- World Health Organization. (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines*. Geneva: Author.
- Wålinder, J., Lundström, B., & Thuwe, I. (1978). Prognostic factors in the assessment of male transsexuals for sex reassignment. *British Journal of Psychiatry*, 132, 16–20.
- Wålinder, J., & Thuwe, I. (1975). *A social follow-up study of 24 sex-reassigned transsexuals*. Gothenburg, Sweden: Scandinavian University Books.