CHAPTER 6

Outcomes of sex reassignment: **A prospective follow-up study on adult male-to-female and female-to-male transsexuals**

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Abstract

Objective: The present prospective follow-up study was performed for the following reasons. First, we investigated whether transsexuals actually improved in several important areas of functioning after sex reassignment. Second, we determined whether differences were found between male-to-females and female-to-males in postoperative functioning. Finally, we examined whether differences were found at follow-up between transsexuals who had completed the second phase timely or slowly. **Method:** Participants were 171 adult transsexuals who were considered eligible for sex reassignment. The psychological, social, and sexual functioning was assessed before and after treatment. Postoperatively, feelings of regret, an evaluation of the treatment, and satisfaction with surgical results, were also evaluated. The follow-up interviews were conducted 1 to 4 years after surgery. Pre- and posttreatment data were compared within the entire sample to examine improvement in the various areas of functioning. Male-to-females and female-to-males were compared to determine differences in postoperative functioning. Results between the "on time" and "slow" group were also compared at follow-up to serve the final purpose of the study. **Results:** After sex reassignment the group was no longer gender dysphoric and had improved in all areas of functioning that we measured. The vast majority of the group functioned quite well, psychologically, socially, and sexually, and expressed no regrets about treatment or living in the new gender role. Yet, a few individuals expressed reservations about the beneficial effects of treatment at follow-up. Two transsexuals experienced feelings of regret during and after SR, due to adverse social reactions. Most of the differences between male-to-females and female-to-males that were found in previous studies were also found in this study. In particular, female-to-males appeared to function better than male-to-females in most respects. No differences were found between the "on time" and "slow" group at follow-up. **Conclusions:** The outcomes of this study substantiate the conclusion from other retrospective follow-up studies that sex reassignment is indeed effective. Although the vast majority of transsexuals accomplished to realize the gender role transformation according to their needs, clinicians need to be alert for some applicants who are not good candidates for SR. For them, therapeutic guidance is more crucial to unravel whether surgery will enhance their well-being in the new gender role. In even others, professional care in coping with adverse consequences *after* treatment is indispensable.

Introduction

The phenomenon of transsexualism refers to individuals who are born with normal sexual characteristics of one biological sex, but have the irrefutable conviction to belong to the other biological sex. The notion comes to mind that transsexualism can be treated in two ways in order to eliminate the discrepancy between gender identity and body characteristics. Either the body characteristics are adapted to the cross-gender identity, by means of sex reassignment (SR), or, the cross-gender identity is changed in agreement with the biological sex, by means of psychotherapy. A choice for one or the other treatment option is based upon the consideration of whether a once established gender identity can be changed or not. Some assume that gender identity already becomes embedded in the individual in early childhood (Money and Ehrhardt, 1972; Stoller, 1968, 1975) and does not alter afterwards. Stoller (1968) argues that a "core-gender-identity" is crystallized around the age of three and defines the development of the course of life. This is also supposed to apply for the gender identity of transsexuals (Baker, 1969; Benjamin, 1971; Oles, 1977). This principle, combined with the fact that transsexualism hardly seemed treatable by means of psychotherapy (see below), gave rise to many professionals working with transsexuals to regard SR as the most viable treatment option for the most extreme gender identity disorders presented at their clinic. Before we elaborate on the treatment approach of SR, we will briefly address psychotherapy as a treatment option for transsexualism.

Studies investigating the effect of psychotherapy on gender identity problems have been conducted considerably less than outcome studies on the effects of SR. A likely explanation for this difference might be that only few psychotherapists treated enough transsexuals that were necessary to conduct outcome studies; and that there were not many transsexuals either who were prepared to try and resolve their gender dysphoria by means of psychotherapy. In addition, since the first sex change operations were performed in the 1930s (Abraham, 1931), professionals involved in this kind of treatment were more instigated to demonstrate the effectiveness of SR because of the irreversible and disputed nature of this type of intervention.

In a number of case studies successful effects of psychotherapy for the treatment of transsexualism were reported (Barlow et al., 1973, 1979; Davenport and Harrison, 1977; Dellaert and Kunke, 1969; Edelmann, 1986; Forrester and Swiller, 1972; Khanna et al., 1987; Kronberg et al., 1981; Kuchenhoff, 1988; McCauley and Ehrhardt, 1984; Springer, 1981).

In 1984, Cohen-Kettenis and Kuiper reviewed the existing case studies at that time. They concluded that the evidence for complete and long-term reversal of cross-gender identity by means of psychotherapy was not convincing for the following reasons. Firstly, in each report gender identity was operationalized differently. Consequently, treatment success was assessed on the basis of various, and sometimes unspecified, criteria. Secondly, some patients reported a disappearance of the wish for SR, when no psychotherapy was given. However, some applicants who refrain from SR may reapply many years later. So even the few claimed cures might have been postponements of SR. Thirdly, patients in these studies were highly motivated to "change" their gender identity, which is rarely encountered in most applicants for SR. The authors did confirm, that in some cases psychotherapy had brought the transsexual to renounce their wish to undergo SR (i.e., two of the three cases from the Barlow et al. studies, 1973, 1979). In view of the scarce data available on the long-term effects of psychotherapy however, the authors considered it to be quite uncertain to conclude whether the results were manifestations of a fundamental change in cross-gender identity, or of a temporary distancing from, or perhaps suppression of the gender identity conflict. In conclusion, psychotherapy might be helpful for individuals who are merely gender confused or who's wish for SR seems to originate from factors other than a genuine and complete cross-gender identity. Whether genuine transsexualism can be effectively resolved by means of psychotherapy still requires more conclusive evidence. Psychotherapy or counseling for purposes other than changing a cross-gender identity is also an option for SR candidates. They may, for instance, want to overcome anxieties concerning the future or need support when "coming-out", when dealing with personal loss, or when trying to adjust to their changing life situation (Cohen-Kettenis and Gooren, 1999; Meyer et al., 2001).

In a recent study five cases were described of adults who were diagnosed with gender identity disorder and who showed occasional remission in gender dysphoria (Marks et al., 2000). Remission had occurred with or without treatment and in response to various life events and co-morbid psychopathology. Some of the subjects had consciously tried to suppress or control their gender dysphoria because of pressure from their partner or because circumstances did not allow for addressing the gender issue (e.g., one subject felt only minimally gender dysphoric while taking care for his aged and ill parents). Remission was documented at up to ten years. The authors concluded that, if evaluated

over many years, a cross-gender identity could be less fixed than is often thought. Their implications for the clinician were that such applicants require a long trial period of cross-gender living prior to any surgical interventions. We suppose that these individuals with an apparently "less fixed" cross-gender identity might have gained from psychotherapy in coping with their gender and nongender problems. However, resolution of their gender identity conflict as a consequence of psychotherapeutic treatment seems highly unlikely, since remission of the gender dysphoria in these cases, apparently, was temporary. The fact of the matter is that the gender dysphoria in all of the five cases described in the study had returned to such an extent that the subjects had resumed cross-gender living, and all but one had started or resumed hormone treatment.

Nowadays, many individual professionals and teams are specialized in the treatment of transsexuals. Such teams consist of specialists from various disciplines, such as psychologists, psychiatrists, endocrinologists, and plastic surgeons. These clinicians currently regard the conviction of transsexuals to belong to someone of the opposite biological sex as authentic, and therefore not necessarily as a derivative of some underlying psychopathological disorder. Consequently, the wish for a sex change is considered justified. The recommended procedure of the Standards of Care (SOC) of the Harry Benjamin International Gender Dysphoria Association (Meyer et al., 2001), an international professional organization in the field of transsexualism, is to approach the decision of whether to refer someone for SR surgery in two phases. In the first phase, a diagnosis must be made on formal psychiatric classification criteria. In the most recent version of the widely used psychiatric classification system, the Diagnostic and Statistic Manual of Mental Disorders - Fourth Edition (DSM-IV; American Psychiatric Association, 1995), the term transsexualism has been abandoned. Instead, the term Gender Identity Disorder (GID) is used for individuals who show a strong and persistent cross-gender identification and a persistent discomfort with their anatomical sex or a sense of inappropriateness in the gender role of that sex, as manifested by a preoccupation with getting rid of one's sex characteristics or the belief to be born in the wrong sex. The International Classification of Diseases and Related Health Problems - Tenth Revision (ICD-10 of the World Health Organization, 1992), the other currently used classification system, still lists transsexualism as a diagnosis. Because diagnosis alone does not provide sufficient information for a decision to start the SR procedure, eligibility of the patient to move on to the second

phase, the so-called Real-life Experience (RLE) needs to be assessed. In this phase the applicant's ability to live in the desired role and the strength of his or her wish for SR are evaluated, in the face of consequences and disappointments while living in the opposite gender role. The social role change during the RLE usually is supported by hormonal therapy. When the RLE has resulted in a satisfactory social role change, the applicant may be referred for surgery. (For a more detailed description of (eligibility criteria for) the various SR treatment phases, see the SOC (Meyer et al., 2001).

As indicated above, the therapeutic effectiveness of SR has been investigated in many studies since the first sex change operations. Pfäfflin and Junge (1998) extensively reviewed 79 studies between 1961 and 1991. After 1991, several more follow-up studies appeared (Bodlund and Kullgren, 1996; Cohen-Kettenis and van Goozen, 1997; De Cuypere, 1995; Rakic et al., 1996; Smith et al., 2001, 2002). Cohen-Kettenis and Gooren (1999) reported in their more recent review that most studies had investigated relatively small samples: only seven studies, with nonoverlapping samples, involved more than 50 subjects (Benjamin, 1967; Blanchard et al., 1993; Eicher, 1984; Herms, 1989; Kuiper and Cohen-Kettenis, 1988; Laub and Fisk, 1974; Pfäfflin and Junge, 1990). Moreover, the studies varied considerably with respect to methodology, number of subjects, and outcome criteria. In many studies postoperative success was defined by a combination of factors, often including "objective criteria" such as employment or housing. In our view, improvement in such conditions should be considered secondary to the main treatment goal: diminution or resolution of gender dysphoria. In spite of these differences between studies the general conclusion was drawn that SR effectively resolves the gender dysphoria transsexuals are suffering from (see Cohen-Kettenis and Gooren, 1999). Depending on methodology, number of subjects, and criteria, success percentages between 87% among male-to-female transsexuals (MFs) and 97% among female-to-male transsexuals (FMs) are reported (Green and Fleming, 1990).

Specific improvement after SR was also found in other areas besides gender dysphoria, such as body dissatisfaction (Fleming et al., 1982; Kuiper and Cohen-Kettenis, 1992a; Lindgren and Pauly, 1975), sexual (Kuiper, 1991) and social functioning (Kuiper, 1991; Kuiper and Cohen-Kettenis, 1992b), and psychological functioning (Mate-Kole et al., 1990).

In most respects FMs fare better than their MF counterparts (e.g., Kockott and Fahrner, 1988; Kuiper, 1991; Kuiper and Cohen-Kettenis, 1988; Pfäfflin and Junge, 1998; Verschoor and Poortinga, 1988). This might be a reflection of their more convincing gender role behavior and looks, their less stigmatized childhood, their "type" of transsexualism, implying an earlier age at application, or a combination of the factors (Abramowitz, 1986; Lothstein, 1982; Pauly, 1981; Pfäfflin and Junge, 1990).

In addition to differences in outcomes of SR between the sexes, homosexual transsexuals (i.e., sexually oriented towards individuals of the same biological sex) have been found to show less postoperative regrets than heterosexual (i.e., *non*homosexual) transsexuals (Blanchard et al., 1989; Smith et al., this volume). The terms "early onset and late onset transsexuals" or "primary and secondary transsexuals" are also used to describe roughly the same groups (Doorn et al., 1994).

Negative results, like severe postoperative regrets, were also found (Kuiper and Cohen-Kettenis, 1998; see Pfäfflin, 1992). In spite of strict prior selection and counseling during treatment, an estimated one to two percent of those treated express regrets about SR. An estimation is needed her, since few systematic studies specifically addressing negative outcomes of SR have been conducted (Kuiper and Cohen-Kettenis, 1998; Pfäfflin, 1992). Factors that were found to be associated with relatively poor postoperative functioning in empirical studies not including regretful transsexuals were secondary transsexualism, SR application late in life, bad surgical results, suicidal tendencies, inadequate social functioning, loss of work and family, a noncooperative attitude towards clinicians, and enduring resistance against the transsexualism (Lundström et al., 1984; Ross and Need, 1989; Spengler, 1980). From some follow-up studies, factors that are potentially predictive of postoperative regrets emerged. These tend to lie in the area of unfavorable physical appearance, lack of social support (Wålinder et al., 1978), a high age at first request of SR (after age 32; Lindemalm et al., 1987), sexual orientation (Blanchard et al., 1989), poor surgical results (Pfäfflin, 1992), lack of support from the family, secondary transsexualism (Landén et al., 1998), late onset of the gender conflict, and psychological instability and/or social isolation (Kuiper and Cohen-Kettenis, 1998). Group sizes in most of these studies, however, were very small, making it impossible to calculate which risk factors or combination of factors are the most decisive ones.

In view of the irreversibility of SR, we conducted a prospective study to provide more insight in which (combination of) factors predicted good or poor postoperative functioning (this volume). Applicants for SR with a *non*homosexual orientation, combined

with the presence of psychopathology and dissatisfaction with secondary sex characteristics at assessment, were more likely to function poorer postoperatively and to express more dissatisfaction about the results or consequences of SR in their lives.

Although SR is presently regarded as effective to treat severe GID, often referred to as transsexualism (Meyer et al., 2001), prospective studies are needed to enhance knowledge about the benefits and limitations of SR. This was precisely the aim of the current prospective study to investigate which areas of functioning actually improved, and which areas did not, as a consequence of SR.

The present follow-up study, conducted with a prospective design and with a large sample of adult transsexuals who were eligible for SR, was performed for the following reasons. First and foremost, we investigated whether prospective research could demonstrate that transsexuals actually improve in several important areas of functioning after SR. In addition, we examined whether the results could support the beneficial effects of SR already found in retrospective follow-up studies. Second, we determined whether differences were found between MFs and FMs in postoperative functioning. And finally, we investigated whether differences were found between transsexuals who had completed the second phase timely or slowly in postoperative functioning. Naturally, improvement in gender dysphoria was a primary factor to be examined in the study. We further focused on improvement of body dissatisfaction, physical appearance, and psychological functioning. Postoperatively, feelings of regret, an evaluation of the treatment, and satisfaction with surgical results, social and sexual functioning were evaluated.

Method

Subjects

A group of 171 consecutive adult patients, who had applied and were considered eligible for SR at the Department of Internal Medicine at the Free University Medical Center in Amsterdam (FUMC), were invited and agreed to participate in the study. Pretest data were obtained from 168 patients (110 MFs and 58 FMs). Because IQ tests could not be administered together with the other tests on one occasion, for practical reasons, we only obtained 126 IQ scores.

At follow-up, some of the participants had moved abroad, while others were not traceable, which resulted in a sample of 133 subjects (79%; 83 MFs and 50 FMs), who

could be interviewed. Questionnaire data available for different measures fluctuated from 102 to 133 subjects, due to the fact that not all participants were willing to spend their time on both an interview and filling out questionnaires. Since breast augmentation, metaidoioplasty or phalloplasty are not necessarily performed in all patients undergoing SR, data were gathered from 52 MFs on breast augmentation, and from 10 FMs on metaidoioplasty or phalloplasty. Finally, we obtained Appraisal of Appearance Inventory scores from 62 patients at follow-up.

Participants were divided into the "on time" or "slow" group for the third purpose of the study. The MFs of the "on time" group completed the second phase of the SR procedure (i.e., start of the cross-sex hormone treatment [estrogens for MFs, androgens for FMs], combined with the RLE, until surgery) in 21 months or less; the FMs in 15 months or less. MFs of the "slow" group completed this procedure in more than 21 months, and the FMs in more than 15 months. According to the FUMC protocol in the period that the data for this study were gathered, the minimum required duration of hormone treatment before surgery was 18 months for MFs and 12 months for FMs. In the event that hormone treatment passed the required duration beyond the subject's control (e.g., because of waiting lists or practical scheduling possibilities for appointments), we chose to be precautious in assigning subjects to one or the other group. Therefore, an additional three months were added to each of these periods, defining 21 months or less for MFs as a completion of this phase as timely, and more than 21 months as slowly. For FMs the cut off for a timely or slowly completion was at 15 months or less, and more than 15 months, respectively.

Instruments

Biographical Data

Biographical data were obtained from a semistructured interview (Biographical Questionnaire for Transsexuals, BVT) (see Doorn et al., 1994; Verschoor and Poortinga, 1988). The BVT contains 211 items on background variables, such as age, education, occupation, questions on gender development, on past and present cross-gender feelings and behavior, on sexuality and partnership, social relationships, family background etc. For purposes of this study, the following items were used as pretest data: biological sex (1 item), age at application (1 item), and sexual orientation (1 item). Concerning this last

item, subjects who exclusively reported a homosexual preference (MFs feeling sexually attracted to biological males; FMs to biological females) were included in the homosexual group, whereas subjects, who reported an asexual, heterosexual, and/or bisexual preference, were included in the *non*homosexual group. Age at the start of cross-sex hormone treatment and age at the time of surgery were obtained from the medical files. The following items were gathered from an adjusted and shortened BVT at follow-up: age, education, employment, and living circumstances.

Intelligence

The most recently adapted Dutch version of the Wechsler Adult Intelligence Scale (Stinissen et al., 1970) was used.

Gender Dysphoria

Gender dysphoria was measured with the Utrecht Gender Dysphoria Scale (UGS), consisting of 12 items on which the subject rated his/her agreement on a 5-point scale. Scores ranged from 12 to 60. Higher scores indicated more gender dysphoria (for psychometric data: see Cohen-Kettenis and van Goozen, 1997).

Psychological femininity and masculinity were measured with a Visual Analogue Scale (VAS). Subjects were asked to mark a cross on two separate solid lines, 15 centimeters each, designating the extent of their psychological identification, one as feminine and one as masculine. Data were gathered and analyzed in millimeters (range 0-150), with higher scores representing more psychological identification with the biological sex, and lower scores indicating a stronger psychological identification with the new gender.

Body Dissatisfaction

A Body Image Scale (BIS) (Lindgren and Pauly, 1975), which had been adapted for a Dutch sample (Kuiper, 1991), was used. The scale consisted of 30 items divided into three subscales: primary and secondary sex characteristics, and neutral body parts, with higher scores representing more dissatisfaction.

Physical femininity and masculinity were measured with a Visual Analogue Scale (VAS). Subjects were asked to mark a cross on two separate solid lines, 15 centimeters each, designating the extent to which they physically felt feminine on one line, and masculine on the other. Data were gathered and analyzed in millimeters (range 0-150). Higher scores represent less, and lower scores, stronger feelings of physical femininity/masculinity in accordance with the new gender.

Physical Appearance

The 14-item Appraisal of Appearance Inventory (AAI) reflects the judgement of observers as opposed to being a self-report scale. The AAI concerns the observed masculinity/femininity of several bodily characteristics (e.g., facial hair or chin) of the subject. To assess the applicant's physical possibilities to pass as a male or female, we combined the appraisal of three observers: the diagnostician, a nurse of the gender team, and the researcher. The three independent observers rated their subjective appraisal of the appearance of 14 bodily characteristics of the subject on a 5-point scale of masculinity/femininity. Scores ranged from 14 to 70, with higher scores representing an appearance that is more incompatible with the new gender (for MFs a more masculine appearance, for FMs a more feminine appearance). Intraclass correlation coefficients between the three observers for each of the 14 items ranged from .68 to .79.

Psychological Functioning

The Dutch Short MMPI (NVM) (Luteyn et al., 1980) is an 83-item shortened Dutch version of the MMPI measuring the following five concepts: Negativism, Somatization, Shyness, Psychopathology, and Extroversion. Higher scores indicate more psychological dysfunction on the first four scales and less psychological dysfunction on the scale Extroversion.

The Dutch version of the Symptom CheckList (SCL-90) (Derogatis et al., 1973; Dutch version: Arrindell and Ettema, 1986) is a 90-item inventory inquiring about the presence of various complaints the week prior to the interview. Subscales are: Agoraphobia, Anxiety, Depression, Somatization, Obsession/compulsion, Suspicion, Hostility, and Sleeping problems. Psychoneuroticism is the total score of all the subscales. This score measures the concept Psychoneuroticism-as-a-state or psychological instability. Scores on this scale range from 90 to 450, with higher scores indicating more psychological instability.

Both the NVM and the SCL-90 have good psychometric properties.

Treatment Evaluation and Posttreatment Functioning

Treatment Satisfaction. Patients completed a 21-item semistructured interview about treatment outcomes, experiences during and after SR, treatment evaluation, and feelings of regret (Doorn et al., 1996).

Social and Sexual Functioning. In a 46-item semistructured interview questions were asked about the transsexuals' current social and sexual life (Doorn et al., 1996).

Public Confrontation Questionnaire. A 20-item questionnaire assessed reactions of the social environment and was used to evaluate the transsexuals' experiences of being able to pass in the new social role (Doorn et al., 1996).

A selection of 27 items of the three questionnaires above was used to evaluate postoperative functioning in these areas: see the Results section. Items were selected on the basis of their face value, revealing more immediately than other items the level of functioning in the new gender role and (dis)satisfaction with treatment as a consequence of SR.

Satisfaction with Surgery. Patients completed a self-developed questionnaire concerning functionality of the vagina or penis and breasts (augmentation or removal), and satisfaction with surgical results (Cohen-Kettenis and Van Goozen, 1997).

Quality of Life. The Affect Balance Scale (Bradburn, 1969) was used to measure overall psychological well-being. The scale consists of five positive and five negative items. Only the negative affect scores were analyzed because in a randomly selected sample the Cronbach alpha for the positive affect scale was found to be too low (positive affect scale, .59; negative affect scale, .73; Kempen and Ormel, 1992). The adapted Dutch version of the scale by the Central Bureau of Statistics (1987) was used.

Procedure

Intelligence was assessed only before treatment. The UGS, the BIS, the AAI, the two VASs, and the Personality Questionnaires were administered before and after treatment because within-subject changes were expected. The remaining instruments concerned the postoperative situation and were only administered after treatment.

Pretest data were gathered during the first diagnostic procedure. The patients were tested and filled out the research questionnaires after the first interview and handed them over to a research coordinator. Follow-up data were gathered at least one year after surgery. Appointments for an interview and testing were usually made in combination with the patient's hormone checkup at the FUMC. Each session took two to three hours. In order to avoid socially desirable responses the subjects were seen by researchers who had not been involved in their diagnosis or treatment. The Ethics Committee of FUMC approved the study.

Statistical analyses

Changes over time within the group of transsexuals who had undergone SR were analyzed with univariate Paired Samples *t* Tests. Differences in the outcomes of SR between the sexes, on the one hand, and between the groups that completed the second phase timely or slowly, on the other, were analyzed with univariate Independent Samples *t* Tests or with multivariate analysis of variance (MANOVA) for ratio or interval data. Nominal or ordinal data were analyzed per item by means of Chi-Square Test or Mann-Whitney U Test, respectively. Results that are not reported in the text are presented in Table 1 through 17.

Results

Background data

The mean age of the transsexuals who completed SR was 31.1 years (range 17.7- 68.1) at application and 35.7 (range 21.3-71.9) at follow-up. They had started hormone treatment at the mean age of 31.8 years (range 18.0-68.3). The average time elapsed between starting cross-sex hormone treatment and SR surgery was 20 months (range 12-73). The average time elapsed between SR surgery and the time of the follow-up interview was 22 months (range 12-47). The group's pretreatment mean IQ score was 117 (SD = 18; range 76-150).

FMs were younger than MFs at each of the phases of treatment we measured: at application, at the start of hormone treatment, at surgery, and at follow-up (all four *p* values < .001). No differences were found between the sexes however, in the duration of the second phase, in the postoperative period before follow-up, or in the intelligence score.

At follow-up five subjects (4.5%) were students, 40 (36.4%) had jobs, three (2.7%) were retired, and the remaining 62 (56.4%) were unemployed. The majority (64) lived independently (57.1%), 29 subjects (25.9%) each lived together with another adult with or without children, nine (8%) were living with (one of) their parents, two (1.8%) were head of an incomplete family, and the remaining eight (7.2%) lived in guest or boarding houses.

Gender Dysphoria

The entire group reported less gender dysphoria ($p < .001$) at follow-up than at pretest. The low scores on the UGS represented an absence of gender dysphoria after SR.

There was no significant change in the degree to which the transsexuals identified with the new gender. However, the group's low mean pretest scores indicated that they already strongly identified with the new gender before treatment had begun.

Though both MFs ($p < .001$) and FMs ($p < .001$) felt significantly less gender dysphoric after SR, the FMs (mean = 13.9, SD = 2.8) had improved more than the MFs (mean = 15.3, SD = 3.0) as represented by their lower posttest score ($p = .015$).

No differences were found between the "on time" and "slow" group in gender dysphoria or identification with the biological or new gender.

Body Dissatisfaction

With respect to their overall appearance, the majority of the group reported satisfaction: 105 subjects (92.1%) were satisfied or very satisfied, nine (7.9%) subjects were neutral, yet not a single individual expressed dissatisfaction about their overall appearance in the new gender. Satisfaction with primary and secondary sex characteristics had significantly increased after treatment, as had their satisfaction with neutral body parts (all three p values < .001). After SR, subjects were satisfied to very satisfied with all these physical characteristics, as represented in the average mean scores of the group on each of the three BIS scales. In comparison with the time at application, the transsexuals revealed much stronger feelings of physical femininity or masculinity in accordance with their new gender after SR ($p < .001$). Also, the group's mean score on the AAI was lower ($p < .001$) at posttest, indicating that, according to observers, their appearance had become more compatible with the new gender.

The overall MANOVA ($p = .020$) on the BIS showed that FMs (mean = 7.6, SD = 4.2) were more dissatisfied than MFs (mean = 5.9, SD = 2.2) ($p = .006$) with their primary sex characteristics at follow-up. The physical appearance of FMs (mean = 26.4, SD = 7.0) was appraised as even more compatible than that of the MFs (mean = 38.6, SD = 9.3) ($p < .001$).

No differences were found between the "on time" and "slow" group in body dissatisfaction, feelings of physical femininity/masculinity, or physical appearance.

Table 1: Pretest and posttest scores of the follow-up sample

	Pretest Mean	SD	Posttest Mean	SD	Paired *t*	Two-tailed *p*
Gender Dysphoria: UGS	54.3	7.0	14.8	3.0	52.2	< .001
Body Dissatisfaction: BIS						
Primary sex characteristics	18.1	2.6	6.5	3.2	27.2	< .001
Secondary sex characteristics	34.4	7.2	24.9	6.9	14.1	< .001
Other body characteristics	46.2	10.1	36.0	8.2	11.8	< .001
Psychological Functioning: NVM						
Negativism	22.1	7.8	16.9	7.7	6.7	< .001
Somatization	9.0	7.7	6.7	5.4	2.9	.005
Shyness	14.3	9.2	9.7	7.2	5.9	< .001
Psychopathology	3.2	3.2	2.3	2.6	3.1	.003
Extraversion	14.0	6.4	15.7	5.6	-3.0	.003
Psychological Functioning: SCL-90						
Psychoneuroticism	141.5	40.3	119.7	30.9	5.5	< .001
Anxiety	15.0	5.2	12.9	4.4	3.9	< .001
Agoraphobia	9.3	3.5	8.5	3.2	2.0	.050
Depression	28.8	11.1	22.3	8.2	5.4	< .001
Somatization	18.1	7.0	16.7	4.5	2.2	.031
Inadequacy	15.5	5.7	13.4	4.4	4.0	< .001
Sensitivity	28.0	9.0	24.2	6.5	4.6	< .001
Hostility	7.7	2.4	7.4	2.0	1.4	.169
Sleeping problems	5.3	2.8	4.6	2.2	2.3	.025
Physical Appearance: AAI	44.4	9.5	34.1	10.0	10.1	< .001
Physical Masculinity/Femininity: VAS	52.5	45.5	17.8	23.9	7.4	< .001
Psychological Masculinity/Femininity: VAS	16.7	19.0	15.6	23.0	0.5	.614

Psychological Functioning

At follow-up, the group appeared to psychologically function better than at application. Scores on all five scales of the NVM had improved after SR (all five p values < .01), representing fewer psychological problems. When pre- and posttest group means were

compared with Dutch normative data, most scores turned out to remain within the average range at follow-up. The Extroversion scale fell in the below average range, at pretest as well as at follow-up. At pretest, the Somatization scale was in the high range.

The group's mean total score on the SCL-90 (Psychoneuroticism) was lower at posttest than at pretest ($p < .001$). See Table 1 for the significantly lower scores on six of the eight subscales (p values < .05). These scores can only be compared with Dutch normative data for males and females separately. As a group the MFs ($p = .001$) and the FMs ($p < .001$) both showed improvement on their mean total score. The mean total score of the MFs went from above average at pretest (mean = 141, SD = 37.6) to average at follow-up (mean = 123, SD = 34.9). The one from the FMs went from high at pretest (mean = 142, SD = 44.8) to average at follow-up (mean = 115, SD = 22.8). In sum, although the group appeared to be psychologically functioning reasonably well at application, their psychological stability had improved after treatment.

Overall MANOVA ($p = .021$) analysis of the postoperative NVM results showed that FMs (mean = 18.1, SD = 5.0) were more extrovert than MFs (mean = 14.3, SD = 5.5) ($p < .001$). With MANOVA ($p = .002$) analysis of the SCL-90 subscales, MFs (mean = 24.2, SD = 9.5) were found to be more depressed than FMs (mean = 19.6, SD = 4.7) ($p = .005$).

No differences were found between the "on time" and "slow" group in psychological functioning.

Treatment Evaluation and Posttreatment Functioning of the Treated Group

Treatment Evaluation. At follow-up, the vast majority of the group (98.5%) expressed no feelings of regret about their SR. One MF transsexual had experienced strong regrets during treatment about the decision to live as a woman. She was the single individual who expressed strong regrets about having undergone SR at follow-up to such an extent that she would not chose for SR again, if she were given a second opportunity. In contrast, a second MF transsexual who expressed some regrets about having undergone SR at follow-up, also experienced these feelings during treatment, but she would chose to undergo SR a second time. Five more transsexuals had experienced some feelings of regret about their decision to live in the opposite gender role during treatment only. They related these feelings not so much to the treatment as to the lack of support and acceptance they had experienced from their environment.

Table 2	Feelings of regret during SR		Feelings of regret after SR	
	N	%	N	%
No	126	94.7	131	98.4
Some	6	4.5	1	0.8
Strong	1	0.8	1	0.8
Total	133	100	133	100

No differences were found between the sexes in feelings of regret, neither between the "slow" and "on time" group.

Quality of Life. The group reported a reasonable sense of well-being at follow-up. Although not quite comparable, it is worth noting that the negative affect score of this treated adult transsexual group (mean = 3.7, SD = 2.7; range 0-10) was lower than that of a randomly selected elderly sample (mean = 6.1, SD = 1.4; range 5-10), and also lower than what we had found in the treated adolescent transsexual group (mean = 4.4, SD = 3.2; range 0-10) (Smith et al., 2001). Unfortunately no other comparison groups are available.

No differences were found between the sexes or between the "slow" and "on time" group on this score.

Social Life and Social Contacts. The majority (97) of the follow-up sample felt accepted by most people, eight by some, and three by no one in their environment. Almost as many individuals (87) felt supported in their new gender role by (almost) everyone they knew, whereas 12 felt supported by some people. Despite the fact that six subjects did not feel supported at all by people in their environment, they reported to be able to rely on one or more individuals in hard times. Four subjects however, had no one to turn to when times got rough. Nevertheless, the vast majority (106, 96.4%) could rely on more or at least some other persons in hard times.

A large proportion of the subjects (80, 72.7%) had not lost any family member or

Table 3	Feeling accepted		Feeling supported	
	N	%	N	%
By all or most	97	89.8	87	82.9
By some	8	7.4	12	11.4
By no one	3	2.8	6	5.7
Total	108	100	105	100

friend or had lost contact with one person only. Twenty-seven subjects (24.5%) had lost more than one friend as a consequence of the SR. Three individuals (2.7%) said they had never had any close friends. Then again, 92 subjects had made one or more new friends during or after treatment, whereas 18 had not.

Table 4	Had close friends/family		Made new friends	
	N	%	N	%
Yes, 1 or more	107	97.3	92	83.6
No	3	2.7	18	16.4
Total	110	100	110	100

The majority of participants indicated to be (very) satisfied with the social contacts they had with the opposite gender and with the same gender as well. Six participants reported dissatisfaction about social contacts with the opposite gender, and three with the same gender. Twenty-one subjects felt neutral about their social contacts with the opposite gender and 17 with the same gender. Most people did not feel lonely, 19 felt lonely sometimes, and another two felt lonely often.

Table 5	Satified with contacts with opposite gender		Satified with contacts with same gender	
	N	%	N	%
Yes	82	75.2	89	81.7
Neutral	21	19.3	17	15.6
No	6	5.5	3	2.7
Total	109	100	109	100

Table 6	Feeling lonely		Rely on others		
	N	%		N	%
No	90	81.1	On many	77	70.0
Sometimes	19	17.1	On some	29	26.4
Often	2	1.8	No one	4	3.6
Total	111	100		110	100

Superficial contacts, such as those with neighbors or shopkeepers, were mostly positive (87), while they were nonexistent for 23 persons. One person felt inconvenienced by the people from his neighborhood. Although the majority of subjects (91.9%) had never been actually harassed, six had been harassed once, and three subjects had experiences of being harassed on more than one occasion.

Twenty individuals had a few times been approached by strangers as someone of the biological sex, and at times, most of them (19) also felt being laughed at. Two individuals experienced actually being ridiculed by strangers, while one MF had often been approached as a man. However, 90 had never experienced any of such adverse reactions. After all, more than 97% of the transsexuals felt taken seriously completely or by most people. Three only felt taken seriously by a few close friends. (No one reported to not be taken seriously by anyone.)

Table 7	Inconvenienced by neighbors		Being harassed		
	N	%		N	%
Positive contacts	87	78.4	Never	102	91.9
No, but no contacts	23	20.7	Once	6	5.4
Yes	1	0.9	Yes	3	2.7
Total	111	100		111	100

Table 8	Being ridiculed or laughed at		Being approached as if biological gender	
	N	%	N	%
Yes	2	1.8	1	0.9
Occasionally	19	17.1	20	18.0
No	90	81.1	90	81.1
Total	111	100	111	100

Table 9	People take me seriously	
	N	%
All or most	108	97.3
Only close friends	3	2.7
No	0	0.0
Total	111	100

When MFs were compared with FMs, no differences were found in feeling accepted by their environment. FMs were more supported in the new gender role however, than MFs ($p = .011$). Furthermore, FMs were also more able to rely on significant others in hard times than MFs were ($p = .038$). Fewer FMs had lost contact with family members or friends in comparison with MFs ($p < .001$), yet both sexes had made new friends equally.

A greater percentage of the FMs were (very) satisfied about the social contacts they had with women than the MFs were with men ($p = .015$). However, no differences were found between MFs and FMs in loneliness. Finally, though MFs were more often laughed at or ridiculed by strangers than FMs ($p < .001$), they felt equally taken seriously by (almost) all people as FMs did.

No differences were found between the "slow" and "on time" group on any of the items measuring aspects of social life and social contacts.

Table 10 Differences in social life and social contacts

	FMs as compared with MFs	*p* value
Accepted	no difference	
Supported	more	.011
Rely on others	more	.038
Lost friends/family	less	< .001
Made new friends	no difference	
Satisfied with contacts opposite sex	more	.015
Satisfied with contacts same sex	no difference	
Loneliness	no difference	
Laughed at or ridiculed	less	< .001
Being taken seriously	no difference	

Relationships and Sexuality. Half of the follow-up sample had a stable relationship with one partner at the time of the interview; the other half had no partner at follow-up or had never had one. Fifty-one of the group who had a stable partner, and three additional persons (49.5% of the entire follow-up sample) had a steady sexual partner. The vast majority of these persons (48) were (very) satisfied with their sex life, three expressed a neutral view, and three were dissatisfied. Masturbation never or hardly ever occurred in a proportion almost equally sized as the one for whom masturbation was more frequent. An equal number of individuals (39) reported a decrease as the one who reported an increase in masturbation frequency after treatment. For the remaining 25 individuals there was no change in frequency. Of the 91 subjects (89.2% of the follow-up sample) who were sexually active, with or without partner, the majority (57) achieved orgasm regularly, 19 sometimes, and 15 never.

Table 11

	Stable relationship			Steady sexual partner	
	N	%		N	%
Yes	55	50.9		54	49.5
			Satisfied	48	89
			Neutral	3	5.5
			Dissatisfied	3	5.5
No	53	49.1		55	50.5
Total	108	100		109	100

Table 12

	Masturbation after treatment			Masturbation after treatment	
	N	%		N	%
Frequently	51	47.2	Increase	39	37.9
Seldom	57	52.8	No change	25	24.2
			Decrease	39	37.9
Total	108	100		103	100

Table 13 Orgasm within sexually active group

	N	%
Regularly	57	62.6
Sometimes	19	20.9
Never	15	16.5
Total	91	100

When differences between MFs and FMs were examined, it appeared that a greater proportion of the FMs (63.4%) than of the MFs (37.3%) masturbated (very) frequently. Thus, for fewer FMs (36.6%) than MFs (62.7%) masturbation never or hardly ever occurred ($p = .002$). In addition, more MFs (53.8%) reported a decrease in masturbation frequency after treatment, in contrast with the majority of the FMs (63.2%) who reported an increase ($p < .001$). Finally, compared with MFs (48.1%), more of the FMs (83.8%) who were sexually active achieved orgasm regularly ($p = .015$).

A greater percentage ($p = .04$) of the sample had a homosexual (94, 58.0%) than a *non*homosexual orientation (68, 42.0%). Within the FM group a greater proportion ($p = .015$) reported to have a homosexual orientation (70.7%) than the MF group (51.0%) did.

No differences were found between the "slow" and "on time" group on any of the items on relationships and sexuality.

Table 14	Differences in sexuality between MFs and FMs				
	MFs		FMs		
	N	%	N	%	*p* value
Masturbation					
Frequent	25	37.3	26	63.4	.002
Seldom	42	62.7	15	36.6	
Masturbation					
Decrease	35	53.8	4	10.5	< .001
Increase	15	23.1	24	63.2	
Orgasm					
Regularly	26	48.1	31	83.8	.015
Orientation					
Homosexual	53	51.0	41	70.7	.015

Satisfaction with Surgery. For FMs, emotionally, breast removal is the most important type of surgery. They are advised to postpone metaidoioplasty (transformation of the hypertrophic clitoris into a micropenis) or phalloplasty in view of the fact that surgical techniques are steadily improving. Below we report data from nine FMs who had undergone phalloplasty and who had a neoscrotum as well, and from one FM who only had a neoscrotum. For the MFs vaginoplasty (including amputation of the penis) is the most important surgical intervention.

Eleven FMs were satisfied with their breast removal, whereas five were dissatisfied with the result due to the visibility of the scars. Twenty-two were not completely satisfied. Four FMs were satisfied with their metaidoioplasty or phalloplasty. One FM was dissatisfied with the result of the surgery, because he had urinary problems. Four were not completely satisfied, yet did not experience any functional problems while urinating or having sexual contact. They considered the penis to be too small or were disappointed that they were not able to urinate in a standing position while keeping their pants up. Eight FMs used

Table 15	Satisfaction Breast Removal	
	N	%
Satisfied	11	28.9
Not completely satisfied	22	57.9
Dissatisfied	5	13.2
Total	38	100

their penis when having sexual contact, one FM only sometimes. Of the seven FMs who had a steady partner, five reported that their partner considered it not important for the subject to have a penis, whereas two partners did consider that to be important. Eight FMs reported some sensation in the penis with sexual activity, while one did not. The scar left from surgery hindered this latter FM when his penis was touched. Seven FMs were satisfied with the result of the surgery of the scrotum. One was dissatisfied, because he considered the scrotum to be too small, and two were dissatisfied, because they thought the scrotum looked odd. For eight of the nine FMs who had regular sexual contact, the scrotum was part of sexual contact and provided pleasure. For one FM the scrotum was not part of his regular sexual contact.

The majority of the MFs (70.1%) expressed satisfaction with their vaginoplasty, they felt their vaginas looked natural. Fifteen were not completely satisfied, mostly because they considered their vagina not deep or feminine enough. Three of the five MFs who were dissatisfied with the vaginoplasty were disappointed that they were not able to be sexually aroused or achieve orgasm. In addition, they had needed corrective surgery because of postoperative urinary problems. One MF was dissatisfied since she had had three corrective surgeries, while the other MF was dissatisfied because she felt her vagina did not look feminine enough. The majority of the MFs (65.4%) who had undergone breast augmentation was satisfied with the result of the surgery. Fifteen were not completely satisfied, mostly because of the visibility of the scars, while three of them felt uneasy about the breasts being too far apart. Three MFs were dissatisfied because they felt the breasts were too far apart or too small in proportion to their body.

Table 16	Satisfied with vaginoplasty		Satisfied with breast augmentation	
	N	%	N	%
Yes	47	70.1	34	65.4
Partially	15	22.4	15	28.8
No	5	7.5	3	5.8
Total	67 MFs	100	52 MFs	100

Of the 67 MFs who had a vaginoplasty, 27 reported to have had sexual intercourse regularly, while five MFs had had sexual intercourse occasionally. The majority (22) of the first group and all five of the latter considered their vaginas to be deep enough and were

capable of sexual arousal and achieving orgasm. One other of the first group was not capable of sexual arousal or achieving orgasm. The remaining four MFs who had had sexual intercourse regularly did not think their vaginas were deep enough, yet were able to be sexually aroused and achieve orgasm. Four MFs had attempted but not reached sexual intercourse. Two of them had found other avenues to achieve sexual arousal and orgasm, in contrast with the other two MFs of this group who did not. Twenty-five of the remaining 31 MFs, who had never had sexual intercourse with a man, were capable of achieving sexual arousal and/or orgasm, whereas six of them were not.

Table 17	Intercourse after vaginoplasty MFs		Capable of sexual arousal and orgasm	
	N	%	Yes	No
Regularly	27	40.3	26	1
Occasionally	5	7.5	5	0
Attempted	4	6.0	2	2
Never	31	46.2	25	6
Total	67 MFs	100	58 MFs	9 MFs

Discussion

The primary aim of the present prospective follow-up study was to investigate which areas of functioning actually improved, and which did not, as a consequence of SR. The main symptom for which the patients had requested treatment, gender dysphoria, had improved to such an extent that it had disappeared after treatment. Resolution of the gender dysphoria is the main goal of SR. Satisfaction of the patients with their sex characteristics had also improved to the point that they were content with these features. This confirms the findings of other studies that found comparable results (Fleming et al., 1982; Kuiper and Cohen-Kettenis, 1992a; Lindgren and Pauly, 1975). In addition, the decrease of the group's mean score on the AAI indicated that, according to observers, their appearance had become more compatible with the new gender. Psychological functioning of the group, as measured with the NVM and the SCL-90, had also improved after SR, substantiating earlier findings on improvement in this important area of postoperative functioning (Mate-Kole et al., 1990). It is interesting to note that, compared with the data from the retrospective follow-up study of Dutch transsexuals (Kuiper, 1991), the current sample of transsexuals, treated at the same gender clinic, was found to psychologically

function better at follow-up. The fact that the previous sample primarily consisted of transsexuals who were among the very first to benefit from SR in this country, is the most likely explanation for this difference. After all, SR was not a treatment option for transsexuals until the 1970s. Consequently, many transsexuals who participated in the first follow-up study, had had to involuntary live according to their biological gender role and, conceivably, had accumulated other psychological problems in addition to the psychological suffering resulting from their gender identity conflict. This might also account for our finding that, compared with Dutch normative data, the present sample of transsexuals already appeared to psychologically function reasonably well at application.

The lack of change in the transsexuals' identification with the new gender is not surprising in view of the group's low mean pretest scores, indicating that, psychologically, they already strongly identified with the new gender before treatment had begun. In contrast, with respect to feelings of physical masculinity and femininity, a significant improvement was found. These findings can be regarded as one specific indication that adjusting the sex characteristics to the cross-gender identity, versus changing the gender identity in agreement with the biological gender, is more likely to be the appropriate treatment for the gender conflict. However, such a conclusion cannot be drawn solely on the basis of these two findings. Taking all of our prospective data into account, as a group, the transsexuals had improved in all the measured areas of functioning at follow-up. So far, one to four years after surgery, SR appeared to be therapeutic and beneficial. Furthermore, the vast majority of the group expressed no feelings of regret about their SR. However, SR did not prove to be successful for all of our participants. One MF transsexual expressed strong and another some feelings of regret, during and after treatment.

Postoperatively, we also evaluated the level of social functioning and the ability to pass in the new gender role. The majority of the group appeared to socially function quite well and was able to rely on a fairly strong social support system. Most transsexuals felt accepted and supported in the new gender role, and could rely on others in hard times. Although quite some people had lost more than one friend as a consequence of SR, the vast majority had made new friends. In addition, a major part of the participants was satisfied with their social contacts, with the opposite as well as with the same gender contacts. This might explain why a large proportion of participants did not, or only sometimes, feel lonely. However, a few individuals were unmistakably lacking support

and acceptance in their gender role. They did not feel accepted by anyone and had no one to turn to in rough times. Understandably, two of them felt lonely often.

Despite the fact that most transsexuals had never experienced being ridiculed, quite some individuals felt occasionally being laughed at. Two were actually ridiculed by strangers. Furthermore, six transsexuals had been harassed once, and three more than once, in their own neighborhood. Surprisingly, more than 97% of the group felt taken seriously completely or by most people, and no one reported to not be taken seriously by anyone. There are three explanations for this somewhat rose-colored picture. First, subjects may not have been greatly affected by adverse reactions from strangers because most superficial contacts were considered positive. Second, disappointing experiences may have been denied or downplayed to reduce cognitive dissonance after having undergone such invasive and irreversible interventions. Third, the positive social support received and the positive self-esteem may have put adverse reactions into perspective.

Where relationships and sexuality from the entire follow-up sample are concerned, half of the group had a steady sexual partner. A vast majority of this group also reported to be content with their sexual life. Furthermore, the majority of the 89% of the group who was sexually active, with or without partner, was capable of achieving orgasm.

In addition to improvement in all of the areas we measured, the follow-up findings support the conclusion that the vast majority of transsexuals functioned quite well after SR, not only socially, but also sexually. Two individuals however, require our special attention, as at least one of them needs to be recognized as having deep regrets about SR. In retrospect, this MF felt so profoundly restricted in her daily life as a woman, due to the intolerance of society, but also of family members and her own children, that, had she known the adversities she would be up against, she would not have chosen to undergo SR. She did reveal that living in her female body felt like coming home. At follow-up she was living in her desired female gender role and had no intentions of SR reversal surgeries. At that time, she explicitly indicated that special professional guidance *after* SR with the negative social and psychological consequences in her life would have made the transition more endurable. One year after follow-up, this particular MF had started living in her biological gender role as a man again. Eighteen months after that she had her breasts removed to reinforce her gender role reversal as a man. This stresses the need for good aftercare.

Even though the other MF would choose to undergo SR again, despite her disappointments, she would probably have gained from more professional care during and after treatment as well. Therapeutic guidance might have supported her in coping with the extremely difficult task of living as a woman, while daily parenting children who continued to approach her as their father.

The second aim of the study was to determine whether differences were found between MFs and FMs in postoperative functioning. This aim was also studied, in some areas of functioning, in our research on transsexual subtypes. Since adolescent transsexuals are not included in the current study, we summarize the findings of the present data regarding differences between the sexes. Compared with MFs, the FMs had improved even more in terms of their gender dysphoria, their compatible physical appearance, and they were found to psychologically function better. FMs were found to be more extrovert, and less depressed, than MFs. These findings are in agreement with earlier studies that concluded FMs to fare better than MFs in most respects (Kockott and Fahrner, 1988; Kuiper, 1991; Kuiper and Cohen-Kettenis, 1988; Pfäfflin and Junge, 1998; Verschoor and Poortinga, 1988). In contrast, FMs were more dissatisfied with their primary sex characteristics than MFs, which is most conceivable in light of the fact that most FMs did not have a penis (yet), while they still had their biological genitals. This finding also corresponds with previous findings on body dissatisfaction (Fleming et al., 1982; Kuiper and Cohen-Kettenis, 1992a; Lindgren and Pauly, 1975). This difference however, needs to be put into perspective, since that is what it really is. FMs might have expressed more dissatisfaction than MFs, but the low mean scores on all three BIS scales indicated that both sexes were satisfied to very satisfied with these characteristics.

With respect to social functioning, FMs felt more supported in the new gender role, and were also more able to rely on significant others in hard times, than MFs were. Both sexes had made new friends during or after treatment equally, yet, fewer FMs had lost contact with family or friends. Far more FMs expressed satisfaction about social contacts with women than MFs with men. In spite of the obvious better social functioning of the FMs, no differences were found between the two groups in loneliness. Finally, MFs were more often laughed at or ridiculed by strangers than FMs were. One might infer that observers participating in the study are not the only ones who noticed the less compatible physical appearance of MFs. On the other hand, this finding might primarily expose that

masculinity is more easily accepted or valued in females than femininity in males.

Differences in sexual functioning were also found. For a greater proportion of the FMs than of the MFs masturbation was frequent, and for fewer FMs than MFs masturbation hardly ever occurred. More FMs reported an increase in masturbation after SR, in contrast with most of the MFs, who reported a decrease. Finally, a much larger proportion of FMs than of MFs who were sexually active, achieved orgasm regularly. These differences might reflect hormonal effects (see Cohen-Kettenis and Gooren, 1992). Then again, they also may portray different meanings of sexuality in males and females. No difference was found however, between the sexes who had a steady sexual partner, in the reported satisfaction about their sexual life.

Satisfaction with surgical results was the final aspect we evaluated postoperatively. The majority of the MFs expressed satisfaction with their vaginoplasty as well as with their breast augmentation. Most of the FMs felt comfortable in the new gender role after their breast removal. Not all FMs were equally content however, with the results of surgery, mostly because of the visibility of the scars. Some felt (somewhat) obliged to cover their chest when swimming in public. In view of the scarce data on penile surgery for the FMs, a comparison with the MFs' degree of satisfaction with vaginoplasty seems unattainable. In general though, the majority of both the FMs and MFs appear to be content to have undergone surgery. However, more MFs than FMs appear to be satisfied with the results. In addition, FMs were more satisfied with surgery of the scrotum than of the penis. Dissatisfaction is clearly expressed by some individuals, in FMs usually due to problems with the functionality of the new organ, and in MFs mostly because of disappointment over not being able to achieve sexual arousal or orgasm, or because of necessary corrective surgery. On the other hand, more satisfaction was reported in terms of the sexual functionality of the new organ. For eight of the nine FMs who had regular sexual contact, both the penis and the scrotum provided pleasure in their sexual contact. In general, the MFs appeared to enjoy a well-functioning sexual life, as 87% of the MFs who had undergone vaginoplasty reported to be able to achieve sexual arousal and/or orgasm, with or without (ever having had) sexual intercourse.

In summary, with respect to gender dysphoria, physical appearance, and psychological functioning, the FMs had improved in these areas even more than MFs had, as a consequence of SR. Postoperatively, FMs further turned out to socially function better,

and expressed an even more fulfilling sexual life than MFs, despite obvious limitations. In contrast with these more favorable findings of the FMs, is the greater reported satisfaction of the MFs with the surgical results. As described above, discontent of FMs with surgical results was primarily due to scars resulting from breast removal or to functional problems of the penis. Advancement of surgical techniques regarding a well-functioning penile construction for FMs might enhance the ability to live in the new gender role with well-adjusted sexual characteristics indeed.

Finally, we investigated whether differences were found between transsexuals who had completed the second phase timely or slowly in postoperative functioning. In our study on prognostic factors (this volume) it already appeared that a "timely" or "slowly" completion of this phase not necessarily seemed to indicate a "favorable" or "unfavorable" quality of the SR procedure. Results of the current study show that no differences were found between the two groups at all at follow-up. We therefore conclude that the duration of the second phase does not reflect a positive or negative quality of this phase. Evidently, the various motives for postponement, and their potential impacts on the outcomes of SR, remain to be elucidated in future, preferably qualitative, studies.

In conclusion, the data of the current study substantiate the findings from other retrospective follow-up studies (see introduction), indicating that SR is indeed effective. However, alleviation of the gender problem is not equivalent with an easy life. Moreover, one MF experienced such extreme distress from the social consequences of SR that she underwent breast surgery, to resume life as a man. Apparently, clinicians need to continue to be alert for some applicants who are not good candidates for SR. These individuals probably require an even more thorough diagnostic procedure and more therapeutic support than is currently the case. For some, professional care in coping with adverse consequences *after* treatment is indispensable. It should be noted though that, during hormone treatment and the real-life experience, all transsexuals are faced with many new physical, psychological, and social experiences. In addition, they are expected to thoroughly explore and unravel whether irreversible surgical interventions will effectively meet their needs and resolve their gender identity conflict. Apparently, the majority of the transsexuals of this study accomplished to make this profound decision. For most, the strict eligibility criteria and professional guidance as currently provided appears to be sufficient, as reflected by the overall favorable outcomes of SR.

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