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Sexual Behavior, Desire, and Psychosexual Experience in Gynephilic and Androphilic Trans Women: A Cross-Sectional Multicenter Study

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ABSTRACT

Background: One of the most prominent etiological theories of gender incongruence in trans women proposes a paraphilic erotic target location error (ie, autogynephilia) as a causal factor in gynephilic (ie, exclusively gynephilic and bisexual) trans women. We hypothesized that a paraphilic erotic target location should manifest itself in various aspects of sexual behavior, solitary and dyadic sexual desire, and psychosexual experience.

Aim: To compare sexual behavior, sexual desire, and psychosexual experience of exclusively gynephilic and bisexual trans women with that of androphilic trans women to explore whether their sexuality differs substantially.

Methods: Trans women diagnosed with gender dysphoria (Diagnostic and Statistical Manual of Mental Disorders—5) were recruited at 4 transgender healthcare centers in Germany. The present study analyzed items on sexual behavior, desire, and experience of a self-report questionnaire, collected as part of a cross-sectional multicenter study.

Main Outcomes: Multiple aspects of sexuality were examined using self-constructed items. Sexual desire was measured using the Sexual Desire Inventory and psychosexual experience using the Multidimensional Sexuality Questionnaire.

Results: Significantly more exclusively gynephilic than androphilic trans women reported a history of sexual arousal in relation to cross-dressing. However, little evidence was found that gynephilic and androphilic sexual desire, behavior, and psychosexual experience differ profoundly. Interestingly, a statistically non-significant trend indicated that gynephilic trans women who had not yet undergone gender affirming surgery showed the highest levels of sexual desire (solitary and dyadic), whereas the opposite was the case for androphilic trans women.

Clinical Translation: Data of this study indicate that sexual orientation does not appear to be a good predicator for sexual behavior, desire, and psychosexual experience in trans women.

Strengths and Limitations: We investigated sexual desire and experience using standardized and evaluated measures such as the Sexual Desire Inventory and Multidimensional Sexuality Questionnaire. Future studies with a larger sample size should investigate how different gender affirming medical intervention might have diverging influences on sexual behavior, desire, and experience.

Conclusion: Ultimately, this study found little evidence for the hypothesis that sexual behavior, sexual desire, and psychosexual experience differ substantially in gynephilic (exclusively gynephilic and bisexual) and androphilic trans women. **Laube JS, Auer M, Biedermann SV, et al. Sexual Behavior, Desire, and Psychosexual Experience in Gynephilic and Androphilic Trans Women: A Cross-Sectional Multicenter Study. J Sex Med 2020;XX:XXX–XXX.**

Key Words:: Autogynephilia; Male To Female; Gender Dysphoria; Transgender; Gender Incongruence; Sexual Orientation

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INTRODUCTION

For decades, researchers have been attempting to classify subgroups of gender incongruent individuals as a means of predicting the response of different groups to gender-affirming medical interventions (GAMIs) and to obtain more information regarding the etiology, development, and outcome of gender dysphoria.[1–5] The sexuality of trans women has long been of interest to clinicians and researchers, and since the beginning of the 20th century, trans women have often been categorized by sexual orientation and sexual behavior.[2,4,6–13] Although the clinical value of a classification based on sexual orientation is subject to debate,[5,14,15] several authors have proposed that sexual orientation and sexual behavior are indicative of different etiologies of gender incongruence,[2,16] and further relevant predictors for the successful outcome of gender affirmation (GA) treatment.[17,18]

In the 1980s, Blanchard[19] proposed a new typology of gender incongruence in trans women based on sexual orientation and introduced the concept of autogynephilia. Blanchard[19] suggested the existence of "2 fundamentally different types" of gender incongruence in trans women (p.616). He classified these 2 types as "homosexual" (exclusively androphilic), on the one hand, and "non-homosexual" (exclusively gynephilic, bisexual, and analoerotic), on the other hand.[2,19,20] In accordance with this theory, trans women of the latter group "are more similar to each other—and to transvestites—than any of them is to the homosexual (ie, androphilic) type" (p.439).[21] Their common feature, and that of transvestites, would be "a history of erotic arousal in association with the thought or image of themselves as women" (p.439).[21] In contrast to fetishism, the trigger for sexual arousal would lie not solely in female clothes but in the idea or "love of oneself as a woman" (p.439).[21] This he named "autogynephilia."

Blanchard[22] theorized that autogynephilia is part of a family of sexual variations, caused by "developmental errors of target localization" (p.71). He speculated that affected individuals would misdirect their heterosexual desire at other targets, rather than the female person. In the case of autogynephilia, the erotic target (characteristics of the female physique, female attire) would be mislocated on the individual's own body.[23] As a result, the individual would develop an erotic self-image that includes features of the desired target.[24]

Blanchard[23] has suggested that autogynephilia can be characterized both as a sexual orientation and as a "paraphilia." Since the third, revised version of the Diagnostic and Statistical Manual of Mental Disorders (DSM), paraphilias have been defined as "intense" and "recurrent" or "persistent" atypical arousal patterns, which cause significant distress or impairment to the individual. This definition is congruent with the current definition of a "paraphilic disorder" in the DSM-5.

Several studies have shown that paraphilias tend to co-occur[25,26] and are often associated with heightened sexual desire and dysregulated sexuality.[27,28] Although Blanchard[23] has emphasized that, in his opinion, "the concept of autogynephilia [. . .] refers (merely) to a potential for sexual excitation" (p.238), some researchers have implied that heightened sexual desire may indeed be characteristic of (auto)gynephilic trans women. Bailey,[29] for example, stated that autogynephilic trans women are "erotically obsessed with the image of themselves as women" (p.146). Moreover, Lawrence[30] published several narratives of "autogynephilic" gender incongruence and claimed that autogynephilic feelings are frequently experienced to be "unwanted, intrusive, painful, and disabling."

Although sexual orientation, desire, and behavior have often been addressed in the context of gender incongruence in trans women and play a key role in the theory of autogynephilia, only a few studies have systematically compared gynephilic and androphilic trans women with regard to sexual desire or the quality of sexual experience.[31,32] These studies have reported that androphilic trans women in the later stages of GA show higher levels of sexual desire and better sexual functioning than gynephilic trans women.

AIMS

In this present study, we aimed to explore trans women's sexual behavior, desire, and psychosexual experience to scrutinize whether these differ substantially in gynephilic (exclusively gynephilic and bisexual) compared with androphilic trans women.

In light of Blanchard's typology and the theory of autogynephilia, we hypothesized the following:

- Significantly more gynephilic trans women would report sexual arousal in association with cross-dressing than androphilic trans women
- Gynephilic trans women would show significantly higher solitary sexual desire and less dyadic sexual desire and behavior than androphilic trans women
- Sexuality and sexual fantasies would play a central role in the lives and the transitioning process of gynephilic trans women, and significantly more gynephilic than androphilic trans women would claim to have been motivated to transition by sexual desire and the desire to realize sexual fantasies

Furthermore, because it has been suggested that autogynephilia can be considered a paraphilia,[30,33–35] we hypothesized that:

- gynephilic trans women may show evidence of heightened sexual desire
- gynephilic trans women may have a particularly negative psychological experience of sexuality

In light of Blanchard's theory—that exclusively gynephilic and bisexual trans women are 2 forms of autogynephilic gender incongruence—we further hypothesized that these 2 groups would not differ substantially with regard to all of the aforementioned aspects.

MATERIAL AND METHODS

Participants

Participants were recruited as part of an observational multicenter study[36,37] to explore psychological and metabolic aspects of gender dysphoria and assess the effects of GAMIs on mental, physical, and sexual health in gender dysphoric individuals. Recruitment took place between November 2013 and July 2016, at 4 transgender healthcare centers in the Department of Endocrinology at the Max Planck Institute of Psychiatry, Munich, in conjunction with the "Hormon- und Stoffwechselzentrum München," Munich; the Gynecological Department at the University Hospital of Erlangen; and the Interdisciplinary Transgender Health Care Center with the Institute for Sex Research, Sexual Medicine and Forensic Psychiatry at the University Medical Center Hamburg-Eppendorf.

Eligible participants were all patients diagnosed with gender dysphoria (DSM-5, 302.85) or trans-sexualism (ICD-10: F64.0) and treated as per the World Professional Association for Transgender Health standards of care, no.7.[38]

A total of 221 participants were initially approached. In total, 189 trans women and men agreed to participate in the cross-sectional multicentre study. They provided self-report measures on mental, physical, and sexual health during the course of a routine visit at the transgender healthcare facility. Patients treated at the transgender healthcare centre in Hamburg were included directly after referral for hormone therapy (HT), whereas those from other centers were included before and after initiation of HT. All participants gave written informed consent.

The inclusion criteria for this present study were birth-assigned male gender and age between 20 and 49 years. This encompassed a total of 64 trans women. 6 participants could not be classified based on sexual orientation, resulting in the final study sample of 58 trans women.

Procedure

Participants completed an extensive questionnaire consisting of a self-constructed section and several validated questionnaires. The self-constructed section included questions regarding socioeconomic, social, psychological, and medical background, sexual and gender identity development, family structure, desire for children,[39] solitary and dyadic sexual behavior, desire, fantasies, and experience. Validated questionnaires encompassed the Sexual Desire Inventory (SDI), Multidimensional Sexuality Questionnaire (MSQ), and further questionnaires reported elsewhere.[40]

The study was approved by the local ethics committees (München, Erlangen, and Hamburg) and was conducted in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. This study is registered at clinicaltrials.gov (identifier: NCT02185274).

Measures

6 items (self-constructed questions) concerning general characteristics, 17 items relating to sexuality, the SDI, and the MSQ were selected from the aforementioned questionnaire. Selection of items was based on the relevance of the item to the research question.

Self-Constructed Items

General Characteristics

Relationship status, employment status, net income, and religion were addressed. Answers were presented in a multiple choice format. Participants were further asked to specify which GAMIs they had undergone. If they had received HT, they were asked to specify the duration of their HT. Information was verified with the data available in the individual's clinical records.

Cross-Dressing

Participants were asked if they had ever felt the desire to wear or had actually worn female clothes between the ages of 12 and 18 years. They were asked to specify whether this aroused them sexually at the time. Furthermore, participants were asked to report if they engaged in cross-dressing after the age of 18 years and whether this was associated with sexual arousal. For each question, answers were presented in the form of a 4-point scale ranging from *"never"* to *"always."*

Solitary and Dyadic Sexuality

Participants were asked to specify at what age they had first masturbated, and at what age they had had their first ejaculation (*free answer format)*. Furthermore, they were asked at what age they had had their first sexual encounter (*free answer format)*, the number of sexual partners they had had so far (*None, 1—5, 5—10, more than 10*), and the sex of their first sex partner (*female/male*). Participants were further questioned with regard to current sexual behavior: whom they currently feel most attracted to sexually *(7-point Kinsey scale)*, whether they masturbate (*yes/no*); whether they integrate their genitals into intercourse (*yes/no*), and, if so, how (*actively/passively/both*). They were also asked whether they enjoy sensations involving their genitalia during intercourse (*yes/no/sometimes*).

Attributed Importance to Sexuality

Participants were further asked to assess the importance of sexuality *(3-point scale from unimportant to important)* and to determine how bad it would be if they were to lose the ability to experience sexual arousal in the course of GA *(very bad/not so bad/unimportant)*.

Sexuality as a Motive to Transition

Participants were asked to state whether sexual desire or the desire to realize certain sexual fantasies played a role in making the decision to undergo GAMI (*yes/no*). They were also questioned as to whether they had ever felt that their sexual desires and fantasies made them less "truly transsexual" (*yes/no*).

Sexual Desire Inventory—2

The SDI-2 developed by Spector, Carey, and Steinberg (1996) was used to measure both dyadic and solitary aspects of sexual desire. This was a questionnaire consisting of 11 items. 8 of these depicted a variety of sexual situations and required the participants to assess the strength of their sexual desire with regard to these situations. 3 items addressed the participants' frequency of sexual thoughts and sexual desire over the last month. Dyadic sexual desire was computed by 2 items addressing the frequency (0—7 points) and 6 addressing the strength of dyadic sexual desire (0—8 points). Missing items were replaced by the mean of the other 7 items. Solitary sexual desire was calculated by one item addressing the frequency (0—7 points) and 2 items addressing the strength of solitary sexual desire (0—8 points). The maximum score for dyadic sexual desire was 62; the maximum score for solitary desire was 23.

For reliability analysis, Cronbach's alpha was calculated to assess the internal consistency of the subscale for solitary, dyadic, and total sexual desire. The internal consistency of the questionnaire was satisfying, with Cronbach's alpha for solitary sexual desire = 0.83, for dyadic sexual desire = 0.83, and for total sexual desire = 0.87.

Multidimensional Sexuality Questionnaire

The MSQ consisted of 60 items, evaluating different psychological aspects of sexuality based on 12 subscales.[39] Each item was measured on a 5-point scale, scoring from 0 to 4: not at all

Table 1. Demographics

	Ex. gynephilic (n = 15)	Bisexual (n = 26)	Androphilic (n = 17)	
	M (SD)	M (SD)	M (SD)	P
Age	39.13 (8.29)	34.77 (8.54)	33.94 (8.67)	NS
Time since HT initiation (months)*	15.93 (19.9)	35.82 (39.4)	47.46 (55.6)	NS
	n (%)	n (%)	n (%)	
Hormone therapy	12 (80)	23 (88.5)	14 (82.4)	NS
Gender affirming surgery	3 (20)	11 (42.3)	5 (29.4)	NS
Neovagina	1 (6.7)	7 (26.9)	4 (23.5)	NS
Breast construction	0 (0)	6 (23.1)	5 (29.4)	NS
Others†	2 (13.3)	2 (7.7)	1 (5.9)	NS
Relationship status				NS
Single	9 (60)	14 (53.8)	13 (76.5)	
Cohabiting	2 (13.3)	4 (15.4)	2 (11.8)	
Married	3 (20)	4 (15.4)	1 (5.9)	
Separated	1 (6.7)	4 (15.4)	1 (5.9)	
Employment status				NS
Full-time employment	12 (80)	16 (61.5)	8 (47.1)	
Part-time employment	2 (13.3)	3 (11.5)	3 (17.6)	
Unemployed	1 (6.7)	2 (7.7)	4 (23.5)	
In training/student	0 (0)	5 (19.2)	2 (11.8)	
Net income (Euro)				NS
0—1,500	3 (20)	9 (34.6)	8 (47.1)	
1,500—3,000	6 (40)	8 (30.8)	8 (47.1)	
3,000—6,000	6 (40)	7 (26.9)	1 (5.9)	
>6,000	0 (0)	2 (7.7)	0 (0)	
Religion				NS
Protestant	6 (40)	10 (38.5)	6 (35.3)	
Catholic	2 (13.3)	4 (15.4)	1 (5.9)	
Muslim	6 (40)	9 (34.6)	7 (41.2)	
Jewish	0 (0)	0 (0)	1 (5.9)	
None	1 (6.7)	3 (11.5)	1 (5.9)	
Other	0(0)	0 (0)	1 (5.9)	

Ex. = exclusively; HT = hormone therapy; NS = not significant.
*Of those participants receiving a HT.
†Operation of vocal cords, face or other.

characteristic of me (0), slightly characteristic of me (1), somewhat characteristic of me (2), moderately characteristic of me (3), and very characteristic of me (4). 7 subscales were selected from the questionnaire to characterize the psychological experience of sexuality among the patient collective: sexual satisfaction, sexual assertiveness, sexual motivation, sexual esteem (subscales of positive sexual experience) and sexual depression, sexual anxiety, as well as fear of sex (subscales of negative sexual experience). These subscales were selected based on their thematic relevance for the trans population. All scales displayed a satisfactory to very good internal consistency in the present data, with Cronbach's alphas ranging from 0.72 to 0.93. For definitions of the subscales, refer to the study by Snell et al.[39]

Grouping and Subgrouping

Before data analysis, the participants were divided into 3 groups as per their sexual orientation. This was determined by their responses to the item as to which gender they currently felt most attracted to. Participants who stated to be exclusively attracted to men were categorized as "androphilic," and those who stated to feel attracted to both sexes—at least occasionally—were classified as "bisexual." Participants who expressed exclusive attraction to women were classified as "exclusively gynephilic." In the course of this study, the term "gynephilic" is used as a collective term for bisexual and exclusively gynephilic trans women. General characteristics of exclusively gynephilic, bisexual, and androphilic trans women are displayed in Table 1.

Although no significant differences based on gender affirmation status could be found among the 3 groups, a subgroup of "unoperated participants" was formed to further consider gender affirming surgery (GAS) as a factor for selected non-parametric items (ie, items relating to present sexuality). This sub-group included only participants who had not yet undergone GAS. Among this subgroup, no significant differences in reception of HT or mean time since HT initiation could be found. 75 percent of gynephilic, 73% bisexual, and 79% androphilic trans women within this subgroup had undergone HT at the time they were issued the questionnaire. The mean time since HT initiation was 13.6 (SD 21.7) months for the gynephilic, 14.0 (SD 20.4) months for the bisexual, and 29.2 (SD 34.4) months for the androphilic trans women.

Statistical Analysis

Data analysis and comparison of the 3 differently sexually orientated groups was conducted using SPSS, version 22.0 (SPSS Inc, Chicago, IL). Statistical significance was set at $P < .05$, and all tests were 2 tailed. The trend level for non-significant statistical trends was set at $P < .1$. Missing values were excluded, and percentages were based on the number of non-missing values. Statistical significance was tested using the Fisher's exact test for nominal data (demographics, items of the multiple-choice questionnaire) and the Kruskal-Wallis test for ordinally scaled variables. For statistically significant results, a post-hoc comparison of the 3 groups' results was conducted using adjusted standardized residuals and the Z-test. The P value for multiple comparisons was adjusted as per the Scheffe method. For continuous data, normal distribution was tested using the Kolmogorov-Smirnov and the Shapiro-Wilk tests. A one-way analysis of variance (ANOVA) was used to compare normally distributed continuous variables, and the Kruskal-Wallis test was used for skewed continuous variables. Regarding the SDI and the MSQ, a 2-way ANOVA was conducted to compare the results of the exclusively gynephilic, bisexual, and androphilic group. The main effects were "sexual orientation," "GAS," and their interaction (sexual orientation* GAS). The latter 2 effects were included to consider potential effects of HT and GAS on sexual desire and experience.

RESULTS

Sexual Behavior

Cross-Dressing

Significantly more exclusively gynephilic than androphilic trans women reported a history of arousal in association with cross-dressing. This was not the case when comparing bisexual with androphilic trans women (Table 2).

Solitary and Dyadic (Partnered) Sexual Behavior

Dyadic Sexual Behavior

Significantly more exclusively gynephilic and bisexual participants reported that their first sexual encounter was with a female partner (Table 3). Furthermore, among the unoperated subgroup, significantly more gynephilic than androphilic trans women reported integrating their genitals actively into intercourse (Table 4). No further significant differences could be

Table 2. Sexual arousal in association with cross-dressing

	Ex. gynephilic ($n = 15$)	Bisexual ($n = 26$)	Androphilic ($n = 17$)	
	n (%)	n (%)	n (%)	*P*
Experience of sexual arousal while cross-dressing				
Ages 12-18 years	10 (71.4)	13 (54.2)	4 (25)	.035*
Sometimes	7 (70)	9 (69.2)	0 (0)	.024
Often	3 (30)	2 (15.4)	2 (50)	
Every time	0 (0)	2 (15.4)	2 (50)	
Age 18+ years	12 (85.7)	14 (53.8)	7 (41.2)	.037†
Sometimes	10 (83.3)	11 (78.6)	3 (42.9)	.132
Often	1 (8.3)	2 (14.3)	2 (28.6)	
Every time	1 (8.3)	1 (7.1)	2 (28.6)	

Ex. = exclusively.
*Post hoc: $P < .05$ for the comparison ex. gynephilic vs androphilic.
†Post hoc: $P < .05$ for the comparison ex. gynephilic vs androphilic.

Table 3. Overview of past solitary and dyadic sexual activity

	Ex. gynephilic (n = 15*)	Bisexual (n = 26†)	Androphilic (n = 17)	
	M (SD)			P
Age of first masturbation	13.4 (1.65)	13.0 (2.68)	12.17 (3.01)	.489
Age of first ejaculation	13.45 (1.97)	12.75 (2.22)	13.8 (2.08)	.446
Age of first sexual encounter (with a partner)	20.75 (7.89)	17.80 (5.91)	18.40 (3.98)	.651
	n (%)	n (%)	n (%)	
Total number of sex partners				.098
0	3 (20)	2 (8.3)	2 (11.8)	
1–5	10 (66.7)	12 (50)	8 (47.1)	
5–10	2 (13.3)	5 (20.8)	2 (11.8)	
>10	0 (0)	5 (20.8)	5 (29.4)	
Sex of first sexpartner				.002‡
Female	12 (100)	17 (73.9)	6 (40)	
Male	0 (0)	6 (26.1)	9 (60)	

Ex. = exclusively.
*3 responses missing for the item "Sex of first sexpartner."
†2 responses missing for the item "Total number of sex-partners" (n = 24), one response missing for "Sex of first sex-partner.
‡Post hoc: P < .05 for the comparison of ex. gynephilic vs androphilic & bisexual vs androphilic.

found with regard to dyadic sexual behavior. There was, however, a non-significant statistical trend regarding the number of sex partners among the sample. This indicated that androphilic and bisexual trans women reported higher numbers of sex partners than exclusively gynephilic trans women (Table 3).

Solitary Sexual Behavior

No significant differences could be found with respect to solitary sexual behavior. However, there was a non-significant statistical trend concerning reports of masturbation for the unoperated sample of trans women. Most unoperated bisexual

Table 4. Current sexual activity and genital experience

	Total collective				Unoperated collective			
	Ex. gynephilic (n = 15)	Bisexual (n = 26)	Androphilic (n = 17)		Ex. gynephilic (n = 12)	Bisexual (n = 14)	Androphilic (n = 11)	
	n (%)			P	n (%)			P
In a sexual relationship	6 (46.2)	13 (59.1)	6 (35.3)	.340	4 (40)	5 (45.5)	2 (18.2)	0.420
Practice masturbation	12 (80)	23 (88.5)	11 (64.7)	.170	10 (83.3)	12 (85.7)	5 (45.5)	0.073
Integrate genitals into intercourse								
Yes	10 (71.4)	18 (78.3)	12 (85.7)	.630	8 (72.7)	9 (75)	7 (87.5)	0.755
Actively	2 (25)	1 (7.1)	1 (10)	.061	1 (14.3)	1 (14.3)	0 (0)	0.045*
Passively	0 (0)	5 (35.7)	6 (60)		0 (0)	4 (57.1)	4 (66.7)	
Both	6 (75)	8 (57.1)	3 (30)		6 (85.7)	2 (28.6)	2 (33.3)	
Enjoy genital stimulation								
Yes	3 (30)	10 (47.6)	9 (60)	.688	2 (25)	3 (25)	4 (44.4)	0.642
Sometimes	5 (50)	5 (23.8)	2 (13.3)		5 (62.5)	4 (33.3)	2 (22.2)	
No	2 (20)	6 (28.6)	4 (26.7)		1 (12.5)	5 (41.7)	3 (33.3)	
Enjoy orgasm								
Not applicable	1 (6.7)	0 (0)	2 (11.8)		1	0 (0)	2 (18.2)	
Always	6 (40)	18 (69.2)	11 (64.7)	.325	4 (8.3)	8 (57.1)	5 (45.5)	0.780
Sometimes	7 (46.7)	6 (23.1)	1 (5.9)		6 (50)	4 (28.6)	1 (9.1)	
Never	1 (6.7)	2 (7.7)	3 (17.6)		1 (8.3)	2 (14.3)	3 (27.3)	

Ex. = exclusively.
*Post hoc: P < .05 for the comparison of ex. gynephilic with androphilic regarding the passive integration of genitals.

Table 5. Solitary and dyadic sexual desire

	Ex. gynephilic (n = 15)	Bisexual (n = 26)	Androphilic (n = 17)			
	M (SD)			/Total	*P*	$\eta 2$
SDI-solitary	8.6 (5.7)	10.4 (5.7)	7.8 (6.5)	/23	.236	0.064
SDI-dyadic[a]	30.1 (11.5)	33.1 (14.5)	37.3 (8.0)	/62	.351	0.049
SDI-total[b]	38.7 (15.6)	43.2 (18.6)	45.1 (10.7)	/85	.366	0.047

SDI = sexual desire inventory.
[a,b]Levene test <0,05.

and exclusively gynephilic trans women reported masturbating, whereas only a minority of unoperated androphilic trans women claimed to do so (Table 4).

Sexual Desire

Solitary and Dyadic Sexual Desire

Bisexual trans women scored highest on solitary sexual desire, whereas androphilic trans women scored highest on dyadic sexual desire of the SDI (Table 5). Overall, however, no significant difference in solitary, dyadic, and total sexual desire could be found with regard to the main effect of sexual orientation. However, the 2-way ANOVA did show a non-significant statistical trend regarding the interaction of sexual orientation and GAS for solitary ($P = .088$, *DF:* 4, *Eta*^{2}: 0.165, *F:* 2.173), dyadic ($P = .056$, *DF:* 4, *Eta*^{2}: 0.193, *F:* 2.513), and total ($P = .029$a, *DF:* 4, *Eta*^{2}: 0.222, *F:* 3.002) sexual desire. This indicated that the highest dyadic and solitary sexual desire among the androphilic trans women was presented by those in later stages of the process of GA, whereas this was not the case for exclusively gynephilic and bisexual trans women (Figure 1).

GAS had no significant influence on solitary, dyadic, or total sexual desire.

Attributed Importance to Sexuality

Overall, no significant differences in the attributed importance to sexuality could be found between exclusively gynephilic, bisexual, and androphilic trans women (Table 6).

Sexual Desire as a Motive for Gender Affirmation

The percentage of trans women who acknowledged a sexual motivation for GA did not differ significantly between the 3 groups (Table 7). However, while 26.9% of the bisexual trans women reported that they had occasionally questioned whether they were "truly transsexual" because of their sexual fantasies, only one exclusively gynephilic trans woman and no androphilic trans women claimed to have had these doubts ($P = .028$). Nevertheless, none of the post hoc tests were significant.

Psychosexual Experience

Average scores of gynephilic, bisexual, and androphilic trans women for the different subscales of the MSQ are presented in Figure 2.

Overall, results among the collective did not differ significantly with regard to the main effect of sexual orientation.

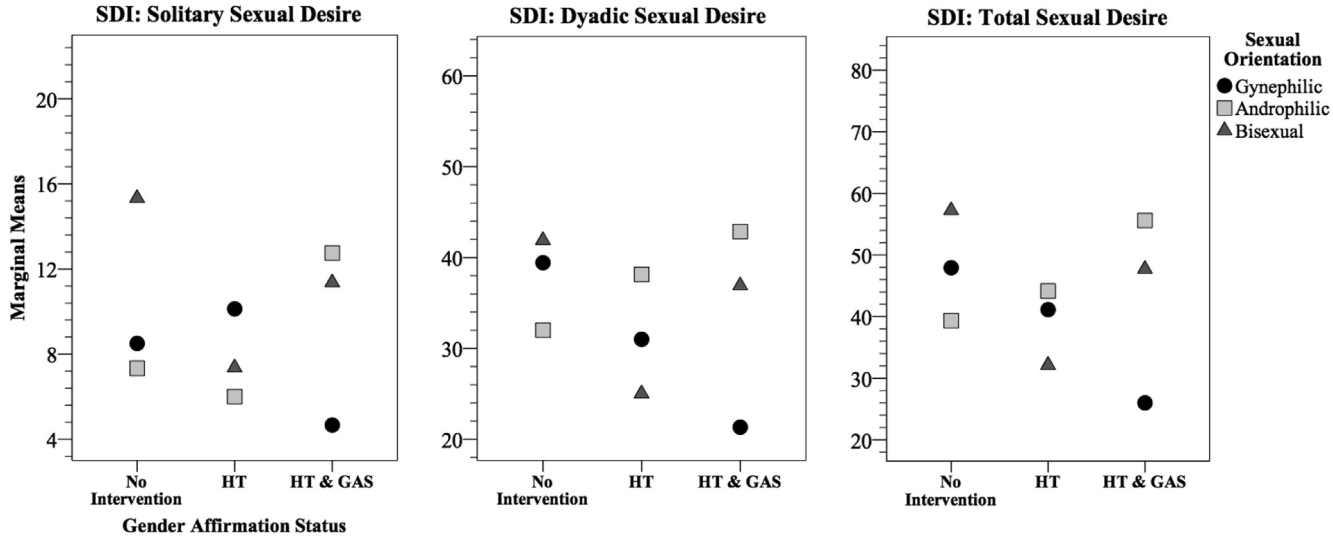

Figure 1. Solitary, dyadic, and total sexual desire of exclusively gynephilic, bisexual, and androphilic trans women in different stages of the gender affirmation process. GAS = gender affirmation surgery; HT = hormonal therapy.

Table 6. Attributed importance to sexuality

	Total collective				Unoperated collective			
	Ex. gynephilic (*n* = 15)	Bisexual (*n* = 26)	Androphilic (*n* = 17)		Ex. gynephilic (*n* = 12)	Bisexual (*n* = 14)	Androphilic (*n* = 11)	
	n (%)	n (%)	n (%)	*P*	n (%)	n (%)	n (%)	*p*
Sexuality is								
Important	4 (26.7)	11 (42.3)	10 (58.8)	0.316	3 (25)	6 (42.9)	5 (45.5)	0.830
Not so important	11 (73.3)	13 (50)	6 (35.3)		9 (75)	6 (42.9)	5 (45.5)	
Unimportant	0 (0)	2 (7.7)	1 (5.9)		0 (0)	2 (14.3)	1 (9.1)	
Loss of ability to experience sexual arousal in the process of gender affirmation would be								
Terrible	6 (40)	12 (46.2)	7 (41.2)	0.946	5 (41.7)	5 (35.7)	5 (45.5)	0.809
Not so bad	8 (53.3)	12 (46.2)	10 (58.8)		6 (50.0)	8 (57.1)	6 (54.5)	
Of no consequence	1 (6.7)	2 (7.7)	0 (0)		1 (8.3)	1 (7.1)	0 (0)	

Ex. = exclusively.

Regarding the interaction of sexual orientation and GAS, a non-significant statistical trend could be seen for the subscale "sexual motivation" ($P = .093$, $DF = 4$, $F = 2.138$, $Eta^2 = 0.169$) and "sexual depression" ($P = .090$, $DF = 4$, $F = 2.153$, $Eta^2 = 0.164$) (Figure 3).

DISCUSSION

The Aspect of Cross-Dressing

Considering Blanchard's typology and his theory of autogynephilia, we hypothesized that significantly more bisexual and exclusively gynephilic trans women would report sexual arousal in association with cross-dressing than androphilic trans women.

The results of this study confirmed this hypothesis only partially. Although significantly more exclusively gynephilic trans women than androphilic trans women reported having experienced sexual arousal in association with cross-dressing at least occasionally, this was not the case when comparing bisexual to androphilic trans women. In this case, the number of reports of sexual arousal with cross-dressing differed by less than 10%.

Several other studies have also found that reports of sexual arousal in association with cross-dressing were less frequent among bisexual trans women than among exclusively gynephilic trans women.[2,20,41] Blanchard's concept[19] of autogynephilia could provide a possible explanation for this observation. He theorizes that autogynephilia can manifest itself in different ways and that for bisexual trans women, the fantasy of being female is validated and intensified by the "autogynephilic interpersonal fantasy" (p.619) (ie, the interaction with a man), which would serve the same function as cross-dressing.[19,20]

In contrast to Blanchard's theory, however, stands the substantial number of androphilic trans women who also report sexual arousal in association with cross-dressing. In a study conducted in 1985, Blanchard[2] himself reported that 15% of androphilic trans women acknowledged a history of cross-dressing with sexual arousal. Several other studies—including

Table 7. Sexual desire as a motive for gender affirmation

	Ex. gynephilic (*n* = 15*)	Bisexual (*n* = 26)	Androphilic (*n* = 17†)	
	n (%)	n (%)	n (%)	*P*
Sexual desire played a role in making the decision to transition	2 (14.3)	9 (34.6)	5 (29.4)	.422
Concrete sexual fantasies played a role in making the decision to transition	4 (26.7)	10 (38.5)	8 (47.1)	.479
Have questioned whether they were "truly transsexual" because of their sexual fantasies	1 (6.7)	7 (26.9)	0 (0)	.028‡

Ex. = exclusively.
*one response missing for the item "Sexual desire played a role in making the decision to transition" (n = 14).
†one response missing for the item "Have questioned whether they were truly transsexual (…)" (n = 16).
‡Post hoc: not significant for all comparisons.

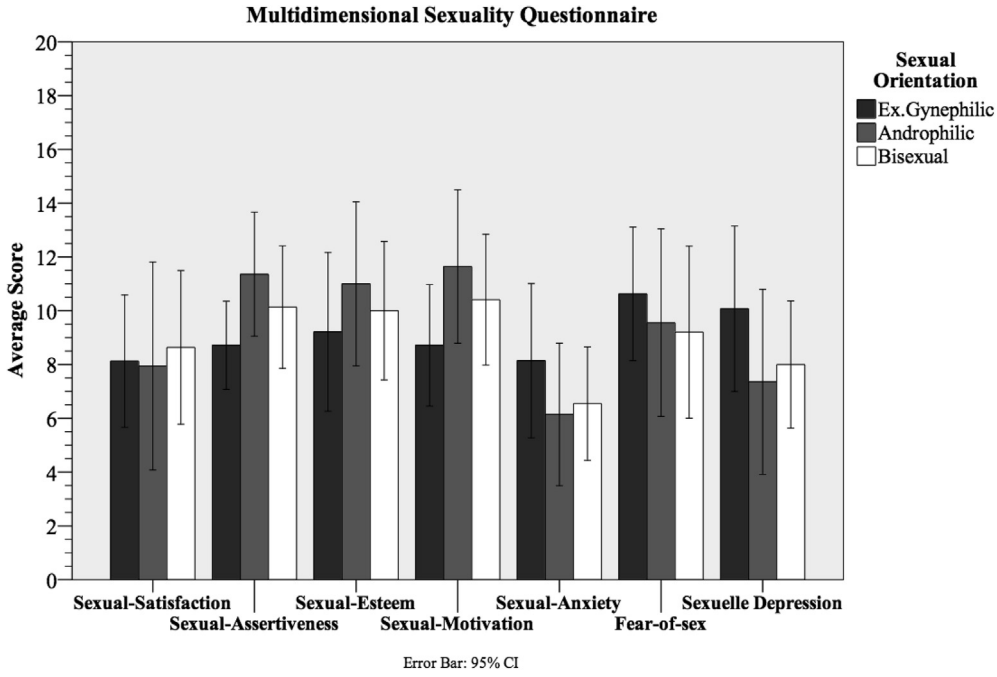

Figure 2. Average scores on subscales of the MSQ for gynephilic, bisexual, and androphilic trans women. Differences between the groups did not reach the level of statistical significance. Ex. = exclusively; MSQ = Multidimensional Sexuality Questionnaire.

the present study—have reported far larger numbers. For example, in a study by Leavitt and Berger,[42] 36% of the androphilic trans women reported a history of erotic arousal to cross-dressing. A study by Bentler[1] put forth that almost a quarter of all androphilic trans women reported having experienced arousal in association with cross-dressing. Blanchard[2] explains this substantial number by assuming that these androphilic trans women are, in fact, gynephilic. He states that "the less than perfect correlation between sexual orientation and cross-gender fetishism might be caused at least partly by unreliability in gender patients' verbal self-reports" (p.255).

It is not possible to rule out that a fraction of trans women in the present study may have misrepresented themselves as androphilic for reasons such as social desirability or fear of not receiving the desired gender affirming treatment. However, it seems unlikely that half the number of androphilic trans women are in fact gynephilic. Criteria for the integration of a participant into the androphilic group were rather strict. Only individuals who stated to be exclusively attracted to males were included in the androphilic group. Furthermore, this study was conducted in Germany, where GAMI is granted irrespective of sexual orientation. Our results hereby seem inconsistent with Blanchard's suggestion

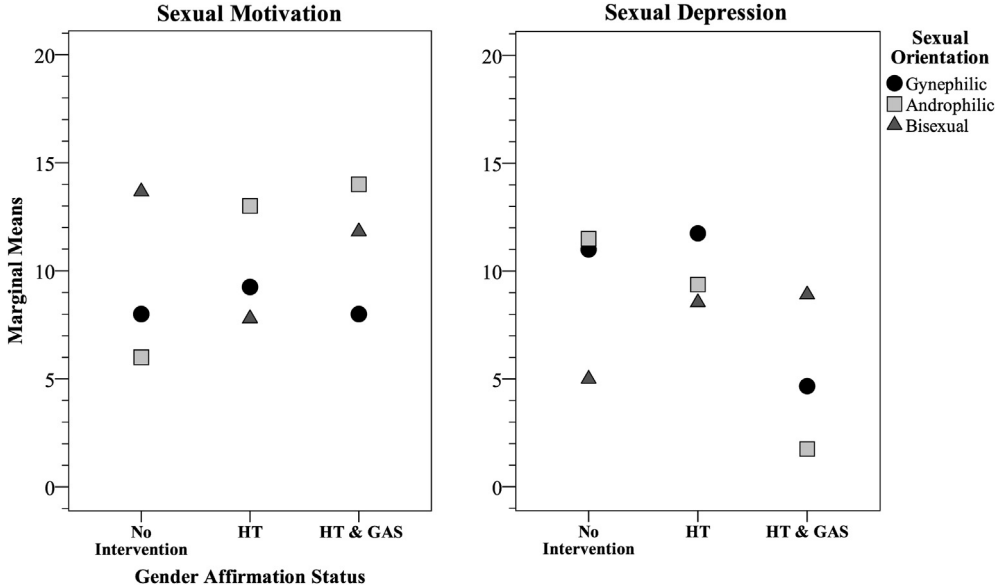

Figure 3. Sexual motivation and depression of exclusively gynephilic, bisexual, and androphilic trans women in different stages of the gender affirmation process. GAS = gender affirmation surgery; HT = hormonal therapy.

that sexual arousal in association with cross-dressing is just a non-androphilic phenomenon.

Solitary Versus Dyadic Sexuality

Blanchard[21,23,33,43] theorized that—as a result of an erotic target location error—gynephilic trans women "misdirect" their sexual desire (or gynephilia) at the own self. "Autogynephilia" may coexist but also compete with heterosexual attraction towards others.

In light of this theory, we hypothesized that exclusively gynephilic and bisexual trans women would show significantly higher solitary sexual desire and less dyadic sexual desire than androphilic trans women. We further hypothesized that this would also become evident through their sexual behavior.

Interestingly, the results of this study could not confirm our hypotheses. Although androphilic trans women scored lowest on solitary and highest on dyadic sexual desire in the SDI, differences among the 3 groups were marginal. Only 2 tendencies appeared to be consistent with the aforementioned theory: these being higher self-report of masturbation among unoperated gynephilic trans women and fewer sex partners among exclusively gynephilic trans women, as opposed to androphilic trans women.

In line with the hypothesized theory, some authors[23,34] have suggested that gynephilic trans women may show "diminished capacities for heterosexual [. . .] pair-bond formation" (p.249).[23] Our study does not support this notion, showing comparable engagement in relationships in gynephilic and androphilic trans women. This observation is in line with other empirical studies, which indicate that gynephilic trans women are just as likely to be involved in a relationship as androphilic trans women.[13,32]

A limitation of our study—with regard to dyadic sexual desire—is that the SDI cannot distinguish between a primary erotic and secondary erotic interest in another person. As stated earlier, Blanchard[20] suggested that in some gynephilic trans women, a new "secondary erotic interest in men" (p.323) may arise to validate their own femininity. This implies that sexual interest in other (male) persons may merely be a result of sexual desire towards the own (female) self. We cannot determine the etiology of dyadic sexual desire; however, the question remains as to whether this information is clinically useful.

Ultimately, our study provides little evidence for the assumption that gynephilic trans women should show less sexual interest in other persons or have problems with "pair-bond formation."

On the Extent of Sexual Desire

Because it was repeatedly suggested that autogynephilia can be considered a paraphilia,[30,33–35] we hypothesized that gynephilic trans women may show evidence of heightened sexual desire.

The results of the present study, however, show no evidence of heightened sexual desire among the exclusively gynephilic and the bisexual sample. On the contrary, sexual desire appeared to be low across all groups. This becomes especially clear when comparing the level of sexual desire of this patient collective with sexual desire of a large collective from a study conducted by Winters.[44] Winters[44] used the SDI-2 to compare sexual desire among a large sample of men and women (non-treatment group) with that of patients in treatment for dysregulated sexuality[c] (treatment group). Descriptively, both the treatment and non-treatment group scored higher on solitary and dyadic sexual desire than the exclusively gynephilic, bisexual, and androphilic trans women of this study's collective. Concerning solitary sexual desire, this was the case, irrespective of GAS. Concerning dyadic sexual desire, there were merely 2 exceptions: (i) bisexual trans women before GAMI and (ii) androphilic trans women who had received both HT and GAS achieved lower scores than the cisgendered men but slightly higher scores than the cisgendered women of the non-treatment group in the study by Winters.[44]

The results of this study are hereby in line with previous studies indicating that trans women, in general, and gynephilic trans women, in particular, show low levels of sexual desire.[31]

Sexual Desire as a Motive for Gender Affirmation

Blanchard's[20,23] theory of autogynephilia implies that erotic desire is the "driving force" (p.7)[34] behind the desire for GA in gynephilic trans women. Accordingly, we hypothesized that sexuality would play a central role in the lives and the transitioning process of gynephilic trans women. Furthermore, we hypothesized that significantly more gynephilic than androphilic trans women would acknowledge a sexual motive for GA.

Our data, however, provided no grounds for the assumption that gynephilic trans women attribute a particularly great importance to sexuality. Only a minority of exclusively gynephilic and bisexual trans women claimed to view sexuality to be an "important" aspect of their life. Furthermore, the majority stated that it would be of little or no importance if they were to lose the ability to experience sexual arousal in the course of GA. Though noteworthy, these findings do not necessarily stand in contrast to Blanchard's theory.

Blanchard[23] hypothesized that autogynephilic arousal can decline over the course of time, whereas an emotional attachment to the self-image as female may develop and persist independently of erotic desire. Our study included trans women who had already lived in the female role for several years and erotic desire might have once played a greater part in the desire to transition. Indeed, gynephilic trans women in our study showed higher levels of sexual desire in the earlier stages of the GA process. A non-significant statistical trend indicated that the opposite was the case for the androphilic trans women.

However, in contrast to Blanchard's theory, most gynephilic trans women claimed that sexual desire had had little influence on their decision to undergo GAMI. In this regard, no significant differences could be found between the gynephilic and the androphilic trans women.

It is, of course, possible that responses given in the questionnaire regarding the motives for GA might have been influenced by social desirability. A transition on the grounds of erotic desire might be considered by trans women to be less valid than on the grounds of gender identity alone, as previously stated by Lawrence.[34] In our study, it was androphilic trans women, in particular, who stated that the desire to realize concrete sexual fantasies motivated them for GA. Hypothetically, they might have been less afraid of social stigma and have less problems perceiving their erotic desire as a legitimate entitlement. Underlining this hypothesis, none of the androphilic trans women of this study claimed that they had felt less "truly transsexual" because of their sexual fantasies. In contrast, a 4th of all bisexual trans women felt less "truly transsexual" because of their sexual fantasies.

Overall, the results of this study show that sexual motives for GA are not exclusively found in gynephilic trans women. Instead, such motives were reported by some trans women irrespective of sexual orientation.

Psychosexual Experience in Gynephilic and Androphilic Trans Women

Because it has been suggested that autogynephilia can be characterized as a paraphilia,[30,33–35] and is often experienced as "ego dystonic," "unwanted, intrusive, painful, and disabling" (p.75),[30] and "complicates heterosexual expression" (p.116),[34] we theorized that autogynephilia may have a particularly negative effect on the psychological experience of sexuality in trans women. Consequently, we hypothesized that gynephilic trans women may score significantly higher on subscales of negative and lower on subscales of positive psychosexual experience of the MSQ.

Although it is noteworthy that—with 2 exceptions—exclusively gynephilic trans women did score highest on subscales of negative and lowest on subscales of positive psychosexual experience, the mean scores differed only marginally among the 3 groups. The aforementioned hypothesis could, thus, not be confirmed.

Overall, trans women of this study appeared to have a rather negative psychological experience of their sexuality. This becomes evident when comparing the results of this study with those of 216 cisgender men and women from a study evaluating the German version of the MSQ.[45] The comparison shows that androphilic and gynephilic trans women descriptively score lower on all subscales of positive and higher on all subscales of negative psychosexual experience.

This second observation is not too surprising, as Doorduin et al[46] stated, "body experience and social perceptions of gender are interwoven with experiences of sexuality" (p.659). As a consequence, gender dysphoria and feelings of incongruence will most likely affect the quality of sexual experience. Several studies have confirmed the negative impact of gender dysphoria on sexual experience, although only a few have investigated sexual experience among trans women in detail.[46–48]

Ultimately, the results of this study imply that sexual orientation, and consequently autogynephilia, has no significant effect on psychosexual experience.

LIMITATIONS

Collective Size and Heterogeneity

The collective of this study was heterogenous and included trans women at different stages in the process of GA. Gender affirming medical interventions are likely to have an effect on sexuality. Although no significant differences concerning reception of GAS, HT, and time since HT initiation could be found between exclusively gynephilic, bisexual, and androphilic trans women and several methods were applied to consider GAS as a factor (see methods), it would have been preferable if only participants at exactly the same stage in the process of GA had been compared. This was not possible owing to the limited sample size.

Sexual Orientation

Grouping

The continuous scale of sexual orientation used in the questionnaire had to be adjusted to allow for comparison among the groups. The fact that only individuals who stated to be exclusively attracted to men were included in the androphilic group may have led to some androphilic participants being misrepresented as bisexual. However, misrepresentation would have been possible in any case when dividing the continuous scale of sexual orientation into merely 3 groups. We decided to embrace the possibility that some androphilic trans women may be misrepresented as bisexual, in favour of less misrepresentations of bisexual trans women as androphilic.

Sexual Orientation

Change

The questionnaire was issued during one of the first routine visits at the 4 transgender healthcare centers. However, at this point in time, participants were already at different stages in the process of GA. Studies have shown that sexual orientation can change over time and progress within the process of GA.[5] Some participants representing themselves as bisexual or androphilic may have originally represented themselves as exclusively gynephilic and vice versa. Potential changes in sexual orientation could not be considered in this study.

Social Desirability

Although data were collected anonymously, it is possible that social desirability may have influenced the responses of participants regarding some aspects of sexuality.

CONCLUSION

Overall, the results of this study could provide no evidence for the hypothesis that sexual behavior, desire, and psychosexual

experience differ substantially in gynephilic and androphilic trans women. Although there were differences among the groups (especially between exclusively gynephilic and androphilic trans women), of which some could be interpreted to be in line with Blanchard's theory of autogynephilia, the overall impression gained from the data of this study is that sexuality among the collective was very diverse.

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