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TRANSGENDER HEALTH

Gender Affirming Medical Treatment Desire and Treatment Motives in Binary and Non-Binary Transgender Individuals

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ABSTRACT

Background: It is currently unknown whether there are differences in desire for gender affirming medical treatment (GAMT) between binary and non-binary transgender individuals, although the latter seek treatment less prevalently.

Aim: To investigate differences between binary and non-binary individuals on received GAMT, desire for GAMT, and motives for (not) wanting GAMT, and to explore the association between having an unfulfilled treatment desire and general and sexual well-being.

Methods: We conducted an online questionnaire in a community sample of 125 transgender men, 72 transgender women, and 62 non-binary transgender individuals (age: $M = 30.4$, $SD = 11.31$, range 18-69).

Outcome measures: Undergone GAMT, GAMT desire, motives for (not) wanting (further) GAMT, Utrecht Gender Dysphoria Scale, Satisfaction With Life Scale, Hospital Anxiety and Depression Scale, Global Measure of Sexual Satisfaction, transgender-specific body image worries, and sexual self-concept discrepancies.

Results: Binary transgender participants reported having undergone more GAMT procedures than non-binary transgender participants ($P < .001$ for both gender affirming hormone treatment (GAHT) and gender affirming surgery (GAS)). While binary participants reported a stronger desire for GAHT compared to non-binary participants ($X^2(1, N = 93) = 32.63$, $P < .001$), the groups did not differ in their desire for GAS ($X^2(1, N = 247) = 0.68$, $P = .411$). Binary and non-binary participants reported similar reasons for wanting treatment, mostly related to body and/or gender incongruence and gender affirmation. In terms of not wanting treatment, the non-binary group reported their gender identity as the most important reason, while the binary group mostly mentioned
possible medical complications. The majority of both groups had an unfulfilled treatment desire (69% of binary participants and 64.5% of non-binary participants), which was related to lower levels of general life satisfaction ($P < .001$) and sexual satisfaction ($P = .005$), more anxiety ($P = .006$) and transgender-specific body image worries ($P < .001$), and larger sexual self-concept discrepancies ($P < .001$ for actual and/or ideal, $P < .001$ for actual and/or ought).

Clinical implications: Systemic barriers to GAMT (especially GAS) should be removed not only for binary but also for non-binary identifying transgender individuals to decrease the discrepancy between treatment desire and actually seeking treatment.

Strengths & limitations: This study was the first to systematically investigate differences in treatment desire motives between binary and non-binary transgender individuals, while also showing the possible negative consequences of an unfulfilled treatment desire. Given the online character of the study, results may not generalize to the broader transgender community.

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Conclusion: Similarly to binary transgender individuals, many non-binary transgender individuals have a desire for GAMT, and not being able to receive GAMT has a negative effect on their mental and sexual health. Further efforts should be made to make GAMT accessible for all transgender individuals, regardless of gender identity.
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Key Words: Transgender; Non-Binary; Gender Affirming Medical Treatment; Gender Affirming Surgery; Treatment Desire

INTRODUCTION

'Transgender' is often used as an umbrella term to indicate individuals who do not (always or completely) identify with the gender that was assigned to them at birth. Most transgender individuals identify within the gender binary,[1,2] being a man or a woman. Recently, however, transgender individuals whose identity is *outside* the traditional binary have become more visible, leading to a better understanding of gender diversity.[3] While sometimes these individuals identify themselves as non-binary, they can apply various labels to themselves, such as 'agender,' 'genderqueer,' or 'third gender,'[4,5] and might not identify as transgender.[6] Throughout this manuscript, we use the term 'binary transgender' to indicate individuals who identify as transgender and identify with a binary gender (ie, trans men and trans women), and we use the term 'non-binary transgender' to indicate individuals who identify as transgender and do not identify with a binary gender.

Some transgender individuals, but not all,[7] experience gender dysphoria, which refers to distress caused by the incongruence between gender identity and sex assigned at birth.[8] In order to alleviate this distress, some transgender individuals opt for gender affirming medical treatment (GAMT). This includes various medical procedures as described by the World Professional Association of Transgender Health,[9] such as gender affirming hormone treatment (GAHT) and gender affirming surgeries (GAS). For instance, individuals with a female sex assigned at birth can receive testosterone as GAHT to de-feminize and/or masculinize their body, while individuals with a male sex assigned at birth can receive androgen blockers and estrogen. In terms of GAS, various procedures are available, targeting both primary sex characteristics (eg, vaginoplasty, phalloplasty) and secondary sex characteristics (eg, mastectomy, facial feminization surgery). In Western Europe and North America, GAMT is typically provided by an interdisciplinary team including endocrinologists, surgeons, psychologists, speech therapists, and sexologists.[9,10]

Previous studies have shown that non-binary transgender individuals are less likely to seek GAMT at a gender clinic than binary transgender individuals.[11-15] It has not yet been systematically investigated whether this is truly the case because non-binary individuals have less treatment desire, as some have suggested,[16] or because they cannot access GAMT. For instance, Jones et al.[17] suggested that non-binary identifying individuals experience less body dissatisfaction and gender incongruence than binary transgender individuals, which might indicate that GAMT is less crucial for their well-being. Specifically, this study found that non-binary individuals report higher levels of body satisfaction with sex-specific body parts such as chest and genitalia, which are typically targeted by GAMT. However, other authors[10,18] have argued that lower rates of non-binary individuals receiving GAMT are not due to a lower need in this group, but due to an implicit binary framework in gender clinics and other obstacles to GAMT for non-binary individuals. Such obstacles can lead to non-binary transgender individuals hiding their non-binary identity in order to be eligible for GAMT.[3] This might then distort figures on treatment desire in non-binary individuals.

It is of great importance to understand what transgender individuals' motives are for undergoing treatment and why non-binary transgender individuals are less likely to apply for GAMT than binary transgender individuals. Several studies have indicated that in binary transgender individuals, GAMT improves mental[19-21] and sexual well-being.[22,23] A recent study has suggested that it is not GAMT in itself that improves sexual well-being, but that it is the fulfillment of *treatment desire* that positively affects factors such as sexual agency, sexual pleasure, and sexual esteem.[24] For instance, transgender women with a fulfilled treatment desire reported more sexual pleasure than those with an unfulfilled treatment desire, and transgender men with a fulfilled treatment desire reported more sexual esteem than those with an unfulfilled treatment desire. It is therefore essential to investigate how prevalent an unfulfilled treatment desire is in both binary and non-binary individuals, and whether an improvement in sexual well-being is an important motive to undergo GAMT.

For the current study, we conducted an online survey in a community sample of adult binary and non-binary transgender individuals in order to investigate differences in undergone GAMT and treatment desire between binary and non-binary transgender individuals. Based on previous literature, we expect to find that the non-binary sample reports having undergone less GAMT (as in[18]), and having less desire for such treatment (as in[25], where participants were briefly asked about treatment desire). We also investigated the most common motives for (not) wanting

GAMT and differences herein between binary and non-binary transgender individuals. Given that Jones et al.[17] reported lower gender incongruence and higher body satisfaction in non-binary individuals, we expect that binary transgender individuals will more often report motives related to gender dysphoria and body incongruence for wanting treatment than non-binary transgender individuals, and that the latter will more often report not having the need for GAMT compared to binary transgender individuals as a reason for not wanting treatment. Finally, we investigated the association between treatment desire status and general and sexual well-being by comparing groups of binary and non-binary transgender individuals with no treatment desire, an unfulfilled treatment desire, and a fulfilled treatment desire. We thereby focused on variables that are typically targeted by GAMT (gender dysphoria and transgender-specific body image worries), variables that are typically more negative in transgender individuals than in cisgender individuals (anxiety, depression, and general life satisfaction[26]), and variables that are likely to be affected by GAMT (actual/ideal sexual self-concept discrepancies and sexual satisfaction[27]).

METHOD

Participants

Participants were required to be at least 18 years old and could complete the questionnaire in Dutch or English (all questionnaires were back-to-back translated). In total, 514 participants completed at least part of the survey. Six were removed from the dataset because they were too young or did not provide information about their age; five were removed because they did not enter any information on gender identity; 21 were removed because of a clearly invalid response profile (eg, no variation in response throughout the questionnaires, or completing the survey in less than 5 minutes). Based on the information about sex assigned at birth and gender identity provided, participants were assigned to one of five groups: transgender men (those who indicated a female sex assigned at birth and a male gender identity, N = 125), transgender women (those who indicated a male sex assigned at birth and a female gender identity, N = 72), cisgender men (those who indicated a male sex assigned at birth and a male gender identity, N = 98), cisgender women (those who indicated a female sex assigned at birth and a female gender identity, N = 107), non-binary and/or other (those who indicated a gender identity other than 'man' or 'woman,' N = 80). We also included a question on whether participants identified as transgender. All transgender men and women replied 'yes' to this question, and all cisgender men and women replied 'no' to this question, confirming the group assignments. Of the non-binary and/or other identity group, 18 participants indicated not identifying as transgender. For the current analyses, we included only participants who explicitly indicated having a transgender identity, resulting in a total sample size of 259 participants (125 transgender men, 72 transgender women, and 62 non-binary transgender individuals).

Procedure

This study was approved by the Ethics Review Committee Psychology and Neuroscience (ERCPN) of Maastricht University (approval code: 225_95_07_2020). The survey was programmed in Qualtrics and was administered online between July 16 and October 2, 2020. Transgender participants were mainly recruited online via social media in the LGBTQI+ (Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, plus others) community (eg, Facebook groups targeted towards the transgender community, Twitter messages including transgender-related hashtags, Facebook pages of transgender support organizations). Recruitment materials were presented in English and Dutch, reflecting the languages the survey could be completed in. We asked participants who had completed the survey to spread the link among potentially interested people in their network.

All participants declared informed consent at the beginning of the survey. Participants could enter a raffle for a €10 gift voucher at the end of the survey (one voucher per 20 participants; participants were made aware of the odds). The email addresses provided for the raffle were stored separately from questionnaire responses and removed after the vouchers had been distributed. In total, the procedure took 15-25 minutes per participant.

Measures

Demographics. The survey included open questions on age, country of residence, mother tongue, and number of children, and multiple-choice questions on educational level, occupation, housing, and relationship status and length. Sexual orientation was assessed by presenting 2 sliding scales (one for men, one for women) on which participants could indicate how much they were attracted to these genders in general (scored from 0 to 100, with lower scores indicating lower attraction). Sex assigned at birth was assessed via a multiple-choice question including Male, Female, Intersex, and an open option. Gender identity was assessed via a multiple-choice question including Man, Woman, Non-Binary, and an open option. Responses from participants who indicated identifying with another gender identity using the open option were all inspected, with any indication of the participant not identifying fully within the gender binary resulting in an assignment to the non-binary group (eg, 'non-binary transman'). Finally, participants were asked whether they identified as transgender, in which case they were also asked when they had first become aware of their transgender identity and whether they had received a diagnosis of Gender Dysphoria.

Received and Desired Gender Affirming Medical Treatment. First, all transgender participants indicated whether they were currently on a waiting list for an intake consultation, GAHT, and/or GAS. Then, participants were asked whether they had already received some form of GAMT. Those who indicated that they did, completed further questions about how long

ago this had been and how satisfied they were with the GAMT. Participants also indicated whether they desired (further) GAMT.

Based on the responses on the questions outlined above, we divided participants into three groups. The No Treatment Desire (No TD) group consisted of those who indicated not having received GAHT or undergone GAS, and not planning to do so in the future. The Unfulfilled Treatment Desire (Unfulfilled TD) group consisted of participants who indicated wanting GAHT and/or (further) GAS in the future. The Fulfilled Treatment Desire (Fulfilled TD) group consisted of those who indicated already having received GAHT and/or undergone GAS, and not wanting any further treatment in the future.

Motives for (not) Wanting Treatment. Based on participants' responses on the questions about received GAMT and treatment desire, we presented multiple-choice questions asking why participants had already received GAMT, why they desired (further) GAMT, or why they did not desire (further) GAMT. These items were based on expert opinion and were checked with people from the transgender community before launching the study. All questions about treatment motives included an open option where participants could describe motives that were not presented in the lists.

Gender Dysphoria. Feelings of gender dysphoria were assessed using the Utrecht Gender Dysphoria Scale (UGDS[28,29]), which has two different versions depending on sex assigned at birth (male and/or female). Each version consists of 12 items which participants rated on a 5-point scale ranging from 1 = 'Entirely disagree' to 5 = 'Entirely agree'. Because some of the questions would not apply to transgender people who have already undergone certain types of GAMT (eg "I hate having breasts" for a transgender man who has undergone mastectomy), we included the response option 'Not applicable,' which was scored to one (low gender dysphoria). Participants' final score on the UGDS was calculated by averaging the scores for all items, with the final scores ranging from one (no gender dysphoria) to five (high gender dysphoria). Both versions had high reliability in our sample (Cronbach's α = .88 for male sex assigned at birth version; Cronbach's α = .85 for female sex assigned at birth version).

Sexual Satisfaction. Sexual satisfaction was assessed using the Global Measure of Sexual Satisfaction (GMSEX[30]), a 5-item measure assessing satisfaction on a 7-point scale (eg, 1 = 'Unsatisfying' and 7 = 'Satisfying'). Scores ranged from 7 to 35, with higher scores indicating higher sexual satisfaction. The scale showed sufficient reliability in our sample (Cronbach's α = .96).

Sexual Self-Concept Discrepancies. We developed a concise measure of two types of sexual self-concept (SSC) discrepancies (based on[31]): actual/ideal and actual/ought. Actual/ideal SSC discrepancies indicate how far away people consider themselves to be from whom they ideally would want to be sexually. Actual/ought SSC discrepancies, on the other hand, indicate how far away people consider themselves to be from whom they think they should be sexually. The following text was presented to participants for the actual/ideal item:

"Think about your actual sexual self-concept, and your ideal sexual self-concept. Your actual self-concept entails all the ideas and feelings you have about who you currently are as a sexual person. Your ideal sexual self-concept entails all the ideas and feelings you have about who you ideally would want to be as a sexual person. How far away is your actual sexual self-concept from your ideal sexual self-concept?"

The phrasing was identical for the actual/ought item, except 'ought' was used instead of 'ideal,' and 'who you should be' instead of 'who you ideally would want to be.' Participants used a sliding scale to indicate how large the discrepancies between their self-concepts are. Positions on the scale were coded into a score ranging from 0 = 'Entirely overlapping' to 100 = 'Very far away,' with higher scores indicating a higher SSC discrepancy.

Transgender-Specific Body Image Worries. We assessed transgender-specific body image worries using the T-WORRY.[32] The scale consists of seven items (Cronbach's α = .79), representing worries transgender people could have while having sex, to be rated on a five-point scale ranging from 1 = 'Not at all' to 5 = 'Very'. The T-WORRY questionnaire covers both general body image anxiety (eg, "When I think about having sex, I worry that other people think my body is unattractive") and trans-related anxiety (eg, "When I think about having sex, I worry that once I'm naked, people will not see me as the gender I am"). Sum scores ranged from 5 to 35, with higher scores indicating more worries.

General Life Satisfaction

Life satisfaction was assessed using the Satisfaction With Life Scale (SWLS[33]). The questionnaire consists of 5 items (eg, "So far I have gotten the important things I want in life") (Cronbach's α = .89) which are rated on a seven-point Likert scale ranging from 1 = 'Strongly disagree' to 7 = 'Strongly agree'. Sum scores ranged from 7 to 35, with higher scores indicating higher life satisfaction.

Anxiety and Depression. We assessed anxiety and depression using the Hospital Anxiety and Depression Scale (HADS[34]). The questionnaire interleaves a seven-item anxiety scale (eg, "I feel tense or 'wound up'") (Cronbach's α = .86) with a seven-item depression scale (eg, "I feel cheerful," reverse item) (Cronbach's α = .77), presenting participants four response

options per statement. For each scale, scores range from 0 to 21, with higher scores indicating higher anxiety/depression.

Other Questionnaires. Participants also completed a questionnaire on Sexual Self-Concept ([35]; adapted by[36]). This questionnaire will however not be included in the analyses presented in this manuscript, but will be presented elsewhere.[37]

Analysis

All statistical analyses were performed using the software JASP.[38] We applied a significance threshold of $P = .05$ for all analyses, and applied a Bonferroni correction when investigating multiple variables at once (such as variables on general and sexual well-being). Group differences were analyzed using independent-samples *t*-tests in the case of continuous variables, and chi-square tests of independence in the case of categorical variables.

RESULTS

Sample Descriptives

Descriptive statistics are presented in Table 1. The mean age of the total sample was 30.4 years ($SD = 11.31$, range 18-69, N = 259). Binary and non-binary transgender groups did not differ in terms of age, attraction to men, and attraction to women. Groups also did not differ on educational level, relationship status, and housing. The 2 groups did differ, however, on sex assigned at birth. While in both groups there was a majority of participants indicating they had a female sex assigned at birth, this proportion was higher in the non-binary sample than in the binary sample. Furthermore, the groups differed on when they indicated becoming aware of their transgender identity, with most binary participants indicating this happened during mid childhood or around the start of puberty and most non-binary participants indicating that this happened later, during adolescence or young adulthood. Finally, groups differed in the frequency with which they indicated having a diagnosis of gender dysphoria or gender incongruence, with the majority (79.57%) of the binary sample indicating that they had such a diagnosis and the majority (58.07%) of the non-binary sample indicating that they had not.

Differences in Received and Desired GAMT between Binary and Non-Binary Transgender Participants

The non-binary and binary groups differed in frequency with which participants reported already having received GAHT (X^2 (1, N = 249) = 47.89, $P < .001$) and undergone GAS (X^2 (1, N = 244) = 15.77, $P < .001$). In the binary group, 74.9% (N = 140) of participants indicated already having received GAHT, compared to only 25.8% (N = 16) in the non-binary group. Similarly, the proportion of those who indicated already having undergone (one or multiple) GAS was higher in the binary group (N = 97, 53.3%) compared to the non-binary group (N = 15, 24.2%).

Among the participants that indicated not (yet) having received GAHT, we also found a difference between the binary and non-binary groups in the frequency with which participants reported having a desire for GAHT in the future (X^2 (1, N = 93) = 32.63, $P < .001$), with most binary participants indicating that they would still want this (N = 39, 83%), compared to a lower proportion of the non-binary participants (N = 11, 23.9%). In terms of (additional) GAS, however, the groups did not differ in the extent to which they indicated having a desire for this (X^2 (1, N = 247) = 0.68, $P = 0.411$), with 67% (N = 124) of the binary sample expressing such a desire, and 61.3% (N = 38) of the non-binary sample.

In the binary group, 69% (N = 123) of the participants were allocated to the Unfulfilled TD group, 29.4% (N = 55) to the Fulfilled TD group, and 1.6% (N = 3) to the No TD group. In the non-binary group, these percentages were respectively 64.5% (N = 40), 16.1% (N = 10), and 19.4% (N = 12). Hence, the binary and non-binary groups differed significantly in their treatment desire status (X^2 (2, N = 249) = 27.64, $P < .001$), since binary participants more often reported Fulfilled TD and non-binary participants more often reported No TD.

Motives for Wanting GAMT and Differences between Binary and Non-Binary Transgender Participants

Table 2 presents how frequently participants indicated having a certain motive for already receiving or still wanting GAHT. "I want(ed) to change my body," "I want(ed) to feel more masculine/feminine," and "I want(ed) people to see me for a man/woman" were most frequently indicated by both binary and non-binary participants. The table also presents the frequency of the motives for having undergone or still wanting GAS. For the binary group, the most common motives were similar to those for receiving and/or wanting GAHT. For the non-binary group, however, "It would make it easier to wear the clothes that fit my gender identity" was most frequently indicated, together with "I want(ed) to change my body."

For both GAHT and GAS, motives related to norms and group assimilation such as "It is what transgender people do" and "Others expect(ed) me to" were rarely selected by both groups (between 0 and 3.9%).

Motives for not Wanting GAMT and Differences between Binary and Non-Binary Transgender Participants

Table 3 presents the motives for not wanting GAHT and for not wanting (additional) GAS. In the binary group, the most common motive for not wanting GAHT was "I am afraid of other people's reactions" and the most common motive for not wanting GAS was "I am afraid of negative medical

Table 1. Descriptive statistics and group differences on age, attraction, relationship status, educational level, employment status, housing, sex assigned at birth, time of realization of trans identity, gender dysphoria/gender incongruence diagnosis, and country of residence.

		Binary transgender group	Non-binary transgender group	Group difference
Continuous variables		*M*	*M*	*t*
		SD	*SD*	*P*
Age		31.06	28.32	1.67
		11.48	10.60	.097
Attraction to women		67.18	72.93	-1.14
		33.64	31.28	.255
Attraction to men		52.97	62.41	-1.72
		35.88	36.66	.086
Categorical variables		N (%)	N (%)	X^2
				P
Relationship status	In a relationship	91 (16.19)	35 (56.45)	1.99
	Not in a relationship	106 (53.81)	27 (53.55)	.159
Educational level	No HS degree	6 (3.10)	1 (1.61)	5.92
	HS degree	78 (40)	15 (24.19)	.052
	Higher education	111 (56.92)	46 (74.19)	
Employment status	Employed	100 (50.76)	26 (41.94)	1.65
	Student	61 (30.96)	24 (38.71)	.439
	Unemployed/retired	36 (18.27)	12 (19.36)	
Housing	Living alone	64 (32.82)	15 (24.19)	2.89
	Partner	51 (26.15)	19 (30.65)	.410
	With parents/family	52 (26.67)	15 (24.19)	
	Student housing/with friends	28 (14.36)	13 (20.97)	
Sex assigned at birth	Female	125 (63.45)	50 (80.65)	6.36
	Male	72 (36.55)	12 (19.36)	.012*
Realization of trans identity	Early childhood	26 (13.90)	1 (1.61)	26.29
	Mid childhood	54 (28.88)	8 (12.90)	< .001*
	Late childhood	22 (11.77)	9 (14.52)	
	Start puberty	30 (16.04)	8 (12.90)	
	Adolescence	26 (13.90)	17 (27.42)	
	Young adulthood	14 (7.49)	14 (22.58)	
	Mid adulthood	11 (5.88)	4 (6.45)	
	Late adulthood	4 (2.14)	1 (1.61)	
GD/GI diagnosis	Yes	148 (79.57)	26 (41.94)	31.46
	No	38 (20.43)	36 (58.07)	< .001*
Country of residence	The Netherlands	122 (61.93)	44 (70.97)	4.23
	Belgium	42 (21.32)	6 (9.68)	.237
	United Stated of America	22 (11.17)	8 (12.90)	
	Other	11 (5.58)	4 (6.45)	

*Significant *P* values (<.05).
GD = gender dysphoria; GI = gender incongruence; *M* = mean; *SD* = standard deviation.

consequences." Non-binary participants, however, indicated "I don't entirely feel like a man/woman" as the most important motive for not wanting GAHT or GAS.

Differences in General and Sexual Well-being between UTD and FTD

Because the sample size of the No TD group was too small (n = 15), we only compared groups with Unfulfilled TD and Fulfilled TD on general and sexual well-being (Table 4). The Fulfilled TD group scored significantly better than the Unfulfilled TD group on general life satisfaction, anxiety, sexual satisfaction, transgender-specific body image worries, and actual and/or ideal and actual and/or ought sexual self-concept discrepancies. Follow-up analyses of the transgender-specific body image worries measure revealed that the 2 groups differed on the trans-related anxiety subscale only (P = .002), and not on the general body image anxiety subscale (P = .06). There were no group differences on gender dysphoria and depression scores.

Table 2. Frequencies with which participants indicated having (had) a certain motive for having received GAMT or wanting to receive GAMT.

	GAHT		GAS	
	Binary transgender group	Non-binary transgender group	Binary transgender group	Non-binary transgender group
I want(ed) to change my body	142 (79.8%)	23 (62.2%)	148 (74%)	31 (68.9%)
I hate(d) my body without it	93 (52.2%)	6 (16.2%)	119 (59.5%)	23 (51.1%)
I want(ed) to feel more masculine/feminine	139 (78.1%)	17 (45.9%)	147 (73.5%	19 (42.2%)
I want(ed) people to see me for a man/woman	143 (80.3%)	9 (24.3%)	118 (59%)	11 (24.4%)
It would make it easier to wear the clothes that fit my gender identity			105 (52.5%)	28 (62.2%)
It is/was required for a legal sex change			14 (7%)	0 (0%)
It is what transgender people do	7 (3.9%)	0 (0%)	7 (3.5%)	1 (2.2%)
Others expect(ed) me to	3 (1.7%)	0 (0%)	1 (0.5%)	1 (2.2%)
I want(ed) to improve my sex life	24 (13.5%)	4 (10.8%)	68 (34%)	7 (15.6%)

GAMT = gender affirming medical treatment; GAHT = gender affirming hormone treatment; GAS = gender affirming surgery.
Note: Participants could indicate multiple answers.

Table 3. Frequencies with which participants indicated not wanting to receive GAMT.

	GAHT		GAS	
	Binary transgender group	Non-binary transgender group	Binary transgender group	Non-binary transgender group
I am happy with my body as it is	0 (0%)	6 (17.1%)	19 (25.3%)	9 (30%)
I don't need it to feel more masculine/feminine	2 (25%)	7 (20%)	23 (30.7%)	9 (30%)
My environment does not approve of it	2 (25%)	7 (20%)	4 (5.3%)	4 (13.3%)
I am afraid of other people's reactions	3 (37.5%)	5 (14.3%)	4 (5.3%)	3 (10%)
It might affect my fertility	0 (0%)	2 (5.7%)	7 (9.3%)	3 (10%)
I am afraid of negative medical consequences	2 (25%)	7 (20%)	43 (57.3%)	13 (43.3%)
I think it might have a negative influence on my sex life	1 (12.5%)	5 (14.3%)	13 (17.3%)	5 (16.7%)
My doctor discourages it	0 (0%)	0 (0%)	3 (4%)	0 (0%)
It is too expensive	1 (12.5%)	2 (5.7%)	22 (29.3%)	7 (23.3%)
From a practical viewpoint it hasn't been convenient	0 (0%)	2 (5.7%)	14 (18.7%)	8 (26.7%)
I'm afraid I might regret it later	1 (12.5%)	4 (11.4%)	14 (18.7%)	10 (33.3%)
I don't entirely feel like a man/woman	0 (0%)	22 (62.9%)	5 (6.7%)	16 (53.3%)

GAMT = gender affirming medical treatment; GAHT = gender affirming hormone treatment; GAS = gender affirming surgery.
Note: Participants could indicate multiple answers.

DISCUSSION

The current study aimed to investigate differences in (motives for) gender affirming medical treatment desire between binary and non-binary transgender individuals, and to examine the relation between a(n) (un)fulfilled treatment desire and general and sexual well-being. Overall, we found that binary and non-binary transgender individuals differ little in the extent to which they desire GAMT, specifically GAS, and in the reasons for desiring this. Furthermore, we found that having an unfulfilled

Table 4. Group differences between FTD and UTD on gender dysphoria (UGDS), general life satisfaction (GLS), anxiety and depression (HADS), sexual satisfaction (GMSEX), transgender-specific body image worries (T-WORRY), and actual/ideal and actual/ought sexual self-concept discrepancies.

	FTD*M* (*SD*)	UTD*M* (*SD*)	*t*	*P*
Gender dysphoria	4.08 (.76)	4.27 (.59)	-2.07	.040
General life satisfaction	22.07 (7.22)	17.49 (7.00)	4.07	<.001*
Anxiety	7.352 (4.38)	9.47 (4.93)	-2.77	.006*
Depression	5.20 (3.97)	6.35 (3.79)	-1.88	.062
Sexual satisfaction	26.48 (7.76)	22.36 (9.51)	2.85	.005*
Transgender-specific body image worries	14.09 (5.64)	17.54 (6.33)	-3.51	<.001*
Actual/ideal sexual self-concept discrepancy	41.38 (27.73)	59.22 (27.15)	-4.03	<.001*
Actual/ought sexual self-concept discrepancy	37.81 (28.43)	56.05 (27.89)	-3.97	<.001*

*Significance threshold is $P < .006$ (Bonferroni correction: .05/8).
FTD = fulfilled treatment desire; *M* = mean; *SD* = standard deviation; UTD = unfulfilled treatment desire.

treatment desire is negatively associated with variables related to general and sexual well-being. We will discuss our findings in detail below.

Differences in Treatment (Desire) between Binary and Non-Binary Transgender Individuals

For both GAHT and GAS, the majority of our binary sample indicated having received and/or undergone these forms of GAMT, while the majority of the non-binary sample did not. This is in line with our prediction that non-binary participants would have undergone GAMT less often compared to binary participants. When it comes to treatment desire, we found that non-binary participants desired GAHT less often compared to binary participants, but we found no difference for GAS. The majority of both binary and non-binary participants indicated having a desire for GAS, contrary to our prediction that non-binary participants would not as often desire GAMT procedures. In our sample, this was driven by many non-binary participants (who mostly had a female sex assigned at birth) desiring mastectomy (breast removal).

The fact that many non-binary participants desired GAS suggests that the majority of both binary and non-binary participants had an Unfulfilled TD. This is especially striking in the non-binary group given the relatively low rates at which this group actually seeks GAMT. There seems a discrepancy between the rate at which non-binary transgender people report wanting GAMT, and the rate at which they receive this. Historically this could be explained by the diagnostic criteria for gender dysphoria (Eyssel et al., 2017), which in the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition*[39] and *International Classification of Diseases, 10th Revision*[40] explicitly stated that someone had to identify with the gender *opposite* to the one assigned at birth in order to receive the diagnosis. While this criterion has been abolished in the most recent updates of the DSM[8] and ICD,[41] several authors have argued that more recently GAMT is still relatively restricted for non-binary identifying individuals,[18] especially when healthcare providers assume 'traditional' trajectories for a transition.[42]

Finally, the 2 groups differed in the extent to which they reported having No TD. While the percentage of participants in the binary group was close to zero, about one in 5 non-binary participants indicated having No TD. While most non-binary individuals indicated that they have an Unfulfilled TD, there seems to be a considerable proportion that manages to live according to their gender identity without medical procedures (see also[24]). This finding highlights that having a transgender identity cannot be equated with having a desire for GAMT, and warrants individualized treatment procedures for transgender individuals.

Motives for Wanting Treatment

Previous research has suggested that non-binary transgender individuals suffer less from body dissatisfaction and gender incongruence than binary transgender individuals.[17] We therefore expected that binary and non-binary participants would report different motives for wanting GAMT, with non-binary participants less frequently mentioning motives related to body and/or gender dysphoria. This was however not confirmed: motives such as wanting to change one's body, wanting to feel more masculine or feminine, and wanting to be seen as a woman or a man by other people were most prevalent in both participant groups when it came to desiring GAHT. This is not necessarily in contradiction with Jones et al.'s[17] findings as it is plausible that although non-binary transgender people experience less body incongruence than binary transgender people, they still experience sufficient incongruence to prompt a desire for GAMT. The fact that non-binary transgender individuals struggle with body and/or gender dysphoria to such an extent that it prompts a desire for GAMT, implicates that this variable is an important therapeutic focus not only in binary identifying transgender individuals, but in non-binary individuals as well.

In the context of desiring GAS, binary participants reported similar motives as for wanting GAHT. Non-binary participants, however, often indicated that they wanted to change their body via surgery so it would be easier to wear the clothes that fit their gender identity. Van de Grift et al.[43] showed that in binary transgender men, mastectomy has positive effects that go beyond satisfaction with chest appearance, indicating that this procedure can have great social impact on people who desire it. By having a mastectomy, non-binary individuals can more easily wear certain clothes without looking feminine, not only increasing body satisfaction but facilitating gender affirmation in social interactions as well.

Several treatment motives were hardly selected by any of our participants. The least frequently selected motives related to norms and group assimilation. This suggests that our participants did not desire GAMT because they want to be part of a 'transgender group,' and that they did not feel peer pressure or want to be part of a trend. Finally, only a small group of our participants indicated that improving their sex life is and/or was a motive for desiring GAMT. While several studies have shown that GAMT can improve sexual well-being,[22,23] this does not seem to be the main reason for transgender individuals to undergo such treatment.

Motives for not Wanting Treatment

While most participants in our study had an UTD, a considerable part of the sample indicated not desiring (further) GAMT. We predicted that non-binary participants would indicate more often not having the need for GAMT, but, similarly to binary participants, they did not often select motives such as "I am happy with my body as it is" or "I don't need it to feel more masculine/feminine." This suggests that not having a treatment desire does not necessarily indicate satisfaction with one's body.[24] Instead, they most frequently indicated that not identifying within the gender binary is what keeps them from desiring GAMT. Many GAMT procedures target secondary sex characteristics, such as breasts in transgender women and facial hair in transgender men. For non-binary identifying transgender individuals, these characteristics might be considered undesirable because they do not fit their gender identity better than the sex characteristics associated with their sex assigned at birth.

In the binary sample, fear of medical consequences was often mentioned as a motive for not wanting GAS. This is possibly related to fact that especially masculinizing genital surgery (metoidioplasty and/or phalloplasty) may sometimes result in complications.[44,45] Therefore, transgender men in our sample might have opted not to pursue this GAMT step.

Relation between Treatment Desire and General and Sexual Well-being

We found that, compared to individuals with a Fulfilled TD, individuals with an Unfulfilled TD reported lower levels of general life satisfaction, sexual satisfaction, and more anxiety, body image worries, sexual satisfaction, and sexual self-concept discrepancies. They did not, however, report more gender dysphoria or depression.

These findings are in line with previous studies indicating that GAMT can improve general[19-21] and sexual well-being.[22,23] However, while most previous studies focus on the effects of GAMT in itself, this is one of the first studies that focuses on the fulfillment of treatment desire instead. While these two approaches are highly related, one could argue that the latter is more inclusive. For instance, as previously reported[11,18] and as shown in our sample, only a minority of non-binary transgender individuals will opt for GAHT. Studies investigating the effects of GAHT itself are therefore likely to miss out on the experiences of non-binary individuals. When studying (the fulfillment of) treatment desire and its effects on well-being, participants with more variable treatment paths and GAMT wishes should be included.

The finding that the group with an Unfulfilled TD scored lower on sexual well-being variables than the FTD group is in line with Nikkelen and Kreukels.[24] Interestingly, the Unfulfilled TD and Fulfilled TD groups did not differ on depression and gender dysphoria. Especially the lack of a difference on gender dysphoria is striking, as GAMT typically aims to alleviate gender dysphoria. Possibly, this is due to the proportion of participants that had already received GAMT in the Unfulfilled TD group, alleviating part of the gender dysphoria in this group. Another explanation is that even when individuals desire no further GAMT, they may still experience gender dysphoria to a certain degree. In any case, the lack of a difference on gender dysphoria indicates that a gender dysphoria score only cannot be considered a good indicator of an individual's need for GAMT.

Overall, the differences between the Unfulfilled TD and Fulfilled TD groups highlight the negative consequences of having an Unfulfilled TD for general and sexual well-being. Given that most participants reported having an Unfulfilled TD, this finding is worrisome. Our findings emphasize the importance of deconstructing treatment barriers for all transgender and gender diverse individuals. Previous research has shown that these barriers can be both personal (eg, unsupportive family members) and structural (eg, unsuited treatment protocols),[46] indicating the need for interventions aimed both at creating greater acceptance of gender diversity and at improving accessibility of GAMT at the level of health care providers.

Future Directions

Future research should aim to further understand why some transgender individuals are not accessing the treatment they desire, and how these individuals can cope with an unfulfilled treatment desire. Specifically, interventions targeting general and sexual well-being should be designed for individuals with an unfulfilled treatment desire. In this context, it would be useful to

investigate a larger sample with no treatment desire in order to map how they cope with gender incongruence without having GAMT. Additionally, research should target the development of interventions effective at removing treatment barriers, such as trainings for health care providers specifically aimed at understanding non-binary identities. Furthermore, we found in our study that very few individuals indicate motives related to norms or group assimilation as a reason for desiring GAMT. Since certain movements frame transgender identities as an 'ideology' or 'hype,' we consider it important that future research aims to replicate and expand our findings by specifically investigating these narratives. Finally, given the relatively high proportion of transgender men in our sample indicating fear of medical consequences as the main motive for not wanting GAS, future studies should aim at developing methods that lower the risk of medical complications associated with masculinizing genital surgery.[44,45]

Limitations

Although this is the first study to map differences in GAMT, treatment desire, and treatment motives between binary and non-binary transgender individuals as well as the consequences of an Unfulfilled TD in a transgender community sample, some limitations need to be taken into account. First, conducting the study via an online survey creates a selection bias, only reaching participants who feel comfortable in an online environment and have (private) access to internet. This resulted in a relatively young, Western sample, limiting generalizability. The snowball sampling method likely amplified this bias.[47] Second, while all questionnaires showed sufficient reliability in all subgroups, only our measures of transgender-specific body image worries and gender dysphoria were validated in transgender samples. The latter, unfortunately, is tailored towards binary identifying individuals (making it less appropriate and non-validated for non-binary individuals), although a revised version has recently been published.[48] We tailored all questions to be appropriate for binary and non-binary transgender individuals where needed. Nevertheless, we received feedback that the questionnaire was not always suitable for asexual or polyamorous individuals, and that our assessment of sexual orientation relied on a binary framework. This excludes perspectives of individuals who are attracted to non-binary individuals, or who are attracted to gender non-conformity, which we will take into account in future studies. Third, participants were allowed to leave questions open or leave the survey early, resulting in dropout throughout the survey. However, the dropout was relatively small (15%), and the participants who dropped out of the survey did not differ on any of the demographic or other variables compared to participants who did complete the entire survey.

CONCLUSION

In this online questionnaire study investigating GAMT desire (motives), the majority of binary and non-binary transgender participants indicated having an unfulfilled treatment desire. Both groups indicated that their motives for GAMT were mostly related to body and/or gender incongruence and a need for gender affirmation. Among those that reported not wanting (further) GAMT, binary participants mostly indicated this to be the case because of worries about medical consequences, while non-binary participants indicated that they desire no GAMT because of their non-binary identity. Finally, we found that having an unfulfilled treatment desire is related to lower levels of general and sexual well-being. This indicates that, just like binary transgender individuals, many non-binary transgender individuals have a desire for GAMT, and that not being able to receive GAMT has a negative effect on their mental health. Further efforts should be made to make GAMT accessible for all transgender individuals, regardless of gender identity.

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