

Internalized transphobia predicts worse longitudinal trend of body uneasiness in transgender persons treated with gender affirming hormone therapy: a 1-year follow-up study

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Abstract

Background: Given the relationship between interiorized stigma and body image, it could be hypothesized that high levels of internalized transphobia (IT) might predict higher levels of body uneasiness in subjects with gender dysphoria (GD) and worse improvement of body image after gender affirming hormone therapy (GAHT).

Aim: We sought to evaluate the relationship between IT and body uneasiness in subjects with GD and the role of IT in moderating the improvement of body image after GAHT.

Methods: In total, 200 individuals with GD performed the baseline assessment; 99 were re-evaluated 12 months after starting GAHT. At baseline participants were evaluated through a face-to-face interview and filled self-administered questionnaires to evaluate GD (Utrecht Gender Dysphoria Scale [UGDS]), IT attitudes (Attitudes Toward Transgendered Individuals [ATTI] Scale), body uneasiness (Body Uneasiness Test, part A [BUT-A]), and general psychopathology (Symptom Checklist 90-Revised [SCL 90-R]). The same questionnaires, except ATTI, were readministered at follow-ups.

Outcomes: Outcomes were based on measures of the associations between IT and baseline characteristics of the sample, the longitudinal trends of GD, body uneasiness, and general psychopathology; and IT as a moderator of the longitudinal trend of body uneasiness.

Results: At baseline, IT correlated with lower level of education, higher GD, and more severe body uneasiness. Longitudinal analyses showed significant improvements in GD, body uneasiness, and general psychopathology during GAHT. Moderation analysis confirmed that participants with more transphobic attitudes showed less improvement after GAHT with regard to body uneasiness ($b_{\text{Time} \times \text{ATTI}} = -.002, P = .040$). The Johnson-Neyman technique revealed that no significant improvement in body uneasiness was found for participants with ATTI scores lower than 71.14.

Clinical Implications: The presence of IT should be investigated in subjects with GD who require gender affirming treatments to provide specific interventions aimed at targeting this dimension.

Strengths and Limitations: Strengths of this study include the mixed cross-sectional and longitudinal design and the dimensional evaluation of the investigated constructs. Limitations include the small sample size and the limited follow-up. Furthermore, the effects of gender affirming surgery were not evaluated.

Conclusion: The association of IT with both baseline body uneasiness and the longitudinal course of this dimension highlighted the clinical significance of body uneasiness and the importance of making continuous efforts to improve education and information to fight societal stigmas.

Keywords: internalized transphobia; body image; body uneasiness; gender affirming hormone therapy; transgender; gender dysphoria.

Introduction

The terms transgender and gender nonconforming (TGN) encompass the wide spectrum of individuals whose gender identity differs from the one assigned at birth.^{1–3} Furthermore, TGN people may define themselves as binary or nonbinary depending on whether or not they fully identify as men or women.⁴ Some TGN people may experience clinical distress because of the incongruence between their gender identity and the gender assigned at birth, a condition referred to as gender dysphoria (GD) in the DSM-5.^{2,3} GD may be associated with different degrees of mental pain and depressive symptoms, and an increased suicide risk.^{5–7}

Within the possible sources of suffering in TGN people, body image can play a crucial role. The literature is unanimous in highlighting that some individuals may experience higher levels of body uneasiness as compared to cisgender individuals.^{8–11} Specifically, the construal of body uneasiness refers to a profound negative cognitive-affective attitude toward one's body that widens the concept of body dissatisfaction, including feelings of detachment from one's body, compulsive body checking, or avoidance of the body.¹² Considering that body image is a complex dimension dealing not just with physical appearance but also with one's self-concept of the body in social contexts,¹³ the profound body uneasiness that some TGN people may experience goes beyond dysphoria

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toward gender-related body parts^{14,15} and is associated with several psychiatric symptoms, including depression,^{16,17} suicide risk,^{18,19} self-harm,²⁰ social withdrawal,²¹ and pathological eating behaviors.^{8,22} For these reasons, the recovery of a healthy body image is considered a crucial target for the gender affirming path.^{21,23} Longitudinal studies have shown an overall improvement of body uneasiness after gender affirming treatments,^{15,24,25} and the percentages of regret after gender affirming paths are low.^{26,27} However, given the invasiveness and poor reversibility of gender affirming interventions, the identification of factors associated with a worse treatment response in terms of body satisfaction would have significant clinical implications.

Internalized transphobia (IT) is a construal that refers to the discomfort with one's own TGN identity that TGN people may experience as a consequence of the internalization of negative attitudes and prejudices from society.²⁸ According to the gender minority stress theory framework, which states that TGN individuals are subjected to unique stressors because of being part of a minority group, IT is a so-called proximal minority stress.²⁹ Indeed, stressors can be classified into 2 main groups, distal and proximal. Distal stressors occur because of one's minority status and include discrimination, nonaffirmation, and victimization, whereas proximal stressors are subjective experiences that derive from the internalization of negative messages and stereotypes and include not just IT, but also concealment of minority identity and fear of future rejection, victimization, and discrimination.³⁰ According to Hendricks and Testa, this internalized stigma is potentially the most damaging for TGN people as it reduces resilience in the face of negative events.²⁹ In line with this hypothesis, a growing body of literature has shown a deep association between IT and several indexes of psychological suffering in TGN people, including depression,^{31–34} suicide risk,^{33–37} anxiety,^{32,34} and substance abuse.³⁸ Specifically, according to the psychological mediation framework, IT seems to be the mediator in the relationship between distal minority stressors and mental health in TGN people.^{29,39,40} In particular, a profound and painful experience of shame is considered a core aspect of IT, which is deeply associated with psychological suffering³¹ and may begin to develop during the first moments that TGN people become aware of incongruence between their gender assigned at birth and gender identity.⁴¹

Assigned male at birth (AMAB) TGN individuals are generally considered more vulnerable than assigned female at birth (AFAB) individuals in terms of psychological distress. Indeed, previous research has demonstrated that AMAB TGN individuals show higher levels of anxiety and depression,^{33,42} greater substance abuse,⁴³ more pronounced gender dysphoric attitudes,⁴⁴ and worse body image.¹⁴ However, existing studies did not show any difference between TGN individuals based on their sex assigned at birth in terms of internalized transphobic attitudes.^{33,44}

According to the tripartite influence model proposed by Shroff and Thompson and Thompson et al.,^{45,46} body image is directly influenced by internalized societal appearance standards. In line with this model, internalized societal expectations and stigma significantly predicted negative body image in many exposed populations.^{16,47–50} In particular, Strübel et al.¹⁶ demonstrated that the internalization of muscular and thin ideal body images were serially associated with body shame and depression in TGN individuals, through the

mediation of body monitoring and appearance comparison, whereas Badenes-Ribera et al.⁴⁹ showed that higher levels of internalized homonegativity predicted greater body image dissatisfaction in sexual minority men. Moreover, Muratore et al. found that many aspects of the tripartite influence model might be useful in the comprehension of body dissatisfaction in TGN individuals, including thin- and muscularity-oriented ideals, especially when interpreted while taking into consideration minority stressors.⁵⁰ Given the profound interconnection of internalized stigma and societal expectations with the concept of body image, it could be hypothesized that TGN individuals with higher levels of IT might experience greater levels of body uneasiness. Furthermore, considering that gender-affirming interventions do not erode the core aspects of IT, specifically the idea of being ontologically wrong and shameful, it could be hypothesized that, in the presence of higher levels of IT, gender-affirming interventions might be less effective in terms of improvement of body image. To the best of our knowledge, no study ever evaluated the aforementioned hypotheses. Therefore, the main objectives of this mixed cross-sectional and longitudinal study were to explore the association between IT and body uneasiness before gender affirming treatments in subjects with GD, and the role of IT as a potential moderator of treatment response in terms of improvement of body image in this population.

Materials and methods

This mixed-design cross-sectional and longitudinal study was conducted at the Gender Clinic of the University of Florence. The adoption of a mixed design allowed an increase in the statistical power for the analyzes carried out on the baseline data, compared to a design in which only those who had also carried out the longitudinal evaluation were included. Prior to data collection, study procedures were fully explained. All individuals recruited for the present study were included in the cross-sectional analyses, while only those who applied to start gender affirming hormone therapy (GAHT) and underwent hormone therapy for at least 1 year were included in the longitudinal analyses. All participants provided a written informed consent to be enrolled in the study. The study protocol was approved by the Ethics Committee of the Institution.

Participants

Subjects were recruited between January 2019 and December 2021 in the context of the first evaluation carried out at the clinic, provided they met the following inclusion criteria: age over 18 years, diagnosis of GD according to the criteria of the DSM-5,² and written informed consent. The exclusion criteria were as follows: current or previous use of GAHT, previous gender affirming surgical procedures, and intersexual conditions and conditions that could hinder an adequate evaluation (intellectual disability, illiteracy, linguistic barriers, inability to give a proper consent). Participants who also met the following additional criteria were enrolled in the longitudinal part of the study and re-evaluated after 1 year of GAHT: participant's request to start GAHT, and presence of indications to GAHT in the absence of contraindications. In addition, all patients who were enrolled after December 2020 were excluded from all longitudinal analyses, since they had not yet completed 1 year of GAHT as of December 2021.

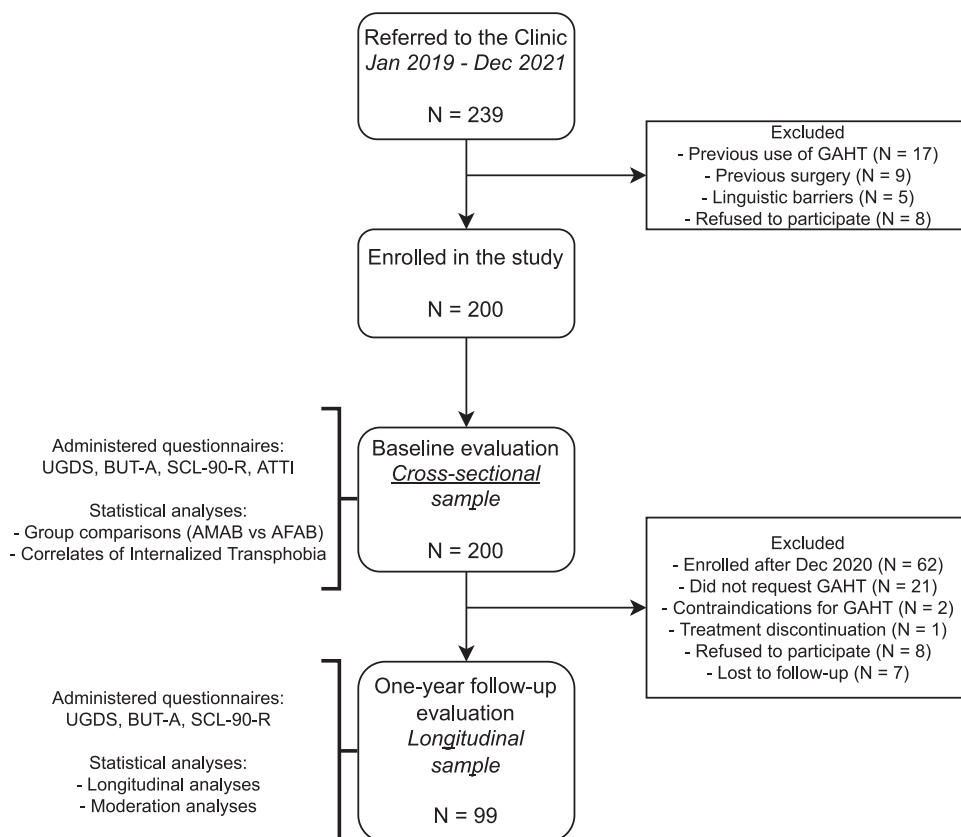


Figure 1. Study flowchart. AFAB, assigned female at birth; AMAB, assigned male at birth; ATTI, Attitudes Toward Transgendered Individuals Scale; BUTA, Body Uneasiness Test–A; GAHT, gender affirming hormone therapy; SCL-90-R GSI, Symptom Checklist 90-Revised Global Severity Index; UGDS, Utrecht Gender Dysphoria Scale.

Of the 239 patients initially referred to the clinic, 17 were excluded because of previous use of GAHT, 9 because of previous gender affirming surgical procedures, 5 because of linguistic barriers, and 8 because they refused to sign the informed consent. Of the 200 patients who performed the baseline evaluation, 101 were excluded from the longitudinal part of the study because 21 did not apply to start GAHT, 2 had contraindications, 1 discontinued the treatment prematurely, 8 refused to perform the follow-up evaluation, 7 were lost to follow-up, and 62 had not yet completed 1 year of GAHT as of December 2021. The study flowchart is illustrated in Figure 1.

According to the a priori power analysis, a longitudinal sample size of at least 82 was required to detect a small-to-medium interaction effect (Time*Group, $f = 0.15$) with a power of .90 ($\alpha = .05$) in a repeated measures ANOVA with 4 timepoints and 2 groups (low vs high internalized transphobic attitudes) assuming a correlation among within-subject measurements of at least .50. Since the use of continuous variables increases statistical power compared to the categorization approach,⁵¹ this power analysis offered a conservative estimate with respect to the analyses that were actually performed, where internalized stigma was not dichotomized.

Treatment

Following the international recommendations for gender affirming paths,^{52,53} multidisciplinary and individualized care was offered to all study participants. In particular, after the

assessment of the presence of GD performed by a psychiatrist and a psychologist, individuals who requested GAHT were evaluated by an endocrinologist to exclude the presence of medical contraindications for beginning GAHT. Health professionals provided information regarding the physical modifications associated with the beginning of this therapy. GAHT consisted of testosterone for AFAB individuals and both antiandrogens and estrogens for AMAB persons (details about the administered GAHT can be found in the Supplementary Materials). Regular evaluations of the hormonal levels and psychological wellbeing were performed after the eventual initiation of GAHT. All participants, regardless of whether or not they were administered GAHT, received psychological counseling. In the longitudinal subsample, no participant received gender affirming surgery during the follow-up period.

Assessment

Subjects were assessed during the first visit at the clinic (T0, baseline) and after 3 (T1), 6 (T2), and 12 (T3) months of GAHT; for organizational and logistical reasons, the follow-up assessments were carried out within a margin of 2 weeks from the due date. Both the initial and the follow-up evaluations were performed by a team of expert psychiatrists and psychologists. Sociodemographic and clinical data were collected through a face-to-face interview. In particular, information was collected regarding age, educational level, ethnicity, religion, presence of psychiatric conditions, and ongoing pharmacological treatments.

Measures

At T0, all participants completed the following self-administered tests:

- The Utrecht Gender Dysphoria Scale (UGDS)⁵⁴ is a 12-item screening measure for both adults and adolescents that is used extensively in gender clinics to assess gender dysphoria. The UGDS has 2 different forms that are administered on the basis of sex assigned at birth. Item scores range from 1 to 5, with a maximum total score of 60. Higher scores reflect greater levels of gender dysphoria. Reliability in the present sample was good (Cronbach's $\alpha = .81$).
- The Attitudes Toward Transgendered Individuals Scale (ATTI)⁵⁵ is used to assess IT. It consists of 20 items and each answer provides a score range of 5 points ranging from complete agreement to complete disagreement. Lower scores are linked to stronger transphobic attitudes. ATTI showed good reliability in the present sample (Cronbach's $\alpha = .86$).
- The Body Uneasiness Test, part A (BUT-A)¹² is used to evaluate body image-related psychopathology. It provides a Global Severity Index (BUT-A GSI), that is the average of the individuals scores reported for each of the items (ranging from 0 to 5), and 5 subscales, namely weight phobia, body image concerns, avoidance, compulsive self-monitoring, and depersonalization. Higher scores indicate greater body uneasiness. Reliability in the present sample was excellent (Cronbach's $\alpha = .92$).
- The Symptom Checklist 90-Revised (SCL 90-R)⁵⁶ is used to assess general psychopathology. It provides a global severity index (GSI) obtained by averaging the scores reported for each of the individual items, ranging from 0 to 4. Higher scores reflect greater levels of general psychopathology. This test showed a very high reliability in the present sample (Cronbach's $\alpha = .98$).

The same questionnaires, except ATTI, were readministered at follow-ups (T1, T2, and T3).

Statistics

Baseline data were compared between AFAB and AMAB individuals by means of ANCOVA, adjusting for age and education level. A similar analysis was used to test for any differences between patients who were included in the longitudinal sample and those who were not. The baseline difference in the proportion of nonbinary individuals between AFAB and AMAB was analyzed using the chi-square test. Multiple regression models were used in order to investigate the correlates of the ATTI Total Score, which was entered as an independent variable, with age and education level as covariates. Longitudinal data were analyzed by means of repeated-measures linear mixed models with random intercepts, and time (expressed in months of follow-up) was entered as a continuous independent variable in order to estimate a single regression coefficient. The AFAB/AMAB group and its interaction with time were also entered as fixed effects in the models, in order to investigate the possible differences between groups. Statistically significant interactions were probed using simple slope analysis, in order to determine the conditional effect in both groups. Similar models were used to test the moderation effect of transphobic attitudes on the longitudinal

course of all psychometric measures, with the Time*ATTI interaction effect in all models. For significant moderations, the Johnson-Neyman technique was used to determine the cutoff value of the ATTI score below which the time effect was no longer statistically significant (region of statistical significance).⁵⁷ All longitudinal models were adjusted for age and education. To describe the amount of variance explained, adjusted and conditional R^2 were computed.⁵⁸ Since mixed models use maximum likelihood estimation under the missing at random (MAR) assumption, all available data were used without the need to exclude cases for missing data.

All analyses were computed using R Statistical Software version 4.1.2,⁵⁹ and the following libraries: dplyr,⁶⁰ nlme,⁶¹ ggplot2,⁶² interactions,⁶³ and reghelper.⁶⁴

Results

The final sample consisted of 200 individuals (122 AFAB and 78 AMAB), of whom 99 were followed up for 12 months after starting hormone therapy (61 AFAB and 38 AMAB). No baseline significant differences were found between patients who were included in the longitudinal sample and those who were not (Supplementary Table S1). Out of the whole sample, 56 (28.0%) participants reported nonbinary gender identity recognitions, whereas 91 (45.5%) were transmen and 53 (26.5%) transwomen. All participants were of Caucasian ethnicity. Regarding religion, 112 (56.0%) participants were atheists/agnostics and the rest were Catholic. Baseline sociodemographic and clinical characteristics of the whole sample are reported in Table 1, divided between AFAB and AMAB. AFAB individuals had significantly higher levels of gender dysphoria and body image concerns, while AMAB individuals had a greater propensity for compulsive self-monitoring and reported higher levels of general psychopathology (Table 1).

Age and education-adjusted correlates of transphobia at baseline are reported in Table 2, with ATTI scores entered as independent variables. Positive attitudes toward TGN individuals correlated with higher level of education and lower gender dysphoria (Table 2). Moreover, participants with higher levels of transphobia showed more severe body uneasiness, as evidenced by higher BUT-A scores, particularly in the domain related to detachment and estrangement feelings toward one's own body (Table 2).

Longitudinal data are reported in Table 3. An amelioration of gender dysphoria levels over time was observed in both AFAB ($b = -.20$, $P = .019$) and AMAB ($b = -.60$, $P < .001$) participants, although the improvement of the latter group was greater as evidenced by the significant interaction effect (Table 3). A similar between-group difference in longitudinal course was observed for BUT-A Compulsive Self-Monitoring, with AMAB individuals showing greater improvements (AMAB: $b = -.08$, $P < .001$; AFAB: $b = -.05$, $P < .001$), whereas AFAB individuals showed a better trend regarding BUT-A Avoidance (AMAB: $b = -.05$, $P = .002$; AFAB: $b = -.09$, $P < .001$). All other variables showed significant improvement over the course of hormone therapy, with no differences between AFAB and AMAB (Table 3).

Considering the data collected at the last follow-up, higher baseline levels of IT significantly predicted the levels of body uneasiness ($\beta = -.46$, $P < .001$, $R^2 = .207$) and general psychopathology ($\beta = -.24$, $P = .034$, $R^2 = .037$)

Table 1. Baseline characteristics of the sample.

	AFAB (<i>n</i> = 122)	AMAB (<i>n</i> = 78)	<i>F</i> / χ^2
Age (years)	27.07 (9.29)	26.41 (8.71)	0.69
Education (years)	12.27 (3.20)	13.11 (3.23)	3.25
Nonbinary individuals	36 (29.5%)	20 (25.6%)	0.35
ATTI total score	91.62 (8.34)	93.27 (8.23)	2.06
UGDS total score	55.87 (4.26)	51.66 (6.89)	21.05***
BUT-A Weight Phobia	2.66 (1.00)	2.60 (0.91)	0.11
BUT-A Body Image Concern	3.54 (0.96)	3.16 (0.98)	5.01*
BUT-A Avoidance	2.04 (1.15)	1.78 (1.14)	1.67
BUT-A Compulsive Self-monitoring	1.45 (0.90)	2.05 (1.05)	23.26***
BUT-A Depersonalization	2.42 (0.90)	2.31 (1.05)	0.10
BUT-A Global Severity Index	2.54 (0.81)	2.45 (0.83)	0.23
SCL-90-R GSI	0.78 (0.61)	0.98 (0.65)	4.62*

AFAB, assigned female at birth; AMAB, assigned male at birth; ATTI, Attitudes Toward Transgendered Individuals Scale; BUT-A, Body Uneasiness Test-A; SCL-90-R GSI, Symptom Checklist 90-Revised Global Severity Index; UGDS, Utrecht Gender Dysphoria Scale.

Values reported as means (SDs) or as count (percentage), together with comparisons between AFAB and AMAB individuals adjusted for age and education level (with the exception of nonbinary identification). *F*-values/ χ^2 are reported, with their statistical significance indicated as follows: **P* < .05, ***P* < .01, ****P* < .001.

Table 2. Correlations of positive attitudes toward transgender.

	ATTI Total Score, β	Adjusted, <i>R</i> ²
Age	-.12	.008
Education	.20**	.032
UGDS Total Score	-.16*	.045
BUT-A Weight Phobia	-.03	.000
BUT-A Body Image Concern	-.11	.033
BUT-A Avoidance	-.13	.053
BUT-A Compulsive Self-monitoring	-.09	.057
BUT-A Depersonalization	-.22**	.112
BUT-A Global Severity Index	-.14*	.059
SCL-90-R GSI	-.04	.007

ATTI, Attitudes Toward Transgendered Individuals Scale; BUT-A, Body Uneasiness Test-A; SCL-90-R GSI, Symptom Checklist 90-Revised Global Severity Index; UGDS, Utrecht Gender Dysphoria Scale.

Individuals (ATTI Total Score) with baseline characteristics of the sample are reported as standardized regression coefficients (adjusted for age and education level) with their statistical significance indicated as follows: **P* < .05, ***P* < .01, ****P* < .001.

Table 3. Psychometric characteristics of the sample at all timepoints.

	Baseline <i>T</i> ₀	3 months <i>T</i> ₁	6 months <i>T</i> ₂	12 months <i>T</i> ₃	Time effect	AMAB effect	Time*AMAB effect	Conditional <i>R</i> ²
UGDS total score	54.61 (5.71)	53.30 (6.57)	53.45 (5.30)	50.53 (8.28)	-0.20*	-2.79*	-0.40**	.429
BUT-A Weight Phobia	2.73 (0.95)	2.07 (0.93)	2.24 (1.00)	2.02 (0.93)	-0.06***	-0.17	0.03	.613
BUT-A Body Image Concern	3.41 (1.01)	2.52 (1.14)	2.43 (1.09)	2.28 (1.11)	-0.10***	-0.60**	0.03	.631
BUT-A Avoidance	1.98 (1.17)	1.39 (1.05)	1.25 (1.01)	0.94 (0.85)	-0.09***	-0.51*	0.04*	.705
BUT-A Compulsive Self-monitoring	1.75 (1.07)	1.39 (0.96)	1.42 (0.96)	1.16 (0.87)	-0.03***	0.69***	-0.05**	.700
BUT-A Depersonalization	2.53 (1.00)	1.47 (1.07)	1.33 (0.96)	1.10 (0.96)	-0.12***	-0.23	0.02	.575
BUT-A Global Severity Index	2.60 (0.82)	1.86 (0.90)	1.83 (0.86)	1.61 (0.78)	-0.08***	-0.23	0.02	.664
SCL-90-R GSI	0.90 (0.60)	0.56 (0.51)	0.57 (0.47)	0.50 (0.51)	-0.03***	0.03	0.01	.664

AFAB, assigned female at birth; AMAB, assigned male at birth; BUT-A, Body Uneasiness Test-A; SCL-90-R GSI, Symptom Checklist 90-Revised Global Severity Index; UGDS, Utrecht Gender Dysphoria Scale.

Values reported as mean (SD), together with longitudinal analysis. Unstandardized time, AMAB group and time \times AMAB interaction effects are reported with their statistical significance indicated as follows: **P* < .05, ***P* < .01, ****P* < .001 (AMAB compared to AFAB).

after 12 months of GAHT, while there was no longer any correlation with the levels of gender dysphoria ($\beta = -.10$, $P = .384$, $R^2 = .002$).

Moderation analysis confirmed that among all participants, those with more transphobic attitudes showed less improvements after GAHT with regard to body uneasiness ($b_{Time*ATTI} = -.002$, $P = .040$, $R^2_{Conditional} = .672$), indicating that for each 10-unit increase in ATTI Total Score, there was a further decrease of .02 in BUT-A GSI score for each

month of treatment. The Johnson-Neyman technique revealed that no significant improvement in body uneasiness was found for participants with ATTI scores lower than 71.14 ($P > .05$). The conditional effect of time on body uneasiness at different levels of transphobic attitudes is illustrated in Figure 2. This moderation effect did not differ between AFAB and AMAB, as confirmed by a further model where a 3-way interaction was added ($b_{Time*ATTI*Group} < .001$, $P = .817$).

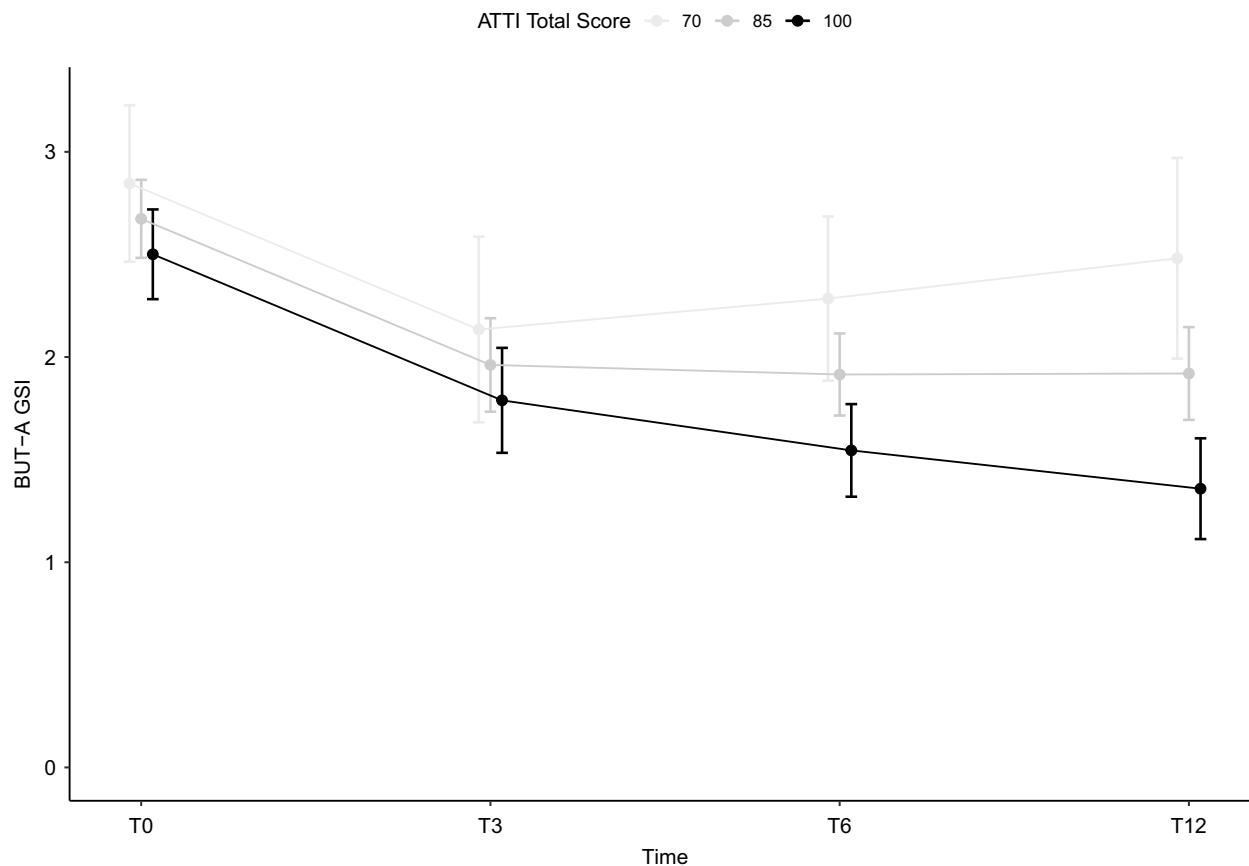


Figure 2. Longitudinal trend of body uneasiness during gender affirming hormone therapy, estimated for 3 levels of internalized transphobia: lower (ATTI total score = 100, black line), medium (ATTI total score = 85, dark grey line) and higher (ATTI total score = 70, light gray line). Error bars illustrate 95% CIs. Lower BUT-A GSI scores reflect lower levels of body uneasiness. ATTI, Attitudes Toward Transgendered Individuals Scale; BUT-A GSI, Body Uneasiness Test–A Global Severity Index.

No significant interaction effect was found for UGDS ($b_{Time*ATTI} = .008$, $P = .346$) or SCL-90-R GSI ($b_{Time*ATTI} < .001$, $P = .564$).

Discussion

To the best of our knowledge, this is the first study performed to investigate the relationship between IT and body uneasiness in a population of TGN people by using a mixed cross-sectional and longitudinal design.

Data at baseline showed that internalized transphobic attitudes correlated with more severe body uneasiness. Furthermore, IT was associated with lower levels of education and more intense GD. The relationship of IT with the number of years of schooling is in line with similar studies that highlighted the inverse association between educational level and prejudice in general and, more specifically, with internalized stigma in different areas.^{65–67} Regarding the relationship between IT and GD, the present results confirm the findings of previous studies highlighting that internalized negative attitudes toward TGN people can effectively exacerbate the suffering associated with gender incongruence.^{68,69} While the lack of association at baseline between IT and general psychopathology might seem contradictory, it is important to note that all participants in the study sample were diagnosed with GD according to DSM-5. As such, these individuals had

markedly higher levels of psychological distress compared to the general TGN population, and this may have prevented the observation of a correlation with IT levels. Indeed, after 12 months of GAHT and the consequent reduction in the levels of general psychopathology due to lower GD, a significant correlation emerged.

Comparisons at baseline based on gender assigned at birth confirmed what was previously observed about AMAB persons being more likely to show greater psychological distress,^{14,33,42} as they reported higher levels of general psychopathology. Furthermore, as previously observed, no differences based on gender assigned at birth were found in terms of IT.^{33,44} However, in contrast with other studies,^{14,44} gender dysphoric attitudes were less prevalent in AMAB individuals and no significant differences emerged in terms of body uneasiness between the 2 groups.

Longitudinal results showed a statistically significant reduction in the levels of GD, body uneasiness, and general psychopathology at the follow-up evaluation. In particular, AMAB persons showed a greater decrease in GD than AFAB. This result contrasts with previous observations suggesting that the transition process is more challenging for AMAB with respect to AFAB individuals.^{14,70,71} The apparently unexpected results regarding the comparisons between AMAB and AFAB may be explained by considering that nonbinary transgender individuals were included in the sample, who

showed specific characteristics in terms of levels of GD and bodily discomfort compared to individuals with binary gender identity recognition.^{72,73} Furthermore, the dimorphic standardization of the UGDS may have created difficulties in the determination of the levels of GD in the subgroup of nonbinary individuals, and the limits of this factor in the evaluation of GD in longitudinal studies have been extensively demonstrated.⁷⁴

Overall, longitudinal analysis confirmed the very well-known efficacy of GAHT in reducing mental distress in TGN individuals who require it.^{24,75} However, for the first time this study showed that no significant improvement in body uneasiness occurred in individuals with high levels of IT. Given the centrality of the relationship with one's body in some people suffering from GD,² the construct of body uneasiness can be considered one of the primary indicators of psychological suffering in this population. Consequently, the evaluation of the progress of body uneasiness before and after gender affirming treatments is of fundamental clinical interest. Previous studies in the field already showed a decrease in the levels of body uneasiness during GAHT:^{15,24,25} however, body uneasiness levels remained significantly higher than those found in cis-gender populations.^{11,12,76} Understanding the role of IT as an outcome moderator during GAHT allows clinicians who support TGN people to begin to close this gap. As shown in Figure 2, the differences in the time course of body uneasiness due to IT were more evident in the last months of follow-up, compared to a similar initial trend in the first 3 months after the start of GAHT. This particular trend is probably linked to the fact that in the first months some bodily changes are still in the initial stage²⁴ and the enthusiasm for the initiation of GAHT prevails. However, as the therapy progresses, the presence of internalized transphobic attitudes might become increasingly relevant in determining body uneasiness as the more and more evident coexistence of the characteristics of both the assigned gender at birth and the experienced gender may highlight one's belonging to the "TGN world," and this may result in suffering when IT is high.

The association between IT and body uneasiness is in line with the tripartite influence model according to which the relationship with one's body is deeply influenced by sociocultural factors.^{45,46} In particular, this association confirms the importance of the internalization of body image ideals.^{45,46} However, this finding supports the hypothesis that, in TGN individuals, specific sociocultural factors related to minority stressors should be taken into consideration when evaluating the problem of negative body image, suggesting that adaptations of a tripartite influence model might be necessary in this population.⁵⁰ In particular, as demonstrated by Muratore et al.,⁵⁰ in TGN individuals the internalization of thin- and muscularity-oriented ideals should not be considered per se, as in cis-gender individuals^{45,46} but in light of its association with minority stressors, including victimization, rejection, and discrimination. The results of the present study expand this concept and highlight the importance of the internalization of the stigma associated with the discrepancy between gender identity and bodily characteristics in maintaining body uneasiness over time.

The role of IT as a moderator of the effects of GAHT in determining an improvement of body uneasiness leads to 2 main considerations that involve both sociopolitical and clinical levels. First, it draws attention on the importance

of the biopsychosocial model as a holistic template for the clinical management of GD, highlighting that minority stressors have a role not just as risk factors for the development of psychological suffering in TGN persons,²⁹ but also in determining reduced response to gender-affirming treatments. Therefore, these findings underscore the importance of a profound ideological and cultural effort aimed at modifying societal stigma and discrimination against gender diverse people, promoting gender inclusive values, giving a proper education against violence at any level, and increasing support by families.^{77,78} Furthermore, the erosion of IT at an individual level necessarily requires programs aimed not just at modifying distal determinants of internalized transphobic attitudes, but also at targeting the mechanisms that maintain IT in the single person. In particular, the integration of gender-affirming therapies with psychological interventions aimed at specifically addressing IT and the associated profound experiences of shame and guilt might be of major clinical interest. The adaptation of existing treatments with solid empirical evidence of efficacy to address this specific dimension would be promising to properly meet the health needs of TGN individuals with high levels of internalized transphobic attitudes. In line with this hypothesis, previous studies showed the effectiveness of adaptations of cognitive-behavioral and dialectical-behavioral strategies in addressing internalized stigma in sexual minorities.^{79,80} Furthermore, interventions addressing early adverse experiences linked to the internalization of dysfunctional self-beliefs, such as Eye Movement Desensitization and Reprocessing,⁸¹ might be useful for modifying the experiences of shame and self-hatred associated with internalized transphobic attitudes.⁸² Overall, these results represent a step in the direction of precision medicine and psychiatry, highlighting the importance of a psychological evaluation of TGN individuals who require gender-affirming treatments to identify factors that might require specific and personalized care, such as IT.

Strengths of this study include the mixed cross-sectional and longitudinal design and the dimensional evaluation of the investigated constructs. However, the following limitations should be considered. First, the study is limited by the small sample size and the short follow-up period. The study was underpowered for performing additional analyses concerning the subgroup of nonbinary individual, and for investigating the role of gender identity in moderating the results of the main analyses. Furthermore, the effects of gender affirming surgery have not been evaluated in this study, because participants who had undergone this type of surgery were excluded. Moreover, IT was considered only as a moderator of the trends over time of other variables and therefore was measured only at baseline in the present study. Finally, the use of UGDS for longitudinal assessments has been criticized due to the way some items are formulated, as it was not made for measuring changes in gender dysphoria.⁷⁴ However, the assessment was comprehensive, and scales investigating different psychopathological domains were used. The fact that a progressive reduction over time was observed in all dimensions supports the hypothesis that study participants improved.

Future studies may evaluate the trend of IT over time during the gender affirmation process, possibly in the presence of specific interventions aimed at IT reduction. Moreover, longer-term follow-up studies may confirm the effects observed in the present study, and larger samples may allow for subanalyses

of other therapy outcomes (eg, gender affirming surgery) and additional putative moderating factors, such as gender identity.

Conclusions

In conclusion, this study demonstrated the presence of an association of IT both with baseline body uneasiness and with the longitudinal course of this dimension in subjects with GD. In particular, it showed that in the presence of high levels of IT, individuals did not experience amelioration in terms of body image after GAHT, highlighting the importance of addressing IT at both an ideological and cultural level, promoting gender inclusive values and making continuous efforts to improve education and information to fight societal stigma, and at an individual level, providing TGN persons with high levels of IT who require gender affirming treatments with specific psychological therapies aimed at targeting this dimension.

Supplementary material

Supplementary material is available at *The Journal of Sexual Medicine* online.

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