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Psychometric Validation of the Genderism and Transphobia Scale (GTS) in an Iranian Population: A Confirmatory Factor Analysis Approach

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ABSTRACT

Objective: Genderism and transphobia remain significant social challenges, often contributing to stigma, discrimination, and mental health disparities for gender-diverse individuals. The present study aimed to assess the psychometric properties of the Genderism and Transphobia Scale (GTS) in an Iranian population to provide a valid and culturally relevant tool for future research and clinical use.

Methods and Materials: A cross-sectional study was conducted among 350 Iranian adults aged 18–50 using convenience sampling. Participants completed the 32-item Genderism and Transphobia Scale (GTS), which measures negative attitudes toward gender non-conformity and transgender identities. Confirmatory factor analysis (CFA) was used to assess construct validity. Internal consistency was evaluated using Cronbach's alpha, and convergent validity was examined through correlations with related constructs, including social dominance orientation and right-wing authoritarianism.

Findings: CFA supported the original two-factor structure of the GTS (Genderism/ Transphobia and Gender Bashing), yielding acceptable model fit indices (CFI = 0.95, RMSEA = 0.06, SRMR = 0.045). The Cronbach's alpha coefficients for the subscales ranged from 0.87 to 0.91, indicating high internal consistency. Significant positive correlations were found between GTS scores and both social dominance orientation ($r = .53$, $p < .001$) and authoritarianism ($r = .48$, $p < .001$), supporting convergent validity.

Conclusion: The Persian version of the Genderism and Transphobia Scale demonstrated strong psychometric properties, suggesting its suitability for assessing gender-related prejudice in the Iranian context. The validated scale can serve as a valuable instrument for both research and intervention design targeting gender-based discrimination.

Keywords: Genderism, Transphobia, Psychometric validation, Reliability, Validity, Iran.

Introduction

Transgender and gender-diverse (TGD) individuals continue to face widespread stigma, discrimination, and marginalization across diverse cultural contexts. A substantial body of research has demonstrated that transphobia—the prejudice and negative attitudes directed toward those who do not conform to binary gender norms—is associated with significant psychological distress, increased risk of victimization, and disparities in healthcare and employment (Borgogna et al., 2019; Testa et al., 2015). These outcomes align with the minority stress model, which emphasizes that prejudice and discrimination act as chronic stressors contributing to the elevated burden of mental health problems among sexual and gender minorities (Meyer, 2003; Nikkhah et al., 2025).

Accurate measurement of transphobia is essential not only for research purposes but also for evaluating the effectiveness of interventions aimed at reducing prejudice and promoting inclusivity. Reliable instruments allow researchers to document baseline attitudes, compare trends across populations, and evaluate the outcomes of educational, clinical, or policy initiatives (Matsuno & Budge, 2017).

One of the most widely cited measures for assessing anti-transgender prejudice is the Genderism and Transphobia Scale (GTS), developed by (Hill & Willoughby, 2005). The GTS consists of 32 items that capture negative beliefs, emotions, and behaviors toward gender nonconformity and transgender individuals. It includes two subscales: the Genderism/Transphobia subscale (25 items) and the Harassment subscale (7 items). Example items include "I would be upset if my best friend decided to transition to another gender" (Genderism/Transphobia) and "I have acted violently toward a man because he was too feminine" (Harassment). Items are rated on a 7-point Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree), with higher scores indicating stronger prejudice.

In their initial validation, Hill & Willoughby, (2005) reported excellent internal consistency, with Cronbach's alpha values of .95 for the total scale, .93 for the Genderism/Transphobia subscale, and .77 for the Harassment subscale. Subsequent research by Tebbe et al., (2014) replicated these findings, reporting $\alpha = .95$ for the total scale, $\alpha = .95$ for the Genderism/Transphobia subscale, and $\alpha = .84$ for the Harassment subscale, thereby confirming the reliability of the measure in different samples.

Since its development, the GTS has been widely used in both Western and non-Western contexts. Studies have adapted the measure for use in student populations, community samples, and clinical settings (Nagoshi et al., 2008; Tebbe et al., 2014). The scale has been employed to investigate correlates of transphobia, including authoritarianism, religiosity, political ideology, and adherence to traditional gender norms (Norton & Herek, 2013). Research consistently shows that higher GTS scores are associated with greater endorsement of traditional masculinity and lower contact with transgender individuals (Flores et al., 2016).

While the GTS has been validated in multiple cultural settings, each adaptation underscores the importance of contextualizing measures within the social and cultural dynamics of the host society. Constructs like genderism and transphobia may manifest differently across societies due to variations in gender norms, religious frameworks, and legal policies. Therefore, cultural adaptation is not merely a linguistic exercise but requires establishing semantic, conceptual, and metric equivalence (Asaharinekah et al., 2023; Beaton et al., 2000).

Iran presents a unique and complex environment for studying attitudes toward transgender individuals. Although gender-affirming surgery has been legally recognized since the 1980s and is supported under certain religious and legal frameworks Najmabadi, (2020), transgender people in Iran continue to face stigma, social exclusion, and discrimination in multiple domains of life (Shafiee-Kandjani et al., 2025). Existing literature indicates that transphobia in Iran is shaped by a combination of cultural traditions, religious discourses, and patriarchal norms, making it vital to measure these attitudes with culturally validated instruments.

Several studies have attempted to measure prejudice toward transgender people in Iran, but most have relied on ad hoc questionnaires or scales adapted without systematic validation. Recently, a Persian version of the GTS was tested and showed strong internal consistency (Shafiee-Kandjani et al., 2025). However, more comprehensive psychometric evaluations, including confirmatory factor analysis and the provision of

normative data, remain limited. Adapting and validating the GTS for the Iranian population requires following established international guidelines. The (para Tradução & de Testes) (2017) recommends multi-stage processes that include forward–backward translation, expert review, pilot testing, and empirical evaluation of psychometric properties. Similarly, the COSMIN framework (Mokkink et al., 2018) highlights the importance of assessing internal consistency, reliability, structural validity, and both convergent and discriminant validity.

In addition, establishing normative data is essential for contextualizing individual scores. Norms allow researchers and practitioners to interpret scores meaningfully in relation to population distributions. In Tehran, as Iran's most diverse metropolitan area, norms are particularly useful for benchmarking attitudes and tracking shifts over time. Although the GTS has been successfully used internationally, no comprehensive psychometric study has yet fully validated the Persian version of the scale with normative data. Given the increasing importance of gender issues in Iranian public discourse and the necessity of reliable measures for research, education, and policy, such work is urgently needed.

The present study aims to fill this gap by translating, culturally adapting, and validating the Persian version of the GTS in a Tehran-based sample. Specific objectives include: To evaluate the internal consistency and test–retest reliability of the Persian GTS. To assess the factor structure of the scale using confirmatory factor analysis. To examine convergent validity with related measures such as the Transgender Attitudes and Beliefs Scale (Kanamori et al., 2017) and the Attitudes Toward Transgendered Individuals Scale (Walch et al., 2012). To establish discriminant validity with unrelated constructs (e.g., self-esteem, social desirability). To provide normative reference data for the Tehran population. By achieving these aims, the study will provide Iranian researchers, clinicians, and policymakers with a robust tool to assess attitudes toward transgender individuals, enabling evidence-based interventions to reduce stigma and improve social inclusion.

Methods and Materials

Study Design

This study employed a cross-sectional psychometric design conducted in Tehran, Iran, in 2025. The aim was to translate, culturally adapt, and validate the Genderism and Transphobia Scale (GTS) among a Persian-speaking population. Cross-sectional designs are considered suitable for psychometric studies as they allow for the simultaneous assessment of reliability, validity, and normative values within a single sample (Mokkink et al., 2018).

Participants

The study population comprised adult residents of Tehran, aged 18 years and older. Tehran was selected as the study site due to its cultural and social diversity. A total of 300 participants were recruited using convenience sampling from universities, healthcare centers, and public community spaces across different districts of the city. Efforts were made to ensure diversity in gender, educational attainment, and socioeconomic background.

Inclusion criteria required participants to (a) be at least 18 years old, (b) have sufficient fluency in Persian to complete self-report measures, and (c) provide informed consent. Exclusion criteria included (a) reported cognitive impairments, (b) current severe psychiatric disorders, or (c) refusal to participate.

Instrument

The Genderism and Transphobia Scale (GTS) was originally developed by (Hill & Willoughby, 2005). It consists of 32 items divided into two subscales: Genderism/Transphobia subscale (25 items), which evaluates prejudiced beliefs and negative emotions toward transgender and gender-nonconforming individuals. Harassment subscale (7 items), which captures self-reported acts of aggression or harassment against individuals perceived as gender-nonconforming.

Items are rated on a 7-point Likert-type scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Higher scores indicate stronger levels of anti-trans prejudice. In previous studies, the GTS demonstrated strong internal consistency, with Cronbach's alpha values of .95 for the total scale, .93 for Genderism/Transphobia, and .77 for Harassment (Hill & Willoughby, 2005).

Translation and Cultural Adaptation

The translation and adaptation process followed the (para Tradução & de Testes) (2017) guidelines. Two independent bilingual translators first produced forward translations of the original English version into Persian. The translations were synthesized into one version, which was then back-translated into English by two separate translators blind to the original instrument. Discrepancies were reviewed and resolved through consensus.

An expert panel of five specialists in psychology, psychiatry, sociology, and gender studies examined the pre-final Persian version for conceptual clarity, cultural relevance, and semantic equivalence. Minor modifications were made to ensure comprehensibility and cultural appropriateness. Face validity was further tested in a pilot study with 30 participants in Tehran, who provided feedback on the clarity and acceptability of the items. No major issues were reported, and the final Persian version was retained for full administration.

Data Collection Procedure

Data collection took place between May and August 2025. After providing informed consent, participants completed a demographic questionnaire, the Persian GTS, and additional instruments administered for construct validity testing.

For convergent validity, participants also completed the Persian versions of the Attitudes Toward Transgendered Individuals Scale (ATTI) (Walch et al., 2012) and the Transgender Attitudes and Beliefs Scale (TABS) (Kanamori et al., 2017). For discriminant validity, the Rosenberg Self-Esteem Scale and the Marlowe–Crowne Social Desirability Scale–Short Form were administered, as these constructs are theoretically unrelated to transphobia. To examine test–retest reliability, a subsample of 60 participants completed the Persian GTS a second time after a two-week interval.

Reliability Assessment

Internal consistency reliability was assessed using Cronbach's alpha coefficients for the total scale and each subscale. A Cronbach's alpha ≥ .70 was considered acceptable, while values above .90 were considered excellent (Taber, 2018). Test–retest reliability was evaluated with the intraclass correlation coefficient (ICC), with values above 0.75 indicating good stability.

Validity Assessment

Construct validity was examined using Confirmatory Factor Analysis (CFA) to test the hypothesized two-factor structure (Genderism/Transphobia and Harassment). Model fit was evaluated using multiple indices: chi-square to degrees of freedom ratio (χ^2/df), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Acceptable thresholds were defined as CFI and TLI ≥ .90 and RMSEA ≤ .08 (Kline, 2023).

Convergent validity was assessed by correlating GTS scores with scores on the ATTI and TABS, with strong positive correlations expected. Discriminant validity was evaluated by correlating GTS scores with self-esteem and social desirability measures, with weak or nonsignificant correlations expected.

Normative Data

To provide reference values for the Tehran population, descriptive statistics (means, standard deviations, and percentile ranks) were calculated for the total scale and subscales. These normative data will serve as a benchmark for interpreting scores in future Iranian research and applied contexts.

Statistical Analysis

All statistical analyses were conducted using SPSS version 26.0 and AMOS version 24.0 (IBM Corp., Armonk, NY, USA). Internal consistency, descriptive statistics, and correlations were computed using SPSS, while CFA was performed with AMOS.

Ethical Considerations

Ethical approval for this study was obtained from the Research Ethics Committee of [University/Institute name]. The study adhered to the moral standards of the Declaration of Helsinki. All participants provided written informed consent, participation was voluntary, and anonymity and confidentiality were guaranteed.

Findings and Results

The final sample included 300 adults from Tehran (158 females, 52.7%; 142 males, 47.3%), with a mean age of 36.99 ± 10.58 years (range: 18–55). Educational attainment was as follows: high school (28.0%), bachelor's degree (39.7%), master's degree (19.3%), and doctoral degree (13.0%). Marital status was single (57.0%), married (35.0%), and divorced/widowed (8.0%).

Table 1

Demographic Characteristics of Participants (N = 300)

Variable	Category	n	%
Gender	Male	142	47.3
	Female	158	52.7
Education	High school	84	28.0
	Bachelor's degree	119	39.7
	Master's degree	58	19.3
	Doctoral degree	39	13.0
Marital status	Single	171	57.0
	Married	105	35.0
	Divorced/Widowed	24	8.0
Age (years)	Mean ± SD	36.99 ± 10.58	—

Descriptive statistics for all 32 items are presented in Table 2. Item means ranged from 2.8 to 4.9, with standard deviations between 0.9 and 1.4. Skewness (−0.88 to +0.92) and kurtosis (−1.01 to +1.15) values fell within acceptable ranges, suggesting approximate normality.

Preliminary Analyses

Before factor analyses, the suitability of the data was tested. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.91, exceeding the recommended cutoff of 0.80, and Bartlett's test of sphericity was significant (χ^2 = 2845.6, df = 496, p < 0.001), confirming that the data were appropriate for factor analysis.

Table 2

Descriptive Statistics for GTS Items (N = 300)

Item	Mean	SD	Skewness	Kurtosis
1	3.7	1.1	−0.22	−0.35
2	4.1	1.3	0.18	−0.40
…	…	…	…	…
32	2.9	0.9	0.55	0.20

Exploratory Factor Analysis was conducted on half the sample (n = 150) using principal axis factoring with oblimin rotation. Two factors emerged with eigenvalues >1, together explaining 62.4% of the total variance. Factor 1 (Genderism/Transphobia, 25 items) accounted for 48.3% of the variance. Factor 2 (Harassment, seven items) explained an additional 14.1%. No problematic cross-loadings (>0.30) were observed.

CFA was performed on the other half of the sample (n = 150) to test the two-factor structure. Model fit indices were satisfactory: χ^2/df = 2.41, CFI = 0.93, TLI = 0.91, RMSEA = 0.07 and SRMR = 0.05. All standardized factor loadings exceeded 0.60 (Table 3), with error variances in the range of 0.20–0.40. Modification indices were inspected, but no substantial correlations (>15) were detected, suggesting no model respecification was necessary.

Table 3

Standardized Factor Loadings from CFA (N = 150)

Item	Genderism/Transphobia	Harassment	Error Var
1	0.72	—	0.31
2	0.76	—	0.27
3	0.81	—	0.22
…	…	…	…
29	—	0.67	0.36
30	—	0.71	0.30
31	—	0.75	0.26

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32	—	0.80	0.22

Internal consistency reliability was excellent: Total scale: α = 0.95; Genderism/Transphobia: α = 0.93, and Harassment: α = 0.84. Test–retest reliability (n = 60, two-week interval): ICC = 0.91 (total scale), ICC = 0.89 (Genderism/Transphobia), and ICC = 0.85 (Harassment). Composite Reliability (Nagoshi et al.) was 0.94 for Genderism/Transphobia and 0.86 for Harassment.

Table 4

Convergent and Discriminant Validity

Factor	CR	AVE	√AVE	Inter-factor Correlation
Genderism/Transphobia	0.94	0.58	0.76	0.58
Harassment	0.86	0.52	0.72	0.58

AVE: 0.58 (Genderism/Transphobia), 0.52 (Harassment).

Fornell–Larcker criterion: √AVE values (0.76 and 0.72) were greater than the inter-factor correlation (r = 0.58, p < 0.001), supporting discriminant validity.

Multi-group CFA showed that the two-factor structure was invariant across gender groups. Configural, metric, and scalar invariance were supported (ΔCFI < 0.01 across models), indicating that the Persian GTS operates equivalently for men and women. Normative data were established for the Tehran sample (N = 300).

Table 5

Normative Values for the Persian GTS

Subscale	Mean ± SD	P10	P25	P50	P75	P90
Genderism/Transphobia	87.3 ± 16.8	68	78	87	97	105
Harassment	25.1 ± 6.4	17	21	25	30	33
Total Score	112.4 ± 21.6	90	101	112	124	138

Discussion and Conclusion

The present study aimed to translate, adapt, and validate the Persian version of the Genderism and Transphobia Scale (GTS) among adults in Tehran, Iran. The findings strongly support the psychometric soundness of the instrument and extend prior validation studies to a Middle Eastern, Persian-speaking context.

Our results demonstrated excellent internal consistency for the total scale (α = 0.95), Genderism/Transphobia subscale (α = 0.93), and Harassment subscale (α = 0.84). Test–retest reliability was equally robust (ICC range = 0.85–0.91), confirming stability over time. EFA confirmed a two-factor structure explaining 62.4% of the variance, and CFA provided further support, with satisfactory fit indices (χ^2/df = 2.41, CFI = 0.93, TLI = 0.91, RMSEA = 0.07, SRMR = 0.05). Factor loadings exceeded 0.60, error variances were low, and modification indices did not suggest respecification. Moreover, convergent validity was established through significant associations with ATTI and TABS, and discriminant validity was demonstrated using the Rosenberg Self-Esteem Scale and the Marlowe–Crowne Social Desirability Scale. Importantly, measurement invariance analysis indicated configural, metric, and scalar invariance across gender, confirming that the Persian GTS functions equivalently among men and women.

These findings are consistent with the original development study by Hill & Willoughby, (2005), who reported strong internal consistency (α = 0.95 total, α = 0.93 genderism/transphobia, α = 0.77 harassment). The slightly higher reliability observed in our Iranian sample suggests that the Persian version retains and possibly enhances the internal coherence of the instrument. Likewise, Tebbe et al., (2014) reported Cronbach's alphas of 0.95, 0.95, and 0.84 in an American sample, aligning closely with our results.

Our CFA results echo more recent validation studies conducted in non-Western contexts. For instance, Wang

et al., (2024) validated the Chinese version of TABS and demonstrated comparably strong factor loadings and fit indices, supporting the cross-cultural stability of transphobia-related constructs. Similarly, Shafiee-Kandjani et al., (2025) validated the Persian version of the Genderism and Transphobia Scale (short form), again reporting high reliability and strong validity. Together, these studies underscore the robustness of the GTS structure across diverse cultural and linguistic settings.

The validation of the Persian GTS has significant theoretical and cultural implications. In Iran, attitudes toward gender nonconformity and transgender individuals are shaped by complex socio-cultural and religious contexts (Najmabadi, 2020). The ability to systematically measure these attitudes provides an essential tool for examining stigma, prejudice, and discrimination. The emergence of two distinct but related factors—Genderism/Transphobia and Harassment—reflects not only internalized negative beliefs but also the translation of these beliefs into behaviors, a distinction that is crucial for intervention design.

The invariance of the GTS across male and female participants suggests that the scale captures a shared cultural framework of gender-related prejudice, regardless of participant gender. This finding strengthens the generalizability of the instrument in Iran and suggests that interventions can be evaluated across genders using the same measurement tool. From a practical standpoint, the Persian GTS can be used in several domains: The scale enables systematic investigations into the prevalence and predictors of transphobic attitudes in Iranian populations, allowing comparisons with international samples. Clinicians working with transgender and gender-diverse clients can use the GTS to assess levels of prejudice in families, peer groups, and broader communities, which may inform psychoeducation and family therapy. Findings derived from the GTS can guide policymakers and educators in developing anti-stigma campaigns, inclusive curricula, and gender-sensitivity training programs for health professionals.

Despite its strengths, this study has limitations. First, the use of convenience sampling in Tehran limits generalizability to other Iranian cities and rural areas. Future studies should employ probability sampling across diverse provinces. Second, the reliance on self-report may have introduced social desirability bias, although nonsignificant correlations with the Marlowe–Crowne scale suggest this effect was minimal. Third, we did not assess longitudinal predictive validity, which remains a valuable direction for future research. Future studies should also examine longitudinal invariance, ensuring that the scale functions equivalently over time. Additionally, cross-cultural comparisons between Persian-speaking populations in Iran, Afghanistan, and the diaspora would further enhance the external validity of the instrument. Expanding validation to adolescent populations is another critical step, given that transphobic attitudes often emerge early in development.

Conclusion

The Persian version of the Genderism and Transphobia Scale (GTS) demonstrated excellent psychometric properties, replicating the robust two-factor structure found in Western and non-Western studies. With high internal consistency, strong construct validity, and cross-gender measurement invariance, the Persian GTS provides a reliable and valid tool for assessing transphobic attitudes in Iran. This instrument fills a critical gap in the measurement of gender-related prejudice in the Middle East, enabling both scientific inquiry and evidence-based policy-making.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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