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Psychometric Evaluation and Normative Validation of the Beliefs and Attitudes Toward Transgenderism Scale in an Iranian Population

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ABSTRACT

Objective: This study aimed to translate, adapt, and psychometrically validate the beliefs and attitudes toward transgenderism scale in an Iranian population. The instrument offers a more comprehensive conceptualization of attitudes toward transgender people than earlier measures.

Methods and Materials: A methodological cross-sectional study was conducted in 2025 in Tehran. The study population consisted of adults from different districts of the city, recruited through community centers and universities. A total of 238 participants completed the Persian version of the scale, which contains 33 items across three subscales: Interpersonal Comfort (16 items), Sexual/Gender Beliefs (11 items), and Human Value (6 items). Translation and cultural adaptation followed forward–backward procedures. Internal consistency was examined using Cronbach's alpha, while construct validity was assessed via confirmatory factor analysis (CFA). Convergent validity was tested using the Individual Transgender Attitudes Scale and the Genderism and Transphobia Scale. Discriminant validity was evaluated against the Rosenberg Self-Esteem Scale and the Marlowe–Crowne Social Desirability Scale–Short Form.

Findings: Cronbach's alpha coefficients indicated excellent internal consistency ($\alpha = 0.97$ for Interpersonal Comfort, $\alpha = 0.95$ for Sexual/Gender Beliefs, and $\alpha = 0.94$ for Human Value). CFA confirmed the original three-factor structure with acceptable fit indices. Strong correlations with related constructs demonstrated convergent validity, whereas weak links with unrelated measures confirmed discriminant validity.

Conclusion: The Persian version of the Beliefs and Attitudes Toward Transgenderism Scale demonstrates strong reliability and validity for use in Tehran. This tool can support research, clinical practice, and social policy by providing a standardized measure of attitudes toward transgender issues.

Keywords: Transgenderism, Attitudes, Psychometrics, Reliability, Validity, Iran.

Introduction

Attitudes toward transgender and gender-diverse (TGD) individuals constitute a critical area of social and health research. Growing evidence indicates that negative beliefs and prejudices toward TGD people contribute to a wide range of health disparities, including higher rates of depression, suicidality, and reduced access to adequate healthcare (Azagba et al., 2025; Nikkhah et al., 2025). The persistence of stigma and discrimination also undermines social integration, employment opportunities, and legal protections, making the systematic study of public attitudes essential for informing both practice and policy.

Recent decades have seen notable changes in the medical and psychological conceptualization of transgender identities. The eleventh revision of the International Classification of Diseases (ICD-11) reclassified "gender incongruence" under the chapter of "conditions related to sexual health," thereby moving it out of the category of mental and behavioral disorders (Organization). Similarly, the World Professional Association for Transgender Health (WPATH) Standards of Care, Version 8, emphasizes individualized and evidence-based approaches to gender-affirming care (Coleman et al., 2022). These shifts reflect a global trend toward depathologizing gender diversity while simultaneously highlighting the necessity of tools capable of capturing public beliefs and attitudes toward transgender people in diverse sociocultural settings.

The systematic measurement of attitudes toward transgender people is relatively recent compared with the study of sexual orientation prejudice. Early instruments, such as the Genderism and Transphobia Scale Hill & Willoughby, (2005), provided valuable insights into affective prejudice and behavioral intentions. However, these measures often conflated multiple constructs and did not fully capture the complexity of beliefs about gender identity. Later tools, such as the Attitudes Toward Transgendered Individuals Scale Walch et al., (2012), sought to refine construct boundaries, but questions remained about content validity and cultural transportability.

Kanamori et al., (2017) addressed these shortcomings by developing the Transgender Attitudes and Beliefs Scale (TABS). This instrument was specifically designed to provide a broader conceptualization of attitudes,

covering three key domains: interpersonal comfort, sex/gender beliefs, and human value. Their validation study demonstrated strong internal consistency (α ranging from .94 to .97 across subscales), excellent model fit through confirmatory factor analysis (CFA), and robust evidence for both convergent and discriminant validity.

Since its development, TABS has been translated and validated in several countries. Voultsos et al., (2023) reported satisfactory psychometric performance of the Greek version, supporting the three-factor structure. Wang et al., (2024) validated a Chinese version of the scale, again confirming reliability and factorial validity. These studies underscore the scalability of TABS while simultaneously emphasizing the importance of local validation, as certain items may require modification or removal to achieve cultural equivalence.

Iran represents a particularly important context for research on transgender attitudes due to its unique legal, cultural, and religious dynamics. Since the 1980s, gender-affirming surgery has been legally recognized under specific conditions, which distinguishes Iran from many other Middle Eastern countries (Najmabadi, 2020). Nevertheless, transgender people in Iran continue to face considerable stigma, discrimination, and social marginalization (Shafiee-Kandjani et al., 2025). The limited number of studies that have examined public attitudes toward transgender individuals in Iran suggest that negative stereotypes and misinformation remain prevalent, and that systematic tools are needed to capture these attitudes accurately.

Although some Iranian researchers have adapted and validated related scales, such as the Genderism and Transphobia Scale (Asaharinekah et al., 2023; Shafiee-Kandjani et al., 2025), no prior study has normed the TABS for Iranian populations. The absence of such a tool limits the ability of clinicians, educators, and policymakers to assess baseline attitudes, track changes over time, or evaluate the impact of educational interventions. Given the rapidly changing societal discourse around gender diversity, particularly in metropolitan areas like Tehran, the normative validation of TABS in Iran is both timely and necessary.

Cross-cultural adaptation of psychometric tools involves more than linguistic translation. The (para Tradução & de Testes) International Test Commission guidelines emphasize the need for conceptual, semantic,

and technical equivalence, which requires a structured process of forward–backward translation, expert panel review, cognitive debriefing, and pilot testing. Similarly, the COSMIN initiative highlights the importance of rigorous evaluation of structural validity, internal consistency, reliability, and construct validity (Mokkink et al., 2018). Only by following such frameworks can researchers ensure that adapted instruments yield valid and reliable scores. Norm-referenced interpretation is also vital in contexts where attitudes are highly variable across subgroups. By generating normative data from representative samples, researchers can provide benchmarks that facilitate the interpretation of individual or group scores. For Tehran, where sociocultural diversity is considerable, localized norms can aid in comparing subpopulations and identifying areas where targeted interventions are most needed.

The present study was designed to fill this gap by translating, adapting, and validating the TABS for use in Tehran, Iran, in 2025. Specifically, our objectives were to: Translate and culturally adapt the TABS into Persian, ensuring semantic and conceptual equivalence. Evaluate the internal structure of the scale using confirmatory factor analysis. Assess reliability through internal consistency coefficients for each subscale. Establish convergent validity using related measures (e.g., the Genderism and Transphobia Scale) and discriminant validity using theoretically unrelated measures (e.g., self-esteem, social desirability). Provide normative reference values for an adult Tehran population sample.

By achieving these objectives, the study seeks to provide Iranian researchers, clinicians, and policymakers with a reliable and valid instrument for assessing beliefs and attitudes toward transgenderism. The normative validation of TABS will not only facilitate cross-cultural comparisons but also support the design and evaluation of interventions aimed at reducing stigma and promoting social inclusion for transgender people in Iran.

Methods and Materials

Study Design

This research employed a cross-sectional psychometric design conducted in Tehran, Iran, in 2025. The aim was to translate, adapt, and evaluate the psychometric properties of the Beliefs and Attitudes Toward Transgenderism Scale (TABS) within a Persian-speaking population. Cross-sectional designs are particularly suited for psychometric evaluations, as they allow for simultaneous assessment of reliability, validity, and normative data within a single sample (Mokkink et al., 2018).

Participants and Setting

The study population comprised adult residents of Tehran aged 18 years and older. Tehran was chosen because of its cultural diversity and its role as the country's main metropolitan hub. Participants (N = 238) were recruited using convenience sampling from universities, healthcare centers, and community organizations across different districts of the city to ensure variation in age, gender, education, and socioeconomic status. Inclusion criteria included fluency in Persian, age 18 or above, and informed consent. Individuals with cognitive or psychiatric impairments that could affect comprehension of the questionnaire were excluded.

Instrument

The primary instrument was the Transgender Attitudes and Beliefs Scale (TABS), originally developed by (Kanamori et al., 2017). The TABS includes 33 items grouped into three subscales: Interpersonal Comfort (16 items), Sex/Gender Beliefs (11 items), and Human Value (6 items). Each item is scored on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), with higher scores reflecting more positive and affirming attitudes toward transgender people. The original scale demonstrated strong internal consistency and construct validity.

Translation and Cultural Adaptation

The translation process followed the (para Tradução & de Testes) (2017) guidelines for test adaptation. Two independent bilingual translators first produced Persian translations of the TABS. Their translations were synthesized into one version, which was then back-translated into English by two different translators unfamiliar with the original scale. Discrepancies were discussed, and equivalence was confirmed through comparison with the source text. An expert committee of psychologists, sociologists, and gender studies specialists reviewed the Persian version to ensure clarity, cultural appropriateness, and conceptual equivalence. Minor adjustments were made for comprehensibility. Finally, a pilot test with 30 adults in

Tehran was conducted to assess face validity and participant feedback, leading to minor refinements before full administration.

Data Collection Procedure

Data were collected in both group sessions and individual appointments. Participants first received information about the study objectives and ethical standards and then signed written informed consent forms. They completed the Persian TABS as well as additional standardized measures. For convergent validity, the Attitudes Toward Transgendered Individuals Scale Walch et al., (2012) and the Genderism and Transphobia Scale Hill & Willoughby, (2005) were used. For discriminant validity, the Rosenberg Self-Esteem Scale and the Marlowe–Crowne Social Desirability Scale–Short Form were included, as these constructs are theoretically unrelated to attitudes toward transgenderism.

Reliability Assessment

Internal consistency reliability was assessed using Cronbach's alpha for the total scale and each subscale. A Cronbach's alpha ≥ .70 was considered acceptable, whereas values above .90 were regarded as excellent (Taber, 2018). To assess temporal stability, a subsample of 50 participants completed the TABS again after two weeks, and test–retest reliability was estimated using intraclass correlation coefficients (ICCs).

Validity Assessment

Construct validity was examined through confirmatory factor analysis (CFA), testing the hypothesized three-factor structure of the TABS. Model fit was evaluated using χ^2/df ratios, the Comparative Fit Index (CFI), the Tucker–Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). Acceptable model fit was defined as CFI and TLI ≥ .90 and RMSEA ≤ .08 (Kline, 2023). Convergent validity was tested by correlating TABS scores with related measures of transgender attitudes. In contrast, discriminant validity was evaluated through weak or nonsignificant correlations with self-esteem and social desirability scores.

Normative Data

To establish Tehran-based normative values, descriptive statistics were calculated for the total scale and each subscale, including means, standard deviations, and percentile ranks. These normative data provide a benchmark for interpreting scores in future research and applied settings, such as clinical or educational contexts.

Statistical Analysis

All analyses were conducted using SPSS version 26.0 and AMOS version 24.0 (IBM Corp., Armonk, NY). Reliability indices, correlations, and descriptive statistics were computed in SPSS, while CFA was performed in AMOS.

Ethical Considerations

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

Findings and Results

A total of 238 participants completed the study. The mean age of participants was 40.01 ± 11.64 years (range 18–59). Of the total sample, 123 (51.7%) were female and 115 (48.3%) were male. Regarding educational attainment, 66 (27.7%) had a high school diploma, 96 (40.3%) held a bachelor's degree, 48 (20.2%) had a master's degree, and 28 (11.8%) reported a doctoral degree. Concerning marital status, 114 (47.9%) were single, 102 (42.9%) were married, and 22 (9.2%) were divorced or widowed.

Table 1

Demographic Characteristics of Participants (N = 238)

Variable	Category	n	%
Gender	Male	115	48.3
	Female	123	51.7
Education	High school	66	27.7
	Bachelor's degree	96	40.3
	Master's degree	48	20.2
	Doctoral degree	28	11.8
Marital status	Single	114	47.9
	Married	102	42.9
	Divorced/Widowed	22	9.2

Age (years)	Mean ± SD	40.01 ± 11.64	—

Internal consistency reliability of the Persian TABS was excellent. Cronbach's alpha values were 0.97 for Interpersonal Comfort, 0.95 for Sex/Gender Beliefs, and 0.94 for Human Value, with an overall alpha of 0.96 for the full scale. These findings indicate very high internal consistency across all subscales. Test–retest reliability, assessed with a subsample of 50 participants after a two-week interval, produced intraclass correlation coefficients (ICCs) of 0.91 for Interpersonal Comfort, 0.89 for Sex/Gender Beliefs, and 0.88 for Human Value, suggesting strong temporal stability.

Table 2

Reliability Indices of the Persian TABS

Subscale	Cronbach's α	ICC (2-week interval)
Interpersonal Comfort	0.97	0.91
Sex/Gender Beliefs	0.95	0.89
Human Value	0.94	0.88
Total Scale	0.96	0.90

Confirmatory factor analysis supported the original three-factor structure of the TABS. Model fit indices demonstrated acceptable to excellent fit: χ^2/df = 2.34, CFI = 0.94, TLI = 0.92, and RMSEA = 0.06. All standardized factor loadings were above 0.60, with most exceeding 0.75, confirming that items loaded strongly onto their intended latent constructs.

Significant positive correlations between the Persian TABS and related measures supported convergent validity. The TABS correlated strongly with the Attitudes Toward Transgendered Individuals Scale (r = 0.78, p < 0.001) and the Genderism and Transphobia Scale (r = 0.72, p < 0.001). Discriminant validity was demonstrated through weak correlations with theoretically unrelated measures: Rosenberg Self-Esteem Scale (r = 0.09, n.s.) and Marlowe–Crowne Social Desirability Scale–Short Form (r = 0.12, n.s.), indicating that the TABS captures unique constructs not reducible to self-esteem or social desirability biases.

Table 3

Correlation Matrix for Validity Testing

Measure	TABS Total	Interpersonal Comfort	Sex/Gender Beliefs	Human Value
Attitudes Toward Transgender Individuals.	0.78***	0.74***	0.70***	0.68***
Genderism & Transphobia Scale	0.72***	0.69***	0.65***	0.63***
Rosenberg Self-Esteem	0.09 (ns)	0.11 (ns)	0.07 (ns)	0.05 (ns)
Social Desirability (M-C Short Form)	0.12 (ns)	0.13 (ns)	0.10 (ns)	0.09 (ns)

***p < 0.001; ns = non-significant

Table 4

Normative Values for the Persian TABS (N = 238)

Subscale	Mean ± SD	P10	P25	P50	P75	P90
Interpersonal Comfort	68.5 ± 9.2	55	62	69	75	80
Sex/Gender Beliefs	47.3 ± 6.8	38	43	47	52	55
Human Value	25.4 ± 4.3	19	23	25	28	30
Total Score	141.2 ± 18.4	118	130	141	152	160

Normative reference values were established for the Tehran sample. The mean total TABS score was 141.2 ± 18.4, with subscale means as follows: Interpersonal Comfort = 68.5 ± 9.2, Sex/Gender Beliefs = 47.3 ± 6.8, and Human Value = 25.4 ± 4.3. Percentile ranks (10th, 25th, 50th, 75th, 90th) were calculated to aid the interpretation of individual scores in future research and practice.

Discussion and Conclusion

The present study translated, adapted, and validated the Persian version of the Beliefs and Attitudes Toward Transgenderism Scale (TABS) in a sample of adults from Tehran, Iran. Findings demonstrated excellent internal consistency reliability, strong test–retest stability, and solid evidence for construct, convergent, and discriminant validity. Furthermore, confirmatory factor analysis supported the original three-factor structure, indicating that the Persian version captures the same conceptual domains of interpersonal comfort, sex/gender beliefs, and human value as the original instrument developed by (Kanamori et al., 2017).

The high Cronbach's alpha values across subscales and the total scale suggest that the Persian TABS provides internally coherent measurement of attitudes toward transgenderism. Test–retest reliability results further indicate that the scale is temporally stable and capable of producing consistent scores over time. These results are comparable to previous validations of TABS in other cultural contexts, such as Greece Voultsos et al., (2023) and China Wang et al., (2024), which also reported excellent psychometric performance.

The CFA results lend strong support to the three-factor model, with fit indices well within recommended thresholds (Kline, 2023). Factor loadings above 0.60 for all items demonstrate that each indicator meaningfully contributes to its underlying construct. The replication of this factor structure in the Iranian context underscores the cross-cultural robustness of the TABS while also confirming that the dimensions of comfort, beliefs, and human value are salient domains for assessing attitudes toward transgender people in Tehran.

Convergent validity was confirmed through strong correlations with related instruments, including the Attitudes Toward Transgendered Individuals Scale Walch et al., (2012) and the Genderism and Transphobia Scale (Hill & Willoughby, 2005). This suggests that the TABS aligns well with established measures of transphobia and related constructs. At the same time, the weak correlations with self-esteem and social desirability scales confirm discriminant validity, supporting the argument that TABS captures unique variance in attitudes not attributable to personality or response biases.

The normative values established in this study provide an important contribution. The percentile ranks and means for Tehran adults can serve as benchmarks for interpreting individual and group scores. Such normative data are critical for applied research, as they allow comparisons across time, populations, and intervention programs. Findings are consistent with the international literature on transgender attitude measures. In the original validation by Kanamori et al., (2017), internal consistency and CFA results were nearly identical to those observed in this study. Similarly, Voultsos et al., (2023) in Wang et al., (2024) in China found that the TABS demonstrated reliability coefficients above 0.90 and strong factorial validity. The present study thus adds evidence that the TABS is culturally adaptable and psychometrically sound across diverse settings.

Within the Iranian context, prior studies have validated other related scales, such as the Persian Genderism and Transphobia Scale (Shafiee-Kandjani et al., 2025). However, no study to date had validated or normed the TABS. By filling this gap, the present work provides a tool that not only complements existing measures but also expands the conceptual coverage of attitudes toward transgenderism by incorporating beliefs and human value dimensions often overlooked in earlier instruments.

The validated Persian TABS has important applications in clinical, educational, and social contexts. In clinical psychology and psychiatry, it can be used to assess baseline attitudes of healthcare providers toward transgender patients and evaluate the impact of sensitivity training programs. In education, the scale can inform curricula aimed at reducing stigma among medical, nursing, and social work students. On a policy level, the tool offers researchers and decision-makers reliable data on public attitudes, which can guide awareness campaigns, anti-discrimination policies, and advocacy for gender-diverse individuals.

This study has several strengths. It employed a rigorous translation and cultural adaptation process consistent with ITC guidelines (para Tradução & de Testes)(2017). Multiple forms of validity were assessed, including convergent and discriminant, alongside CFA for structural validity. The provision of normative data is

another strength, as it enhances interpretability for both research and practice. However, some limitations should be noted. The sample was restricted to adults living in Tehran and recruited through convenience sampling, which may limit generalizability to rural areas or other provinces with different sociocultural dynamics. Although the sample size was adequate for CFA, larger and more diverse samples are recommended for future studies to confirm measurement invariance across gender, age, and educational subgroups. Additionally, while this study assessed temporal stability through test–retest reliability, further studies could examine sensitivity to change to determine the scale's utility in evaluating interventions.

Future research should extend normative data collection to other regions of Iran to capture potential cultural variability. Testing measurement invariance across demographic subgroups would allow researchers to confirm whether the scale functions equivalently for men and women, younger versus older participants, or participants with different educational backgrounds. Longitudinal studies should also examine how public attitudes toward transgender individuals evolve, particularly as cultural narratives and policy frameworks continue to change. Finally, incorporating the TABS into intervention studies can help evaluate the effectiveness of educational or policy initiatives aimed at reducing stigma and promoting social inclusion.

The present study provides strong evidence for the reliability and validity of the Persian version of the Beliefs and Attitudes Toward Transgenderism Scale (TABS). The scale retained its original three-factor structure and demonstrated excellent psychometric properties within a Tehran-based sample. Normative data further enhances its utility for applied research and professional practice. Overall, the Persian TABS emerges as a robust instrument for assessing societal and individual attitudes toward transgender individuals in Iran. Its application in clinical, educational, and policy contexts has the potential to promote greater understanding, reduce stigma, and support the inclusion of gender-diverse populations.

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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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