

Development and psychometric properties of the transphobia scale among Indian adolescents

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Abstract

Background: Most of the studies employed in the concerning area use foreign scales or translated versions for measurement of transphobia. It is really unfortunate a democratic country like India does not possess any standardized scale to measure the transphobia of adolescents.

Purpose: Therefore, this study includes the development and validation of a scale for the assessment of transphobia in Indian adolescents.

Methods: A total 516 students of CBSE school aged 14-16 years were sampled. The items for the preliminary transphobia scale were drawn after interviewing the adolescents, consultation with a reference group and review from existing standardized scales. A total 516 participants were assessed for psychometric properties of the scale. Criterion validity was evaluated by using the ATTMW (attitude toward transgender men and women) Scale.

Results: Exploratory Factor Analysis (EFA) revealed six factors accounting for 65.30% of observed variance. The final 31-item scale contained six factors: Interpersonal Ease, Gender Prejudices, Gender Obstinacy, Human Values, Gender Stereotype and Gender Abuse. Transphobia scale was highly reliable in terms of internal consistency (Cronbach's alpha 0.927). Criterion validity with the ATTMW was statistically significant.

Conclusion: As the conclusion of the study, the Indian transphobia scale can be used as a reliable and valid tool for the measurement of transphobia for Indian adolescents.

Keywords: development; reliability; transphobia scale; validity

Introduction

The term 'gender' has a Latin origin with the word 'genus' that means kind or race. The gender is expected to be masculine, feminine and transgender. Transgender are the gender non confirming people who do not put themselves into the binary status of the gender identification. There lies a wide range of binary identities that can come under this category (Hill & Willoughby, 2005). The Supreme Court of India acknowledged transgender individuals as "The Third Gender," alongside male and female, in April 2014. The Constitution of India now identifies the third gender category and preserves their constitutional rights through the laws made by the Indian parliament. One of the transgender categories identified as Kinnars are observed to take part in individual ceremonies such as during wedding, child birth, etc. Some people believe that the transgenders possess special divine powers to bless or curse somebody. Sometimes this ritual transforms into overpowering or blackmailing the common public by transgenders or converts into fear, hate or bullying toward the third gender people. As a consequence to this, the whole transgender community faces prejudice (Sterzing et al., 2017; Toomey et

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al., 2010; de Vries et al., 2016). The worst part of this has been observed over the transgender children and adolescents (Koken et al., 2009). As per the study conducted by Factor and Rothblum, most of the transgender children have to face discrimination and harassment from their families as compared to their non-transgender siblings (Factor & Rothblum, 2007). Such a situation and societal mentality forces the transgender people to tolerate and compromise according to the assigned sexual identities of the society and pursue their occupations. Such a suppression sometimes generates other forms of transgender behaviors such as cross-dressers.

Transphobia can be conventionally defined as a sense of fear, hate and disgust toward gender non-conforming people. The attitudinal discrimination toward a transgender person, that does not have any logical relevance, can be known as transphobia. Morrison et al. (2017) reported that the prejudice against transgender people is prevalent and can cause malicious effects on the physical and psychological health of those targeted.

Researches reveal the commonality of the abuse and misconduct with the transgender people. As per the statistics, about 20% of the transgender respondents reported hitting or other abusive reactions from the common public due to their trans status (Ellis et al., 2016). Sexual minority stigma can damage the mental well-being, but very few researches are available that measure the transgender-identity stigma among transgender (male or female) in India (Chakrapani et al., 2017). Therefore, there is an important need to reduce the transphobia among adolescents. In the current scenario, various transphobia scales were identified (Morrison et al., 2017), but only few reported content validity. Most of the researchers did not report sufficient information about item generation and refinement, scale dimensionality and psychometric properties. On the other hand, there is not any scale developed to measure transphobia in an Indian context. In India, most studies employed foreign scales or translated versions and no dedicated scale has been developed and validated in the Indian population. Morrison et al. (2017) recommended for development and validation of a transphobia scale. Therefore, in the current study we developed and validated scales to measure the transphobia according to the characteristics of adolescents in the culture of India.

Materials and Methods

Design

Cross-sectional research design was used in the present study. As many as 516 participants were selected through random sampling method from high school of CBSE (Central Board of Secondary Education) pattern. All participants were assessed on a transphobia scale and an already developed scale called Attitude Toward Transgender Men and Women Scale (ATTMW).

Research Instruments

Attitudes toward Transgender Men and Women (ATTMW)

ATTMW scale was developed to measure attitudes toward transgender individuals. A 24-item ATTMMW scale was validated as a reliable scale (Chakrapani et al., 2017). EFA revealed two non-identical 12-item subscales: 1. attitude toward Transgender Men (ATTM) and 2. attitude toward Transgender Women (ATTW). The convergent, discriminant, predictive and concurrent validities of the ATTMMW were also analyzed. The reliability of the combined ATTMMW scale was high, $\alpha = 0.98$, $\omega = 0.87$.

Data Collection

Construction of the Scale: This scale was developed according to the scale development process suggested by DeVellis (2016). Scale development was performed in two phases: (phase I: Development of the draft of transphobia scale and phase II: Assessment of reliability and validity of the transphobia scale).

Phase I: Development of the draft of transphobia scale:

The items for the draft of transphobia scale were selected from the review of related scale, research papers, books and interviews of reference groups.

I: Item selection from review of literature

To find out the items for the transphobia scale, research papers, books and 83 existing scales were reviewed; the details of the scale were reported in systematic review of Morrison et al., (2017). Essential components of transphobia were discussed with experts and 86 common items were observed from the review of existing scales, books and research papers.

II: Item selection from interview

For the collection of items for transphobia scale, 300 high school students' of Hindi and English medium were assessed on ATTMMW. Fifty adolescents were selected for in-depth interview, and considered a score above percentile of 75 on ATTMMW. Qualitative information related to the transphobia was gathered; 46 items observed in the responses of the adolescents interview were further included for scale.

III: Focused group discussion (FGDs) with experts

To identify transphobia behavior, experts were asked about the importance of 132 items. Experts were asked to assess each item for difficulty and ambiguity. To evaluate whether items were relevant, clear and essential, experts were given a sheet with the following four inquiries: 1) how relevant the question is; 2) how clear the wording is; 3) how essential the question is). For the relevancy scale, a 4-point Likert scale was used and responses include: 1) not relevant, 2) somewhat relevant, 3)

Table 1. Demographic Information of Participants

Variable	Frequency	Percent
Gender		
Female	216	41.9
Male	300	58.1
Age		
14	56	10.9
15	396	76.7
16	64	12.4
Mother Occupation		
Home Maker	408	79.1
Private Job	12	2.3
Business	20	3.9
Government Job	72	14.0
Father Occupation		
Private Job	44	8.5
Business	192	37.2
Government Job	112	21.7
Monthly Income		
6000-10000	4	0.8
10000-30000	4	0.8
30000 and Above	508	98.4

Table 2. Rotated Component Matrix

Statement	Component					Communalities
	Interpersonal Ease	Gender Prejudices	Gender Obstinacy	Human Values	Gender Stereotype	
An acquaintance of mine told me that she is transgender, I would feel uncomfortable being with her.	0.717					0.667
I would feel uncomfortable being alone with a transgender in some place	0.714					0.597
If I come to know that someone is transgender then I would prefer to stay away from them.	0.682					0.732
I am not comfortable to be in a group of transgender persons.	0.663					0.625
If I found out that that someone is transgender, it will be very uncomfortable for me to be friends with them.	0.658					0.629
If I come to know that my neighbor is transgender then it is a matter of concern for me	0.647					0.574
I would object to sitting in an auto/taxi with a transgender.	0.634					0.656
I would not like if my school welcomes transgender persons	0.628					0.619

Cont. Table 2. Rotated Component Matrix

I would feel uncomfortable inviting a transgender to my home for a meal.	0.544	0.643
I would like to go to another doctor if I know that my doctor is transgender	0.460	0.560
It is unacceptable to me that any transgender stays at my house on rent.	0.474	0.609
If a transgender comes to my house asking for work, I will refuse	0.438	0.727
I don't like boys who dress like girls	0.824	0.743
It is unusual for women to be masculine	0.684	0.732
If a woman presents herself in public as a man, then it is morally wrong.	0.569	0.573
Men who behave like women should be ashamed of themselves	0.501	0.626
Everyone should behave according to their gender by birth.	0.500	0.524
Children should play with toys according to their gender	0.741	0.758
There is nothing wrong with making fun of people who don't dress according to their gender	0.727	0.683
Men who don't resist are weak	0.631	0.556
If any of my teachers are transgender, it is not acceptable to me	0.542	0.588
Transgender persons are mentally ill.	0.405	0.710
Transgender persons should not get any reservation.	0.625	0.656
Transgender persons are human beings with less struggle/hard work than the rest of us	0.589	0.625
I feel uncomfortable talking about problems faced by transgender persons	0.536	0.642
God has created two and only two genders	0.748	0.717
It is unusual for a person not to be either a woman or a man.	0.636	0.704
All human beings are female or male; there can be no position between	0.480	0.592
I believe that transgenders are not important people.	0.417	0.766
I like seeing transgender persons being abused.	0.789	0.732
There is no need to treat transgender persons with respect	0.559	0.679

Table 3. Total Variance Explained

Component	Total items	Initial Eigen values			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Interpersonal Ease	12	13.074	42.175	42.175	13.074	42.175	42.175
Gender Prejudices	05	2.125	6.853	49.029	2.125	6.853	49.029
Gender Obstnacy	05	1.566	5.051	54.080	1.566	5.051	54.080
Human Values	03	1.302	4.201	58.281	1.302	4.201	58.281
Gender Stereotype	03	1.143	3.687	61.968	1.143	3.687	61.968
Gender Abuse	03	1.033	3.333	65.301	1.033	3.333	65.301

Table 4. Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I would feel uncomfortable inviting a transgender to my home for a meal.	58.9826	417.526	0.613	0.648	0.951
I am not comfortable to be in a group of transgender persons.	58.4870	413.094	0.635	0.635	0.950
If I found out that that someone is transgender, it will be very uncomfortable for me to be friends with them.	59.0783	414.915	0.645	0.617	0.950
If I come to know that my neighbor is transgender then it is a matter of concern for me	59.2087	421.553	0.576	0.590	0.951
If I come to know that someone is transgender then I would prefer to stay away from them.	59.2261	415.264	0.723	0.773	0.950
If a transgender comes to my house asking for work, I will refuse	59.1652	419.894	0.605	0.623	0.951
I would feel uncomfortable being alone with a transgender in some place	58.3391	412.980	0.619	0.607	0.951
I would not like if my school welcomes transgender persons	59.4870	421.796	0.597	0.588	0.951
An acquaintance of mine told me that she is transgender, I would feel uncomfortable being with her.	58.9826	411.421	0.697	0.679	0.950
I would like to go to another doctor if I know that my doctor is transgender	59.1130	415.294	0.675	0.590	0.950
If any of my teachers are transgender, it is not acceptable to me	59.4435	419.056	0.616	0.581	0.951
I would object to sitting in an auto/taxi with a transgender.	59.0783	411.108	0.731	0.750	0.949
It is unacceptable to me that any transgender stays at my house on rent.	59.1826	412.466	0.704	0.747	0.950
All human beings are female or male; there can be no position between	59.2783	413.343	0.586	0.557	0.951
God has created two and only two genders	59.5652	421.458	0.536	0.585	0.951
It is unusual for a person not to be either a woman or a man.	59.1217	418.073	0.578	0.576	0.951
Transgender persons are mentally ill.	59.7739	425.545	0.681	0.740	0.950

Cont. Table 4. Item-Total Statistics

I don't like boys who dress like girls	58.6783	413.501	0.543	0.611	0.952
If a woman presents herself in public as a man, then it is morally wrong.	59.2261	416.264	0.630	0.536	0.950
Men who behave like women should be ashamed of themselves	59.4174	416.526	0.684	0.642	0.950
It is unusual for women to be masculine	59.2957	413.333	0.649	0.666	0.950
Children should play with toys according to their gender	59.7217	422.764	0.587	0.705	0.951
There is nothing wrong with making fun of people who don't dress according to their gender	59.5217	419.936	0.592	0.635	0.951
Men who don't resist are weak	59.4609	426.496	0.462	0.518	0.952
Everyone should behave according to their gender by birth.	58.8348	414.385	0.564	0.602	0.951
I believe that transgenders are not important people.	59.6522	419.492	0.625	0.743	0.950
There is no need to treat transgender persons with respect	59.8174	429.308	0.575	0.641	0.951
I like seeing transgender persons being abused	59.8348	433.437	0.402	0.520	0.952
I feel uncomfortable talking about problems faced by transgender persons	58.9478	411.945	0.672	0.637	0.950
Transgender persons are human beings with less struggle/hard work than the rest of us	59.5130	420.761	0.633	0.665	0.950
Transgender persons should not get any reservation.	59.6087	421.714	0.636	0.597	0.950
Cronbach's alpha =0.927					

Table 5. Validity

		Transphobia	ATTM	ATTW	ATTMW
Transphobia	Pearson Correlation	1	0.477**	0.521**	0.515**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	129	129	129	129
ATTM	Pearson Correlation	0.477**	1	0.809**	0.977**
	Sig. (2-tailed)	0.000		0.000	0.000
	N	129	129	129	129
ATTW	Pearson Correlation	0.521**	0.809**	1	0.916**
	Sig. (2-tailed)	0.000	0.000		0.000
	N	129	129	129	129
ATTMW	Pearson Correlation	0.515**	0.977**	0.916**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	129	129	129	129

** .is significant at the 0.01 level (2-tailed).

quite relevant, and 4) very relevant. Ratings of 1 and 2 are considered item invalid while ratings of 3 and 4 are considered item valid. A 3-point Likert scale was used for the clarity and essentiality scale. The clarity scale was: 1) not clear, 2) item needs some

revision; and 3) very clear, and for essentiality: 1) not essential; 2) useful, but not essential; and 3) essential (Armstrong et al., 2005; Zamanzadeh et al., 2015). Individual questions were edited and redundant questions were eliminated by a group

of experts of psychology professor (n=2) education professor (n=2), statistician (n=1) and counselor (n=1). An initial pool of 32 items was derived. The responses to all items were graded on a five-point scale.

Phase II: Assessment of reliability and validity of the transphobia scale

For the assessment of the reliability and validity, transphobia scale and ATTMW scale were administered among 516 students. The final items for the scale were selected by statistical methods as follows (1) Pearson's Correlation coefficient: Any item with a Pearson's correlation coefficient <0.30 with the total scale score was eliminated. Corrected item-total correlations of scale exceed the accepted cutoff of 0.30 indicating each item was related to the overall scale, (2) Exploratory Factor Analysis (EFA). Any item with a factor loading <0.40 was eliminated (Kumar et al., 2020, 2021; Iyengar et al., 2021; Sahu et al., 2022; Shrivastava et al., 2019, 2022). After the EFA, six factors consisting of 31 items were derived.

Ethical Approval

The methods of the present study were carried out in accordance with the STROBE statement (Vandenbroucke et al., 2014). The purpose and implication of the survey were explained to the students and their parents. Written informed consents were obtained from all participants and their caregivers. The research methodology of the study was evaluated from the departmental ethics committee (PhD/19/EDU/09).

Data Analysis

Descriptive analysis was used for reporting demographic characteristics. The correlation of transphobia scale with the ATTMW and continuous socio-demographic variables was evaluated using the Pearson's correlation. Significance level was considered at $P < 0.05$. All the statistical analyses were performed using SPSS 16.0.

To evaluate the adequacy of exploratory factor analysis (EFA), the Kaiser-Meyer-Olkin (KMO) test was calculated. EFA was used with an Eigen value >1.0 to examine the number of factors in each scale. The Varimax rotation was used to achieve rotated factor loadings for the scale. Reliability was measured in terms of internal consistency using Cronbach's alpha coefficient, Spearman-Brown's and split-half coefficient. Validity of scales was assessed by ATTMW using Pearson's correlation coefficients.

Results

Characteristics of Participants

There were 300 male and 216 female included in this study for exploratory factor analysis EFA. The number of participants under the age of 15 was 452 for EFA. With regard to education level, all

participants were selected from the 9th class, all participants were from CBSE school education, of the participants all were urban area. The detailed characteristics of the participants are reported in Table 1.

Construct validity

Before conducting the exploratory factor analysis (EFA), we analyzed the Kaiser-Meyer-Olkin (KMO) test to measure the sampling adequacy and the Bartlett's test of sphericity to investigate the factor ability of the data. KMO value of results was high (almost 0.85), indicating high sampling adequacy for EFA and a significant Bartlett's test of sphericity ($p < 0.001$) indicated sufficient inter-item correlations for analysis.

We conducted EFA of the preliminary version of the 32-item transphobia scale to uncover the internal structure of the scale. During EFA, item number 13 was found to lower consistency with the scale, and was excluded. EFA was then again performed with the remaining 31 items. As a result of these analyses, a six-factor model was developed (see Table 2). As a result, the final version of the transphobia scale consisted of 31 items in six factor model, and this model accounted for 65.30% of total variation (see Table 3). Total transphobia status of the participants was explained with 65.30% by this scale. A total six factors were found including 12 items with Interpersonal Ease; 05 items with Gender Prejudices; 05 items with Gender Obstinacy; 05 items with Human Values; 3 items with Gender Stereotype and 03 items with Gender Abuse.

Reliability

The Cronbach's alpha was found for Interpersonal Ease=0.917; Gender Prejudices=0.814; Gender Obstinacy=0.794; Human Values =0.718; Gender Stereotype=0.722 and Gender Abuse=0.734. The Cronbach's alpha of the overall transphobia scale was 0.927; suggesting a high degree of internal consistency. The corrected items correlations between all items ranged from $r = 0.402$ to $r = 0.731$ (Table 4). The scales had good reliability. We estimated item quality through item inter-correlations. The analysis showed that correlations of individual item with total scale (all items) were high. This finding is indicative of construct validity.

Validity

The correlation of transphobia scale with ATTMW was analyzed. The Pearson's correlation coefficient of the transphobia scale with ATTM ($r = .477$), ATTW ($r = .521$), and ATTMW ($r = .515$) scores were significant, suggesting positive correlation. The relationship of transphobia scale with the ATTM, ATTW and ATTMW are reported in Table 5.

Discussion

The main objective of the study is to develop and validate a standardized tool for gauging and quantifying the transphobia in India's adolescent

population. As per the reviews made by the researcher, the above is the first attempt to develop and validate scales to measure transphobia among adolescents in the Indian population. This study may offer an empirical support for the reliability and validity of the Indian transphobia scale. Development was based on common component analysis.

Factorial structure of the scale was examined through exploratory factor analysis (EFA). In the final round, we minimized a 31-item scale to a 32-item scale due to low factor load. According to the EFA there seems to be six principal factors in the scale which explains 65.30% of the variable variance:

Interpersonal Ease: The first factor around which the 12 of the 31 items was centered was named as Interpersonal Ease. The functional explanation of the term suggests that it is a measure of comfort of a person who is coming in direct personal contact with a transgender. Almost all the possibilities have been explored under this factor. A similar factor has been studied in a research article by Flores, (2015). The interpersonal contact with transgender people has a positive correlation with attitudes toward transgender people (Bramlett, 2012; Dyck et al., 2014; Garner, 2013; Gregory et al., 1993; Herek & Capitanio, 1996; Lewis, 2011). The correlation between attitudes on transgender rights and interpersonal transgender contact is positive, indicating that interpersonal contact operates as expected (Flores et al., 2015). In her dissertation the researcher includes items to identify their contact experience with transsexual individuals (Claman et al., 2009). As per the hypothesis of this study, a person who has even a single experience with a transgender individual (i.e., transsexual or cross-dresser) will have more positive attitudes toward the transgender population than the person who does not have such exposure. About 35% of the sample population reported to have at least a single contact with a transgender person and they showed more positive attitudes as compared to those who had not had contact. The finding of this study is consistent with studies on both GLB attitudes (Cotten-Huston & Waite, 2000; Herek, 1988) and transgender attitudes (Hill et al., 2005) that have exposure to transgender people and display more affirmative attitudes (Claman et al., 2009).

Gender Prejudices: The five items were found toward another factor named Gender Prejudice. This term can be functionally defined as a strong unreasonable biasness toward a specific gender. This factor explores the unfair opinion making in the domain of gender norms. In an extensive global study Winter et al.(2009) studied the similar factor with the term trans prejudice in seven countries. Five factors were identified mental-illness, denial-women, social-rejection, peer rejection, sexual-deviance), mental-illness (Winter et al., 2009). King et al. introduced the term trans prejudice as the biased, stereotyped and unfair treatment of transgender people (King et al., 2009). The results of the study conclude that the interaction with a transgender person is significantly associated with

the attitudes measured by the scale; decreased social distance, decreased social discrimination, and decreased trans prejudice, increased awareness of discrimination against trans people, increased support for equal opportunities, increased support for post-operative transsexual civil rights, and increased support for anti-discrimination legislation (King et al., 2009).

Gender Obstnacy:

This factor has been named here as Gender Obstnacy. Five items were found. Results suggest that previous contact with trans people can be an effect for attitudes. The factor analysis displayed the association of five items that show certain type of stubborn opinions toward transgender people. This factor has been named here as Gender Obstnacy. One of the examples of such is "Children should play with toys according to their gender."

Human Values: Three of the items have been attributed to the factor named Human Values. Human values are the desirable qualities that should be displayed by a human being. Functionally this factor explores the inherited values of a person for transgender people.

Gender Stereotype: Gender Stereotype remains another factor with three iterations. Stereotype is a rigid idea of a person or a thing that is often not true. As per Merriam-Webster Dictionary, stereotype is an unvarying mental picture of some person or a construct that represents an over generalized opinion, biased attitude, or irrational judgment. The young transgender women were found to display more of a depressed attitude in association with the psychological abuse as compared to the older transgender women.

Gender Abuse: Gender Abuse is the last factor with three items that can be functionally defined as the mental, verbal or physical harassment caused due to stereotype/prejudiced attitude toward a transgender person. As per a study done by Nuttbrock et al. (2014), gender-related violence acts as a disaster for the mental health of transgender persons. A significant association of psychological and physical gender maltreatment has been identified with major depression during follow-up of the study.

The analysis examined item quality. The correlations between all items ranged from $r = 0.402$ to $r = 0.731$ as expected. This finding is indicative of construct validity. The transphobia scales had good internal consistency. Specifically, the Cronbach's alpha index for the scale was $\alpha = 0.910$. The analysis also showed that by deleting some items, we could not increase the reliability of the overall scale. In the end we decided to not proceed with the deletion of items.

The study also addressed the criterion validity using as criteria specific variables based on recent bibliography. As expected the transphobia was positively correlated to the Attitude Toward Transgender Men and Women measure. All correlations were positive and statistically significant.

These results are indicative of the validity of the scale in the Indian population.

Regarding the limitations of this study, we should mention that reliability indexes were not calculated using test-retest methodology. Moreover, all validity measures were concurrent while we could also estimate validity measures over a period of time and regarding future results. The present study provides useful insights regarding the utilization of the transphobia scale in future studies in both Hindi or English speaking populations and it could enhance attention on research in transgender.

Conclusion

The present study developed a psychometrically-validated scale to assess the structure of transphobia, and it supports the application of the transphobia scale in school settings. Future research should analyze the validity and reliability of the transphobia scale in a different culture of population.

Declaration of Interest

There is no conflict of interest of this study.

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Data Availability Statement

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