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Transgender Attitudes and Beliefs Scale (TABS): Validation with a Sample of Self-Identified Christians

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Abstract

Transgender people suffer from a variety of consequences as victims of anti-transgender prejudice. Christians have been frequently identified as holding negative attitudes toward transgender people; however, there is evidence that these attitudes may be changing. Accurate measurement of attitudes is important in understanding currently held beliefs and to assess potential changes over time. This study tested the validity of the Transgender Attitudes and Beliefs Scale (TABS) for use with the Christian population with a sample of 207 self-identified Christians in the United States. Confirmatory factor analysis (CFA) confirmed the factor structure of TABS: χ^2 (374, N = 207) = 821.46, $p < 0.001$ (*normed* $\chi^2 = 2.20 < 4$); RMSEA = .076 (90%CI = .069; .083), CFI = .926, SRMR = .053. Overall, results suggest that TABS is an appropriate instrument to utilize with the Christian population in the United states.

Keywords

Transgender Attitudes and Beliefs Scale; Christian; norming; validation; Transgender

Attitudes and beliefs of a society toward particular subgroups, such as transgender people, can have a significant impact on various facets of their lives. These may include quality of mental and physical healthcare (Dorsen, 2012), likelihood to face discrimination (Norton & Herek, 2012), and restrictive social and governmental policies (Scout, 2016). Moreover, religious beliefs in particular have been demonstrated to be predictive of policy makers' decisions in legislation (Arnon, 2018). Given that roughly three out of four people (Newport, 2016) and more than nine out of every ten congresspersons (Pew, 2019) in the United States identify as religious, these beliefs hold considerable sway on social policies at all levels. Among those who are religious, 71% of the general population and 88% of congresspersons are Christian (Pew, 2019), giving these beliefs a unique weight in shaping the sociopolitical

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landscape and policy decisions. In summary, there is evidence to suggest that religion (specifically Christianity in a U.S. context) has a bearing on beliefs and attitudes which, in turn, may relate to policy making and individual behavior. These policies and behaviors then directly impact the livelihoods of subgroups living within this context.

Transgender people in the United States are one subgroup in particular where these phenomena are easily demonstrable. In surveying the recent sociological landscape of the United States, few subgroups have generated such a prolific volume of firmly espoused public beliefs and attitudes as transgender people (Jones et al., 2018). Religion is commonly intertwined with these views in public discourse, and previous research has shown that those who identify as Christian are more likely to hold prejudice against transgender individuals (Campbell et al., 2019). Yet, the sweeping notion that Christians are antithetical to transgender rights is incomplete. Numerous works have discussed a need for nuance, highlighting factors such as fundamentalism, church attendance, and a belief in non-biological causes of transgender identity as especially correlating with negative attitudes toward transgender persons (Bowers & Whitley, 2020). It is therefore essential to have a way to accurately measure these attitudes in a more nuanced way (Campbell et al., 2019), as the impact on transgender people is far-reaching.

This impact can be demonstrated both in terms of individual transgender experiences and policy making. As previously alluded to, studies have shown that transgender people experience anti-transgender prejudice and negative attitudes in their daily lives, especially from those who identify as religious (e.g., Norton & Herek, 2012). Negative experiences and violence often begin early in life, and some transgender youth are even displaced from their Christian homes (Stotzer, 2009). Moreover, a survey conducted with transgender people in the United States reported that 19% of the participants were refused a home or apartment and 11% were evicted due to their gender identity (Grant et al., 2011). In the same survey, transgender participants reported unemployment at twice the rate of the general public. Financial loss also occurs frequently, as noted in a more recent survey of transgender individuals in the United States in which nearly a third of the participants reported living in poverty (James et al., 2016). Additionally, Levitt et al. (2009) identified common themes among lesbian, gay, bisexual, and transgender (LGBT) participants regarding anti-LGBT legislation, which included how political initiatives can often lead to constant hurtful reminders of being seen as less than and feeling unsafe as an LGBT person. Finally, one would need to look no further than the recent Supreme Court reversal (Obergefell v. Hodges, 2015) for evidence of the polarized opinions on LGBT rights among policy makers.

Consequences of these phenomena also reach directly into the education and work of those providing counseling and mental health services (Henry, 2018). Bias held by mental health professionals based in beliefs can have a notable impact on the therapeutic relationship and quality of care (Boysen, 2010). In addition, educators of mental health professionals bring their beliefs with them into their roles and may influence students' future practice with transgender individuals indirectly, leading some to argue for a shift from gatekeeping to advocacy (Singh & Burns, 2010). Illuminating these attitudes with increased nuance will prove useful not only in informing curricula and workshops in programs training mental health professionals working with transgender people (Carroll & Gilroy, 2002; Kanamori

& Cornelius-White, 2017), but also in testing their effectiveness (Gorrotxategi et al., 2020). Provision of such trainings and measures of their efficacy are currently lacking and may contribute to increasing knowledge, self-efficacy, and even outcomes of mental health professionals in working with transgender clients (Couture, 2017).

One attempt to provide necessary clarity on existing attitudes and beliefs has occurred through the development of dozens of transphobia scales over the past thirty years. Two of the more prominent scales have been the Genderism and Transphobia Scale (GTS; Hill & Willoughby, 2005) and the Attitudes Toward Transgendered Individuals Scale (ATTI; Walch et al., 2012). The GTS was originally developed through a series of three studies to explore unique challenges faced by transgender individuals, including parental reactions (Hill & Willoughby, 2005). However, it has since been adapted twice as its original form was found lacking in a stable factor structure and criterion related validity (Morrison et al., 2017). The ATTI is a 20-question self-report measure developed to specifically assess stigma faced by transgender individuals (Walch et al., 2012). Similarly to the GTS, it suffers from several psychometric limitations (Morrison et al., 2017).

More recently, Kanamori et al. (2017) developed the Transgender Attitudes and Beliefs Scale (TABS) in an effort to improve upon the shortcomings of previous transgender attitude scales and to address the paucity of measures sensitive to religiously nuanced attitudes toward transgender people. According to the original scale development study, TABS is a 29-item, three-factor scale, tapping into sex/gender beliefs, human value, and interpersonal discomfort. While the instrument was developed to capture attitudinal nuances arising from common Christian belief systems, the instrument was normed with the general U.S. population, and thus has not been tested specifically as to its validity for use with Christian-identified populations. Since measures are to be used with a specific purpose with a specific population (Bandolos, 2018), it is necessary to test whether or not TABS is an instrument appropriate for use with the U.S. Christian population. The purpose of this study, therefore, was to garnder preliminary validity and reliability evidence for the use of TABS with a Christian sample.

Method

Participants

The study sample consisted of 207 cisgender adult participants, of which 60.4% identified as women and 39.6% as men and ranged in age from 21 to 75 years old (M = 40.44, SD = 12.11). Participants were predominantly Caucasian (77.3%) and held at least a bachelor's degree (58.5%). Of the sample, 34.8% identified as Catholic, 28.5% as evangelical Christian, and 36.7% as other Christian. The study sample was comparable to the U.S. population as estimated by the Pew Research Center (2015): approximately 30% Catholic, 36% Evangelical, and 35% non-evangelical. Full details on the demographic information can be found in Table 1.

Measures

The only instrument used in the study was the Transgender Attitudes and Beliefs Scale (TABS; Kanamori et al., 2017). TABS is a 29-item scale assessing attitudes toward transgender individuals, where the following definition is provided at the beginning of the scale: "a transgender person is defined as a person whose biological sex does not match their felt sense of self as male or female." The measure includes questions such as, "I would feel comfortable having a transgender person into my home for a meal," "If you are born male, nothing you do will change that," and "Transgender individuals are valuable human beings regardless of how I feel about transgenderism." Items are rated on a seven-point Likert scale, ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The instrument assesses three factors, including interpersonal comfort (level of comfort socially interacting with transgender individuals), sex/gender beliefs (beliefs concerning gender as a fixed dichotomy or a fluid continuum), and human value (affirming transgender individuals' inherent value as people). Higher scores represent more positive attitudes toward transgender persons. The original validation study (Kanamori et al., 2017) reported evidence of convergent and discriminant validity. Evidence of known groups validity (Bandalos, 2018) has also been provided in studies reporting theoretically grounded group differences in the scores of TABS based on gender, sexual orientation, and religious affiliation (Kanamori & Cornelius-White, 2017; Kanamori et al., 2017; Lopez-Saez et al., 2020). There is evidence for the reliability of TABS scores with reported Cronbach's alphas ranging between .90 to .97 for the subscales and from .88 to .98 for the overall scale in samples of Canadian nurse practitioners as well as adults and college students in the United States and Spain (Carroll, 2018; Hatch, 2018; Kanamori & Cornelius-White, 2017; Kanamori et al., 2017; Lopez-Saez et al., 2020). Similar levels of internal consistency of scores were found with the current sample (subscales: α = .94 to .97; overall: α = .97).

Procedure

The present study utilized a subset of a larger dataset collected from participants recruited through Amazon Mechanical Turk (MTurk), after obtaining Institutional Review Board (ethics panel) approval. MTurk is an online participant recruitment service, which has been shown to be superior to many other convenience or college student samples that have been frequently used in scientific research, showing greater geographic, educational, and racial diversity and adequate attention and trust at levels similar to laboratory research (Thomas & Clifford, 2017). Participation eligibility required individuals to be 18-years or older and currently residing in the United States. Participants were asked to participate in a study exploring people's beliefs and their attitudes toward transgender identity and related issues. After providing informed consent, participants were directed to Qualtrics to complete the survey.

Results

Data Preparation and Preliminary Analyses

All data preparation and preliminary analyses were conducted in SPSS version 25. Since the original dataset included variables not relevant to the present study, and our population of interest was self-identified Christians, a dataset with only variables and individuals of

interest was created (n = 235). Before conducting the main analyses, data were screened for accuracy of input, missing data, and assumptions relevant for confirmatory factor analysis (CFA). The Little's MCAR test indicated that data were missing completely at random (χ^2 = 42.06, df = 29, p = .055). As less than 1 % of the total data were missing, and all missing information was on demographics information (including religious affiliation, which is relevant to the current study), those who did not report religious affiliation were excluded from the study. Additionally, we excluded one participant who identified as a transgender man from the study, as no meaningful group comparisons could be made, leaving a total of 207 participants in the final sample. Data were then checked for multivariate normality and multicollinearity, and the data met the assumptions (Cook's distance < 1; Tolerance > .1; VIF < 10).

Confirmatory Factor Analysis

For our main analysis, we conducted a CFA, using Mplus version 7.4 with ML estimation to determine whether the three-factor structure of TABS would be confirmed with a sample of self-identified Christians. Data-model fit was assessed using the model Chi-square test, the root-mean-square error of approximation (RMSEA), comparative fit index (CFI), and standardized root-mean-square residual (SRMR) along with parameter estimates. The target values of the fit indices were as follows: RMSEA < .08, CFI > .90, and SRMR < .08 (Kline, 2016).

The CFA model consisted of three latent variables and 29 items as indicators: Interpersonal Comfort assessed by 14 items, Sex/Gender Beliefs assessed by 10 items, and Human Value assessed by five items. The fit indices indicated good model fit, χ^2 (374, N = 207) = 821.46, p < 0.001; RMSEA = .076 (90%CI = .069; .083), CFI = .926, SRMR = .053. Given the sample size, the normed chi-square was calculated ($normed\ \chi^2$ = 2.20 < 4), which also showed adequate model fit. All factor loadings were significant and ranged from moderate (.62) to high (.93), suggesting that the items adequately measured the latent factors (Tabachnick & Fidell, 2007). The lowest factor loading .62 was for item T2.9R ("A child born with ambiguous sex-parts should be assigned to be either male or female") on the Sex/Gender Beliefs Subscale, while the highest factor loading (.93) was for item T3.2 ("Transgender individuals should be treated with the same respect and dignity as any other person") on the Human Value Subscale. The factor loadings for this sample were generally comparable to the original scale development study. See Table 2 for all standardized factor loadings from the current sample and the original scale development study.

We then calculated Pearson's correlation coefficients to examine TABS' subscale correlations. Results indicated that there was moderate to high correlations among the three subscales of TABS. Specifically, the Interpersonal Comfort Subscale was highly correlated with the Sex/Gender Beliefs (r =.73) and the Human Values (r =.72) Subscales, while the factor correlation between Human Value and Sex/Gender Beliefs Subscales was moderate (r =.50). Based on the moderate to high factor correlations, we tested an alternative model to determine whether or not a single-factor model would better represent the data with the self-identified Christian sample. The fit indices for the single-factor model indicated poor model fit, (χ^2 (377, N = 207) = 1940.15, p < 0.001; RMSEA = .142 (90%CI = .135; .148),

CFI = .743 SRMR = .094), providing further evidence for the appropriateness of the original three-factor model with a Christian sample.

Reliability Evidence and Descriptive Statistics

As a measure of the internal consistency of TABS scores, we calculated Cronbach's alpha for each of the subscales and the total scale, which indicated high reliability of scores on all scales: Overall TABS: α = .97; Interpersonal Comfort: α = .97; Sex/Gender Beliefs: α = .94; Human Value: α = .94. Moreover, the "alpha if item deleted" values indicated that no improvement in Cronbach's alpha would be achieved in the total scale or any subscales through the removal of any item. Likewise, all corrected item-total correlations were above .50, which is above the .30 value recommended by Nunally and Bernstein (1994).

We also calculated descriptive statistics on the total scale and subscales of TABS and found that, overall, the sample of self-identified Christians exhibited accepting attitudes toward transgender people (Overall TABS: $M = 136.52$, $SD = 42.94$, raw range = 29 – 203). Likewise, the mean scores on the Interpersonal Comfort and Human Value Subscales were above the midpoint (Interpersonal Comfort: $M = 67.52$, $SD = 23.92$, raw range = 14 – 98; Human Value: $M = 29.80$, $SD = 6.66$, raw range = 5 – 35), suggesting that, overall, participants were comfortable interacting with transgender people and endorsed the fundamental value of transgender individuals. On the other hand, the mean score of the Sex/Gender Beliefs Subscale was just below the midpoint ($M = 39.20$, $SD = 17.00$, raw range = 10 – 70), indicating that participants held a more fixed than fluid view of sex and gender. Table 3 shows the descriptive statistics, reliability, and bivariate correlations of TABS subscales.

Discussion, Limitations, and Conclusions

As research on anti-transgender prejudice and its impact on the transgender population progresses, the availability of psychometrically sound measures to assess this form of prejudice becomes essential. Moreover, given the large presence of self-identified Christians in the United States and the implications of their beliefs on the lives of transgender individuals (see Introduction), being able to accurately measure attitudinal nuances arising from Christian systems of belief becomes particularly important. Accordingly, the aim of the present study was to validate the use of the TABS (Kanamori et al., 2017) with a sample of the U.S. Christian population.

Overall, findings from the present study provide support for the use of TABS with Christians in the United States. First, results of the Confirmatory Factor Analysis (CFA) demonstrated that TABS is structurally valid for self-identified Christians, providing preliminary evidence for its measurement invariance between the overall U.S. population and the Christian subpopulation. In particular, the comparison of data-model fit between the original three-factor structure vs. an alternative one-factor structure of TABS provides evidence for the appropriateness of the original three-factor factor structure with self-identified Christians. Given the increasing recognition of the importance of cross-sample construct equivalence (e.g., Putnick & Bornstein, 2016) and the lack of evidence for a stable factor structure in the widely used GTS (i.e., different factor structures were found across separate studies

involving the GTS; Hill & Willoughby, 2005; Winter et al., 2008), findings from the present study show TABS as an instrument holding promise for continued use in future transgender attitudes research.

Second, mirroring findings from the original scale development study and other studies utilizing TABS (e.g., Carroll, 2018; Hatch, 2018; Kanamori & Cornelius-White, 2017; Kanamori et al., 2017; Lopez-Saez et al., 2020), TABS scores were found to be internally consistent for all subscales as well as for the overall scale. No deletion of items improved the Cronbach's alpha and the item-total correlations of scale items further indicated the homogeneity of the items (Nunnally & Bernstein, 1994). We did not, however, examine the test-retest reliability of TABS scores, which should be evaluated in future studies with Christian samples to garner further evidence of the score reliability of TABS with this particular subpopulation. Likewise, longitudinal studies examining the predictive validity of TABS with the Christian population (e.g., whether TABS score predict specific discriminatory behaviors) would add to the validity evidence and utility of TABS (Messick, 1995).

TABS' descriptive statistics from the current study also provide some preliminary sense of the overall attitudes of self-identified Christians. More specifically, an examination of the mean factor scores indicated that, overall, this sample of self-identified Christians held accepting attitudes of transgender persons, particularly regarding human value and interpersonal comfort. This finding aligns with recent work suggesting that attitudes may be changing among some Christians and that their views of transgender people may be more variable and nuanced than what has been generally perceived (e.g., Campbell et al., 2019; Smith, 2017). In terms of beliefs related to gender, the sample of self-identified Christians in the present study scored below the midpoint on the sex/gender beliefs subscale, indicating that they may hold a more binary and fixed view relative to the general U.S. population. This finding is consistent with previous literature, including the 2017 analysis at the Pew Research Center, which reported that 63% of Christians in the U.S. believe that gender is determined by a person's sex at birth, thus suggesting adherence to a dichotomous view of sex and gender (Smith, 2017). At the same time, the overall findings related to all TABS factors suggest that, among self-identified Christians, holding to a binary view of sex and gender does not necessarily translate into a denigration of or discomfort with transgender individuals, who may challenge their belief in a gender binary. Likewise, a high endorsement of the human value of transgender individuals found among the Christian sample in this study suggest that focusing on the common value of all humans may be a productive strategy when working with self-identified Christians to reduce anti-transgender prejudice (Paluck & Green, 2009). Since understanding the attitudes of Christians toward transgender persons was not the primary aim of the study, future work should extend current findings to better understand their views and attitudes.

In terms of applied research, with its sensitivity to religiously rooted views, TABS may be a valuable tool for researchers to utilize to assess both current and potential changes in attitude toward transgender persons among various religious groups. Given that the limited sample size of the current study prevented a comparison of attitudes across denominations and regions, future studies should be conducted with larger and more diverse samples of

Christians to examine potential differences across subgroups within Christianity (White Hughto et al., 2016). Relatedly, the current study utilized a predominantly Caucasian, online sample, which is not representative of the U.S. population. Therefore, the results may not be representative of ethnically diverse self-identified Christians. Future research would benefit from selecting a more diverse sample utilizing non-online recruitment platforms in order to be inclusive of underrepresented communities who may lack access to the internet.

This scale could also aid in transgender awareness training and education among religiously identified individuals. For example, TABS may be used as a pre/post measure in assessing the effectiveness of interventions and training programs designed to reduce anti-transgender prejudice, particularly in the medical and mental health community where transgender individuals experience high levels of discrimination (Grant et al., 2011; Kenagy & Bostwick, 2005; Xavier et al., 2005). The use of TABS in this way would be beneficial not only in evaluating the efficacy of existing and new prejudice reduction programs but also in garnering additional evidence for the external validity of TABS scores (Messick, 1995).

In conclusion, limitations notwithstanding, findings from the current study provide initial evidence that TABS is a reliable and valid tool appropriate for use with the U.S. Christian population. On the other hand, given that scale validation is best conceived as a long-term plan of research to acquire a body of evidence to support the intended use of a scale with a given population (Bandalos, 2018; Beere, 1990), it is necessary to advance this line of research in order to establish ample psychometric support for the use of TABS with its intended population.

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Table 1.

Demographic characteristics

Characteristic (*N* = 207)	*n*	%
Gender		
Man	82	39.60%
Woman	125	60.40%
Ethnicity/Race		
African American	20	9.70%
Asian/Pacific Islander	7	3.40%
Caucasian	160	77.30%
Latino/Hispanic	13	6.30%
Native American	3	1.40%
Biracial/Multiracial	4	1.90%
Education		
High School Diploma	25	12.10%
Some College	38	18.40%
Associate Degree	23	11.10%
Bachelor’s Degree	85	41.10%
Advanced Degree	36	17.40%
Religious Affiliation		
Catholic	72	34.80%
Evangelical Christian	59	28.50%
Other Christian (Non-evangelical)	76	36.70%

Table 2.

CFA Standardized Path Coefficients

Observed Indicators	Interpersonal Comfort	Sex/Gender Beliefs	Human Value
T1.1	.88 (.92)		
T1.2	.83 (.89)		
T1.3R	.81 (.87)		
T1.4R	.68 (.43)		
T1.5	.92 (.94)		
T1.6	.78 (.79)		
T1.7	.85 (.91)		
T1.8R	.82 (.82)		
T1.9R	.91 (.94)		
T1.10R	.82 (.89)		
T1.11R	.76 (.85)		
T1.12	.86 (.89)		
T1.13R	.92 (.94)		
T1.14R	.83(.92)		
T2.1R		.79 (.81)	
T2.2		.76 (.73)	
T2.3R		.83 (.89)	
T2.4R		.75 (.84)	
T2.5R		.89 (.90)	
T2.6		.75 (.79)	
T2.7		.83 (.81)	
T2.8R		.88 (.89)	
T2.9R		.62 (.66)	
T2.10		.81 (.80)	
T3.1			.92 (.85)
T3.2			.93 (.90)
T3.3			.80 (.82)
T3.4			.82 (.86)
T3.5			.88 (.84)

Note. N = 207. R = reverse scored. All path coefficients significant at $p < .001$. Factor loadings in parentheses are from the original TABS development study.

Table 3.

Means, standard deviations, reliability estimates, and subscale correlations

Subscales	Min	Max	M	SD	1	2	3
Interpersonal Comfort	14	98	67.52	23.92	*.97*		
Sex/Gender Beliefs	10	70	39.20	17.00	.73	*.94*	
Human Value	5	35	29.80	6.66	.72	.50	*.94*

Note. N = 207. M = mean. SD = standard deviation. All correlations significant at $p < .001$. Italicized values on the diagonal represent Cronbach's alpha estimates.