The Gender Minority Stress and Resilience Measure: Psychometric Validity of an Adolescent Extension

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Abstract

Objective: Minority stress contributes to several physical and psychological problems in sexual and gender minorities but is largely understudied in transgender/gender-nonconforming (TGNC) individuals, particularly TGNC adolescents. The availability of psychometrically sound measures of adolescent minority stress can help improve assessment and treatment planning in this area. This original research study examined whether an existing measure of TGNC-related minority stress and resilience among adults could retain construct and psychometric validity when administered to TGNC adolescents.

Methods: Respondents were 258 TGNC adolescents, aged 12 –17.99 years (*M*=15.1, *SD=1.4*), majority white/European American (70.2%) and assigned female at birth (71.7%) seeking care in an interdisciplinary gender-health clinic within a pediatric academic medical center in the Midwestern United States. Respondents completed a battery of clinical measures as standard of care, including the Gender Minority Stress and Resilience Measure, measures of anxiety and depression symptoms, and parental support.

Results: Findings indicated that minor adaptation of the existing adult measure resulted in high internal consistency and construct validity across 9 subscales assessing domains of minority stress and resilience in this sample of TGNC adolescents.

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Conclusions: This study provides evidence of the factor structure, reliability and validity of an adolescent extension of the Gender Minority Stress and Resilience measure (GMSR-A). These findings demonstrate the clinical utility of the GMSR-A, a tool that can help increase understanding of minority stress and resilience phenomena experienced by TGNC adolescents.

Keywords

transgender/gender-nonconforming; adolescents; social stigma; measurement

Introduction

Sexual and gender minority individuals experience a disproportionate degree of mental health conditions in adolescence and adulthood compared with heterosexual and cisgender individuals (Dawson, Wymbs, Gidycz, Pride, & Figueroa, 2017; de Vries, Doreleijers, Steensma, & Cohen-Kettenis, 2011; Mays & Cochran, 2001). Minority stress theory was originally proposed to help explain how social stigma contributed to mental health disparities in sexual minority adults (i.e., lesbian, gay, bisexual; LGB) (Meyer, 1995, 2003). In more recent years, clinical professionals and researchers alike have considered the role of social stigma on health-related outcomes (Brennan et al., 2017; Stephenson, Metheny, Sharma, Sullivan, & Riley, 2017) among transgender/gender-nonconforming (TGNC) individuals, whose expansive gender identities/expressions may not conform to culturally-defined norms associated with their sex assigned at birth (Adelson, 2012). A recent systematic review by Valentine and Shipherd (2018) characterized mental health outcomes based on data from empirical studies published over a 20 year period (i.e., 1997–2017). Per the authors' conclusions, this body of literature suggests that minority stress factors contribute to mental health problems among TGNC individuals. These findings align with a tenet of the interdisciplinary gender affirmative model of medical and behavioral health care for TGNC individuals, which states "if there is pathology, it more often stems from cultural reactions (e.g., transphobia, homophobia, sexism) rather than from within the [individual]" (Citation removed for blind review)(p X).

Meyer's (2015) minority stress theory outlines the importance of understanding individual and community-level resilience as integral to stress-coping processes. Included among resilience factors are community connection and personal acceptance of identity (i.e., pride), both of which offset the toll of two interacting factors that negatively impact mental health: distal and proximal stressors. Distal stressors include forms of discrimination, victimization, rejection and non-affirmation toward LGB and TGNC individuals that are maintained through heterosexist and cisgender-normative laws, policies, and cultural norms. In turn, these stressors impact the individual on a personal level through proximal stressors that may include concealing their identity to avoid victimization, expecting or perceiving prejudice, experiencing rejection or non-affirmation from others, or adopting stigmatized perceptions of themselves and members of their minority group (e.g., internalized stigma). Of these, stressors more unique to gender minority individuals may include internalized transphobia and concealment of gender transition history.

Findings from several studies (for a summary of these, see Hatzenbuehler & Pachankis, 2016) support what was first purported by minority stress theory over two decades ago (Meyer, 1995): that among LGB/TGNC adults, "stigma, prejudice, and discrimination create a hostile and stressful social environment that causes mental health problems" (Meyer, 2003, p. 674). More recently, some epidemiology researchers have declared gender identity an understudied social determinant of mental health (Reisner, Katz-Wise, Gordon, Corliss, & Austin, 2016).

Yet, a dearth of research exists on both minority stress and protective/resiliency factors in TGNC adolescents. Compared to cisgender youth, rates of mental health conditions among gender minority adolescents are higher, particularly depression and anxiety. For example, with regard to depression, results from a retrospective cohort study of electronic medical record data from a sample of transgender individuals aged 12–29 years indicated a two- to three-fold increased risk of depression, suicidal ideation and suicide attempts compared to cisgender matched controls (Reisner et al., 2015). Similar findings have been corroborated among other youth samples in the past (Grossman & D'Augelli, 2007). Depression has been tied to experiences minority stress via pathways such as internalized stigma (Newcomb & Mustanski, 2010) and gender-related non-affirmation (Russell, Pollitt, Li, & Grossman, 2018). In terms of anxiety, the rate of social anxiety is particularly high (10%) (de Vries et al., 2011), where its characteristic patterns of social avoidance may be the result of minority stress factors including discrimination, victimization, and poor social support related to gender identity/expression (Roberts, Schwartz, & Hart, 2011). More recent findings from national surveys of discrimination suggest that elements of minority stress may be commonly experienced by TGNC adolescents. For example, findings from a national survey conducted by researchers from the University of Connecticut and the Human Rights Campaign (HRC) Foundation found that TGNC adolescents, aged 14–17 years, are twice as likely as cisgender LGB youth to be taunted or mocked by family members, and 85–91% of TGNC adolescents reported moderate to high levels of stress (HRC, 2018). Moreover, according to the National Transgender Discrimination Survey, 78% of TGNC adult respondents reported experiencing gender-related discrimination and harassment in grades K-12 (Grant et al., 2011).

In recent years, the minority stress framework was developed into and psychometrically validated as a measure for clinical and research use among TGNC adults and referred to as the Gender Minority Stress and Resilience measure (GMSR) (Testa, Habarth, Peta, Balsam, & Bockting, 2015). Following the development of the GMSR, research examining gender minority stress phenomena in TGNC adults has grown. The GMSR was developed by Testa and colleagues through an expert panel review of focus group data obtained from TGNC adults. The GMSR is the first and only known psychometrically valid self-report measure of minority stress and resilience in TGNC adults, aged 18 years and older. Research and clinical literature has already employed the measure as standard behavioral health assessment for interdisciplinary gender-affirming health care (Citation removed for blind review), and to examine correlates with mental health (Brennan et al., 2017), family and social support (Fuller & Riggs, 2018), and HIV testing (Stephenson et al., 2017).

There is no known adolescent-focused counterpart to the GMSR, nor is it known to what extent the GMSR itself can retain construct validity and other psychometric properties when administered to adolescents under age 18 years. As observed following the publication of the GMSR, the existence of a reliable method to measure minority stress phenomena will increase assessment in clinical practice and emergence in research literature focused on TGNC adolescents.

Research Aims and Hypotheses

The present study tested six hypotheses to examine to what extent an existing measure of TGNC-related minority stress and resilience in adults (i.e., the GMSR) could retain construct and psychometric validity when administered to TGNC adolescents. Consistent with scale development and validation recommendations highlighted elsewhere (Holmbeck & Devine, 2009), these distinct hypotheses test for model integrity, criterion validity, and both convergent and discriminant validity. Specifically, researchers hypothesized that the integrity of the 9-factor GSMR model would remain intact as evidenced by adequate internal consistency on a scale structure similar to the adult GMSR. With respect to criterion validity, researchers hypothesized that scores of distress resulting from distal stressors (hypothesis 2) and proximal stressors (hypothesis 3) would significantly correlate with mental health outcomes (e.g., depression and social anxiety). When testing the convergent validity of all subscales, researchers hypothesized that individual subscales would correlate significantly (in either positive or negative directions, depending on the subscale) with both mental health (hypothesis 4) and parental support (hypothesis 5) outcomes. Last, to test for discriminant validity (hypothesis 6), researchers hypothesized that constructs were conceptually distinct from each other as evidenced by low correlation coefficient values (below .6).

Method

Survey Data Collection

Survey data were collected from adolescents as standard-of-care at their baseline clinical visit to an interdisciplinary gender-health clinic located within a pediatric academic medical center along with several other paper-and-pencil self-report measures, including emotional and behavioral symptom checklists and scales pertaining to gender identity and body satisfaction (a comprehensive review of these measures is detailed elsewhere) (Citation removed for blind review). Prior to starting the battery, all questionnaires were described to respondents and parents. Participants were told that the minority stress items pertained to "experiences of stress and coping related to being TGNC." The instruments of relevance for this study pertained to gender minority stress and resilience, as well as additional items included to assess construct validity pertaining to negative future expectations (depressive and social anxiety symptoms) and non-affirmation (parent support items). All relevant instruments were completed within 15–20 minutes and were only available in English.

Survey Participants

Participants were 258 TGNC adolescent outpatients, aged 12–17.99 years (M=15.1, SD=1.4), of an interdisciplinary gender-health clinic located within a pediatric academic medical center in a large city within the Midwestern United States (Table 1). This study was

approved by the institutional review boards of both [Name omitted for blind review] and [Name omitted for blind review] as an archival chart review study. Per chart review data, 185 participants were assigned female at birth (71.7%), and the remainder was assigned male at birth (no youth self-identified as intersex or carried a diagnosis of a Difference in Sex Development in their medical chart). In terms of race, 70.2% of the youth were White/ European American, 12.8% were Hispanic/Latinx, 1.6% were Black/African American, 3.1% were Asian/Pacific Islander, and 10.9% identified as mixed race (Table 1).

Instruments

Demographics.—Demographic characteristics were collected through a measure completed by participants or their parents. The demographic characteristics examined in the current study included sex assigned at birth, age, and racial or ethnic identity.

Experiences of minority stress and resilience.—A slightly modified version of the Gender Minority Stress and Resilience (GMSR) Measure (Testa et al., 2015) was included in the survey. Originally developed for TGNC individuals aged 18 years and over, the GMSR is comprised of 9 subscales that correspond to minority stress and resilience paradigms. Four of the subscales assess distal stress factors including gender-related discrimination (D), rejection (R), victimization (V) and gender identity non-affirmation (NA). Three subscales assess proximal stress factors including internalized transphobia (IT), negative expectations for the future (NFE) and non-disclosure of gender identity/history (ND). The remaining two subscales assess factors of resilience including TGNC pride (P) and community connectedness (CC). Three of the nine subscales (i.e., (D), (V), (R)) consist of count response formats. The remaining six subscales (i.e., (NA), (IT), (NFE), (ND), (P), and (CC)) relied on a 5-point Likert response scale (Strongly Disagree to Strongly Agree). Sample items include "People don't respect my gender identity because of my appearance or body" (NA), "If I express my gender history, I could be a victim of crime or violence" (ND), "It is a gift that my gender identity is different from my sex assigned at birth" (P), and "I feel connected to other people who share my gender identity" (CC). Higher scores were indicative of greater phenomena. As no subscale order effects were noted as considerations in the original measure, these researchers made modifications to subscale order so that those with similar response options were clustered together (i.e., CC moved to immediately follow P). At the item level, wording of two items was changed to increase relevance and understanding among this age group (e.g., In the R item "I have had difficulty finding a partner or have had a relationship end because of my gender identity or expression," "a partner" was replaced with "someone to date." In the NA item, "I have to be 'hypermasculine' or 'hyperfeminine' in order for people to accept my gender," "hyper" was replaced with "very.") Last, to assess a form of victimization frequently reported by youth in this clinic, researchers added an item to V (e.g., "I have heard negative statements about transgender or gender-nonconforming people."). This item, although highly endorsed and initially included in their factor analysis, was ultimately excluded by Testa and colleagues (2015) from subsequent statistical analyses due to its low variability in their adult sample.

Depressive and social anxiety symptoms.—Major Depressive Disorder (MDD) and Social Anxiety Disorder symptoms were measured using the Youth Inventory (YI), a 118-

item self-report scale employed as an initial screening tool to evaluate diagnostic criteria for several emotional and behavioral disorders among youth aged 12–18 (Gadow & Sprafkin, 2016). Participants reported the frequency of each symptom occurrence on a four-point scale from 0 (Never) to 3 (Very often). Per the scoring instructions, an individual qualified as meeting diagnostic criteria for MDD or Social Anxiety Disorder when, respectively, they endorsed a sum of 11 depressive and 2 anxiety symptoms at a frequency of "often" or "very often." The YI scoring guide also provides tables on which raw scores can be standardized based on normative data segregated by sex assigned at birth; however, this scoring method was not pursued given the lack of professional consensus in mental health assessment regarding the use of sex-normative data in TGNC individuals (Keo-Meier & Fitzgerald, 2017).

Parental support.—Researchers employed two measures, a total of 18 items, to assess both general and gender-related parental support. To assess general parental support, four items from the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988) that related to family support were adapted by changing "family" to "parent(s)" on items such as "I can talk about my problems with my family." The MSPSS has demonstrated validity and reliability among LGBTQ youth (alpha=.094) (Ybarra, Mitchell, Palmer, & Reisner, 2015). To assess gender-related parental support, participants completed the Perceived Parental Attitudes of Gender Expansiveness Scale for Youth (PAGES-Y) (Citation removed for blind review), a 14-item measure of both parental support and non-affirmation in TGNC adolescents and young adults, aged 12–24 years. The PAGES-Y is comprised of two subscales—perceived parental non-affirmation and perceived parental acceptance— both of which were employed in this study. For the purpose of aligning response scales of both general parental support items with gender-related support parent items, and as done by Simons and colleagues (Simons, Schrager, Clark, Belzer, & Olson, 2013), these researchers adapted the original 7-point Likert scale of the MSPSS items (Very Strongly Disagree to Very Strongly Agree) to a 5-point scale. For all subscales employed, higher scores were indicative of a greater degree of the measured construct. The Cronbach's alpha of the four general parental support items was .87, and .89 for the PAGES-Y.

Statistical Analysis—Two types of statistical analysis were employed to assess the psychometric properties of the GMSR. Mplus 8 (Muthén & Muthén, 1998–2017) was used to conduct a confirmatory factor analysis of the GMSR scales using robust weighted least squares estimator (WLSMV) due to using categorical survey items. As described above, nine scales were hypothesized. The overall model fit was tested using recommended fit statistics (Schreiber, Nora, Stage, Barlow, & King, 2006), followed by calculating Cronbach alphas to characterize internal consistency for each scale. Due to the categorical nature of the items, the approach described in McDonald (1999) was used for calculating alphas. SPSS 24 was used to assess evidence for criterion and construct (convergent and discriminant) validity by calculating correlations among total scale scores.

Results

Hypothesis 1: Model Integrity

A confirmatory factor analysis using the 59 indicator variables of the GMSR provided evidence to support a 9-factor model as identified in Hypothesis 1: χ^2 (1626)=2596.865, p<.001; χ^2/v Ratio=1.597 (Critical value: $\chi^2/v<2$); Cumulative Fit Index (CFI)=.909 (Critical value: CFI>.95); Tucker Lewis Index (TLI)=.905 (Critical Value: TLI>.95); Root Mean Square Error of Approximation (RMSEA)=.048 (95% CI=.045, 052) (Critical Value: RMSEA<.05), Standardized Root Mean Square Residual (SRMR)=.121 (Critical Value: SRMR<.1). Cronbach's alphas indicated adequate internal consistency for all separate scales, ranging from .8 to .95 (Table 2).

Hypotheses 2 and 3: Criterion Validity

Partially consistent with hypothesis 2, criterion scores for distal and proximal factors correlated to different degrees with mental health outcomes. Among the distal stress factors, three out of four correlated positively with depression symptoms (except for Discrimination) and two out of four correlated positively with social anxiety symptoms (except for Discrimination and Rejection). For depression, correlation coefficients ranged from .16 to .34 and for anxiety, coefficients ranged from .18 to .20. The four proximal stress factors correlated positively with both depression and social anxiety symptoms. Correlation coefficients ranged from .26 to .40 for depression and from .24 to .37 for social anxiety. Among resilience factors only Pride correlated negatively with depression, but both Pride and Community Connectedness correlated negatively with social anxiety (Table 3).

Hypotheses 4 and 5: Convergent Validity

Consistent with hypothesis 4, all but one of the nine GMSR subscales correlated significantly with the three parent support scales as a proxy for life stress (i.e., Discrimination was not significantly correlated with Parental Affirmation). Correlation coefficients ranged from .20 to .40. Inconsistent with hypothesis 5, only Pride, but not also Community Connectedness (CC) correlated with all parental support measures (i.e., CC was not significantly correlated with General Parental Support) (See Table 3).

Hypothesis 6: Discriminant Validity

Results support hypothesis 6 in that all correlations in hypotheses 1 to 4 were below .6, indicating conceptual distinction between constructs.

Discussion

To increase the assessment of minority stress factors among adolescents in clinical care and research settings, this study aimed to examine the psychometric properties of a slightly modified version of the Gender Minority Stress and Resilience Measure (Testa et al., 2015) among a sample of 258 TGNC clinic-referred adolescents, aged 12–17.99 years. Consistent with related hypotheses, the findings demonstrated internal consistency of the nine-factor measure as well as its criterion and construct validity, suggesting that the GMSR for

Adolescents (GMSR-A), a lower-aged extension of the GMSR, is a reasonable tool to assess adolescent distress resulting from distal and proximal forms of gender minority stress.

A notable outcome was the validation of the additional Victimization subscale item included by the researchers (i.e., "I have heard negative statements about transgender and gender-nonconforming people."). While the six existing subscales all assessed direct experiences of physical, verbal, emotional and property-related victimization, this new addition assessed a subtle and more indirect method of potential harm. In the current sample, 90.5% of youth endorsed the item. Consistent with our findings, Testa and colleagues (2015) also found a high percentage of adults reporting they had heard negative statements about transgender or gender-nonconforming people. However, Testa and colleagues (2015) did not publish this item's rate of endorsement in their sample. Given its high endorsement in their sample, Testa and colleagues excluded this item from their final analysis of the GMSR due to the item lacking variability. With the unknown possibility that the item variability in the current sample (90.5%) may have been greater than in Testa and colleagues' adult sample, researchers in the current study retained the item. This decision was also weighted by anecdotal reports from adolescent TGNC patients whose accounts of past and ongoing victimization often included being exposed to defaming statements (not overtly targeted at them) from family, peers and media about TGNC individuals. The high endorsement of this item may contribute to the validity of the Victimization subscale. Perhaps, more importantly, the high endorsement of this item suggests that TGNC adolescents may be particularly vulnerable to negative psychological and traumatic stress responses resulting from both direct and *indirect* victimization related to their gender identity and/or expression.

In assessing criterion validity, both depression and social anxiety symptom count scores were significantly and most strongly associated with experiences of victimization and non-affirmation, two distal stressors. This pattern suggests that victimization and non-affirmation represent distal stressors that are particularly important indicators for mental health screening. Additionally, these distal stressors may represent targets for intervention. For instance, specifically to non-affirmation, findings of a recent study suggest that the use of one's affirmed (i.e., chosen) name in social contexts is associated with lower rates of depression, suicidal ideation, and suicidal behavior (Russell et al., 2018). Similarly, mental health screening may also be indicated with the endorsement of proximal stressors given that all subscales in this study were associated with either depression or social anxiety.

In contrast to criterion validity hypotheses pertaining to distal and proximal stressors, Discrimination subscale scores did not positively correlate with depression and social anxiety scores nor did they negatively correlate with perceived parental affirmation scores. The lack of correlation here, in contrast to that found among the adult measure, was likely due to three of the five Discrimination subscale items being potentially more relevant to an adult than adolescent population (e.g., finding or keeping employment, being denied promotion, obtaining identity documents). As a result, this issue of relevance limited the variation in score distribution compared to the other subscales which, in turn, affected the correlation analysis. Interpretation of this subscale should account for these limitations and promote the clinician/researcher to assess additional forms of discrimination that may be more relevant for the adolescent but not assessed here (e.g., school based discrimination).

The non-significance of the association between Community Connectedness and general parental support was understandable. While a TGNC adolescent with general parental support may be more prone to positive attitudes about connections to TGNC community members, it is likely more important to assess instrumental gender-related family support when attempting to assess its impact on an adolescent's ability to seek community.

From a clinical perspective, using the GMSR-A as a screening tool can not only assist clinicians in better understanding and contextualizing their assessments of psychological functioning in their adolescent TGNC clients, but also identify targets or priorities for intervention. For instance, resilience factors assessed by the GMSR-A (e.g., Community Connectedness) were negatively correlated with symptoms of depression and social anxiety. Thus, clinicians may consider offering group-based treatments for depression and anxiety in which TGNC adolescents, in the context of evidence-based treatment, would meet other TGNC adolescents, potentially improving a sense of connection with gender minority communities. Additionally, TGNC adolescents scoring low on Pride or Community Connectedness can be referred to in-person or online peer support groups to improve social connections. In the context of family-based interventions, an adolescent's GMSR-A scores can be shared with their parents while providing education on the negative correlation between Non-Affirmation and depression and anxiety symptoms, and the positive correlation between parental support and Pride as empirical justification and support for affirmative therapeutic strategies.

Overall, it is the hope of these researchers that this psychometrically-validated and slightly modified version of the Gender Minority Stress and Resilience measure will be widely adopted by health professionals and researchers serving TGNC adolescents in mental health care. The measure is likely to better inform and contextualize their assessment of mental and physical health outcomes among these understudied and highly vulnerable youth.

Limitations

The findings of this study should be interpreted in light of several limitations. The sample represents a predominantly white/European American sample of TGNC adolescents assigned female at birth and accessing health care in a large metropolitan area. The study results may not be generalizable to racially/ethnically-diverse, TGNC youth assigned male at birth and those without access to metropolitan-based care. Data were collected from a clinical sample of youth seeking services from a single gender-affirming interdisciplinary service. These youth presented, in most cases, along with parents/primary caregivers who affirmed their gender transition. Therefore, youth in this sample may represent TGNC adolescents who experience a greater degree of resilience and lesser degree of minority stress. That the data were clinically-derived and gathered as routine standard-of-care at the initial visit to an academic gender clinic, researchers' considerations for participant fatigue limited the extent to which concurrent and discriminant validity of the GMSR-A could be comprehensively assessed.

Future Research

In the short time since first becoming available in 2014, the Gender Minority Stress and Resilience measure has contributed to clinical and public health efforts to assess and document the impact of minority stress and resilience of TGNC adults. There is a particular need for mental health clinicians and researchers to measure adolescent gender minority stress and the processes through which it contributes to mental health conditions in TGNC adolescents. Outcomes from the GMSR-A can be applied to test Hatzenbuehler's psychological mediation framework (Hatzenbuehler, 2009), which postulates that emotion, coping and cognitive factors mediate the association between minority stressors and mental health conditions. For example, the Victimization subscale can contribute to a study examining whether the association between gender-related victimization and social anxiety is mediated by factors such as general self-esteem and family support.

Future research should also explore gender minority stress from a developmental perspective, examining how scores on the GMSR-A may differ based on age. Although beyond the scope and aims of the current study but at the suggestion of journal reviewers, the researchers conducted preliminary analyses examining item endorsement between younger (i.e., age 10–14 years) and older adolescents (i.e., age 15–18 years) in the sample. Age was categorized to coincide with pubertal stage development (i.e., early stage puberty vs. later stage puberty) (Traggiai & Stanhope, 2003), which was not collected in this study. Low levels of endorsement, ranging from 0%–8.6%, were found for a total of four items emerging from the Discrimination (i.e., "I have had difficulty finding housing or staying in housing because of my gender identity or expression.", "I have had difficulty finding employment or keeping employment, or have been denied promotion because of my gender identity or expression."), Rejection (i.e., "I have been rejected by or made to feel unwelcome in my ethnic/racial community because of my gender identity or expression.") and Victimization (i.e., "I have had my personal property damaged because of my gender identity or expression.") subscales. Importantly, low item endorsement was more prevalent for younger adolescents than for older adolescents (i.e., low endorsement was found in three out of the four variables only for younger adolescents). These item endorsement differences between younger and older adolescents suggest that future research should explore gender minority stress from a developmental perspective, including categorizing according to pubertal development, since there may be important differences in how the scale should be used with teens based on their ages and/or degrees of pubertal development.

Conclusions

Overall, the current study offers preliminary evidence of the factor structure, reliability and validity of the GMSR-A, an adolescent version of the Gender Minority Stress and Resilience Measure originally developed by Testa and colleagues (Testa et al., 2015). The GMSR-A has clinical and research utility, demonstrating that it can assess experiences of gender minority stress and resilience in TGNC adolescents aged 12 to 18 years. Aside from previously suggested future research involving the GMSR-A, additional research efforts may examine how forms of minority stress and resilience are affected by aspects of gender affirmation and gender transition, and how the constructs correlate with behavioral health outcomes. A complete copy of the GMSR-A is included as an online supplement to this article.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Implications for Impact

The findings from this research study show that mental health clinicians can adequately assess gender minority stress and resilience among transgender/gender-nonconforming (TGNC) adolescents by using a slightly modified version of an existing measure originally created for TGNC adults.

Table 1

Demographic Information for Participants Included in this Study

	n	%
	258	
Age	12–17.99 years	
M =	15.1	
SD =	1.4	
Sex Assigned at Birth		
Female	185	71.7%
Male	73	28.3%
Race/ethnicity		
White (non-Latinx)	181	70.2%
Black/African American (non-Latinx)	4	1.6%
Hispanic/Latinx	33	12.8%
Asian/Pacific Islander	8	3.1%
Multiracial/Other	28	10.9%
Missing	4	1.6%
Education level		
High school or less	211	81.7%
Some college	1	0.4%
Not currently in school	5	1.9%
Missing/Unreported	41	15.9%

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Table 2:

GMSR Confirmatory Factor Model (Standard Errors in Parenthesis; n=258)

Scale, number of items, and coding	Alpha	Range	Total score: Mean (SD)
Gender-related Discrimination (5) **0=No, 1=Yes**	.80	0–5	1.5 (1.1)
Item number and abbreviation			Factor loading (SE)
D1 Difficulty getting medical or mental health treatment			1.000
D2 Difficulty finding a public bathroom			1.266 [**](.429)
D3 Difficulty getting identity documents			1.181 [**](.408)
D4 Difficulty finding/staying in housing			1.660 [*](.739)
D5 Difficulty with employment			1.767 [**](.620)
Gender-related Rejection (6) **0=No, 1=Yes**	.82	0–6	1.7 (1.6)
Item number and abbreviation			Factor Loading (SE)
R1 Difficulty finding someone to date/relationship ended			1.000
R2 Rejected/felt unwelcome by religious community			1.228 [***](.219)
R3 Rejected/felt unwelcome in ethnic/racial community			1.304 [***](.243)
R4 Rejected/distanced from friends			1.209 [***](.206)
R5 Rejected at school/work			1.260 [***](.219)
R6 Rejected/distanced from family			0.929 [***](.196)
Gender-related Victimization (7) **0=No, 1=Yes**	.95	0–7	2.0 (1.4)
Item number and abbreviation			Factor Loading (SE)
V1 Verbally harassed/teased			1.000
V2 Threatened with being outed/blackmailed			1.093 [***](.132)
V3 Damage to personal property			1.115 [***](.145)
V4 Threatened with physical harm			1.203 [***](.137)
V5 Pushed, shoved, hit or had something thrown at me			1.008 [***](.120)
V6 Unwanted sexual contact because of gender			0.789 [**](.255)
V7 Heard negative statements about TGNC people			1.155 [***](.199)
Non-affirmation of gender identity (6) **0–4 ordinal scale (0=strongly disagree; 4=strongly agree)**	.86	0–24	16.11 (5.5)
Item number and abbreviation			Factor Loadings (SE)
NA1 Repeatedly explain gender/correcting pronouns			1.000
NA2 Difficulty being perceived as my gender			1.383 [***](.130)
NA3 Work hard to be seen as my gender			1.506 [***](.135)

Scale, number of items, and coding	Alpha	Range	Total score: Mean (SD)
NA4 Act very masculine/feminine to be accepted by others			1.375 *** (.143)
NA5 Not being respected because of appearance/body			1.271 *** (.128)
NA6 Not being understood because of my gender			1.052 *** (.156)
Internalized Transphobia (8)			
0–4 ordinal scale (0=strongly disagree; 4=strongly agree)	.92	0–32	14.1 (8.3)
Item number and abbreviation			Factor Loadings (SE)
IT1 Resent gender identity/expression			1.000
IT2 Feel like a freak			0.945 *** (.068)
IT3 Gender identity/expression makes me depressed			1.171 *** (.049)
IT4 Gender identity/expression makes me unhappy			1.165 *** (.049)
IT5 I feel like an outcast			1.030 *** (.050)
IT6 Feel gender identity/expression is not "normal"			0.838 *** (.065)
IT7 Embarrassed by gender identity/expression			0.914 *** (.053)
IT8 Envy others without my gender identity/expression			0.742 *** (.064)
Negative Future Expectations (9)			
0–4 ordinal scale (0=strongly disagree; 4=strongly agree)	.94	0–36	17.4 (8.5)
Item number and abbreviation			Factor Loadings (SE)
NFE1 Others would not accept me			1.000
NFE2 Employers would not hire me			0.970 *** (.053)
NFE3 People would think I am "crazy"			1.244 *** (.060)
NFE4 People would think I am disgusting/sinful			1.179 *** (.055)
NFE5 Most people would think less of me			1.283 *** (.062)
NFE6 Most people would look down on me			1.296 *** (.060)
NFE7 I could be a victim of crime/violence			0.933 *** (.065)
NFE8 I could be arrested or harassed by police			0.990 *** (.063)
NFE9 I could be denied good medical care			0.998 *** (.063)
Nondisclosure (5)			
0–4 ordinal scale (0=strongly disagree; 4=strongly agree)	.93	0–20	11.7 (5.8)
Item number and abbreviation			Factor Loadings (SE)
ND1 I don't talk about past experiences/change details			1.000
ND2 I modify my way of speaking			0.990 *** (.043)
ND3 I pay special attention to personal dress/grooming			1.078 *** (.042)
ND4 I avoid exposing my body			0.977 *** (.052)
ND5 I change the way I walk/gesture/sit/stand			1.010 *** (.045)
Community Connectedness (5)	.86	0–20	13.3 (4.1)

Scale, number of items, and coding	Alpha	Range	Total score: Mean (SD)
0–4 ordinal scale (0=strongly disagree; 4=strongly agree)			
Item number and abbreviation			Factor Loadings (SE)
C1 Feel part of a community that shares my gender			1.000
C2 Feel connected to others who share my gender			0.990^{***}(.052)
C3 Feel like I belong			1.004^{***}(.044)
C4 Not like others who share my gender`			0.420^{***}(.081)
C5 Feel isolated/separate from others who share my gender			0.883^{***}(.054)
Pride (8)			
0–4 ordinal scale (0=strongly disagree; 4=strongly agree)	.90	0–32	16.3 (7.3)
Item number and abbreviation			Factor Loading (SE)
P1 Feel special and unique			1.000
P2 Okay people know that my gender and sex are different			1.191^{***}(.086)
P3 No problem talking about gender identity/history			1.151^{***}(.090)
P4 It's a gift that my gender identity and sex are different			1.067^{***}(.085)
P5 Like others but also different because of my gender			0.935^{***}(.083)
P6 Proud that my gender identity and sex are different			1.121^{***}(.083)
P7 Comfortable revealing gender identity and sex to others			1.338^{***}(.093)
P8 Rather people know everything and accept me			1.135^{***}(.087)

*
p<.05

**
p<.01

***
p<.001

χ^2 (1626)=2596.865, p<.001; χ^2/v=1.597; CFI=.909; TLI=.905; RMSEA=.048 (95% CI=.045, .052); SRMR=.121

Table 3

Correlations Among GMSR Subscales, General Parent Support (ParSup), Parental Non-Affirmation (P-NA), Parental Affirmation (ParAff), Depression (D), and Social Anxiety (SocAnx) Symptom Counts (n=182–257)

Subscale/Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. GMSR-D	---													
2. GMSR-R	.29**	---												
3. GMSR-V	.20**	.51**	---											
4. GMSR-NA	.22**	.39**	.24**	---										
5. GMSR-IT	.10	.27**	.17**	.58**	---									
6. GMSR-NFE	.09	.27**	.27**	.41**	.47**	---								
7. GMSR-ND	.19**	.16**	.21**	.27**	.38**	.35**	---							
8. GMSR-CC	.02	.05	–.07	.12	–.19**	–.16**	–.13**	---						
9. GMSR-P	.01	–.01	.06	–.18**	–.38**	–.33**	–.44**	.28**	---					
10. ParSup	–.14**	–.20**	–.21**	–.29**	–.36**	–.31**	–.21**	.11	.28**	---				
11. Par-NA	–.21**	–.21**	–.22**	–.30**	–.37**	–.30**	–.16*	.13*	.21**	.79**	---			
12. ParAff	–.11	–.23**	–.20**	–.30**	–.40**	–.30**	–.15*	.14*	.25**	.78**	.86**	---		
13. Dep	.06	.18*	.16*	.34**	.39**	.40**	.26**	–.08	–.25**	–.20**	–.14	–.23**	---	
14. SocAnx	.05	.11	.18*	.20*	.34**	.37**	.24**	–.14**	–.24**	–.12	–.06	–.09	.48**	---