

**Minority Stressors and their Associations with Severe Psychological Distress Among
Gender Diverse People**

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Abstract

People whose gender does not align with assigned sex often experience negative mental health outcomes related to cisnormative societal expectations and oppression, including familial rejection, threat of harm, and identity invalidation (e.g., misgendering). This study merged two cross-sectional datasets of trans and gender diverse people ($N = 363$; $M_{age} = 22.02$) investigating how various types of distal minority stress experiences impact psychological distress. We tested the associations between three minority stressors (i.e., family rejection, threat of harm, and identity invalidation) and psychological distress using unadjusted and adjusted regression models, including gender-stratified models. In the overall unadjusted model, all three stressors were significantly, positively associated with psychological distress, with identity invalidation having the highest standardized beta value. In the adjusted overall model, only identity invalidation was significantly associated with distress. Results varied in gender-stratified models. Additionally, participants who experienced any of the three stressors had predicted mean distress scores at or above the cutoff for severe psychological distress, while those who did not fell below that cutoff. Results highlight the differential impact of minority stress experiences on gender diverse young adults and provides directions for clinical competency, interventions, and future research towards understanding mental health disparities for trans people.

Public Policy Relevance

Invalidating the identity of gender diverse (e.g., transgender, genderqueer, nonbinary) people is strongly associated with clinically notable levels of psychological distress. This study highlights the need for policies that increase inclusion and decrease invalidation of gender diverse people in systems and society, as well as efforts that educate the public on trans+ issues

to decrease interpersonal forms of harm and invalidation, which have strong potential to impact mental health.

Keywords: Minority Stress, Discrimination, Invalidation, Transgender, Gender Diverse, Psychological Distress, Mental Health

Minority Stressors and their Associations with Severe Psychological Distress Among Gender Diverse Young Adults

Gender diverse people experience substantial deleterious mental health outcomes in the United States (U.S.), including anxiety, depression, general psychological distress, and suicidality (Hunt et al., 2021; Inderbinen et al., 2021; James et al., 2016; Lefevor et al., 2019; Newcomb et al., 2020; Testa et al., 2017). At the center of these mental health inequities is cisnormativity, or prevailing cultural notions of gender and sex that enforce binary cisgender expectations and stigmatize those who violate the norms of their assigned sex (Baril & Trevenen, 2014). These transphobic beliefs often contribute to distal (i.e., external) gender minority stress experiences, where people (often with identity-related power) harm trans people for their gender identity (Testa et al., 2015). Recently, minority stress processes are unfolding against the backdrop of the COVID-19 pandemic, which has exacerbated psychological distress (Hawke et al., 2021; Hunt et al., 2021; Kidd et al., 2021) among gender minority persons. Further, transgender persons are contending with the recent rise in anti-trans legislative proposals across the U.S. (Ronan, 2021) and transphobic public discourse from celebrities and other powerful figures (Mollman, 2021), which invalidates transgender people's identities and is harmful to their mental health (Horne et al., 2021; Pacey et al., 2021). These contextual factors heighten the urgency for more research about minority stressors and the mental health of transgender people during this time. Therefore, the current study aims to explore distal minority stress experiences and their impacts on mental health among transgender and other gender diverse people.

Minority stress theory (Brooks, 1981; Hendricks & Testa, 2012; Meyer, 2003; Rood et al., 2016; Testa et al., 2015) is one of the prevailing theories in transgender health research, positing that those with stigmatized gender identities experience bias, stigma, and discrimination,

which erode one's mental health. In this line of research, distal (e.g., harassment, family rejection) and proximal (e.g., internalized transphobia and identity concealment) gender minority stressors have been associated with risk for general psychological distress, suicidal ideation, depression, and anxiety (Brennan et al., 2017; Chodzen et al., 2019; Inderbinen et al., 2021; Lefevor et al., 2019; Lloyd et al., 2019; Puckett et al., 2020; Tebbe & Moradi, 2016; Testa et al., 2015, 2017; Timmins et al., 2017). Although there is considerable evidence that minority stressors erode the mental health of transgender/nonbinary people, few studies have simultaneously examined multiple forms of distal minority stress and their impact on psychological distress among gender minority people.

Specific distal minority stress experiences have unique impacts on transgender/nonbinary mental health. Family rejection (Delozier et al., 2020; McGuire et al., 2016; Pariseau et al., 2019) and physical forms of victimization (Beckman et al., 2018; dickey et al., 2017; Kolp et al., 2020; Reisner et al., 2016; White Hughto et al., 2017) due to one's gender identity contributes to mental health concerns, such as anxiety and depressive symptoms. Further, identity invalidation (e.g., misgendering, deadnaming, being referred to with language not aligned with one's gender identity), is noted in past research as an especially prevalent distal minority stressor that can impact body image and eating behaviors (Mitchell et al., 2021), substance use (Ehlinger et al., 2021), posttraumatic stress symptoms (Barr et al., 2021), suicidality (Pollitt et al., 2021), and other mental health (James et al., 2016; Pollitt et al., 2021; Testa et al., 2015). These studies highlight how independent distal minority stress experiences have the potential to influence the mental health of transgender and other gender diverse people. Adding to this body of literature, the current study examines multiple forms of distal minority stress concurrently and their impacts on psychological distress to better understand the challenges facing those with

minoritized gender identities. Such findings can inform intervention and prevention efforts that prioritize the most salient distal minority stress harm factors among transgender and nonbinary people.

The ways in which distal stressors manifest can differ across gender identities. For example, nonbinary people have experienced health disparities distinct from binary-identifying trans individuals (Burgwal et al., 2019). Therefore, distal minority stress experiences may differ for binary and non-binary transgender persons, such as misgendering and invalidating comments relating to having singular they pronouns or neo-pronouns (Matsuno & Budge, 2017). As another example, transfeminine people may experience distinct manifestations of minority stress due to society's surveillance of and bias against femininity (i.e., transmisogyny; Colliver, 2021). The current study explores both the trends across the general trans population and understudied within-group differences across gender identities to elucidate these nuances.

Severe psychological burden (e.g., severe psychological distress) has strong potential to create serious impairment in day-to-day functioning and signify diagnosable mental illness (Kessler et al., 2003). Therefore, specifically identifying severe psychological distress trends provides additional information useful for researchers and practitioners concerned with understanding and addressing mental health inequities (Kessler et al., 2002, 2003). Emerging research has begun to suggest a connection between transphobic harm, such as conversion therapy exposure, and severe psychological distress (Turban et al., 2020). The current study also seeks to understand the relation between different distal minority stressors and severe levels of psychological distress, which may provide a valuable contribution toward understanding the intensity and potential clinical significance of mental health concerns among transgender people that are driven by distal minority stress experiences.

Current Investigation

The current study, drawing from the minority stress framework, uses merged data from two studies to examine how specific distal minority stress experiences (i.e., family rejection, threat of harm, and identity invalidation) are associated with psychological distress among a sample of gender minority young adults. Specifically, this study seeks to investigate:

1. the differential impacts of specific forms of distal minority stress on psychological distress,
2. how the relation between distal minority stressors and mental health differs across specific gender identities, and
3. how distal minority stressors are associated with clinically significant severe psychological distress

Although proximal stressors are also important in understanding gender minority stress, our research centered distal stress to focus on the impacts of external experiences of oppression as we were interested specifically in the associations between distal stress and mental health outcomes. Expanding the literature on distal minority stress experiences by simultaneously examining both how particular transphobic experiences contribute to mental health outcomes, how gender identity nuances the deleterious outcomes of distal minority stress, and how these stressors contribute to severe psychological distress within this population can provide valuable insight for researchers and practitioners in designing, targeting, and optimizing efforts to address transphobia and its many impacts in society.

Methods

Data Sources and Sample

Data are from two surveys of sexual and gender minority young adults. Survey #1 included nonprobability cross-sectional data collected from a sample of sexual and gender minority students ($n = 581$) to explore experiences of minority and pandemic stress during COVID-19. Eligibility criteria included being at least 18 years of age, being a full-time undergraduate or graduate student in the U.S., and identifying as a sexual or gender minority person. Only gender minority participants were included in the present analysis ($n = 146$). Data were collected between May and August, 2020 via online questionnaire. Survey #2 included nonprobability cross-sectional data collected from a sample of gender minority young adults ($n = 217$) to explore experiences of minority stress, gender dysphoria, and mental health outcomes specific to the trans community. Eligibility criteria included being between the ages of 18-29 and identifying as a gender different from one's sex assigned at birth. Data were collected between May and July, 2020 via online questionnaire. Both studies used similar measures, collected data from similar sampling frames (young adults and college students), and full transparency regarding data merging procedures is provided to protect against biased conclusions.

For both surveys, participants were recruited through a digital flyer disseminated via email lists, social media (e.g., Facebook, LinkedIn, Twitter, Reddit), and community organizations. Email campaigning included the authors' internal and external professional networks, historically Black colleges and universities and Hispanic serving institutions, and lesbian, gay, bisexual, transgender, and queer or questioning (LGBTQ+) student centers across the U.S. The diverse sampling was intended to avoid overlooking the experiences of intersectional minoritized people.

For both surveys, participants completed a self-administered electronic informed consent process. Survey duration was approximately 20-25 minutes. At the end of each survey,

participants were provided a list of mental health and crisis management resources and contact information for principal investigators in case they had any questions or concerns. Participation in both surveys was incentivized with a gift card raffle entry for one of three \$50 Amazon gift cards (i.e., six gift cards across the two studies). The procedures for both research projects were approved by the University of Maryland Institutional Review Board.

Measures

For items that measured the same construct across both surveys, responses were pooled and recoded as needed. Table 1 provides exact item language from each survey and pooled sample coding.

Sociodemographic Characteristics

Gender identity was coded as a four-level variable (nonbinary, trans woman/femme, trans man/masc, other gender diverse identity). Sexual orientation was coded as a five-level variable (heterosexual/straight, lesbian, gay, bisexual/pansexual, other sexual minority identity). Age was retained as a continuous variable. Race was coded as a four-level variable (White, Black, Asian/Hawaiian/Pacific Islander, and American Indian/Alaska Native/Multi/Other). These collapsed racial categories allowed for adequate subsample sizes in regression models. Ethnicity was coded as a two-level variable (Hispanic or Latina/o/x or non-Hispanic/Latina/o/x). Relationship status was collapsed into a binary variable (single/divorced, in a committed relationship/married). Education was coded as a four-level variable (high school diploma or GED, some college, college degree, professional or graduate degree). Employment was coded as a four-level variable (working full-time, working part-time, student [not otherwise employed], unemployed). Country of origin was coded as a binary yes/no, with yes indicating being born in the U.S.

Distal Minority Stressors

Across both studies, family rejection and threat of harm were coded as binary variables with 0 = no to all items and 1 = yes to any item. Invalidation was coded as a binary variable with 0 = strongly disagree or disagree to both items and 1 = neutral, agree, or strongly agree to either item. Both surveys examined distal minority stressors over the past year. The specific items merged for analysis can be found in Table 1.

Family Rejection. In Survey #1, family rejection was measured using five items from the Daily Heterosexist Experiences Questionnaire (DHEQ; Balsam et al., 2013) and one item from the Sexual Minority Adolescent Sexual Minority Stress Inventory (SMASI; Schrager et al., 2018). In Survey #2, family rejection was measured using one item from the Gender Minority Stress and Resilience Measure (GMSRM; Testa et al., 2015).

Threat of Harm. In Survey # 1, threat of harm was measured with one item from the LGBT Minority Stress Measure (LMSM; Outland, 2016). In Survey #2, threat of harm was measured with one item from the GMSRM (Testa et al., 2015).

Identity Invalidation. In Survey #1 and Survey #2, identity invalidation was measured with two items from the GMSRM (Testa et al., 2015).

Psychological Distress

Survey #1 and Survey #2 used the 6-item Kessler-6 (K6) to measure current psychological distress (Kessler et al., 2002). Responses were coded from 0 = *None of the time* to 4 = *All of the time* and used to create a composite psychological distress score (0-24) in both surveys (Cronbach's $\alpha_1 = 0.86$; $\alpha_2 = 0.84$; $\alpha_{\text{pooled}} = 0.86$). A score of 13 or greater on the K6 signifies severe psychological distress.

Analytic Strategy

Analyses were restricted to responses from non-cisgender identifying participants who provided complete responses to all sociodemographic, distal minority stress, and psychological distress items and passed two included attention check items (e.g., Please select “never” to indicate you are paying attention), creating a final $N = 363$. We conducted unadjusted linear regression models to assess bivariate relationships between each minority stressor (i.e., family rejection, threat of harm, and identity invalidation) and psychological distress (Aim 1). We then fit one regression model examining the association between all three minority stressors and psychological distress, adjusting for covariates that were significant at the bivariate level ($p \leq 0.05$; Aim 1). Our covariate selection process and interpretation of covariate findings are consistent with best practices on covariate adjustment (Bursac et al., 2008; Miller & Chapman, 2001; VanderWeele, 2019). Next, we performed gender identity-stratified unadjusted and adjusted linear regression models to examine the relationship between minority stressors and psychological distress (Aim 2). We elected to stratify by gender given the differences in how distal minority stressors may manifest within each identity (Burgwal et al., 2019; Colliver, 2021; Matsuno & Budge, 2017). Lastly, we used the adjusted overall model to calculate predicted mean psychological distress scores and respective 95% confidence intervals for each minority stress predictor, as well as pairwise comparisons of the predicted scores to assess severity of psychological distress (severe psychological distress is considered a K6 score ≥ 13 ; Aim 3). All analyses were performed in STATA 16.1.

Results

Sample Demographics

The final pooled sample ($N = 363$; $M_{age} = 22.02$, $SD = 3.63$) included nonbinary (41%), trans woman/femme (12%), trans man/masc (28%) and other gender diverse identities (19%).

The majority of the sample (79%) reported experiencing gender identity invalidation, 41% reported family rejection, and 15% reported threat of harm. The average psychological distress score for the sample was 12.5 ($SD = 4.97$), which is just below the clinical cutoff for severe psychological distress as defined by Kessler et al. (2003). A total of $n = 189$ (52%) suffered from severe psychological distress in the sample. The samples from Study #1 and Study #2 differed significantly on gender identity ($\chi^2 = 30.71, p < 0.001$), ethnicity ($\chi^2 = 17.1, p < 0.001$), education ($\chi^2 = 61.5, p < 0.001$), and employment ($\chi^2 = 26.1, p < 0.001$). The full sample demographics are listed in Table 2.

Demographic Bivariate Analyses

Analysis of variance was conducted to identify bivariate relationships between demographic categories and psychological distress (Table 3). Education [$F(3,359) = 3.58, p = 0.014$], employment [$F(3,359) = 5.35, p = 0.001$], and study source [$F(1,361) = 4.48, p = 0.035$] were significantly associated with psychological distress. Thus, education, employment, and study source were used as covariates in all adjusted models.

Aim 1: Distal Minority Stressors and Psychological Distress

Unstandardized (B) and standardized (β) regression coefficients between the distal minority stressor variables and psychological distress after adjusting for covariates and stratified by gender identity, are presented in Table 4; standardized betas are reported in-text. In full-sample unadjusted models, each distal minority stressor (i.e., family rejection, threat of harm, and identity invalidation) was significantly associated with psychological distress, such that experiencing each stressor in the past year was associated with greater psychological distress in the past 30 days. Identity invalidation ($B = 2.76, \beta = 0.23, p < 0.001$) had the greatest

standardized regression coefficient, followed by family rejection ($B = 1.26, \beta = 0.12, p = 0.018$) and threat of harm ($B = 1.55, \beta = 0.11, p = 0.033$).

After adjusting for covariates among the full sample, identity invalidation ($B = 2.38, \beta = 0.19, p < 0.001$) remained a significant predictor of psychological distress, but family rejection and threat of harm did not. Employment was an important covariate in this model; relative to people working full-time, those who reported being unemployed reported higher levels of psychological distress ($B = 2.74, \beta = 0.16, p = 0.009$).

Aim 2: Gender Identity-Stratified Analyses

Unadjusted and adjusted regression models stratified by gender identity revealed further nuance in these relationships. For nonbinary participants, there were no significant relationships between the distal minority stressors and psychological distress. For trans women/femmes, identity invalidation was a marginally significant ($B = 3.81, \beta = 0.29, p = 0.052$) predictor in the unadjusted model and significant ($B = 3.90, \beta = 0.30, p = 0.048$) predictor in the adjusted model of higher psychological distress.

For trans men/mascs, family rejection was a significant predictor of higher psychological distress in unadjusted ($B = 3.08, \beta = 0.30, p = 0.002$) and adjusted models ($B = 2.55, \beta = 0.25, p = 0.011$). The same was true of identity invalidation in unadjusted ($B = 3.18, \beta = 0.29, p = 0.003$) and adjusted models ($B = 2.42, \beta = 0.22, p = 0.024$). Having a professional or graduate degree was a significant predictor of lower psychological distress for trans men/mascs ($B = -5.38, \beta = -0.30, p = 0.016$).

For individuals reporting another gender diverse identity, identity invalidation was a significant predictor of higher psychological distress in unadjusted ($B = 3.57, \beta = 0.29, p = 0.015$) and adjusted models ($B = 4.87, \beta = 0.39, p = 0.04$).

Aim 3: Predicted Probability of Severe Psychological Distress

Lastly, predicted mean K6 scores by distal minority stressor are illustrated in Figure 1. In all adjusted minority stressor models, participants who did not experience the minority stressor had a predicted average K6 score below 13, the cutoff for severe psychological distress (Kessler et al., 2002). However, participants who did experience family rejection, threat of harm, or identity invalidation had a predicted average K6 score at or above 13, indicating severe psychological distress. Pairwise comparison of the mean predicted K6 scores for those who experienced ($M = 13.00$) and did not experience ($M = 10.61$) identity invalidation was statistically significant ($t = 3.82, p < 0.001$).

Discussion

The current study found that a variety of distal gender minority stress experiences are generally associated with psychological distress, although there are differences by sociodemographic categories and when stratifying by gender identity. Whereas all minority stressors were significant and positive predictors of psychological distress in overall unadjusted regression models, only identity invalidation remained a significant predictor in the overall adjusted regression model and in three of the four gender identity-stratified regression models: trans masc, trans femme, and other gender diverse identities. Moreover, predicted mean scores falling above the severe distress cutoff for those who experienced all three minority stressors compared to those that did not provides further evidence of the role minority stressors play in clinically significant levels of psychological distress. These findings provide evidence for how clinicians and other practitioners seeking to serve trans communities should account for distal minority stress experiences that impact mental health, and how these experiences may vary across subgroups within the trans population.

The significant relationship between distal gender minority stressors (i.e., identity invalidation, family rejection, and threat of harm) and psychological distress generally align with existing transgender research (Cramer et al., 2021; Testa et al., 2015; Timmins et al., 2017), affirming an understanding of deleterious trans mental health outcomes as inextricable from transphobic systems and experiences of oppression. Moreover, identity invalidation was the most impactful stressor (i.e., highest standardized beta value), and the only stressor that remained significantly associated with psychological distress across most models. This perhaps indicates the insidious impact of experiences of non-affirmation of gender identity. Our findings add to emerging literature that has begun to identify identity invalidation as a correlate for depressive symptomatology and suicidality in transgender people (Parr & Howe, 2019). Future research may consider examining how these experiences impact mental health longitudinally and/or differ across identities (e.g., nonbinary versus binary gender identities).

In gender-stratified analyses, the non-significance of family rejection and threat of harm is worth further consideration. One explanation could be that dimensions of social inequality, such as socioeconomic privilege vs. disadvantage, or Black race vs. white race, could be significantly associated with psychological distress, such that transgender people lower on social hierarchies are more prone to mental health burden. For example, one study by Budge and colleagues (2016) identified how race and socioeconomic status may predict better mental health for those with privileged statuses compared to transgender people who have more intersecting marginalized identities/statuses. Indeed, in our study, those who didn't have jobs were more prone to greater psychological distress levels, above and beyond the impact of gender minority stressors. However, for trans men/masc participants, family rejection was significantly and positively associated with psychological distress, raising a question of what may be unique about

this subpopulation (i.e., types of familial experiences, gender socialization expectations, or other specific ways transphobia against trans men manifest in those relationships) that makes family rejection particularly impactful. As for threat of harm, our methods did not evaluate different sources of harm, and it may be possible that more specific minority stress perpetrated by different sources (e.g., family, teachers, coworkers, strangers, police; James et al., 2016) may differentially be associated with psychological distress. Thus, when considering how to address the impacts of transphobia on mental health, we must consider both the direct experiences of minority stress as well as the impact of dimensions of social inequality as potential points of intervention. Research may seek to further explore nuances in intersecting identities and systemic oppressions to better explain the diversity of experiences in the trans community.

That predicted mean scores fell above the severe psychological distress cutoff for participants who experienced each distal minority stressor in the analyses for Aim 3 may be of particular clinical interest. Findings suggest that mental health practitioners should incorporate culturally competent and trauma-informed approaches that account for the role of systemic oppression, discrimination, and related social determinants of health (e.g., distal gender minority stress) on trans clients' experiences (Levenson et al., 2021). Further, practitioners and the public should seek ways to empower trans clients, advocate for trans rights, and be in solidarity with the trans community to prevent potentially traumatic distal stress experiences (Hall & DeLaney, 2021), such as by advocating for gender-inclusive facilities (e.g., restrooms), fighting against anti-trans legislation, and allocating resources towards creating and maintaining safe communities, while generally remaining in conversation with trans community leaders to follow salient issues as they emerge over time.

Limitations

There are a number of considerations that both limit interpretation of the study and provide directions for future research. The cross-sectional methods of both studies preclude causal inferences in the results. Relatively small sample size and need to increase statistical power required binary coding for predictor variables; single-item and binary-coded predictor variables may not fully capture the constructs of interest as intended by complete versions of construct measures. Despite this limitation, previously validated minority stress items were utilized in the current study and selected for merging based on construct parallelism and face validity compatibility. Moreover, the merging of two separate datasets may increase risk for bias. For instance, both studies differed on their levels of minority stress experiences, which could be related to measurement differences. Additionally, recruitment methods targeted different geographic regions and populations (e.g., Survey #1 examining LGBTQ+ college students and Survey #2 examining gender minority young adults regardless of education status) and both samples differed significantly on gender identity, ethnicity, education and employment. To protect against this risk, we included study source (i.e., study 1 vs. study 2) as a covariate in the analyses. Despite these differences, there remains a small possibility that participants completed both studies without the authors' knowledge.

The study had a majority white, U.S.-born, and educated sample, which limits our ability to understand minority stress experiences among transgender people in more precarious social positions. Future research is needed to elevate the experiences of transgender people further pushed to the margins (e.g., immigrants, low socioeconomic status, Black or other minoritized racial identities). Additionally, small gender-stratified subsamples impacted statistical power and presents the risk for failing to detect significant effects in gender-stratified analyses. Lastly, both studies were conducted during the COVID-19 pandemic, which has exacerbated preexisting

social inequities and disproportionately impacted the health of trans populations (Herman & O'Neill, 2020; Kidd et al., 2021). Although we did not include pandemic-related stressors in our analyses, this study highlights the mental health burden experienced by trans populations amid this global health crisis, the way minority stress experiences still present a substantial contributor to distress, and the importance of interventions and resources directed to serving the trans population that are cognizant of the various ways in which trans people are marginalized in society.

Conclusion

This research highlighted the unique impacts of different types of distal minority stress, finding that identity invalidation was an especially strong predictor of psychological distress. These data support the need for structural change to address the systems of oppression contributing to experiences of minority stress among gender diverse young adults. Our findings provide a deeper understanding of trans minority stress experiences useful for researchers and providers who serve the transgender community. Stakeholders should integrate our findings into their praxis to mitigate the negative impacts of minority stress among transgender people and fight against structural transphobia to create a more equitable society where gender diversity is not only tolerated but valued and celebrated.

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Table 1. Survey Item Merging and Coding

Construct	Study #1	Study #2	Merged Variable Coding
Gender Identity	<i>Which term best describes your gender identity? (please select the best answer)</i> Non-binary Cisgender woman Cisgender Man Trans woman Trans feminine Trans man Trans masculine Genderqueer Two-spirit Gender fluid Agender	<i>Which of the following best describes your current gender identity?</i> Woman/Female Man/Male Nonbinary Another identity outside the gender binary (please specify)	0 – Cisgender 1 – Nonbinary 2 – Trans woman/femme 3 – Trans man/masc 4 – Other gender diverse identity
Sexual Orientation	<i>Which term best describes your current sexual orientation? (Please choose the best answer)</i> Asexual Bisexual Gay Lesbian Same-gender loving Non-binary Pansexual Queer Questioning Heterosexual or Straight	<i>Sexual Orientation (select all that apply)</i> Bisexual Lesbian Gay Uncertain Heterosexual Questioning Queer Asexual Another sexual orientation not listed above (please specify)	0 – Heterosexual/straight 1 – Lesbian 2 – Gay 3 – Bisexual/Pansexual 4 – Other (Uncertain, questioning, queer, asexual, same-gender loving, nonbinary, another sexual orientation)
Age	<i>What is your age? (enter number)</i>	<i>Age</i>	Numeric response
Race	<i>What is your race or ethnicity? (Select all that apply)</i> American Indian or Alaska Native Asian Black or African American Native Hawaiian or other Pacific Islander White A race or ethnicity not listed above	<i>What is your race/ethnicity (select all that apply)</i> Asian/Asian American Biracial/Multiracial (please specify) Black/African American Indigenous/Native American Latinx/Hispanic Middle Eastern/North African	0 – White 1 – Black 2 – Asian/Hawaiian/PI 3 – Native/Multi/Other

		Native Hawaiian/Pacific Islander White/European American Another racial/ethnic identity not listed above (please specify)	
Ethnicity	<i>Are you Hispanic or Latino?</i> Yes No	<i>What is your race/ethnicity (select all that apply)</i> Asian/Asian American Biracial/Multiracial (please specify) Black/African American Indigenous/Native American Latinx/Hispanic Middle Eastern/North African Native Hawaiian/Pacific Islander White/European American Another racial/ethnic identity not listed above (please specify)	0 – Non-Hispanic/Latino/a/x 1 – Hispanic/Latino/a/x
Relationship Status	<i>What is your relationship status? (select all that apply)</i> Single Dating one person Dating more than one person In a committed relationship with one partner In a committed relationship with more than one partner Married, in a domestic partnership, and/or civil union Other relationship status (please specify in box below)	<i>Marital Status</i> Single In committed relationship Married Divorced Widowed	0 – Single/Divorced 1 – Married/Committed relationship
Education	What type of degree-seeking program are you in? Associate's – HS/GED Bachelor's – HS/GED Master's – Degree Doctoral – Professional/grad	<i>What is your highest level of educational attainment?</i> High school diploma Some college College degree Professional or graduate degree Other (please specify)	0 - High school diploma or GED 1 - Some college 2 - College degree 3 - Professional or graduate degree

Employment	<i>What is your current paid employment status? (include paid internships or assistantships)</i> Employed full-time Employed part-time for 20 hours or less per week Employed part-time for more than 20 hours per week Not employed	<i>What is your current employment status? (select all that apply)</i> Working full time Working part time Self-employed Unemployed Retired Student Disability Other (please specify)	0 – Working full-time 1 – Working part-time 2 – Student, not otherwise employed 3 – Unemployed
Country of origin	<i>What is your country of birth?</i> United States Exhaustive list of other non-USA countries	<i>Were you born in the United States?</i> Yes No	0 – No (all other responses) 1 – Yes (born in the U.S.)
Family Rejection	Being rejected by my mother for being LGBTQ Being rejected by my father for being LGBTQ Being rejected by my legal guardian for being LGBTQ Being rejected by a sibling or siblings because I am LGBTQ Being rejected by other relatives because I am LGBTQ Someone who lives with me has told me they disapprove of me being LGBTQ	I have been rejected or distanced from family because of my gender identity or expression.	0 – None 1 – Yes to any
Threat of Harm	Being threatened with harm because I am LGBTQ	I have been threatened with physical harm because of my gender identity or expression.	0 – No 1 – Yes
Invalidation	I have to repeatedly explain my gender identity to people or correct the pronouns people use. People don't respect my gender identity because of my appearance or body	I have to repeatedly explain my gender identity to people or correct the pronouns people use. People don't respect my gender identity because of my appearance or body	0 – No (strongly disagree, disagree to both) 1 – Yes (neutral, agree, strongly agree to either)
Psychological Distress	<i>Please read each statement and answer how often you have felt this way during the last 30 days.</i> nervous?	<i>During the past 30 days, about how often did you feel...</i> nervous? hopeless?	Scale total (0 – 24) 0 - None 1 - A little 2 - Some

	hopeless? restless or fidgety? so depressed that nothing could cheer you up? that everything was an effort? worthless?	restless or fidgety? so depressed that nothing could cheer you up? that everything was an effort? worthless?	3 - Most 4 - All
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Table 2. Sample Demographics for Merged Sample and Comparisons between Studies 1 and 2

Table 2: Sample Demographics for Merged Sample and Comparisons between Studies 1 and 2								
	Total Sample (n=363)		Study 1 (n=146)		Study 2 (n=217)			
Demographics	n	%	n	%	n	%	X2	p
Gender Identity								
Nonbinary	148	40.77%	56	38.36%	92	42.40%	30.71	<0.001
Trans woman/femme	45	12.40%	9	6.16%	36	16.59%		
Trans man/masc	100	27.55%	34	23.29%	66	30.41%		
Other gender diverse identity	70	19.28%	47	32.19%	23	10.60%		
Sexual Orientation								
Heterosexual/Straight	9	2.48%	3	2.05%	6	2.76%	5.35	0.253
Lesbian	39	10.74%	20	13.70%	19	8.76%		
Gay	29	7.99%	11	7.53%	18	8.29%		
Bisexual/Pansexual	100	27.55%	46	31.51%	54	24.88%		
Other	186	51.24%	66	45.21%	120	55.30%		
Race								
White	267	73.55%	101	69.18%	166	76.50%	6.68	0.083
Black	18	4.96%	12	8.22%	6	2.76%		
Asian	36	9.92%	17	11.64%	19	8.76%		
Native/Multi/Other	42	11.57%	16	10.96%	26	11.98%		
Ethnicity								
Hispanic or Latino/a/x	27	7.44%	21	14.38%	6	2.76%	17.11	<0.001
Non-Hispanic or Latino/a/x	336	92.56%	125	85.62%	211	97.24%		
Relationship Status								
Single/Divorced	229	63.09%	101	69.18%	128	58.99%	3.89	0.048
Married/Committed Relationship	134	36.91%	45	30.82%	89	41.01%		
Education								
High School Diploma/GED	35	9.64%	1	0.68%	34	15.67%	61.48	<0.001
Some College	197	54.27%	99	67.81%	98	45.16%		
College Degree	90	24.79%	17	11.64%	73	33.64%		
Professional/Graduate Degree	41	11.29%	29	19.86%	12	5.53%		
Employment								
Working Full-Time	62	17.08%	27	18.49%	35	16.13%	26.13	<0.001
Working Part-Time	127	34.99%	56	38.36%	71	32.72%		
Student (Not Otherwise Employed)	139	38.29%	63	43.15%	76	35.02%		
Unemployed	35	9.64%	0	0.00%	35	16.13%		
Country of origin								
Not US Born	33	9.09%	11	7.53%	22	10.14%	0.72	0.397
US Born	330	90.91%	135	92.47%	195	89.86%		
	Mean	SD	Mean	SD	Mean	SD	t	p

Age		22.02	3.63	22.49	4.4	21.71	2.97	2.04	0.042
Predictors		n	%	n	%	n	%	X2	<i>p</i>
Family Rejection									
	No	215	59.23%	82	56.16%	133	61.29%	0.95	0.330
	Yes	148	40.77%	64	43.84%	84	38.71%		
Threat of Harm									
	No	308	84.85%	116	79.45%	192	88.48%	5.53	0.019
	Yes	55	15.15%	30	20.55%	25	11.52%		
Invalidation									
	No	76	20.94%	40	27.40%	36	16.59%	6.16	0.013
	Yes	287	79.06%	106	72.60%	181	83.41%		
Outcome		Mean	SD	Mean	SD	Mean	SD	<i>t</i>	<i>p</i>
30-Day Psychological Distress (K6)		12.48	4.97	11.82	5.08	12.940	4.85	-2.12	0.035

Table 3. Bivariate Associations between Demographic Variables and Psychological Distress

Demographics	Total Sample (n=363)		
	<i>F</i>	df	<i>p</i>
Gender Identity	0.06	(3, 359)	0.982
Sexual Identity	1.08	(4, 358)	0.365
Race	2.38	(3, 359)	0.069
Ethnicity	0.85	(1, 361)	0.357
Relationship status	0.17	(1, 361)	0.678
Education	3.58	(3, 359)	0.014
Employment	5.35	(3, 359)	0.001
Country of Origin	2.51	(1, 361)	0.114
Study Source	4.48	(1, 361)	0.035
<hr/>			
	<i>r</i>	<i>p</i>	
Age	-0.15	0.006	

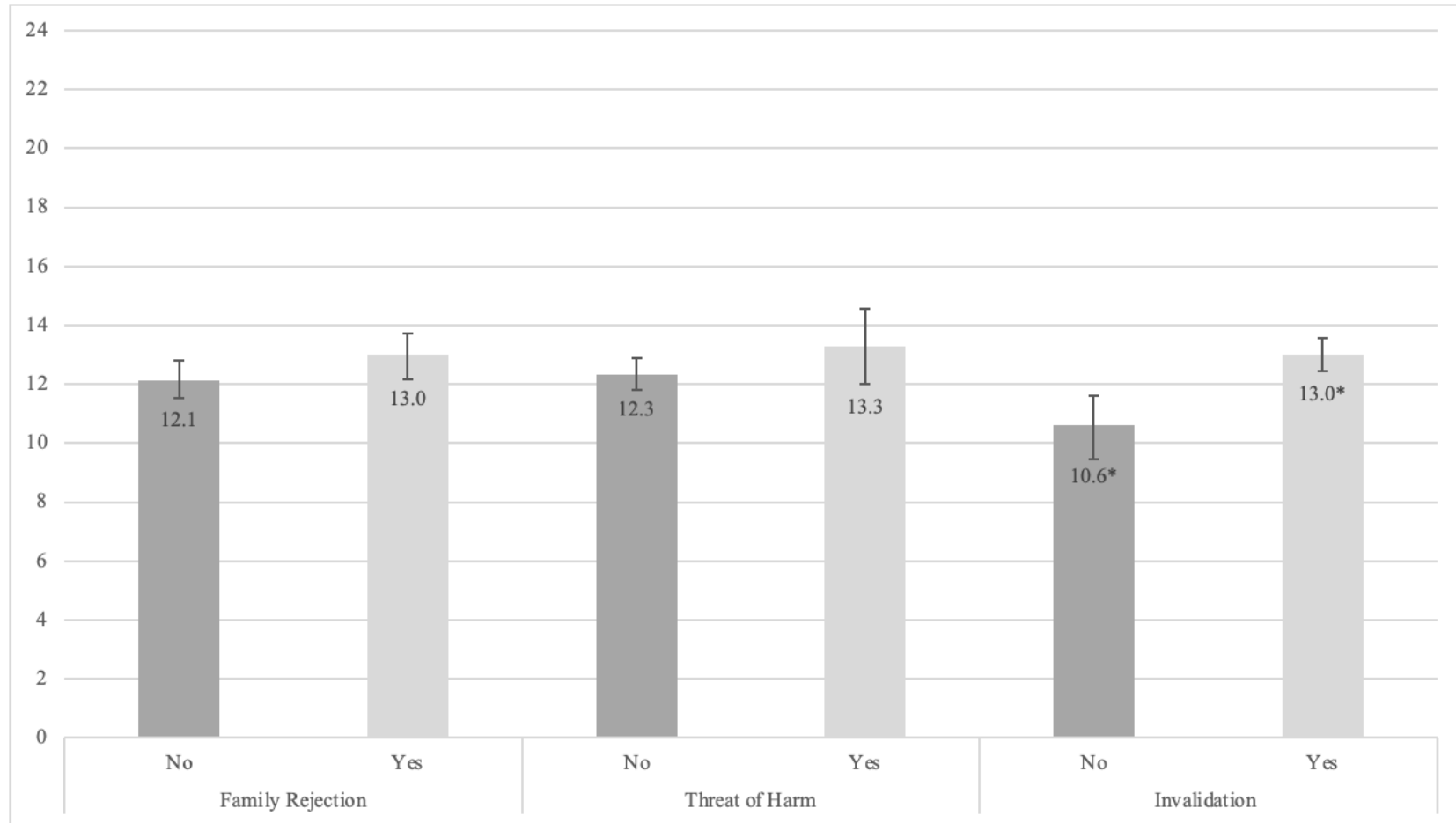
Table 4. Unadjusted and Adjusted Overall and Subgroup Linear Regression Coefficients

	Overall Unadjusted (n=363)						Nonbinary Unadjusted (n=148)						Trans Woman/Femme Unadjusted (n=45)					
	<i>B</i>	95% CI		β	<i>t</i>	<i>p</i>	<i>B</i>	95% CI		β	<i>t</i>	<i>p</i>	<i>B</i>	95% CI		β	<i>t</i>	<i>p</i>
Family Rejection	1.26	0.22	2.29	0.12	2.39	0.018	0.69	-0.96	2.33	0.07	0.82	0.413	1.38	-2.14	4.90	0.12	0.79	0.433
Threat of Harm	1.55	0.13	2.97	0.11	2.14	0.033	0.81	-1.49	3.10	0.06	0.69	0.488	1.61	-2.37	5.60	0.12	0.82	0.419
Invalidation	2.76	1.53	3.99	0.23	4.42	0.000	1.56	-0.72	3.85	0.11	1.35	0.178	3.81	-0.04	7.65	0.29	2.00	0.052
	Overall Adjusted (n=363)						Nonbinary Adjusted (n=148)						Trans Woman/Femme Adjusted (n=45)					
	<i>B</i>	95% CI		β	<i>t</i>	<i>p</i>	<i>B</i>	95% CI		β	<i>t</i>	<i>p</i>	<i>B</i>	95% CI		β	<i>t</i>	<i>p</i>
Family Rejection	0.88	-0.14	1.91	0.09	1.69	0.092	0.24	-1.41	1.90	0.02	0.29	0.770	2.73	-0.85	6.32	0.24	1.55	0.130
Threat of Harm	0.94	-0.47	2.35	0.07	1.31	0.192	0.80	-1.52	3.13	0.06	0.68	0.496	-0.38	-4.78	4.02	-0.03	-0.17	0.862
Invalidation	2.38	1.15	3.60	0.19	3.82	<0.001	1.16	-1.17	3.49	0.08	0.98	0.327	3.90	0.03	7.76	0.30	2.05	0.048
Education																		
High school diploma/GED (ref)																		
Some college	0.07	-1.74	1.87	0.01	0.07	0.943	1.98	-0.91	4.86	0.21	1.36	0.177	-3.60	-8.44	1.24	-0.34	-1.51	0.140
College degree	-1.16	-3.05	0.74	-0.10	-1.20	0.231	-0.76	-3.77	2.24	-0.07	-0.50	0.616	-3.02	-8.05	2.02	-0.24	-1.22	0.232
Professional/ graduate degree	-1.30	-3.61	1.02	-0.08	-1.10	0.271	-0.97	-4.55	2.62	-0.07	-0.53	0.594	-5.86	-14.54	2.83	-0.23	-1.37	0.180
Employment																		
Working full-time (ref)																		
Working part-time	-0.10	-1.58	1.38	-0.01	-0.14	0.892	-0.09	-2.39	2.21	-0.01	-0.08	0.938	-0.67	-5.32	3.98	-0.06	-0.29	0.770
Student (not otherwise employed)	0.83	-0.69	2.35	0.08	1.07	0.284	0.20	-2.27	2.68	0.02	0.16	0.871	4.26	-0.15	8.66	0.38	1.96	0.058
Unemployed	2.74	0.69	4.79	0.16	2.63	0.009	1.70	-1.46	4.86	0.11	1.06	0.289	4.01	-0.68	8.69	0.33	1.74	0.091
Source																		
Study #1 (ref)																		
Study #2	0.70	-0.43	1.82	0.07	1.21	0.225	1.91	0.08	3.74	0.19	2.06	0.041	-0.54	-4.56	3.49	-0.04	-0.27	0.788

Table 4. Unadjusted and Adjusted Overall and Subgroup Linear Regression Coefficients (cont.)

	Trans Man/Masc Unadjusted (n=100)						Other Gender Diverse Identity Unadjusted (n=70)					
	<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>		<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>	
Family Rejection	3.08	1.14 5.02	0.30	3.15	0.002		-0.07	-2.46 2.33	-0.01	-0.05	0.957	
Threat of Harm	1.90	-1.01 4.80	0.13	1.30	0.198		2.33	-0.80 5.45	0.18	1.49	0.142	
Invalidation	3.18	1.11 5.24	0.29	3.05	0.003		3.57	0.71 6.44	0.29	2.49	0.015	
	Trans Man/Masc Adjusted (n=100)						Other Gender Diverse Identity Adjusted (n=70)					
	<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>		<i>B</i>	95% CI	β	<i>t</i>	<i>p</i>	
Family Rejection	2.55	0.59 4.52	0.25	2.58	0.011		-1.07	-3.39 1.25	-0.11	-0.92	0.360	
Threat of Harm	1.67	-1.17 4.51	0.11	1.17	0.245		0.40	-2.75 3.54	0.03	0.25	0.802	
Invalidation	2.42	0.32 4.51	0.22	2.29	0.024		4.87	1.60 8.14	0.39	2.98	0.004	
Education												
High school diploma/GED (ref)												
Some college	-0.07	-3.22 3.07	-0.01	-0.05	0.963		3.29	-3.82 10.41	0.32	0.93	0.358	
College degree	-0.71	-3.97 2.54	-0.06	-0.44	0.664		1.26	-6.09 8.62	0.10	0.34	0.732	
Professional/ graduate degree	-5.38	-9.73 -1.03	-0.30	-2.46	0.016		6.96	-0.67 14.59	0.51	1.82	0.073	
Employment												
Working full-time (ref)												
Working part-time	-1.14	-4.28 1.99	-0.11	-0.73	0.470		-0.17	-3.61 3.27	-0.02	-0.10	0.921	
Student (not otherwise employed)	-1.99	-5.12 1.14	-0.20	-1.26	0.210		1.89	-1.71 5.49	0.19	1.05	0.297	
Unemployed	1.84	-2.91 6.59	0.09	0.77	0.443		5.10	-1.45 11.66	0.21	1.56	0.125	
Source												
Study #1 (ref)												
Study #2	0.05	-2.37 2.48	0.00	0.04	0.966		0.65	-2.12 3.43	0.06	0.47	0.639	

Figure 1. Predicted K6 Scores, Adjusted for Covariates, by Minority Stressor



*Pairwise comparison of predicted K6 scores is significant ($p < 0.001$)