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Running head: TNB SOCIAL SUPPORT

Understanding differences in types of social support and their effects on mental health over time for trans and nonbinary adults

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Conflict of Interest

MRL has received consulting fees from Hims, Inc.; Folx Health, Inc.; and Otsuka Pharmaceutical Development and Commercialization, Inc. for work unrelated to this work. JOM has received consulting fees from Hims, Inc.; Folx Health, Inc.; Ibis Reproductive Health, and Sage Therapeutics for work unrelated to the study described here.

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Abstract

Although research has shown that social support generally is beneficial to mental health among trans and nonbinary (TNB) adults, less is known regarding what forms of support and the degree to which they mitigate the harms of minority stress on mental health over time. This study investigated differences in types of social support and their association with mental health over time in a sample of 2,411 TNB adults, predominantly younger in age (53% 18-30 years old), diverse in sexual orientation (97.5%, LGBQA+, 2.5% straight/heterosexual), gender identity (53.3% non-binary, 26% trans man, 12.4% trans woman), and similar in race and ethnicity to the US national population. We conducted a latent profile analysis (LPA) to identify social support typologies. A three-profile solution classified participants into a Low (39.6%), Moderate (40.7%), or High Support profile (19.7%). Significant variability in gender-related support experiences was noted for those in the Moderate and High Support profiles, while those in the Low Support profile had almost uniformly little to no support from family. Mental health outcomes differed between the profiles; Low Support participants reported significantly worse depression and PTSD symptoms; demographically, the greatest proportion of participants with marginalized identities clustered in the Low Support profile. Finally, we tested profile membership as a moderating variable in the association of minority stressors with mental health over time. Few significant differences emerged between groups, suggesting that being in a higher support profile may not necessarily buffer the harms of minority stress on mental health over time. Intervention implications are discussed.

Keywords: minority stress, latent profile analysis, social support, transgender, nonbinary

Public health significance: Trans and nonbinary (TNB) individuals can be clustered

together based on the types of social support experienced. While those in higher social support groups reported better mental health than those with less social support, they were not protected from the harmful effects of anti-TNB experiences on mental health over time.

Understanding differences in types of social support and their effects on mental health over time for trans and nonbinary adults

Deep and meaningful social relationships are essential to well-being (Feeney & Collins, 2015). Relationships are important avenues by which various types of social resources (e.g., information, emotional support, goods and services) are provided, also referred to as social support (Cohen & Syme, 1985; Tardy, 1985). Research to date has largely focused on the role of social support in mitigating the harms associated with stress and other adverse events (Cohen & Wills, 1985). However, social support is consistently related to better mental health and well-being as well (Feeney & Collins, 2015). Among transgender and nonbinary (TNB) people, similar effects have been documented; theory and empirical research demonstrate social support as a potential buffer against the harms of stigma and stigma-related stressors and mental health, while also being associated directly with better psychological well-being (Barr et al., 2016; Budge et al., 2014; Pflum et al., 2015) and decreased mental health concerns, such as anxiety and depression (Durwood et al., 2021; Tebbe & Moradi, 2016). However, findings have been mixed regarding how and from whom various types of social support hold beneficial effects on mental health and well-being. As a result, this study aims to address an important gap in the literature by exploring patterns of social support among TNB people and the extent to which distinct social support types may mitigate the differential and adverse effects of minority stress over time.

Social Support among Trans and Nonbinary People. Mixed findings regarding what types of effects (i.e., direct, moderating, mediating) occur related to mental health among TNB populations may be due in part to how research has operationalized social support. To date, researchers have investigated different sources (e.g., family, friends) and different types of support

(e.g., emotional, instrumental). Much of the research to date in TNB communities has focused on emotional support, which can be defined as the provision of empathy, love, trust, and caring (Heaney & Israel, 2008), and typically in samples that have skewed younger in age for studies with adults. Importantly, some age or generational variation may exist within TNB populations, with prior research showing that general social support levels have been lower among TNB older adults compared to older adult cisgender LGB peers, though TNB older adults have reported larger social networks and greater involvement in spiritual or religious activities (Fredriksen-Goldsen et al., 2014; Lombardi, 1999). Within the larger literature, survey-based research has largely operationalized emotional support in general forms (e.g., “I can talk about my problems with my friends” [Zimet et al., 1988]). However, qualitative research has documented how gender validation and affirmation are essential population-specific forms of emotional support for psychological well-being for TNB people, particularly during critical periods of gender identity development (e.g., transition) (Lewis et al., 2023; Medico et al., 2020).

Instrumental support, or the provision of tangible aid and services (e.g., food, money, or a safe place to sleep) that can assist someone in need (Heaney & Israel, 2008), is another form of support that is essential for many TNB people (Sherman, Clark, et al., 2020; Sherman, Poteat, et al., 2020). Because instrumental support addresses daily functioning and survival, it may have a greater benefit than emotional support when there is a higher material need. For TNB individuals who experience multiple marginalization based on race and socioeconomic status, instrumental support has been found to mitigate distress and promote well-being, over and above emotional connection and support (Sherman, Clark, et al., 2020; Sherman, Poteat, et al., 2020).

Social Support as a Buffer of Minority Stress. TNB populations experience higher

rates of health disparities than the general population with research linking these disparities to minority stress (Flentje et al., 2021; Tebbe & Moradi, 2016; Testa et al., 2015). Minority stress is defined as stress that occurs as a result of how identity-based stigma and oppression manifest for individuals with marginalized identities (Brooks, 1981; Meyer, 2003). For TNB people, minority stressors include experiences of prejudice, discrimination, harassment, violence, misgendering, internalized stigma, and stress surrounding identity disclosure (Flentje et al., 2021; Tebbe & Moradi, 2016; Testa et al., 2015). While evidence has consistently found direct mental health promotive effects of social support among TNB people (Budge et al., 2013; Tebbe & Moradi, 2016), research has investigated the degree to which social support might act to mitigate the harm of minority stress on the mental health and well-being of TNB individuals and communities (Carter et al., 2019; Johnson et al., 2021). This body of research aligns with the stress-buffering hypothesis, which is the notion that in response to stressful life circumstances, social support may protect the individual from harm (Cohen & Wills, 1985).

However, Cohen and Wills (Cohen & Wills, 1985) argue that the observed relationships between social support and mental health and well-being will be determined by how social support is conceptualized and operationalized. When social support is operationalized to capture forms of support that are directly responsive to the stressful life event, it is more likely to buffer the adverse harm of that event. When measured as a more global perceived availability of social support, its main effect is directly on health and well-being (Cohen & Wills, 1985). This likely helps to explain findings in prior research with TNB people, in which social support's moderating effect on minority stress with mental health has been mixed (Carter et al., 2019; Rimmer et al., 2022). When social support buffers the impacts of stress on mental health, it often nullifies the association of negative life events (including minority stress) and adverse mental health outcomes

for individuals across the lifespan – for example, in a recent study of TNB children aged 3 to 15, family, peer, and school support for a child’s gender identity buffered the association of gender-related victimization and internalizing symptoms (Durwood et al., 2021). Among trans adults who reported higher levels of social support, there was no association of misgendering (a population-specific minority stressor) with depression and stress compared to those with lower levels of social support (McLemore, 2018). Finally, among trans and gender diverse women, greater emotional social support from family and friends buffered the association between trauma symptoms and alcohol use (Johnson et al., 2021).

Nature of Family Support. Research has sought to investigate what sources of support may matter most. For example, research has found that various sources of emotional support were associated with better psychological outcomes (i.e., anxiety, depression, resilience), but family support had the strongest effect and was the only source of social support associated with resilience (Puckett et al., 2019) in a sample of TNB adults. In another study with TNB youth (13 to 21 years old), participants with greater family support reported higher quality of life and were less likely to report experiencing a mental health problem in the last year (Weinhardt et al., 2019). However, in this same study, friend support – and not family support – was positively associated with connectedness, pride, and meaning in life, suggesting that different sources of support may have different effects. In lesbian, gay, bisexual, and trans (LGBT) youth aged 16-20 at enrollment who participated in a 5.5-year longitudinal study, family support (operationalized as general perceived availability of emotional support) was a significant factor in psychological distress levels and trajectories over the course of the study (McConnell et al., 2016). Researchers created latent profiles of social support across three sources of emotional support: friends,

significant other(s), and family. Individuals with high levels of family support at enrollment had the lowest baseline levels of psychological distress compared to their peers (those with higher levels of friend and significant other support but low family support, and those with low support across all three sources). For individuals with higher levels of non-family support and low family support at baseline, family support increased during the study; this increase was, in turn, associated with the largest reduction in psychological distress over time (McConnell et al., 2016).

Family support has been qualitatively described as essential to psychological well-being, particularly among TNB youth. In a large online study of 249 TNB youth aged 14-18, nearly 40% identified family – both immediate (parents, siblings) and extended (grandmothers, cousins, aunts) family – as primary sources of support (Shah et al., 2022). Regarding the types of support family members provided, participants identified the family’s advocacy for TNB youth rights and as strong allies in the face of transphobia. Extended family members appeared to offer a safe space for TNB youth to feel accepted and welcome, particularly when immediate family members were not accepting. For the large positive impact family support may have for TNB individuals, it is not surprising that family rejection was described as particularly painful and harmful to psychological well-being, even with other supports in place (Shah et al., 2022). What is less clear is the degree to which TNB-affirming family support may be associated with mental health outcomes among TNB adults who may have different social, emotional, and practical needs given greater independence than youth. Prior literature suggests that different types of support and support from various sources may function differently for TNB people. However, the literature has been limited in its investigation of forms of support beyond emotional support and their effects on mental health over time.

Present Study

In the present study, among a large national sample of TNB participants, we investigated social support, which included perceived availability of emotional support, social connectedness, and supportive and gender-affirming experiences from family. To operationalize social connectedness for the present study, we used a measure of its inverse, social isolation, which assessed social dynamics related to the general presence (or lack thereof) of relationships in participants' lives. For family support, we used a novel index created with input from LGBTQIA+ community members through a Community Advisory Board and researchers providing oversight and guidance to the larger study through a Research Advisory Board. This index aims to capture the provision of various forms of family support. Because these forms of support may be independent of each other – someone may endorse feeling supported in general by others, but they may not have supportive experiences from family members related to their gender – we explored how types of social support form distinct support profiles and whether any differences between profiles emerged related to this study's mental health outcomes (anxiety, depression, PTSD symptoms). We also investigated to what extent these profiles affect minority stress trajectories on mental health over time.

We tested differences in the strength of the association of minority stressors and mental health in a cross-lagged two-wave longitudinal model. Distal and proximal minority stress at Year 2 was hypothesized to positively predict anxiety, depression, and PTSD symptoms at Year 2, controlling for autoregressive effects at Year 1. We hypothesized that the strength of the effects of minority stressors on mental health will be weaker for those in higher social support profiles compared to individuals in lower social support profiles.

Method

Participants

There were 2,411 gender-minority adult participants in this study. Participants were part of [masked for review]. The [masked] study is a large, national, dynamic, longitudinal cohort study of sexual and gender minority adults with ongoing recruitment that was initiated in 2017 [masked]. Participants were recruited through numerous community partner organizations and stakeholders [masked], in-person and online activities and community events, and online advertising and engagement. [Masked] community partners helped to disseminate information about [masked], how to participate, and [masked]'s overall aim to improve the health of LGBTQIA+ people. Data for the present study were from the 2021 and 2022 Annual Questionnaires, with 2,411 participants completing the 2021 annual questionnaire, and 2,365 completing annual surveys at both study waves (2021 and 2022). Demographic details for the study sample are included in Table 1.

Measures

Anxiety. Anxiety symptoms were measured using the Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006). The GAD-7 is a seven-item measure of the frequency of generalized anxiety disorder (GAD) symptoms, corresponding to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5 [American Psychiatric Association, 2013]) criteria for GAD. Items are rated on a 0 (not at all) to 3 (nearly every day) scale. Total scale scores are summed, with possible scores ranging from 0 to 21. Cut-off scores of 5, 10, and 15 represent mild, moderate, and severe anxiety symptoms, respectively. The GAD-7 has been extensively studied in a variety of populations and settings, with validity evidence supported by positive associations with other self-report measures of anxiety (Plummer et al., 2016). In a sample of trans adults, the GAD-7 showed good internal consistency, with a Cronbach's alpha of .90 (Bell

et al., 2019). In the present study, Cronbach's alpha was .90 in both 2021 and 2022 data.

Depression. Depressive symptoms were measured using the Patient Health Questionnaire-9 (PHQ-9 [Kroenke et al., 2001]), which is a nine-item measure of depressive symptom severity that corresponds to diagnostic criteria listed in the DSM-5 (American Psychiatric Association, 2013) from 0 (not at all) to 3 (nearly every day). Total scale scores are summed with a range of 0 to 27; cut points of 5, 10, 15, and 20 represent mild, moderate, moderately severe, and severe levels of depressive symptoms, respectively. The PHQ-9 has been studied extensively across multiple populations and across both clinical and community settings, evidencing strong validity with other self-report measures of depressive symptoms and clinician-guided mental health interviews (Kroenke et al., 2001). In prior research with trans adults, the PHQ-9 demonstrated strong internal consistency, with a Cronbach's alpha of .93 (Bell et al., 2019). In the present study, Cronbach's alpha was .83 and .88 for 2021 and 2022, respectively.

PTSD Symptoms. PTSD symptoms were measured using the brief six-item Posttraumatic Stress Disorder (PTSD) Checklist (PCL-6(Lang & Stein, 2005)). Participants reported on the degree to which they have been bothered in the last month by PTSD-related symptoms using a scale from 1 (not at all) to 5 (extremely). Total scale scores are summed, with cut-off scores of 12 or less, 13-16, 17-25, and 26 and above for low, medium, high, and very high risk for meeting diagnostic criteria for PTSD, respectively (Han et al., 2016). The PCL-6 has been found to be correlated with measures of anxiety and depression among TNB adults (Stults et al., 2023) and to have good internal consistency with Cronbach's alphas ranging from .87 (Lacombe-Duncan et al., 2021) to .88 (Stults et al., 2023). Cronbach's alpha in the present study was .83 and .85 in 2021 and 2022, respectively.

Social Support. Social support was measured with three scales: the short forms of the Emotional Support and Social Isolation subscales of the Patient-Reported Outcomes Measurement Information System (PROMIS [Cella et al., 2010]) and a single-item index of family support developed in conjunction with researchers and community members with [masked]. The short-form Emotional Support PROMIS subscale comprises four items that reflect the perceived availability of emotional support. The short form Social Isolation subscale also comprises four items that capture an individual's perceived sense of social isolation, which included social dynamics related to the presence (or lack thereof) of social connections in an individual's life, which was used in the present study as an operationalization of social connectedness. Items are rated on a 1 (Never) to 5 (Always) scale with higher scores indicating greater levels of the construct measured. To score the scale, item responses are summed to produce a raw score, which is converted to a T-score, per administration guidelines (Cella et al., 2010). The PROMIS Emotional Support and Social Isolation short-form subscales have shown a strong correlation with their corresponding long forms and other measures of social health (Cella et al., 2010). The PROMIS Emotional Support and Social Isolation subscales have shown good internal consistency with Cronbach's alphas ranging from .95 to .97 (Rung Wu et al., 2023). In the present study, Cronbach's alpha was .94 for PROMIS Emotional Support and .90 for PROMIS Social Isolation.

An index of family support was developed for the purposes of this study through community input about important types of social support to measure among TNB people within [masked] study. Specifically, participants in the larger longitudinal study [masked], along with one member of the Participant Advisory Committee, provided input to researchers, who then

generated a list of types of support. These items were, in turn, reviewed by the full Participant Advisory Committee for additional input and editing before being finalized by researchers and distributed in the next year's annual surveys. Response options to a question about what forms of gender-specific support were provided to the participant by family members are listed in Figure 1. Responses were coded as no (0) or yes (1); higher scores indicate a greater level of support. In the present study, we used the individual response items as manifest variables to include in the latent profile analysis. Cronbach's alpha was .83.

Internalized stigma. Internalized stigma, one form of proximal stress, was measured with the Internalized Homophobia Scale (IHS [Herek et al., 2009]). The five-item IHS was modified to capture the degree to which TNB individuals internalized negative attitudes about one's gender, in consultation with research and community partners with [masked for review]. Items are rated from 1 (disagree strongly) to 5 (agree strongly) and summed. Higher scores reflect greater levels of internalized stigma. The gender-modified IHS has been found to show adequate internal consistency with a Cronbach's alpha of .76 among TNB adults participating in [masked study] prior to 2021 (Flentje et al., 2021). Cronbach's alpha in the present study was .71 for both 2021 and 2022 data.

Distal Minority Stress. Distal minority stress was measured with nine single-item indicators related to discrimination and victimization experiences encompassing the following: physical attack, harassment from strangers, sexual assault, job discrimination, housing discrimination, service discrimination, being denied or given lower quality medical care or mental health care, or unfair treatment or harassment by the police. These items were developed with community member feedback through [masked study's] Participant Advisory Committee

(see [masked]). Participants responded Yes (1) or No (0) to each item about experiences in the past year. Items were summed with higher scores indicating a greater number of distal minority stress experiences in the past year.

Procedure

This study was approved by [masked] and was not pre-registered. Data from the present study were drawn from TNB adult participants who completed The [masked study's] 2021 and 2022 Annual Questionnaires. Participants were included if they reported their gender as any of the following forced choice gender grouping options: transgender man, transgender woman, nonbinary, or another gender identity. Participants completed all study measures online in the [masked] research platform. Recruitment and retention for [masked] is described in greater depth by [masked for review].

Analysis

Data were analyzed with *Mplus*, Version 8.10 (Muthén & Muthén, 1998) and SAS software. For the LPA, all missing data were handled using Full Information Maximum Likelihood (FIML) in *Mplus*. The LPA was conducted using both continuous (PROMIS subscales) and categorical items (family support) from data collected in Year 1. Categorical variables were coded as 1= yes or 0 = no. LPAs with one through 10 latent profiles were conducted to identify subgroups within the sample, clustered according to commonalities in reported forms of support.

To conduct the LPA, we used 300 sets of random start values with 50 initial stage iterations. We used the following indices of fit (Nylund et al., 2007): Bayesian Information Criterion (BIC), sample size-adjusted BIC (aBIC), Akaike Information Criterion (AIC), and the Lo-Mendell-Rubin Adjusted LRT Test to test the significance of differences between k and $k-1$

classes. Non-significant differences between k and $k-1$ indicate that the model is not improved with k classes. Following the LPA, we tested for concurrent differences between the profiles in mental health outcomes as well as demographic composition using a series of analyses of variance (ANOVA) and chi-square analyses.

We conducted a series of longitudinal SEM analyses in a two-wave cross-lagged panel design with data from 2021 (Year 1) and 2022 (Year 2) using *Mplus*. All predictors and outcome variables were autoregressed to control for earlier scores on the same measures, and predictors were cross-lagged to assess the directionality of effect (see Figure 3 for the theorized model). Predictors were allowed to covary. We first tested three separate models to assess relationships among minority stress predictors with each of the outcome variables (anxiety, depression, PTSD symptoms). Next, we conducted nested model comparisons to test whether social support profiles moderated the strength of parameter effects among study variables. The social support profile was entered as a grouping variable to define a multiple groups SEM and estimates for parameters were allowed to vary by group. The MODEL CONSTRAINT command was used to compute z-scores to test the significance of the difference of the same paths between variables by each group (Table 2).

Results

Latent Profile Analysis Results

Results from one- to 10-profile LPAs suggested the best fit to the data was a 3-profile solution. Model fit information for all profiles is included in Supplementary Materials. Although AIC, BIC, and aBIC continued to decrease with each profile solution, the size of that decrease began to narrow after the 3-profile solution. Furthermore, the Lo-Mendell-Rubin Adjusted LRT was non-significant in the 4-profile solution, indicating that the 4-class solution did not improve

model fit. As a result, the 3-profile solution was retained. Latent class probabilities averaged between .86 (Profile 2) to .92 (Profile 3), which indicates good reliability of profile assignments in this model. Entropy above .76 is associated with high rates (>90%) of accurate class assignment (Meng-Cheng et al., 2017); entropy in our present study was .77.

Social Support Profiles. Mean scores for the two continuous predictors (emotional support, social isolation) and the proportion of participants who endorsed each of the categorical family support variables within each profile are presented in Figures 1 and 2. Profile 1 (“High Support Profile”) was the smallest of the profiles with 475 participants (19.7%) who were characterized by the highest levels of family support across all profiles and average levels of emotional support and social isolation. Nearly all participants in the High Support profile reported that family members provided affirmation and validation, including feeling respected, listened to, family members using the correct names and pronouns, supporting gender-affirming medical care, doing their own research related to TNB concerns, and standing up for participants when needed. Forty-nine percent of participants in the High Support profile reported that family had provided financial support, and 41% of participants reported that family members had assisted with participants’ efforts to change their legal name or gender. Profile 2 (“Moderate Support Profile”) was the largest profile with 982 participants (40.7%) and was characterized by moderately high levels of family support that involved participants feeling respected by family members and family members who used participants’ correct names and pronouns. However, 42% of participants in the Moderate Support profile reported that they felt listened to, 31% reported having family who supported gender-affirming medical care, 36% reported having family who stood up for them, and only 26% reported having family members who did their own

research related to TNB concerns. Participants in the Moderate Support profile also had little support related to financial help from family (10%) or assistance with legal name or gender change (5%). Finally, participants in the Moderate Support profile reported average levels of emotional support and social isolation (less than those in the High Support profile). Profile 3 (“Low Support Profile”) was composed of 954 participants (39.6%) who were characterized by very low levels of family support across all variables. Only 12% of participants in the Low Support Profile reported feeling respected by family members with all other forms of support being endorsed by 7% or fewer participants. Participants in the Low Support profile also had the lowest levels of emotional support and greatest social isolation in the sample.

Significant differences emerged between the profiles on internalized stigma, ($F(2, 2261) = 16.55, p < .001$), depression ($F(2, 2288) = 9.51, p < .001$), and PTSD symptoms ($F(2, 2291) = 11.86, p < .001$) but not anxiety symptoms ($F(2, 2288) = 2.73, p = .07$). The Low Support profile ($M = 1.90, SD = .79$) had significantly higher scores on internalized stigma than those in the High ($M = 1.71, SD = .78$) and Moderate Support profiles ($M = 1.71, SD = .73$). Regarding depression, the Low Support profile had significantly higher depression symptoms ($M = 10.44, SD = 6.40$) than the High ($M = 9.17, SD = 6.22$) and Moderate ($M = 9.30, SD = 6.32$) profiles. Regarding PTSD symptoms, a similar pattern emerged with the Low Support profile ($M = 16.09, SD = 5.23$), which had significantly higher scores on PTSD symptoms compared to the High Support ($M = 14.38, SD = 5.38$) and Moderate Support profiles ($M = 15.20, SD = 5.30$).

Demographic Differences Among Social Support Profiles. Chi-square tests were conducted to test for significant differences among the latent profiles in participant demographics (see Table 1). Significant differences at the $p < .05$ level emerged across most demographic

variables tested. The High Support profile was composed of a larger proportion of trans men and fewer nonbinary individuals than those in the Moderate and Low Support profiles. The Low Support profile comprised the most nonbinary participants. Regarding sexual orientation, the High Support profile contained the lowest relative proportion of asexual, demisexual, or gray-ace individuals and the greatest proportion of individuals who identified as queer and straight or heterosexual. The Low Support profile had the greatest proportion of 'asexual, demisexual, or gray-ace,' 'bisexual or pansexual,' and gay or lesbian participants and the lowest proportion of queer-identified participants compared to those in the High or Moderate Support profiles. Participants in the High Support profile tended to be younger in age and lower in income than those in Moderate and Low Support profiles, although greater variation across age groups and income levels was observed across all three profiles than in other sociodemographic categories. Finally, regarding race and ethnicity, no significant differences between support profiles were observed for the proportion of participants who selected Asian, American Indian, Black, Hawaiian or Pacific Islander, Latinx, Middle Eastern, more than one race, or no race. However, there were significant differences between profile membership in the proportion of participants who selected only White or White along with any other race or ethnicity. The High Support profile contained the highest proportion of individuals who selected White only or White along with any other race or ethnicity. Although a majority of participants, the Low Support profile contained the smallest proportion of White participants compared to those in the High and Moderate Support profiles.

Two-Wave Minority Stress Models

The data fit all three SEM models well. For anxiety, model fit was $X^2(3) = 9.49, p = .02$, CFI = .998, RMSEA = .02 (90% CI: .01, .04), SRMR = .01. For depression symptoms, model fit

was $X^2(3) = 9.58$, $p = .02$, CFI = .998, RMSEA = .02 (90% CI: .01, .04), SRMR = .01. Finally, for PTSD symptoms, model fit was $X^2(3) = 9.55$, $p = .02$, CFI = .998, RMSEA = .02 (90% CI: .01, .04), SRMR = .01. Regarding the main outcome of interest (Year 2 anxiety, depression, or PTSD symptoms), a large amount of variance was explained by indicators in the models which included prior year symptoms was 54% for anxiety symptoms, 56% for depression symptoms, and 57% for PTSD symptoms.

In the anxiety symptom model, distal stress and internalized stigma in Year 1 and distal stress and internalized stigma in Year 2 positively predicted anxiety in Year 2, in line with our hypotheses. Greater anxiety symptoms in Year 1 were also significantly associated with higher internalized stigma and distal stress in Year 2. In the depression symptoms model, distal stress and internalized stigma in Year 1 and distal stress and internalized stigma in Year 2 positively predicted depression symptoms in Year 2, also in line with our hypotheses. Greater depression symptoms in Year 1 were also associated with higher distal stress and internalized stigma in Year 2. Finally, in the PTSD symptoms model, higher distal stress and internalized stigma in Year 1 and distal stress in Year 2 were associated with greater PTSD symptoms in Year 2. However, in contrast to the anxiety and depression symptoms models, PTSD symptoms in Year 1 were only associated with distal stress but not internalized stigma in Year 2.

Next, we conducted nested model comparisons to test for model differences between the three social support profiles for each of the outcome models. Across the three models, our hypotheses that belonging to a profile marked by higher levels of social support would weaken the association of minority stressors with mental health were not supported. In the depression symptoms model, the path between internalized stigma at Year 1 and depression at Year 2 was significantly different between the High Support Profile ($\beta = .07$, $SE = .04$) and the Moderate

Support profile ($\beta = -.08$, $SE = .04$). Notably, only in the Moderate Support profile was the association of higher internalized stigma in Year 1 significantly correlated with higher depression symptoms and scores in Year 2. The models explained between 51% (High Support) and 58% (Moderate Support) of the variance in depression in Year 2, a large effect. Two differences emerged in the PTSD symptoms model. First, the path from distal stress in Year 1 and PTSD symptoms in Year 2 was positive for participants in the Low Support profile ($\beta = .07$, $SE = .04$), such that higher distal stress scores in Year 1 were associated with higher PTSD symptoms in Year 2, compared to participants in the High Support profile where the relation between distal stress and PTSD symptoms was not significant ($\beta = -.06$, $SE = .05$). Second, the path in the reverse direction of distal stress in Year 2 with PTSD symptoms at Year 1 was significantly different between the High and Low Support profiles. Specifically, the path from distal stress in Year 2 with PTSD symptoms in Year 1 was positive for those in the Low Support profile ($\beta = .14$, $SE = .03$), such that higher PTSD symptoms in Year 1 were associated with higher distal stress scores in Year 2. This path was not significant for those in the High Support profile ($\beta = .01$, $SE = .04$). The models explained between 53% (Moderate Support) and 58% (both Low and High Support profiles) in PTSD symptoms at Year 2, a large effect.

Discussion

Results from this study contribute to our understanding of social support for TNB adults. This study builds on the extant literature by investigating variation in family gender-related support and how that may coalesce with the general perceived availability of social support and social connectedness for TNB people. We conducted an LPA and identified three distinct social support profiles (low, moderate, and high levels). Variation among profiles yielded some unique insights into the types of support for TNB people, particularly regarding gender-related support

from family. For participants in the Moderate and High Support profiles, a greater proportion reported experiencing various forms of gender-related emotional support. More variation was observed, however, among items related to instrumental and informational support, such as assistance with changing name and gender identity documents, financial assistance with gender-affirming care, and researching how to better support the participant. Individuals in the Low Support profile (~40% of the total sample), however, reported paltry support from family across emotional, instrumental, and informational support dimensions, along with lower levels of general emotional support and social connectedness when compared to the Moderate and High Support profiles. Within the Low Support profile, very few people (12%) reported that they had ever been told by family that they were respected and/or supported. Only 1-4% of participants reported family members used the correct pronouns, stood up to others for them, did research to understand how to better support the participant, or provided any financial support for gender transition. There were zero participants in this group who received any assistance from family with changing their name or gender on identity documents.

Regarding mental health, participants in the Low Support profile reported significantly higher scores on internalized stigma, depression, and PTSD symptoms than participants in the Moderate or High Support profiles. There were no differences among groups on levels of anxiety or exposure to distal stress. That no differences between profiles emerged related to anxiety was surprising given that prior research has found negative associations of social support with anxiety (Budge et al., 2013; Pflum et al., 2015). However, it is possible that with how this study operationalized social support along multiple dimensions as well as varying timelines (i.e., current availability of emotional support *and* current and past experiences of family support related to gender transition), social support's association with anxiety may hold a different effect

than when it is measured only as current availability of emotional support as has been the case in prior research.

For participants across all three profiles, mean levels of anxiety symptoms fell within the range of scores clinically indicative of mild anxiety. Regarding depression, mean levels fell within ranges clinically indicative of mild (Moderate and High Support profiles) and moderate depression (Low Support profile). Finally, mean levels of PTSD symptoms across all three Profiles fell within a range clinically indicative of medium risk for PTSD. While the strength of the paths among minority stress and mental health outcomes were largely not significantly different across profiles, two significant differences emerged for those in the Low Support profile compared to participants in the High Support profile. The relations of distal stress in Year 1 with PTSD symptoms in Year 2 as well as a reverse direction relationship - PTSD symptoms in Year 1 with distal stress in Year 2 - was positive for the Low Support profile and non-significant for High Support profile. These findings suggest that, for individuals with high levels of support, social support buffered the adverse effects of distal stress with PTSD symptoms. However, for individuals with low social support, not only were distal stress experiences in Year 1 associated with PTSD symptoms in Year 2 as expected, but PTSD symptoms in Year 1 were associated with distal stress in Year 2. With no differences in distal stress exposure, this reciprocal relationship suggests that for participants with low levels of support, PTSD symptoms may strengthen the perception or awareness of distal stress over time and exacerbate mental health concerns.

These findings highlight the importance of considering the multidimensional nature of social support, such as the source and type of support received (general versus gender-specific; emotional, instrumental, informational support), to determine its effects more effectively on mental health and well-being for TNB people. Past research has tended to investigate only one

dimension at a time, usually focusing on general emotional support (Budge et al., 2013; Puckett et al., 2019; Tebbe & Moradi, 2016; Trujillo et al., 2017). Although emotional support is important given the robust evidence demonstrating associations with mental health and well-being, our study helps to illustrate how measuring multiple dimensions of social support within a study may yield nuanced understandings of what constitutes social support, what its effects may be, and who may benefit most from different types of social support. Furthermore, with the sociodemographic differences that emerged among the social support profiles, these findings raise the possibility that decreased availability of social support may be another potential mechanism by which identity-related marginalization may contribute to adverse mental health; exacerbating risk for worse mental health by lessening the availability of social support as an essential health promotive factor.

Contrary to our hypotheses, when we tested profile membership based on social support experiences measured in Year 1 as a moderating variable in the association of minority stress with mental health over time, we largely found no differences in the strengths of the paths from minority stress to anxiety, depression, and PTSD symptoms in Year 2 for those in the Low, Moderate, and High Support profiles with a few exceptions. While a strength of this study was its inclusion of an index of family support that included specific gender-related emotional, instrumental, and informational forms of support, it may have been too broad in its operationalization and timing to capture stress-buffering effects. While “coming out” and gender transition may itself be a stressful experience for many and a time of heightened risk for minority stress (Rood et al., 2016), we did not capture when such family support experiences occurred. It is also possible that for participants in the Low and Moderate Support Profiles, who also tended to be older than participants in the High Support Profiles, gender-related changes may have

occurred at a time when fewer resources, education, and knowledge were available for family members in how to support TNB children, siblings, or parents, and lower levels of support may be reflective of the broader societal attitudes towards TNB individuals in the past. Therefore, future research aiming to investigate the degree to which family support may help to buffer the adverse effects of minority stress can strive to capture support directly in response to minority stress and how that affects mental health over time.

Clinical Implications. There are several key implications from this study's findings for mental health providers who work with TNB clients. First, with the Low Support profile reporting significantly higher scores on depression and PTSD symptoms, some level of social support availability is associated with better psychological outcomes. Providers should attend to their clients' social support needs and work to understand what support resources TNB individuals have available to them. It may be helpful to ask about forms of social support other than emotional support that are available, including the extent to which they may have someone they can turn to in a crisis or for financial or logistical help. Assessing where TNB individuals gather information related to gender transition may help providers understand whether clients need additional local resources or information about gender transition processes. Assessing these needs may yield clinically relevant information about access to formalized support, care, quality, and strength of connections to the larger TNB community. While these support networks can provide numerous benefits to TNB individuals, study findings suggest that they may not be sufficient for buffering the adverse harms of minority stress over time. As a result, providers should help clients process minority stress experiences directly and to develop additional effective coping strategies for minimizing distress and promoting positive psychological functioning.

Much of the literature to date investigating family support has centered support from caregivers and parents; however, for older TNB adults, support from spouses and children may be more personally salient (e.g., [Hughes, 2016](#)). Providers should assess clients' family structures and identify through what relationships clients need and desire support. Providers can talk with their clients about their experiences with family members regarding various types of support over time and about gender transition. In our study, almost 40% of the sample reported very low to no support from family members related to their gender. While family may be a critical source of support for some, it may represent an area of pain and hurt for others. Providers can use their clinical judgment to determine whether it may be helpful to address painful experiences of lack of support from family members to move towards healing and in alignment with individual goals.

Limitations and Future Directions. Several limitations should be noted in the present study. First, although the index of family gender-related support was developed with input from the community, this measure has not been validated. Because its items were used as single indicators within the LPA models, this presents fewer concerns regarding overall scale reliability or structural validity. Future research could psychometrically evaluate this measure as a predictive variable in regression-based analysis. Second, although we had a large sample size appropriate for drawing conclusions, the extent to which results are generalizable to the entire adult TNB population is limited by our study's use of convenience sampling. Because participants were recruited through [masked study] – an ongoing national research study with explicit aims to produce knowledge to improve health for LGBTQIA+ people – recruitment strategies for this study may have been unable to reach individuals with higher levels of internalized stigma related to their gender and/or sexuality. Finally, this study's sample included a higher proportion of

White participants than the general US population. Therefore, future research should aim for more demographically representative and/or balanced samples.

Overall, findings from the present study contribute to our understanding of the variation in family support experiences that exists within TNB communities and how that variability may be associated with mental health outcomes. Emotional support may be more readily available to TNB individuals than other essential forms of support, such as instrumental and informational support. Future research could continue to investigate the specific effects received social support may have across different contexts and from different sources.

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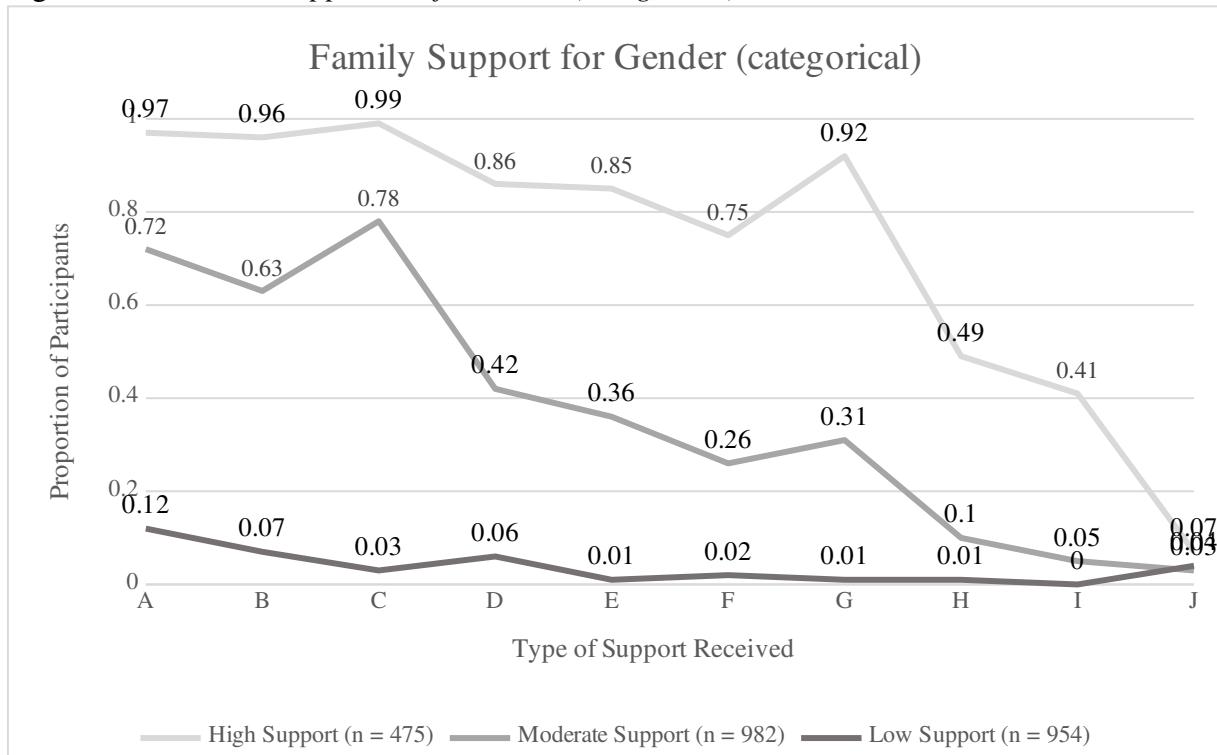
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Figure 1. LPA Social Support Profile Scores (categorical)



Note: A = Told you that they respect and/or support you; B = Used your preferred name even if it was not your legal name; C = Used your correct pronouns, D = Listened to me when I had difficulties, E = Stood up to you with family, friends, or others, F = Did research to learn how to best support you; G = Supported my gender-affirming health care (other than financially), H = Provided financial support to help with any part of your gender transition; I = Helped you change your name and/or gender on your ID; J = Supported you in another way not listed above.

Figure 2. LPA Social Support Profile Scores (continuous)

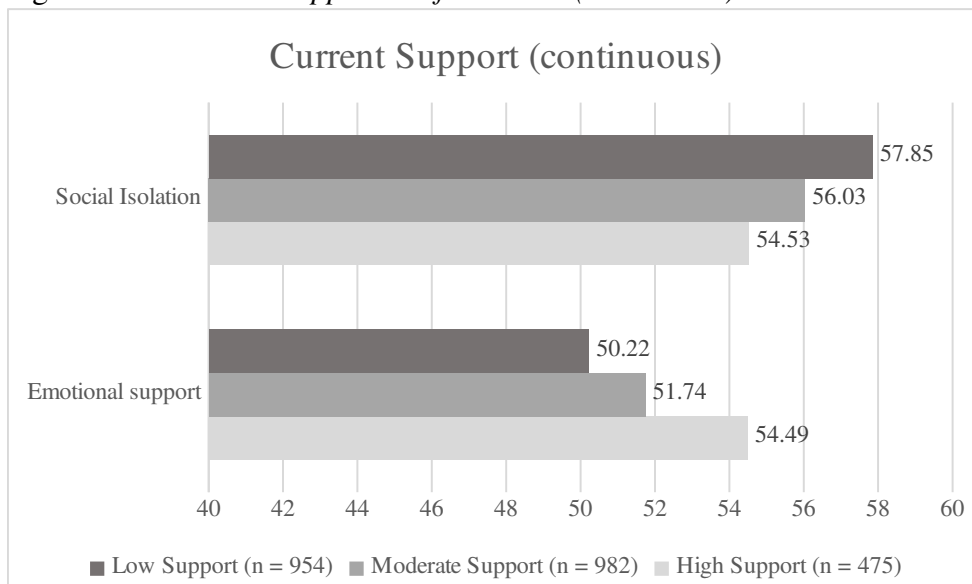
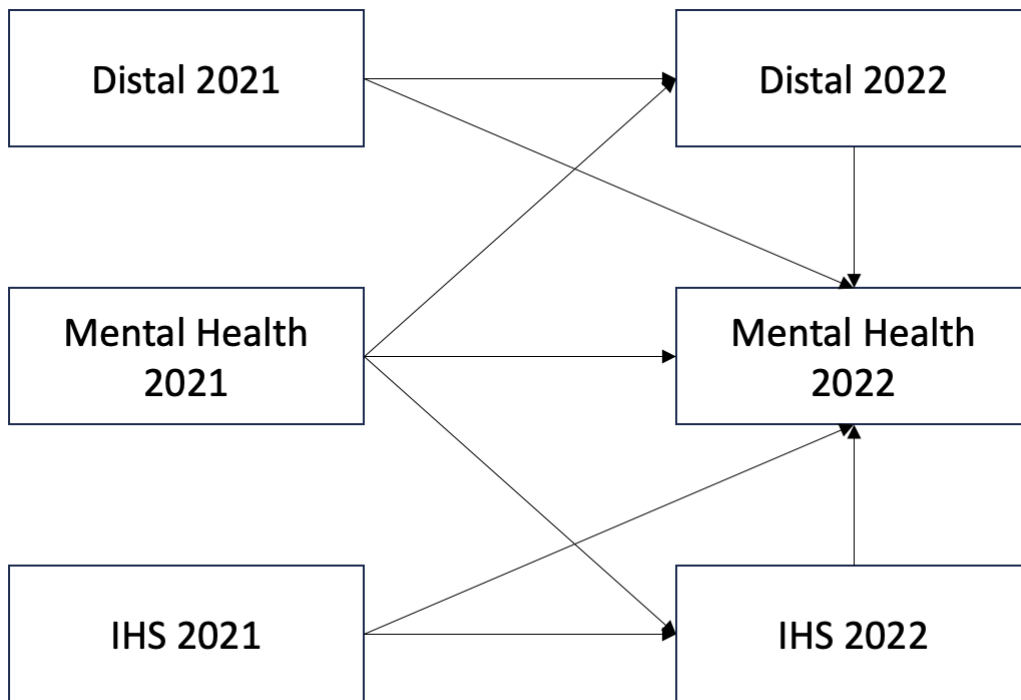


Figure 3. *Theorized Model*

Note: Mental Health in this model depicts depression, anxiety, and PTSD symptoms. IHS = Internalized Homophobia Scale (adapted for internalized transphobia; Herek et al., 2009)

Table 1. *Demographic Characteristics of Social Support Profiles*

	High Support (n = 475) n (%)	Moderate Support (n = 982) n (%)	Low Support (n = 954) n (%)	Total sample (N = 2,411)	Chi-square	Probability
Age group					$X^2 (6) = 15.34$	$p = .02$
18-30	284 (59.8)	491 (50.5)	496 (52.2)	1271 (53.0)		
31-45	142 (29.9)	335 (34.8)	302 (31.8)	779 (32.5)		
46-60	30 (6.3)	93 (9.6)	97 (10.2)	220 (9.2)		
> 60	19 (4.0)	53 (5.5)	56 (5.9)	128 (5.3)		
Income					$X^2 (6) = 17.02$	$p < .01$
≤ \$20,000	199 (42.2)	363 (38.0)	420 (44.5)	982 (41.1)		
\$20,001 - \$40,000	115 (24.4)	219 (22.4)	203 (21.5)	537 (22.5)		
\$40,001 - \$60,000	63 (13.4)	171 (17.5)	152 (16.1)	386 (16.1)		
≥ \$60,001	95 (20.1)	223 (22.9)	168 (17.8)	489 (20.3)		
Gender Identity					$X^2 (6) = 239.90$	$p < .0001$
Nonbinary	146 (30.7)	514 (52.3)	626 (65.6)	1286 (53.3)		
Transgender man	229 (48.2)	268 (27.3)	129 (13.5)	689 (26.0)		
Transgender woman	75 (15.8)	126 (12.8)	99 (10.4)	300 (12.4)		
Another gender identity	25 (5.3)	74 (7.5)	100 (10.5)	199 (8.3)		
Sexual Orientation					$X^2 (10) = 21.23$	$p = .02$
Asexual/Demisexual/Gray-Ace	40 (8.4)	123 (12.5)	138 (14.8)	301 (12.5)		
Bisexual/Pansexual	133 (28.0)	278 (28.3)	278 (29.1)	689 (28.6)		
Gay/Lesbian	83 (17.5)	169 (17.2)	176 (18.6)	428 (17.8)		
Queer	198 (41.7)	381 (38.8)	338 (35.4)	917 (37.0)		
Straight/Heterosexual	19 (4.0)	25 (2.6)	16 (1.7)	60 (2.5)		
Another sexual orientation	2 (.4)	6 (.6)	8 (.8)	16 (.7)		
Sex Assigned at Birth					$X^2 (2) = .31$	$p = .86$
Male	99 (20.9)	193 (19.7)	193 (20.4)	485 (20.2)		
Female	375 (79.1)	787 (80.3)	755 (79.6)	1917 (79.8)		
Race and Ethnicity^a						
American Indian (yes)	16 (3.4)	34 (3.5)	49 (5.2)	99	$X^2 (2) = 4.29$	$p = .12$
Asian (yes)	20 (4.2)	48 (4.9)	61 (6.4)	129	$X^2 (2) = 3.71$	$p = .16$
Black (yes)	10 (2.1)	34 (3.5)	43 (4.5)	87	$X^2 (2) = 3.71$	$p = .16$
Hawaiian/Pacific Islander (yes)	1 (.2)	3 (.3)	2 (.2)	6	$X^2 (2) = .21$	$p = .90$
Latine (yes)	29 (6.1)	54 (5.5)	58 (6.1)	141	$X^2 (2) = .38$	$p = .83$
Middle Eastern (yes)	12 (2.5)	14 (1.4)	19 (2.0)	45	$X^2 (2) = 2.27$	$p = .32$
White (yes)	451 (95.2)	918 (93.5)	850 (89.3)	2219	$X^2 (2) = 19.10$	$p < .001$
White <i>only</i> (yes)	393 (82.9)	804 (81.9)	740 (77.7)	1937	$X^2 (2) = 7.56$	$p = .02$

More than one race	64 (13.5)	120 (12.2)	122 (12.8)	306	$X^2 (2) = .49$	$p = .79$
No race	9 (1.90)	19 (1.93)	19 (2.00)	47	$X^2 (2) = .02$	$p = .99$

Note: **bold** indicates significance at $p < .05$. ^aParticipants were able to select all race and ethnicity categories that applied, so percentages for each

category are not provided.

Table 2. *Minority Stress Model Parameters*

Parameter	All participants β (SE)	Profile 1 (high social support) β (SE)	Profile 2 (moderate social support) β (SE)	Profile 3 (low social support) β (SE)
Anxiety Symptoms (GAD) Model				
GAD 2021 -> GAD 2022	.69 (.01)**	.70 (.03)**	.72 (.02)**	.65 (.02)**
Distal 2021 -> GAD 2022	.04 (.02)	.09 (.05)	.03 (.03)	.03 (.04)
Distal 2022 -> GAD 2022	.07 (.02)**	-.01 (.05)	.06 (.03)	.10 (.04)*
IHS 2021 -> GAD 2022	-.01 (.03)	<.01 (.06)	-.07 (.04)	.04 (.04)
IHS 2022 -> GAD 2022	.06 (.03)*	.03 (.06)	.07 (.04)	.02 (.04)
Distal 2021 -> Distal 2022	.65 (.01)**	.70 (.03)**	.61 (.02)**	.65 (.02)**
GAD 2021 -> Distal 2022	.10 (.02)**	.03 (.04)	.10 (.03)**	.10 (.03)**
IHS 2021 -> IHS 2022	.75 (.01)**	.77 (.02)**	.72 (.02)**	.71 (.02)**
GAD 2021 -> IHS 2022	.05 (.02)**	-.02 (.04)	.05 (.03)	.06 (.03)
R^2				
Distal 2022	.46**	.47**	.41**	.46**
IHS 2022	.57**	.59**	.53**	.53**
GAD 2022	.54**	.52**	.56**	.50**
Depression Symptoms (PHQ) Model				
PHQ 2021 -> PHQ 2022	.70 (.01)**	.68 (.03)**	.72 (.02)**	.68 (.02)**
Distal 2021 -> PHQ 2022	.01 (.02)	-.02 (.05)	.05 (.03)	-.01 (.04)
Distal 2022 -> PHQ 2022	.08 (.02)**	.10 (.05)	.05 (.03)	.10 (.04)*
IHS 2021 -> PHQ 2022	-.02 (.03)	.07 (.06)	-.08(.04)**	<-.01 (.04)
IHS 2022 -> PHQ 2022	.08 (.03)**	-.03 (.06)	.10 (.04)*	.07 (.04)
Distal 2021 -> Distal 2022	.65 (.01)**	.66 (.03)**	.61 (.02)**	.66 (>.02)**
PHQ 2021 -> Distal 2022	.09 (.02)	.07 (.04)	.09 (.03)**	.06 (.03)*
IHS 2021 -> IHS 2022	.74 (.01)**	.77 (.02)**	.72 (.02)**	.71 (.02)**
PHQ 2021 -> IHS 2022	.04 (.02)**	-.02 (.04)	.04 (.03)	.06 (.03)*

R^2				
Distal 2022	.46**	.48**	.41**	.46**
IHS 2022	.57**	.59**	.53**	.53**
PHQ 2022	.56**	.51**	.58**	.53**
PTSD Symptoms (PCL) Model				
PCL 2021 -> PCL 2022	.69 (.01)**	.75 (.03)**	.67 (.02)**	.68 (.02)**
Distal 2021 -> PCL 2022	.02 (.02)	-.06 (.05)	-.01 (.04)	.07 (.04)*
Distal 2022 -> PCL 2022	.11 (.02)**	.14 (.05)**	.13 (.04)**	.09 (.02)*
IHS 2021 -> PCL 2022	-.01 (.03)	-.06 (.06)	<.01 (.04)	.02 (.04)
IHS 2022 -> PCL 2022	.07 (.03)**	.01 (.06)	.05 (.04)	.08 (.04)
Distal 2021 -> Distal 2022	.64 (.02)**	.68 (.03)**	.61 (.08)**	.63 (.02)**
PCL 2021 -> Distal 2022	.10 (.02)**	.01 (.04)	.08 (.03)*	.14 (.03)**
IHS 2021 -> IHS 2022	.75 (.01)**	.78 (.02)**	.72 (.02)**	.72 (.02)**
PCL 2021 -> IHS 2022	.02 (.02)	-.04 (.04)	.03 (.03)	.02 (.03)
R^2				
Distal 2022	.46**	.47**	.41**	.47**
IHS 2022	.57**	.59**	.53**	.52**
PCL 2022	.57**	.58**	.53**	.58**
Note: * $p < .05$; ** $p < .01$, bold indicates path effects that are significantly different by profile. GAD = Generalized Anxiety Disorder-7 Scale (Spitzer et al., 2006) PCL = Posttraumatic Stress Disorder Checklist-6 (Lang & Stein, 2005), PHQ = Patient Health Questionnaire-9 (Kroenke & Spitzer, 2002); IHS = Internalized Homophobia Scale (adapted for internalized transphobia; (Herek et al., 2009)				