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Mental Health and Resilience in Transgender Individuals: What Type of Support Makes a Difference?

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Abstract

Research has generally shown the benefits of social support, such as the buffering effects on life stressors, yet there has been little empirical investigation of different types of support resources for transgender individuals. We examined family support, support from friends, and connectedness to a transgender community and how these forms of support come together to influence mental health and resilience. The sample included 695 transgender participants (mean age = 25.52 years, $SD = 9.68$, range 16–73; 75.7% white) who completed an online survey. Over half of participants reported moderate to severe levels of anxious and depressive symptoms. Family social support had the strongest correlations with symptoms of anxiety and depression ($r = -.31$ and $-.37$, respectively, $p < .01$) and was the only form of support associated with resilience when controlling for other forms of support. Latent profile analyses revealed four groups based on levels of social support from family and friends and community connectedness. Notably, Class 1 ($n = 323$; 47.1%) had high levels of support from family and friends and high levels of community connectedness. This class had lower levels of depression and anxiety symptoms and higher levels of resilience

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compared to other classes (Class 2, $n = 276$, 40.3%, High Friend/Community, Low Family; Class 3, $n = 47$, 6.9%, Low Support; Class 4, $n = 39$, 5.7%, High Family, Low Friend/Community). This study highlights the importance of examining support from a more holistic approach and provides insight into unique associations between familial social support and resilience.

Keywords

transgender; social support; resilience; community connectedness; mental health

Transgender (or “*trans*,” also known as gender minorities) is an umbrella term that refers to individuals who do not identify with the gender that is typically associated with their sex assigned at birth. This includes a diverse group (American Psychological Association, 2015) of trans men, trans women, and other people who do not identify with a gender (e.g., agender) or identify outside of binary notions of gender (e.g., genderqueer or nonbinary individuals). We use the terms *trans and gender diverse* (TGD) and *gender minorities* to capture the myriad of identities within the broader transgender community.

TGD individuals experience striking elevations in mental health concerns, such as depression (Bockting et al., 2013; Rotondi et al., 2011), anxiety (Bockting, Miner, Swineburne Romine, Hamilton, & Coleman, 2013; Budge, Adelson, & Howard, 2013), and suicidality (Goldblum et al., 2012; James et al., 2016). These mental health concerns are partially driven by experiences of stigmatization and marginalization, or minority stress (Hendricks & Testa, 2012; Meyer, 2003). Although prior research has helped elucidate processes that negatively impact mental health in TGD individuals, very little research has focused on understanding what types of social supports benefit the mental health of gender minorities. This study sought to understand how various types of support (family, friends, and TGD community connectedness) collectively relate to mental health and resilience for TGD people.

Social Supports and Mental Health

Social support, which refers to interpersonal supports that help decrease stress (Gerrig & Zimbardo, 2002), has emerged as a key factor that is associated with resilience and may buffer the negative outcomes of minority stress among TGD individuals (Bockting et al., 2013; Budge, Adelson, & Howard, 2013). For TGD people coping with stigmatization, there are three prominent domains from which they may seek support: family, friends, and from a TGD community (Mizock & Mueser, 2014). For each of these specific types of support, the research is limited, but provides an important base from which to ask more nuanced questions about what types of supports might be related to better mental health and resilience.

Most of the research about social support for TGD individuals tends to average all forms of social support into a single construct. This research indicates that social support, in general, is associated with less depression and less anxiety in genderqueer individuals (Budge, Rossman, & Howard, 2014), trans men, trans women (Budge et al., 2013; Pflum, Testa, Balsam, Goldblum, & Bongar, 2015), and TGD youth (Grossman, D’augelli, & Frank,

2011). In addition, greater social support has been associated with less non-suicidal self-injury for trans men and trans women (Claes et al., 2015). And, beyond demographic variables and other known correlates of depression, such as gender-related victimization, social support may be an especially strong predictor of mental health (Boza & Nicholson Perry, 2014).

Family social support, specifically, is associated with higher life satisfaction, lower feelings of being a burden, and less depression in TGD individuals (Simons, Schrage, Clark, Belzer, & Olson, 2013), as well as less psychological distress (Bockting et al., 2013; Lefevor, Sprague, Boyd-Rogers, & Smack, 2018). Support from family members may be particularly important in protecting TGD individuals from mental health risks (Olson, Durwood, DeMeules, & McLaughlin, 2016; Mustanski, Newcomb, & Garofalo, 2011; Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Weinhardt et al., 2019). For example, one study found that 57% of TGD youth who said their parents were not supportive had attempted suicide compared to only 4% of TGD youth who reported their parents were supportive (Travers, Bauer, Pyne, & Bradley, 2012). Research with lesbian, gay, bisexual, and transgender (LGBT) participants demonstrates that family social support may contribute to better mental health above and beyond other forms of support, such as from peers or an LGBT community (Snapp, Watson, Russell, Diaz, & Ryan, 2015) and may be essential to better mental health (McConnell, Birkett, & Mustanski, 2015).

Although families have the capability to buffer the harmful effects of stigma (Koken, Bimbi, & Parsons, 2009; Singh & McKleroy, 2011), many TGD people experience rejection from their own families (Bradford et al., 2013; Koken et al., 2009; Mullen & Moane, 2013) and may instead be more likely to turn to their friends for support (Moody & Smith, 2013; Nemoto, Bödeker, & Iwamoto, 2011). Unfortunately, very limited research exists that separately examines the impact of support from friends or peers on mental health among TGD populations. Thus far research has shown that support from friends is associated with less psychological distress (Bockting et al., 2013; Lefevor et al., 2018) and lower rates of suicidal ideation (Bauer, Scheim, Pyne, Travers, & Hammond, 2015) for gender minorities. Additionally, peer social support was found to have a significant buffering effect on the association between stigma and mental health for TGD individuals (Bockting et al., 2013).

TGD people also may seek a connection to a transgender community (Budge et al., 2012). This form of support can be important for several reasons, including the ways connection with other TGD individuals may facilitate the process of self-actualization and self-acceptance, as well as decrease feelings of isolation when faced with rejection from other groups (Graham et al., 2014). Connectedness to a TGD community has been associated with better well-being and fewer symptoms of depression and anxiety (Barr, Budge, & Adelson, 2016; Pflum, Testa, Balsam, Goldblum, & Bongar, 2015). Furthermore, community involvement can significantly buffer the effects of gender-based abuse on depression (Nuttbrock et al., 2015).

Although there are benefits to community connection, this resource may be limited to those willing to disclose their gender minority identity (Hendricks & Testa, 2012) and to those in geographic locations that offer TGD community resources. Research also indicates that

involvement in TGD communities may be associated with greater depression (Rotondi et al., 2011) and greater exposure to discrimination (Bradford et al., 2013), perhaps because this type of community connection may increase the visibility of one's identity. It also could be that this form of support is more beneficial to the mental health of certain subgroups than others. In one study, researchers found that TGD community connectedness was significantly associated with fewer symptoms of depression and anxiety among trans female spectrum participants, but not trans male spectrum participants (Pflum et al., 2015). Because of these mixed findings, research is still needed to assess the associations between TGD community connection and mental health.

Resilience and Social Support

Along with being associated with better mental health outcomes, social support can help build resilience among TGD individuals (Bockting et al., 2013; Matsuno & Israel, 2018; Singh, Hays, & Watson, 2011). In this study, we conceptualized resilience as one's ability to overcome or "bounce back" from adversities (Matsuno & Israel, 2018; Meyer, 2015; Smith et al., 2008). Although others have labeled processes that may help one to be resilient, such as effective coping strategies or even social support, as resilience itself (e.g., Bockting et al., 2013), we examined resilience as an individual difference in how people respond and adapt to stressors (Matsuno & Israel, 2018; Smith et al., 2008). According to minority stress theory, resilience is hypothesized to moderate the association between minority stressors and mental health outcomes (Meyer, 2003). Therefore, higher levels of resilience among TGD individuals may buffer the negative outcomes of minority stress, making this an important area to study.

Although research has demonstrated the association between social support and mental health outcomes (Budge et al., 2013; Budge, Rossman, & Howard, 2014; Pflum et al., 2015), few quantitative studies have examined how social support may relate to resilience for TGD individuals. Partially, this is likely the case because social support and resilience have been equated in some prior studies (e.g., Bockting, Miner, Romine, Swinburne, Hamilton, & Coleman, 2013; Grossman, D'Augelli, & Frank, 2010), whereas social support may more accurately be characterized as a factor that promotes resilience (Matsuno & Israel, 2018). Even so, quantitative research shows that resilience is associated with better mental health for TGD individuals (Gonzalez, Bockting, Beckman, & Dura, 2012; Scandurra, Amodeo, Valerio, Bochicchio, & Frost, 2017) and higher levels of resilience are associated with turning to family for support and more contact with LGBT peers (Bariola et al., 2015). Qualitative studies have consistently identified social support from friends, family, and the TGD community as supporting resilience for gender minority adults (Moody, Fuks, Peláez, & Smith, 2015; Singh et al., 2011), TGD youth (Singh, Meng, & Hansen, 2014), and TGD youth of color (Singh, 2013).

Current Study

Social support is important to the well-being of TGD individuals, yet there has been extremely limited research examining the role of different interpersonal supports in relation to mental health and resilience in gender minorities. This is particularly relevant given that

few studies have simultaneously examined the three major forms of support that TGD individuals use to cope (social support from family, friends, and community). Research also has typically included trans men and trans women, whereas research with a gender diverse sample more accurately reflects the variety of identities in the TGD community. In this gender diverse sample, we examined: 1) severity of mental health symptoms in a TGD sample; 2) associations between social supports, mental health, and resilience; 3) groupings based on social support from family, friends, and TGD community connectedness; and 4) differences in mental health and resilience based on the types of supports.

Method

Participants

For this online study, there were 861 people who opened the survey. Of these individuals, there were 166 participants who either opened the survey and did not finish or who were disqualified from the study after opening the link, for a variety of reasons (e.g., not completing any of the items, incorrectly answering consent comprehension questions). After removing these individuals, there were 695 participants in the final sample. The mean age of the final sample was 25.52 years old, ($SD = 9.68$; range 16 – 73). The majority of the sample identified as White (75.7%) and most had an income below \$10,000 a year (51.4%). About half of the participants identified as either transgender men (30.4%) or transgender women (16.6%), and a variety of other gender identities (e.g., genderqueer, non-binary) were reported by the other participants. In regards to sex assigned at birth, 76.8% ($n = 534$) were assigned female at birth and 22.4% ($n = 156$) were assigned male at birth. Of note in regards to sexual orientation, the largest percentage of participants identified as queer (25%), with the second most common sexual orientation being pansexual (18.7%). A breakdown of all demographic information is available in Table 1.

Procedures

The data presented here were part of a broader study, which entailed two components – one was a daily diary study and the other a brief, one-time survey for participants who did not qualify for the daily diaries. Participants completed a brief screener to determine which portion of the study they qualified for. To qualify for the daily diary portion, participants had to meet all of the following criteria: be between 16 to 40 years old; identify as trans men, trans women, genderqueer, or non-binary; live in the US; had sex in the past 30 days; and either binge drank or used substances in the past 30 days. Participants who did not qualify for the daily diary portion could participate in the one-time survey if they were ages 16 and over, identified as TGD, and lived in the US. The data presented here are only from participants in the one-time survey.

This study was informed by a transgender community advisory board (CAB), which included local TGD individuals who met weekly for a month prior to the beginning of the study and periodically after the initiation of data collection for the duration of the project. The role of the CAB was to provide feedback about the overall focus of the project, the relevance and cultural sensitivity to their own lived experiences, as well as to provide comments on the questions included in the study, study design, recruitment materials, and

retention methods. The primary researcher on the project also shared preliminary findings with the CAB and sought feedback about the results, including findings focused on social support.

Participants in the study were recruited from Facebook, Twitter, Tumblr, and other social media sites, as well as through community organizations that serve the TGD community and via flyers at community events. The study was approved by the Institutional Review Board of the primary investigator's institutions with a waiver of parental permission for 16–17 year olds under 45 CFR 46.408(c). Participants provided their consent/assent to participate in the study, which was completed via the online survey. Participants who completed the one-time survey received a \$5 Amazon gift card, with the exception of the first 200 participants as they completed the survey prior to funding being available.

Because this was an online survey, there were several steps taken to ensure the quality of the data. Participants did not gain immediate access to the surveys and they had to complete the screener questionnaire to be considered for the study, allowing us to screen for duplicate contact information in the screener questionnaire. The surveys were emailed to participants who qualified for the study and all email addresses were reviewed for suspicious email accounts or duplicated email addresses. Each email included a unique link to the survey that could only be used once. We also examined IP addresses to screen for duplicate responses. In addition, the survey platform included survey protection options that prevented the survey from being taken multiple times by the same user, including the screener questionnaire. The survey software included a CAPTCHA to inhibit programmed responses. Finally, once participants gained access to the survey, they also answered a series of three questions to assess their understanding of the consent information (consent comprehension questions). This also served as a way to ensure that participants were attending to the information and not being careless or randomly responding.

Measures

Demographics.—Participants reported their age, sex assigned at birth, gender identity, sexual orientation, racial/ethnic identification, income, employment status, and education level. See Table 1 for response options to these questions.

Social support from family and friends.—The subscales measuring family support and support from friends from the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) were utilized to assess support from these groups. These subscales each included four items, with response options on a 7-point scale from *Very Strongly Disagree* (1) to *Very Strongly Agree* (7). Averages were calculated for each subscale. This measure has been supported with factor analyses and has been found to be reliable (Cronbach's alphas of .90 and .94 for family and friends subscales, respectively; Zimet, Dahlem, Zimet, & Farley, 1988). In the current sample, Cronbach's alpha was .93 for both subscales.

Community connection.—The Community Connectedness subscale of the Gender Minority Stress and Resilience Scale (Testa, Habarth, Peta, Balsam, & Bockting, 2014) was completed to assess participants' feelings of being connected to a community of other

individuals with similar gender identities. This subscale consisted of five items measured on a 5-point scale from *Strongly Disagree* (1) to *Strongly Agree* (5). Two items were reverse scored and a total score was calculated, with higher scores indicating a greater sense of TGD community connectedness. In the development study, this subscale was found to be reliable and there was support for criterion, convergent, and discriminant validity (Testa et al., 2015). In the current sample, Cronbach's alpha was .82.

Mental health.—Mental health was assessed via a measure of depression symptoms and a measure of anxiety symptoms. To assess depression, participants completed a short form of the Patient-Reported Outcomes Measurement Information System (PROMIS) – Depression scale (Cella et al., 2011). This was an eight item scale where participants reported how often in the past 7 days they experienced symptoms of depression, such as feeling worthless, hopeless, or sad. To assess anxiety symptoms, participants completed a short form of the PROMIS – Anxiety scale, which included seven items where participants reported how often in the past 7 days they experienced symptoms such as feeling fearful, tense, or worried. Response options ranged from *Never* (1) to *Always* (5) on both scales. To calculate scores on these measures, a raw score was computed which was a total score that was then converted to T-scores. The Cronbach's alpha in the current sample was .95 for the depression scale and .94 for the anxiety scale. These measures were originally developed and tested with a large sample of over 20,000 individuals who were representative of the general population in the US. Previous validation research has shown that these scales have high levels of reliability and the short forms correlate highly with the full scales, as well as with other measures of depression and anxiety symptoms (Cella et al., 2011). For descriptive purposes, scores on these two measures were categorized into *none to slight* (scores less than 55), *mild* (55–59.9), *moderate* (60–69.9), and *severe* (70 and over), in line with recommended cut offs (American Psychiatric Association, 2013).

Resilience.—The Brief Resilience Scale (Smith et al., 2008) assessed participants' abilities to recover easily from stressful experiences. This scale includes six items and responses were measured on a 5-point scale from *Strongly Disagree* (1) to *Strongly Agree* (5) and appropriate items were reverse scored before calculating a mean score. Higher scores on this measure represented higher levels of resilience. Research has shown this scale to be reliable, with good test-retest reliability and internal consistency, as well as support for convergent and discriminant validity (Smith et al., 2008). Cronbach's alpha in the current study was .92.

Statistical Analysis

All data were analyzed using SPSS, with the exception of the latent profile analyses which were conducted in Mplus version 8.1. From the analytic sample, 1.2% of data was missing and given this small percentage, this was handled using pairwise deletion. Descriptive statistics were conducted to describe the sample. Next, we examined associations between demographics and support variables (support from family, friends, and TGD community connectedness) and outcomes of interest (depression symptoms, anxiety symptoms, resilience) using correlations and ANOVAs. Bivariate correlations between support variables and outcomes were examined next and the sizes of these correlations were compared using

dependent correlation comparisons. To examine the unique effects of each support variable, we conducted multiple linear regressions in which demographic covariates and all three support variables were entered as simultaneous predictors of depression symptoms, anxiety symptoms, and resilience. To determine whether the effect of a support variable differed based on the amount of support present from other sources, three way interactions among the support variables were tested as predictors of the outcomes.

Latent profile analyses (LPA) were then conducted to identify groups based on support from family, friends, and TGD community connectedness. We used a model-building approach, in which we started by estimating a model with one class and added one class at a time. Bayesian Information Criterion (BIC) values, sample size-adjusted BIC (adjusted BIC) values, Lo-Mendell-Rubin (LMR) likelihood ratio tests, parametric bootstrapped likelihood ratio tests (BLRT), the number of individuals in the smallest class, and class interpretability were used to select the appropriate number of classes (Dziak, Lanza, & Tan, 2014; Lo, Mendell, & Rubin, 2001; Nylund, Asparouhov, & Muthén, 2007; Tofighi & Enders, 2008; Yang, 2006). Higher entropy values indicate greater distinguishability of latent classes and precision with which individuals are categorized into classes (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). The model with the lowest BIC and adjusted BIC indicated the number of classes preferred by these indicators, and a significant LMR or BLRT indicated a preference for the current model over the model with one less class. ANOVAs and Tukey's post-hoc tests were then conducted to examine which classes differed significantly on the three support variables to help inform class interpretation. Chi-square analyses and ANOVAs were then conducted to evaluate whether the classes differed based on demographics, mental health, and resilience.

Results

A substantial portion of the sample reported elevated symptoms of anxiety and depression. In regards to anxiety symptoms, 14.8% of participants reported none to slight anxiety, 13.2% reported mild anxiety, 45.3% reported moderate anxiety, and 24.2% reported severe anxiety. For depression symptoms, 23.7% reported none to slight depression, 22.9% mild depression, 36.4% moderate depression, and 14.2% severe depression. Notably, over half of the sample reported moderate to severe levels of anxiety and depression symptoms.

Correlations and descriptive statistics are available in Table 2. Bivariate correlations indicated that age, sex assigned at birth, and income were each significantly associated with at least one support variable and one outcome and were therefore included as covariates in subsequent multivariable regressions. Given the low income of the sample, we also conducted a chi-square analysis to assess whether this was associated with the inclusion of 16–17 year olds in our sample, and found a significant association between being 16 or 17 years old and earning less than \$10,000 a year [$\chi^2(1, N = 692) = 21.11, p < .001$].

Given the relatively small number of participants in certain groups, we combined the following subgroups in our analyses: agender, androgyne, and bigender participants were combined with those who reported that their gender identity was not listed; men were combined with trans men; women were combined with trans women; bisexual and pansexual

participants were combined; lesbian and gay individuals were combined; and heterosexual participants were combined with those who identified with an unlisted label. ANCOVAs examining associations between education, sexual identity, gender identity and the outcomes indicated that all demographic variables were associated with at least one social support variable and one outcome (see Supplemental Table 1) and thus were included as covariates in multivariable regressions.

We utilized dependent variable correlations to determine whether support from family or friends, or community connectedness emerged as stronger bivariate predictors of anxiety symptoms, depression symptoms, or resilience. Family social support was a significantly stronger predictor of anxiety and depression symptoms, as well as resilience compared to social support from friends or community connectedness ($ps < .01$). Family support had a moderate, negative correlation with anxiety ($r = -.31, p < .01$) and depression symptoms ($r = -.37, p < .01$) and a small to moderate positive association with resilience ($r = .25, p < .01$). Social support from friends was also weakly negatively correlated with anxiety ($r = -.12, p < .01$) and depression symptoms ($r = -.22, p < .01$). Community connectedness was only weakly negatively associated with depression symptoms ($r = -.08, p < .05$) and this association was significantly weaker than that between social support from friends and depression symptoms ($p = .002$). Social support from friends was not significantly associated with resilience and community connectedness was not significantly associated with anxiety symptoms or resilience.

To examine the unique effects of each support variable when other support variables were controlled for, three multivariable regressions were conducted in which all three social support variables were entered as simultaneous predictors of anxiety and depression symptoms and resilience (Supplemental Table 2). In these analyses age, sex assigned at birth, income, education, gender identity, and sexual identity were included as covariates. Results indicated that having more family support continued to predict less depression and anxiety symptoms and more resilience even when support from friends and community connectedness were controlled. Similarly, support from friends continued to predict less depression and anxiety symptoms when support from family and community connectedness were controlled for. However, community connectedness did not predict anxiety and depression symptoms or resilience in the multivariable models. None of the three-way interactions of the support variables were significant, indicating that the effects of the social support variables were consistent across levels of the other social support variables (results not presented for brevity).

In the LPA, due to different scaling on the family/friend support measure and the community connectedness variable, scores were standardized prior to the analyses. While BIC, adjusted BIC, LMR, and BLRT indicated preference for a 6 class model (see Supplemental Table 3), this produced a very small class consisting of 11 participants. As classes smaller than 25 individuals can indicate the extraction of too many latent classes, we examined four and five class solutions for interpretability. Although the five class model was preferred by model fit indices over the four class model, the four class model was the most interpretable (e.g., in the five-class solution, two groups were very similar) and had adequate sample sizes for each group. See Supplemental Figure 1 for a visual description of the classes that emerged.

The (unstandardized) means for all social support variables by class are presented in Table 3. Class 1 ($n = 323$; 47.1%; High Support) was the largest of the classes and included participants with relatively high levels of support from all areas. Class 2 ($n = 276$; 40.3%; High Friend/Community, Low Family) was characterized by high levels of support from friends and community connectedness and low levels of support from family. Class 3 ($n = 47$; 6.9%; Low Support) included participants who had low levels of support from family and friends, as well as low community connectedness. Class 4 ($n = 39$; 5.7%; High Family, Low Friend/Community) was the smallest class that emerged and included participants who reported low levels of support from friends, low levels of community connectedness, and high levels of support from family.

ANOVAs and Tukey's post-hoc tests were conducted to examine which classes differed significantly on support from friends and family as well as community connectedness (see Table 3). Omnibus ANOVAs were significant for all three sources of support ($p < .001$) and post-hoc tests indicated good differentiation across classes in levels of support from each source. These results indicated that Classes 1 (High Support) and 2 (Low Family, High Friend/Community) were characterized by higher levels of support from friends and community connectedness than Classes 3 (Low Support) and 4 (High Family, Low Friend/Community). Classes 1 and 2 differed significantly on support from family, with Class 1 (High Support) reporting more support from family than Class 2 (Low Family, High Friend/Community). Classes 3 and 4 also differed on family support with Class 3 (Low Support) reporting lower family support than Class 4 (High Family, Low Friend/Community).

A series of chi-square analyses and ANOVAs were conducted to assess whether the classes differed on demographic characteristics. As some expected cell sizes were below or near 5 in analyses of associations between class membership and gender and sexual identity, we utilized Fisher's exact tests for these analyses. There were no significant differences across classes in terms of gender identity, $\chi^2(12, n = 685) = 12.64, p = .40$, sex assigned at birth [$\chi^2(3, n = 680) = 1.42, p = .70$], race/ethnicity [white participants compared to people of color; $\chi^2(3, n = 682) = 6.34, p = .10$], sexual orientation [$\chi^2(12, n = 685) = 6.95, p = .86$], education [$\chi^2(6, n = 685) = 7.77, p = .25$], or age [$F(3, 681) = 1.50, p = .21$]. Classes did differ significantly on income [$\chi^2(3, n = 682) = 3.19, p = .04$], but the proportions of individuals who reported more than \$20,000 per year and less than \$20,000 per year was similar within each class. Given the lack of differences in class membership based on demographics, no covariates were controlled for in subsequent analyses of class membership.

ANOVAs were conducted to compare the classes on levels of anxiety and depression symptoms and resilience. Means for the classes on these variables are provided in Table 3. There were significant differences between the classes on anxiety and depression symptoms and resilience, and Tukey post-hoc tests revealed several significant between group differences. Participants in the high support class (Class 1) reported significantly lower levels of anxiety and depression symptoms compared to all other groups. Those in the low support class (Class 3) reported significantly higher levels of depression symptoms compared to all other groups. Additionally, the high support class reported significantly higher levels of resilience compared to the high friend support/community connectedness,

low family support class (Class 2) and the low support class (Class 3), but did not differ significantly from the high family support, low friend support/community connectedness class (Class 4). For further insight into differences in anxious and depressive symptoms, pairwise comparisons of proportions were conducted utilizing categorical anxiety and depression variables based on the prevalence of symptomology (none to slight, mild, moderate, or severe; Table 4). Individuals with high support were more likely to have no/slight or mild anxious or depressive symptomology and less likely to have severe anxious or depressive symptomology compared to other groups.

Discussion

Our findings align with prior research demonstrating the notable elevations in anxiety and depression symptoms experienced by TGD individuals (Bockting et al., 2013; Budge et al., 2013; Rotondi et al., 2011). In this study, over half of the participants indicated that they experienced moderate to severe levels of anxiety and depression symptoms. Although not examined in these analyses, it is important to understand that there are a variety of stressors that are likely influencing these elevated levels of psychological distress, such as rejection, discrimination, and violence (Goldblum et al., 2012; Lombardi, 2009; Rotondi et al., 2011; Testa et al., 2012). Additionally, the low income of our sample may contribute to the elevated symptoms of anxiety and depression (Murali & Oyebode, 2004) due to many participants likely experiencing financial stressors. Other studies have indicated that transgender populations are at higher risk for poverty due to work place discrimination and harassment (James et al., 2016). Over half of participants reported an income of less than \$10,000 per year which is high in comparison to a large national study with transgender adults that found 28% of transgender individuals reported an income of less than \$10,000 per year (James et al., 2016). This discrepancy may result from a portion of this sample being youth or young adults who may have lower income given their age, student status, or from being employed in entry-level positions.

In the LPA, it was noteworthy and encouraging that almost half of the sample (47.1%) reported high levels of support from all areas and that only 6.7% of the sample reported low support in all three areas. The make-up of the classes indicated that it was more common for TGD people to have low family support and high friend support/community connectedness (40.3%) than to have high family support and low friend support/community connectedness (5.7%). Additionally, levels of support from friends and community connectedness stayed consistent in the class groupings (i.e., no class emerged that had high friend support, low community connectedness or vice versa). Together these results may indicate that it is more common for TGD individuals to have some form of support than none at all and that, when there is low familial support, they may turn to their friends and community instead.

The LPA confirmed the importance of social support in relation to mental health and demonstrated that it is the most beneficial to have all three types of support. Notably, among participants in the high support class only 5.1% reported severe depression symptoms. This rate was over eight times higher when participants had low support from all areas, with close to half (42.6%) of the individuals in this low support class reporting severe symptoms of depression. Additionally, most TGD individuals (89.4%) who lacked support in all areas

reported moderate to severe anxiety symptoms and were 3 times more likely to report severe anxiety symptoms compared to the high support class. However, in all four classes a large portion of TGD participants endorsed moderate anxiety symptoms (44.7% – 59%) including 45.3% of participants in the high support class.

Although all types of social supports are important to mental health of TGD people in our sample, there are nuances to this that must be considered. Overall, familial support had the strongest association with less symptoms of depression and anxiety and greater resilience. Additionally, family support significantly predicted depression and anxiety symptoms and resilience above and beyond the variance accounted for by the other forms of support. Family support seems to be particularly important in relation to resilience as it was the only form of support that significantly predicted resilience when controlling for the other support variables. Additionally, Class 1 (high support) and Class 4 (high family/low friend-community) did not differ in levels of resilience, whereas Class 2 (low family/high friend-community) and Class 3 (low support) had lower levels of resilience. Other work has indicated an association between family support and resilience (Matsuno & Israel, 2018) and therefore it could be that family support helps TGD people bounce back from adversities by providing a safe and supportive “home base.” However, our analyses were cross-sectional and longitudinal research is needed to determine if family support increases resilience or whether there is an alternative explanation.

Similar to social support from family, social support from friends was associated with fewer symptoms of depression and anxiety. However, unlike family support, support from friends was not significantly associated with resilience when controlling for other forms of support. In the latent class analysis, Class 2 (low family/high friend-community) and Class 4 (high family/low friend-community) showed similar symptoms of depression and anxiety, indicating that having support from either family or friends and community connectedness can potentially counteract some of the negative impact of lack of support in the other area. Both class 2 and 4 showed lower rates of depression symptoms compared to class 3 (low support), but did not differ in anxiety symptoms or resilience. This finding demonstrates the importance of having support in all three areas and indicates that having some social support may impact symptoms of depression more than symptoms of anxiety. Again, our results cannot conclude causality and there could be alternative explanations for these associations, such as those with less depressive symptoms being better equipped to seek and develop social support networks. Ultimately, longitudinal research is needed to answer such a question.

In contrast to previous literature, community connectedness was not significantly correlated with anxiety symptoms or resilience, and the negative correlation with depression symptoms was weak. Community connectedness did not significantly predict depression or anxiety symptoms or resilience when controlling for other forms of support. There are a few possible explanations for these findings. One is that there may be overlap or conflation between support from friends and community connectedness as it is possible that friends in a person’s network are also part of the TGD community. Our results indicated that social support from friends was significantly correlated with community connectedness and therefore TGD community spaces may be areas where individuals cultivate new friendships

with supportive others or it could be that friends help establish connection to TGD communities.

It also is possible that the findings would be different if we had assessed feeling supported by a TGD community as opposed to community connectedness. It is likely that differences exist between those who feel simply connected versus those who feel supported by other TGD individuals. Additionally, other research has shown that community connection can both benefit and place individuals at risk for harm. Community connection often increases one's visibility as a gender minority and may place TGD individuals at greater risk for encountering minority stressors (Bradford et al., 2013). Additionally, it is possible that connection to a TGD community could create more awareness of negative events experienced by other TGD individuals, which may increase anxiety, anticipated rejection, or depressive symptoms like feelings of hopelessness. Future research is needed to establish the routes through which this form of support may exert positive influences on the lives of TGD individuals. And, finally, it is possible that there are other factors that may impact TGD individuals' connectedness to a community, including location, lack of desire to be connected to a TGD community, not yet being out about one's identity, or lack of visibility of a TGD community.

This study had several strengths. First, we were able to recruit a diverse sample in regards to gender, where over half of the sample identified as a non-binary identity (e.g., genderqueer, bigender). Also, this study is the first to utilize the widely-used PROMIS measures for anxiety and depression symptoms with a sample of TGD individuals. These measures have been recommended for use by the American Psychiatric Association and this study shows initial support for their use with TGD samples given the high levels of reliability. In addition, this is one of few studies to examine simultaneously the three areas of support that people who are TGD have reported relying on in previous research (Mizock & Mueser, 2014). Our study did not conflate different forms of support and instead conducted analyses that described combinations of the types of support. Lastly, this study contributes to the extremely limited empirical investigation of resilience for TGD individuals.

In terms of limitations, our study had limited racial and ethnic diversity. Other studies with online recruitment of TGD samples have also had limited racial and ethnic diversity (Bockting et al., 2013; Kuper, Nussbaum, & Mustanski, 2012). It may be necessary to conduct more in-person recruitment to reach TGD people of color. Furthermore, intentionally creating partnerships with organizations and communities that serve TGD people of color and having researchers who identify as TGD people of color may build greater trust among this population and increase research participation. Additionally, this was a cross-sectional study that precludes any causal interpretations of the data and longitudinal work would help to further establish how changes in social support relates to mental health and resilience. It is possible that our sample will differ from other TGD samples given that these were participants who did not qualify for the daily diary study. Even so, the subsample of participants who completed this one-time study were largely sexually active (only 29.3% reported never having had sex) and their rates of alcohol use and drug/substance use were similar to that found in the US Trans Survey (James et al., 2016), providing some evidence that our sample may not differ substantially from others. Finally,

although our inclusion of a resilience measure is novel and a strength given the state of quantitative investigations of this construct with TGD samples, it is worth noting that there may be aspects of resilience for TGD individuals that are not captured in such a measure. For TGD people, resilience may include a general ability to “bounce back” from stressors, but it also might include the act and perseverance of affirming one’s gender in a society in which they face many oppressive individuals and social systems.

Interpersonal relationships are one way of managing stressors and, as we found, social support from family and friends is related to better mental health for TGD individuals. TGD individuals with high levels of support from family and friends, as well as TGD community connection showed the best mental health outcomes and reported strikingly lower levels of depression and anxiety compared with TGD who reported low levels of support in these areas. Familial social support emerged as an important form of support in relation to resilience. Through bolstering these core relationships across these various sources of support, there may be improved outcomes for TGD individuals who are likely facing great amounts of oppression at the systemic, institutional, and interpersonal levels.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Sample Demographics

Characteristic	n (%)
Age	Range = 16 to 73
Gender Identity	
Transgender Man	211 (30.4%)
Transgender Woman	115 (16.6%)
Genderqueer	87 (12.5%)
Non-binary	132 (19%)
Agender	66 (9.5%)
Androgynous	7 (1%)
Bigender	22 (3.2%)
Sexual Orientation	
Queer	174 (25%)
Pansexual	130 (18.7%)
Bisexual	106 (15.3%)
Gay	62 (8.9%)
Asexual	100 (14.4%)
Heterosexual	38 (5.5%)
Lesbian	35 (5%)
Race/Ethnicity	
White	526 (75.7%)
Black/African American	13 (1.9%)
American Indian or Alaska Native	1 (0.1%)
Asian	21 (3%)
Latino/a	25 (3.6%)
Multiracial/Multiethnic	98 (14.1%)
Education	
Less than high school diploma	91 (13.1%)
High school graduate or equivalent	88 (12.7%)
Some college education, but have not graduated	228 (32.8%)
Associates degree/technical school degree	52 (7.5%)
Bachelor's degree	160 (23%)
Master's degree	63 (9.1%)
Doctorate or professional degree	13 (1.9%)
Income	
Less than \$10,000	357 (51.4%)
\$10–19,999	112 (16.1%)
\$20–29,999	59 (8.5%)
\$30–39,999	49 (7.1%)
\$40–49,999	39 (5.6%)
\$50–69,999	36 (5.2%)

Characteristic	n (%)
Over \$70,000	40 (5.8%)

Note. There were 5 participants with missing data on the question asking about sex assigned at birth, and 3 participants with missing data about their race/ethnicity and income. A response of “not listed” was chosen for: 55 participants regarding gender identity, 50 for sexual orientation, and 8 for race/ethnicity. These participants had the option to provide written responses.

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Table 2

Correlations and Descriptive Statistics

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10
1. Age	25.52 (9.68)	--									
2. Sex Assigned at Birth		-.33**	--								
3. Race/Ethnicity		-.09*	.02	--							
4. Income		-.31**	.07	.02	--						
5. Social Support – Family	3.56 (1.75)	.10*	.02	-.08*	-.10*	--					
6. Social Support – Friends	5.54 (1.30)	-.02	-.03	-.08*	.03	.12**	--				
7. Community Connectedness	17.57 (4.48)	.08*	-.10*	-.04	.01	.07	.28**	--			
8. Depression Symptoms	60.52 (9.69)	-.26**	.02	.05	.13**	-.37**	-.22**	-.08*	--		
9. Anxiety Symptoms	63.39 (10.24)	-.27**	.03	-.002	.14**	-.31**	-.12**	-.04	.64**	--	
10. Resilience	2.75 (0.91)	.25**	-.09*	.05	-.14**	.25**	.07	.01	-.41**	-.49**	--

Note. Sex assigned at birth (0 = male; 1 = female), race/ethnicity (0 = White; 1 = People of Color), and income (0 = less than \$20,000 per year; 1 = more than \$20,000 per year) were dummy coded.

* $p < .05$

** $p < .01$.

Table 3

Analyses of Variance Examining Class Differences

Outcome	ANOVA	Class Means			
		Class 1	Class 2	Class 3	Class 4
Age	$F(3,681) = 1.50, p = .21$	26.33	24.73	24.74	26.05
Family Support	$F(3,673) = 698.20, p < .001$	5.06 ^a	2.00 ^b	1.80 ^b	4.58 ^c
Friend Support	$F(3,673) = 363.10, p < .001$	5.98 ^a	5.86 ^a	2.76 ^b	3.02 ^b
Community Connectedness	$F(3,680) = 18.91, p < .001$	18.16 ^a	17.83 ^a	13.49 ^b	15.67 ^b
Depression Symptoms	$F(3,672) = 26.53, p < .001$	57.45 ^a	62.60 ^b	67.75 ^c	62.00 ^b
Anxiety Symptoms	$F(3,674) = 17.85, p < .001$	60.57 ^a	65.42 ^b	68.98 ^b	65.03 ^b
Resilience	$F(3,673) = 9.59, p < .001$	2.94 ^a	2.57 ^b	2.57 ^b	2.60 ^{a,b}

Note. Superscript letters represent the results of Tukey's post-hoc comparisons of group means. Means with the same superscript letter are not significantly different from one another, while means with different superscript letters differ significantly.

Table 4

Categories of Depressive and Anxious Symptoms by Cluster

Outcome	Severity	Class 1		Class 2		Class 3		Class 4	
		n	%	n	%	n	%	n	%
<i>Anxiety</i>									
<i>Symptoms</i>									
	None to slight	72 ^a	22.8%	26 ^b	9.4%	3 ^b	6.4%	2 ^b	5.1%
	Mild	53 ^a	16.8%	31 ^{a,b}	11.2%	2 ^b	4.3%	6 ^{a,b}	15.4%
	Moderate	143 ^a	45.3%	128 ^a	46.4%	21 ^a	44.7%	23 ^a	59.0%
	Severe	48 ^a	15.2%	91 ^{b,c}	33.0%	21 ^c	44.7%	8 ^{a,b}	20.5%
<i>Depression</i>									
<i>Symptoms</i>									
	None to slight	114 ^a	36.2%	46 ^b	16.7%	0 ^c	0.0%	5 ^b	12.8%
	Mild	84 ^a	26.7%	54 ^b	19.6%	10 ^{a,b}	21.3%	11 ^{a,b}	28.2%
	Moderate	101 ^a	32.1%	118 ^b	42.9%	17 ^{a,b}	36.2%	17 ^{a,b}	43.6%
	Severe	16 ^a	5.1%	57 ^b	20.7%	20 ^c	42.6%	6 ^b	15.4%

Note. Superscript letters represent the results of pairwise z tests of group proportions. Groups with the same superscript letter are not significantly different from one another, while groups with different superscript letters differ significantly.