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Anxiety and Depression Across Gender and Sexual Minorities: Implications for Transgender, Gender Nonconforming, Pansexual, Demisexual, Asexual, Queer, and Questioning Individuals

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Empirical findings indicate that sexual and gender minorities report notably poorer outcomes on measures of mental health when compared with cisgender/heterosexual individuals. Although several studies have examined these issues, few have taken the time to examine differences between cisgender/heterosexual and specific lesbian, gay, bisexual, transgender, and queer identities. This is especially important as an increasing number of new gender and sexual identities emerge, yet limitations in statistical power often preclude such analyses. Thus, the following study addressed this gap by examining data from a large sample of college students from the national Health Minds Study (n = 43,632). Results indicated that college students with transgender and gender nonconforming identities reported significantly higher rates of depression and anxiety symptoms compared with students with cisgender identities, with large effect sizes. Disparities were also significant across sexual minority participants, with the smallest effect sizes being between heterosexual and gay/lesbian individuals, and the largest effect sizes between heterosexual and pansexual participants for depression, and heterosexual and demisexual participants for anxiety. We also found evidence of an interaction of gender and sexual identity impacting mental health such that those with minority statuses in both identity groups had significantly worse outcomes compared to those with only one minority identity. Our results indicate that individuals in the emerging sexual and gender minority categories (pansexual, demisexual, asexual, queer, questioning, and transgender/gender nonconforming) report significantly higher rates of depression and anxiety when compared with cisgender/heterosexual individuals, and even significantly more than those who identify as gay/lesbian. Implications for mental health providers and researchers are discussed.

Public Significance Statement
Results indicate that participants identifying as an emerging identity (pansexual, demisexual, and gender nonconforming) report the highest levels of anxiety and depression. Those who identified as both a gender and sexual minority had higher anxiety and depression rates compared with those who had a minority status in only one group.

Keywords: LGBTQ mental health, sexual minority mental health, gender minority mental health, minority stress, emerging identities

A large body of literature indicates that those identifying as a sexual and/or gender minority (lesbian, gay, bisexual, transgender, and queer; LGBTQ) report significantly poorer outcomes on measures of depression, anxiety, and other mental health problems when compared with heterosexual and cisgender counterparts (Chakraborty, Mcmanus, Brugha, Bebbington, & King, 2011; Grant et al., 2014; Marshal et al., 2008; Marshal et al., 2011; McNeil, Ellis, & Eccles, 2017). Although several studies have examined these issues in the LGBTQ communities, few have examined differences between cisgender/heterosexual and LGBTQ identifying individuals, especially among those identifying as an "emerging identity" (EI), such as pansexual, demisexual, asexual, queer, and gender-nonconforming. This is especially important as the number of people identifying as an EI continues to grow (Callis, 2014; Donatone & Rachlin, 2013; Flanders, 2017; Flanders, LeBreton, Robinson, Bian, & Caravaca-Morera, 2017; Galupo, Ramirez, & Pulice-Farrow, 2017; Morandini, Blaszczynski, & Dar-Nimrod, 2017; van Anders, 2015; Walton, Lykins, & Bhullar, 2016). To address this issue, we conducted an analysis on a large mental health dataset that contained specific gender and sexual orientation information. We were interested in comparisons between cisgender and transgender/gender nonconform-

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ing (TGNC) participants, heterosexual and specific nonheterosexual (gay/lesbian, bisexual, asexual, pansexual, demisexual, queer, and questioning) participants, as well as differences between those who identified as cisgender/heterosexual, cisgender/sexual minority, and TGNC/sexual minority.

Minority Stress

The minority stress model (Meyer, 2003, 2015) provides a practical framework for examining the mental health of LGBTQ persons living in the context of a cisgenderist/heterosexist society. Meyer (2003, 2015) posited that individuals from oppressed social groups, such as sexual and gender minority people, experience excess stress because of their minority status (or statuses), which can lead to, exacerbate, and maintain mental and physical health problems (Meyer & Frost, 2013; Parra, Benibgui, Helm, & Hastings, 2016). Such stress involves both internal and external processes (Meyer, 2003). For example, discrimination, harassment, and prejudice based on one's identity (i.e., heterosexist social policies) are considered external stressors, whereas the negative thoughts, feelings, and emotions one has as a result of their identity (i.e., internalized heterosexism) are considered internalized stressors. Minority stress is therefore additive to the standard stressors (i.e., work, finances, personal set-backs) generally experienced by all members of society.

Minority stress can also be differentially applied by the number and types of minority identities one holds. That is, the stressors involved in being a TGNC person are not necessarily the same as being a gay man, with gender and sexual orientation contributing unique components to the minority stress (Hendricks & Tests, 2012; Meyer, 2015; Testa, Habarth, Peta, Balsam, & Bockting, 2015). Applying the lens of a diathesis-stress conceptualization (Zuckerman, 1999), LGBTQ individuals are at higher risk for mental health problems due to the excess and additive imposed psychosocial stress involved in identifying as a sexual and/or gender minority.

Mental Health Outcomes

Consistent with the minority stress model, multiple studies have identified disparities in mental health outcomes between cisgender and TGNC participants (Connolly, Zervos, Barone, Johnson, & Joseph, 2016; Diemer, Grant, Munn-Chernoff, Patterson, & Duncan, 2015; Hendricks & Tests, 2012; McNeil et al., 2017; Testa et al., 2017, 2015; Tucker et al., 2018), as well as between heterosexual and sexual minority participants (Chakraborty et al., 2011; Fergusson, Horwood, Ridder, & Beautrais, 2005; Kuyper & Fokkema, 2011; Watson, Adjei, Saewyc, Homma, & Goodenow, 2017). However, few studies have identified specific mental health outcomes across those from the varying identities within studies. That is, cisgender and heterosexual participants are generally compared with TGNC and sexual minority participants, respectively.

TGNC individuals in particular are often grouped together, or even with other LGBTQ participants despite the differences between and across gender and sexual identities. Indeed, this manner of grouping, while often justified for statistical purposes, aligns closely with an assumption of a universal TGNC experience (Dargie, Blair, Pukall, & Coyle, 2014; Nadal, Skolnik, & Wong, 2012). This problem is especially relevant for those who identify as gender nonconforming, as they challenge the binary social assumption (Vincent & Manzano, 2017). From a minority stress perspective, gender nonconforming individuals may be at a heightened risk for mental health problems compared with transmen and transwomen, as they may experience additional stigmatization for challenging this norm (Matsuno & Budge, 2017; Richards et al., 2016; Taylor, Zalewska, Gates, & Millon, 2018).

However, there is relatively little mental health outcome research on TGNC individuals, and with varying results. For instance, a study specifically designed to examine mental health outcomes across gender minority groups found that transwomen had the poorest psychological outcomes (Warren, Smalley, & Barefoot, 2016). Whereas, a European study showed a greater portion of those identifying as nonbinary reported poorer health compared with transmen/women (Zeluf et al., 2016). Another European study of TGNC youth indicated that broadly transboys/girls had worse mental health outcomes compared with gender nonconforming youth (Rimes, Goodship, Ussher, Baker, & West, 2017). However, another recent study of TGNC individuals indicated that nonbinary individuals had higher levels of anxiety and depression, and lower levels of self-esteem, compared with binary transgender participants (Thorne et al., 2018).

Thus, the heterogeneity of outcomes suggests the need for large scale mental health examinations of TGNC participants, specifically with separate participant groups of transmen, transwomen, and gender nonconforming individuals. Moreover, a primary limitation across many prior studies is no cisgender inferential comparisons across specific TGNC groups (see Thorne et al., 2018; Zeluf et al., 2016 for immediate examples). Although the minority stress model would suggest all TGNC individuals would experience greater mental health problems compared with cisgender individuals, understanding the degree of the difference (in terms of effect size) would be highly beneficial for service providers and researchers.

The same problem exists in studies examining mental health outcomes across people from differing sexual orientations. The relatively small number of studies that have identified specific differences across groups, generally relegate their sexual orientation categories to heterosexual, gay/lesbian, and bisexual (Walton et al., 2016) or in some cases create an "other" category to represent those from various EIs. This type of methodological categorization is common (see Conron, Mimiaga, & Landers, 2010; McNair & Bush, 2016; and Hidaka & Operario, 2006 for immediate examples) and often necessary for statistical purposes; however, it perpetuates a significant gap in the literature.

From a minority stress perspective, individuals from the recently recognized EIs (i.e., pansexual, demisexual) may experience greater identity unique stress due to holding a minority status within the LGBTQ community. Such a status could potentially result in an increase in stigma, prejudice, and discrimination. Research on bisexual people supports this position, as a large body of research has indicated that bisexual individuals experience higher rates of anxiety, depression, suicide ideation, and other mental health problems compared with gay/lesbian participants (Balsam, Beauchaine, Mickey, & Rothblum, 2005; Fredriksen-Goldsen, Kim, Barkan, Balsam, & Mincer, 2010; Jorm, Korten, Rodgers, Jacomb, & Christensen, 2002; Kerr, Santurri, & Peters, 2013; Ross et al., 2018; Wadsworth & Hayes-Skelton, 2015). Indeed, prior reports indicate binegative stereotypes exist within

the gay/lesbian community (Dyar, Lytle, London, & Levy, 2017; Hayfield, Clarke, & Halliwell, 2014), and that such stereotypes have a negative relationship with bisexual mental health (Lambe, California, Cerezo, & O'Shaughnessy, 2017). Thus, there is reason to hypothesize that EI individuals may experience mental health problems at higher levels than other sexual minority groups.

Indeed, the few peer-reviewed studies examining mental health variables across EIs has indicated that pansexual individuals had the highest rates of perceived stress, distress, and depression when compared with lesbian, bisexual, queer, and "other" women (Mcnair & Bush, 2016). A broad report of general health behaviors also indicated pansexual individuals had the highest rates of self-harm, as well as driving while intoxicated (Smalley, Warren, & Barefoot, 2016). In turn, queer identifying individuals had the highest alcohol drinking rates (Smalley et al., 2016). A Psi Chi report (Sanders & Chalk, 2016) also indicated pan/bisexual individuals experience higher degrees of anxiety, depression, and stress compared with gay and lesbian participants.

Mental health examinations across other EI groups is scant. For instance, little mental health outcome data exists for asexual, questioning, and demisexual people, with some research indicating asexual individuals may have slightly higher rates of suicide ideation, social withdrawal, and interpersonal problems compared with heterosexual and "nonheterosexual" groups (Yule, Brotto, & Gorzalka, 2013). However, other findings have indicated that asexuality is not associated with notable psychopathology, with exception to some asexual participants indicating signs of schizoid personality (Brotto, Knudson, Inskip, Rhodes, & Erskine, 2010). Moreover, quantitative mental health explorations of demisexual individuals are virtually nonexistent, despite the orientation being a present write-in category across previous studies (e.g., Muehlenkamp, Hilt, Ehlinger, & Mcmillan, 2015; Walton et al., 2016).

Reports on adolescents who were unsure of their sexual identity suggests that questioning individuals may be as much as three times more likely to report suicide ideation compared with heterosexual adolescents, though not statistically different from gay, lesbian, or bisexual participants (Zhao, Montoro, Igartua, & Thombs, 2010). However, longitudinal findings have identified sexual fluidity as being potentially associated with more negative mental health outcomes, compared with those for whom sexual orientation is stable (Everett, 2015; Katz-Wise et al., 2017). Thus, while some research indicates asexual, pansexual, questioning, queer, and demisexual participants may be at heightened risk for mental health concerns, the findings are largely piecemeal. Therefore, quantitative examinations that simultaneously account for differences across participants from the various sexual identities, with effect size comparisons to heterosexual participants is warranted.

The Present Report

To address these gaps in the literature, and because of the overall lack of research examining mental health disparities across EIs, we analyzed data from a large sample of college students that contained specific identity and mental health information. We were interested in comparisons between cisgender and TGNC participants, heterosexual and specific nonheterosexual identity participants, as well as differences between those who identified as cisgender/heterosexual, cisgender/sexual minority, and TGNC/sexual minority. Using the minority stress model as a guiding framework, we generated three hypotheses.

Hypothesis 1 (H1): Because TGNC participants have generally been shown to have higher mental health problems across studies (e.g., Diemer et al., 2015; Su et al., 2016) and that fact that gender nonconforming individuals challenge normative gender conceptualizations (e.g., Vincent & Manzano, 2017), we hypothesized that TGNC individuals would have significantly worse anxiety and depression when compared with cisgender participants, and specifically hypothesized that gender nonconforming individuals would have the poorest outcomes.

Hypothesis 2 (H2): On the basis of research indicating sexual minority participants demonstrate higher levels of mental health concerns compared with heterosexual individuals (e.g., Chakraborty et al., 2011; Fergusson et al., 2005), we hypothesized that sexual minority individuals would have significantly higher rates of anxiety and depression compared with heterosexual participants. Given a number of studies indicate bisexual, pansexual, queer, and questioning individuals generally evidence higher rates of mental health problems compared with gay/lesbian individuals (e.g., Chakraborty et al., 2011; Fergusson et al., 2005; Kuyper & Fokkema, 2011; Mcnair & Bush, 2016; Watson et al., 2017), we also hypothesized that the effect size of the differences would be greatest for those who identified as an EI.

Hypothesis 3 (H3): Because the minority stress model posits additive components of minority stress for both gender and sexual minority people (Meyer, 2003, 2015; Testa et al., 2015), we hypothesized that participants identifying as both a gender and a sexual minority would have significantly worse mental health outcomes compared with cisgender/heterosexual and cisgender/sexual minority participants.

Method

Participants/Procedure

We used data from the Healthy Minds Study (HMS, http://healthymindsnetwork.org/research/hms) to explore our hypotheses. HMS is a large annual web-based survey examining various mental health and service utilization variables among undergraduate and graduate students. Data from the sample included 53,760 responses from college students across 54 different institutions gathered through HMS during the 2016–2017 academic school year. We narrowed our data set to include only those who completed either a full measure of anxiety or depression and had an interpretable sexual/gender identity (nonresponses such as "apache helicopter" and "human" were removed). The HMS asked participants to identify gender from a selection of "male," "female," "trans male/trans man," "trans female/trans woman," "gender queer/gender nonconforming," and "self-identify," which was accompanied by a space for participants to write-in their gender identity. Gender terms for "male" and "female" are presented as "men" and "women" in our results. Sexual orientation was identified through responses "heterosexual," "lesbian," "gay," "bisexual," "questioning," and "self-identify," which was also accompa-

nied by a space for participants to write-in their sexual orientation identity. Based on responses, we were able to categorize TGNC groups into: transmen, transwomen, and gender nonconforming; and sexual minority groups into: bisexual, gay/lesbian, questioning, pansexual, demisexual, asexual, and queer. A few (n = 23) responses had multiple orientations (i.e., "pansexual/queer"). In which case, we recategorized them into the orientation mentioned first. In other cases, participants responded with specific romantic and sexual orientations (i.e., panromantic/demisexual), in which case we categorized them according to their sexual orientation (i.e., demisexual in the previous example). Although HMS contains many variables related to mental health (such as alcohol use and sleeping patterns), we were specifically interested in using psychometrically validated measures for predicting depression and anxiety. Furthermore, we only included measures that were available to all participating universities. The average age of the sample was 23.81 (SD = 7.09; Mdn age = 21.00).

Measures

Patient Health Questionnaire-9. The Patient Health Questionnaire-9 (PHQ-9; Spitzer, Kroenke, & Williams, 1999) is a nine-item measure designed to assess major depressive disorder as defined by the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*; American Psychiatric Association [APA], 2000). Each item is rated on a four-point Likert scale (0 = *not at all* to 3 = *nearly every day*), with higher scores indicating increased symptom severity and likelihood of major depressive disorder. The PHQ-9 total score is generated by adding the score from all nine items, giving the instrument a range from 0 to 27 with cut-points of 5, 10, 15, and 20 representing mild, moderate, moderately severe, and severe levels of depressive symptoms. The PHQ-9 has demonstrated robust psychometric properties and has been used in a large number of studies, which have been examined in both reviews and meta-analyses (Kroenke, Spitzer, Williams, & Löwe, 2010; Manea, Gilbody, & Mcmillan, 2015). Internal consistency was excellent (α = .89).

The Generalized Anxiety Disorder-7. The General Anxiety Disorder-7 (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) is a seven-item measure designed to assess generalized anxiety disorder (GAD) as defined by the *DSM* (APA, 2000). Each item is rated on a four-point scale (0 = *not at all* to 3 = *nearly every day*) with higher scores indicating increased symptom severity and an increased likelihood of GAD. The GAD-7 total score is generated by adding the score from all seven items, giving the instrument a range from 0 to 21 with cut-points of 5, 10, and 15 representing mild, moderate, and severe anxiety symptoms. Similar to the PHQ-9, the GAD-7 has demonstrated robust psychometric properties and has been validated in the general population (Löwe et al., 2008; Plummer, Manea, Trepel, & Mcmillan, 2016). Internal consistency was excellent (α = .91).

Analytic Plan

All analyses were conducted using SPSS Version 23 (IBM, 2015). We first ran a two-way multivariate analysis of the variance (MANOVA) with sexual orientation and gender identity as independent variables and the PHQ-9 and GAD-7 scores as dependent variables. Post hoc tests using Tukey's b were then run to examine specific group differences for the main effects of gender and sexual orientation. We then examined effect sizes of specific mean differences using Cohen's d (.2 = small effect, .5 = moderate effect, and .8+ = large effect; Cohen, 1988). To further examine the interaction of gender and sexual orientation on the PHQ-9 and GAD-7, we recategorized participants into identity groups: cisgender/heterosexual, TGNC/sexual minority, and TGNC/sexual minority and repeated our analyses. Because of the large sample we used a significance value of $p < .01$ (as opposed to the traditional $p < .05$) to control for potential Type I errors related to multiple comparisons.

Results

Of the 43,632 participants, 3% had missing values on either the PHQ-9 or the GAD-7, in which case they were only analyzed on the completed measure. Univariate outliers were sparse in the PHQ-9 (.4%) and nonexistent for the GAD-7. Indices of skewness and kurtosis were within normal limits. Means, standard deviations, and Cohen's ds are presented in Table 1. Results from the first MANOVA indicated a significant multivariate effect for gender on the PHQ-9, Pillai's $F(8, 82{,}586) = 15.12$, $p < .001$, sexual orientation, Pillai's $F(14, 82{,}586) = 5.36$, $p < .001$, and the interaction of gender and sexual orientation, Pillai's $F(52, 82{,}586) = 5.36$, $p < .008$. Follow-up univariate tests indicated significant main effects for gender on the PHQ-9, $F(4, 41{,}293) = 21.85$, $p < .001$, and the GAD-7, $F(4, 41{,}293) = 19.50$, $p < .001$; significant main effects for sexual orientation on the PHQ-9, $F(7, 41{,}293) = 9.73$, $p < .001$ and the GAD-7, $F(7, 41{,}293) = 6.57$, $p < .001$; and significant main effects for the interaction of gender and sexual orientation on the PHQ-9, $F(26, 41{,}293) = 1.97$, $p < .002$, but not the GAD-7, $F(26, 41{,}293) = 1.58$, $p < .03$ (given our more conservative significance cut-off value of $p < .01$).

Consistent with H1, Tukey's b post hoc tests revealed two significant homogenous subsets for gender on the PHQ-9 and GAD-7 (each homogenous subset represents a significant difference of the harmonic means in each group at $p < .01$). Subset 1 included cisgender men and women participants. Subset 2 included transmen, transwomen, and gender nonconforming participants (see Table 2 for all homogenous subsets). To understand the size of the differences, Cohen's d analyses were calculated using cisgender participants as a referent group (see Table 1). For the PHQ-9, the effect size comparisons between cisgender and TGNC participants were generally large, with the largest effect being between cisgender participants and those who identified as gender nonconforming (d = .87). The smallest difference was between cisgender participants and transwomen participants (d = .77); however, the effect was still quite large. For transmen participants, the effect was also large (d = .79). We also compared a cumulative TGNC group (transmen, transwomen, and gender nonconforming) to cisgender participants, with the effect being larg (d = .85). For the GAD-7, the largest effect was between cisgender participants and transmen participants (d = .78). The smallest difference was between cisgender participants and transwomen participants (d = .45). For gender nonconforming participants the effect was large (d = .72). When comparing the cumulative TGNC group to cisgender participants, the effect was large (d = .71).

Table 1
Means, Standard Deviation, and Effect Sizes

Identity group	PHQ-9				GAD-7			
	n	*M*	*SD*	*d*	*n*	*M*	*SD*	*d*
Cisgender	41,976	7.43	5.71		41,567	6.49	5.37	
Transgender men	109	12.63	7.07	.79	109	11.12	6.34	.78
Transgender women	43	12.16	7.45	.77	45	9.11	6.70	.45
Gender nonconforming	500	12.99	6.82	.87	550	10.63	6.04	.72
Combined noncisgender	652	12.59	7.11	.81	704	10.29	6.36	.65
Heterosexual	35,975	6.99	5.46		35,622	6.16	5.24	
Bisexual	3,257	10.73	6.44	.61	3,251	9.92	5.79	.49
Gay/lesbian	1,563	8.83	6.23	.31	1,542	7.50	5.76	.24
Questioning	858	10.22	6.39	.54	837	8.42	5.58	.41
Pansexual	344	12.37	6.43	.90	339	10.13	5.53	.74
Demisexual	55	13.47	7.65	.97	52	11.56	6.50	.91
Asexual	314	11.80	6.87	.77	318	9.24	5.93	.55
Queer	321	10.54	6.68	.59	318	9.56	5.95	.61
EI	1,892	11.02	6.63	.66	1,864	9.15	5.77	.55
Cisgender/heterosexual	35,955	6.99	5.46		35,601	6.16	5.24	
Cisgender/sexual minority	6,067	10.07	6.38	.51	6,010	8.42	5.73	.41
TGNC/sexual minority	648	11.15	6.92	.98	650	10.87	6.11	.83
TGNC/heterosexual	54	9.61	5.69	.47	54	7.57	5.58	.26

Note. PHQ-9 = Patient Health Questionnaire-9; GAD-7 = General Anxiety Disorder-7; EI = emerging identity (questioning, queer, asexual, pansexual, and demisexual); TGNC = Transgender men, transgender women, and gender nonconforming; cisgender/heterosexual = participants who identified as cisgender men or cisgender women and heterosexual; cisgender/sexual minority = participants who identified as cisgender men or cisgender women and bisexual, gay/lesbian, questioning, pansexual, demisexual, asexual, or queer; TGNC/sexual minority = participants who identified as transmen, transwomen, or gender nonconforming and bisexual, gay/lesbian, questioning, pansexual, demisexual, asexual, or queer; TGNC/heterosexual = participants who identified as transmen, transwomen, or gender nonconforming and heterosexual.

For H2, Tukey's *b* post hoc tests revealed five significant homogenous subsets for our sexual orientation groups, each with significantly higher scores than the former at $p < .01$. For the PHQ-9, Subset 1 included heterosexual participants, Subset 2 included gay/lesbian and questioning participants, Subset 3 included questioning, queer, bisexual, and asexual participants, Subset 4 included bisexual, asexual, and pansexual participants; and Subset 5 included pansexual and demisexual participants (see Table 2). Post hoc tests also revealed five significant homogenous subsets on the GAD-7. Subset 1 included heterosexual and gay/lesbian participants; Subset 2 included gay/lesbian, questioning, and bisexual participants; Subset 3 included questioning, queer, bisexual, and asexual participants; Subset 4 included bisexual, asexual, queer, and pansexual participants; and Subset 5 included demisexual participants.

We then examined the effect size of the significant differences using Cohen's *d* calculations, with the sample of heterosexual participants used as the referent (see Table 1). For the PHQ-9, the differences varied, but were primarily in the moderate-to-large range with the highest difference being between heterosexual and demisexual participants ($d = .97$) and the smallest difference between heterosexual and gay/lesbian participants ($d = .31$). Other differences included the following: $d = .61$ for bisexual participants, $d = .54$ for questioning participants, $d = .90$ for pansexual participants, $d = .77$ for asexual participants, and $d = .59$ for queer participants. For the GAD-7, the findings were similar, with the largest difference being between heterosexual and demisexual participants ($d = .91$) and the smallest effect between heterosexual and gay/lesbian participants ($d = .24$). Other significant differences included the following: $d = .49$ for bisexual participants, $d = .41$ for questioning participants, $d = .74$ for pansexual participants, $d = .55$ for asexual participants, and $d = .61$ for queer participants. Because we observed that some of the sexual orientation categories had rather small samples, we created an additional EI category comprising those identifying as questioning, pansexual, demisexual, asexual, and queer and compared them with heterosexual participants on the PHQ-9 and the GAD-7. The effect size was large for the PHQ-9 ($d = .66$) and moderate for the GAD-7 ($d = .55$).

For H3, we broadly recategorized our groups into cisgender/heterosexual, cisgender/sexual minority, and TGNC/sexual minority participants. Although not originally intended, we observed 55 participants as identifying as heterosexual and TGNC. Thus, we included this group in the following analyses. We then ran a second MANOVA with our recategorized groups as independent variables and the PHQ-9 and GAD-7 as dependent variables. A significant multivariate effect was observed, Pillai's $F(6, 82{,}806) = 354.92$, $p < .001$. Follow-up univariate tests indicated significant main effects on the PHQ-9, $F(3, 41{,}403) = 723.05$, $p < .001$, and GAD-7, $F(3, 41{,}403) = 448.85$, $p < .001$. Tukey's *b* post hoc tests revealed three homogenous subsets, each with significantly higher scores than the former at $p < .01$. For the PHQ-9, Subset 1 included cisgender/heterosexual participants, Subset 2 included cisgender/sexual minority and TGNC/heterosexual participants, and Subset 3 included TGNC/sexual minority participants. Tukey's *b* post hoc tests also revealed three homogenous subsets for the GAD-7 at $p < .01$. Subset 1 included cisgender/heterosexual and non-TGNC/heterosexual participants, Subset 2

Table 2
Tukey's b Post Hoc Comparisons

Identity group	Subset 1	Subset 2	Subset 3	Subset 4	Subset 5
		PHQ-9			
Gender					
Men	6.66				
Women	7.79				
Transmen		12.63			
Transwomen		12.16			
Gender nonconforming		12.99			
Sexual orientation					
Heterosexual	6.99				
Gay/lesbian		8.83			
Questioning		10.22	10.22		
Queer			10.54		
Bisexual			10.73	10.73	
Asexual			11.80	11.80	
Pansexual				12.37	12.37
Demisexual					13.47
Intersection					
Cisgender/Heterosexual	6.99				
TGNC/Heterosexual		9.61			
Cisgender/Sexual Minority		10.07			
TGNC/Sexual Minority			11.15		
		GAD-7			
Gender					
Men	5.25				
Women	7.05				
Transmen		11.12			
Transwomen		9.11			
Gender nonconforming		10.63			
Sexual orientation					
Heterosexual	6.16				
Gay/lesbian	7.50	7.50			
Questioning		8.42	8.42		
Bisexual		9.92	9.92	9.92	
Queer			9.56	9.56	
Asexual			9.24	9.24	
Pansexual				10.13	
Demisexual					11.56
Intersection					
Cisgender/heterosexual	6.16				
TGNC/heterosexual	7.57				
Cisgender/sexual minority		8.42			
TGNC/sexual minority			10.87		

Note. Values are subset means. Each subset indicates a harmonic mean grouping that is significantly higher than the former at $p < .01$. PHQ-9 = Patient Health Questionnaire-9; TGNC = transgender and gender nonconforming; GAD-7 = General Anxiety Disorder-7.

included cisgender/sexual minority participants, and Subset 3 included TGNC/sexual minority participants.

For the PHQ-9, effect sizes were largest between cisgender/heterosexual participants and those who were TGNC/sexual minority participants ($d = .98$), with the difference between cisgender/heterosexual participants and cisgender/sexual minority participants being moderate ($d = .51$), and the difference between cisgender/heterosexual participants and TGNC/heterosexual participants also being moderate ($d = .47$). For the GAD-7, there was a large effect between cisgender/heterosexual participants and TGNC/sexual minority participants ($d = .83$), with a moderate effect between cisgender/heterosexual participants and cisgender/sexual minority participants ($d = .41$), and a small effect between cisgender/heterosexual participants and TGNC/heterosexual participants ($d = .26$).

Discussion

This study examined mental health disparities across individuals identifying in several gender and sexual minority groups. We were specifically interested in comparisons between cisgender and TGNC identities (transmen/women and gender nonconforming), heterosexual and specific nonheterosexual identities (gay/lesbian, bisexual, questioning, pansexual, demisexual, asexual, and queer), and differences between those who identified as cisgender/heterosexual, cisgender/sexual minority, and TGNC/sexual minority. The nature of this study's large sample allowed for unique comparisons of less studied groups, thus filling a perpetual gap in the literature.

Results supported our hypotheses: (H1) Consistent with past literature (e.g., Reisner, Biello, Perry, Gamarel, & Mimiaga,

2014), participants who identified as TGNC had significantly higher levels of depression and anxiety when compared with cisgender individuals. Specifically, those who identified as gender nonconforming had the highest levels of depression, while transmen had the highest levels of anxiety (though all TGNC individuals had notably high levels of depression and anxiety). Further, consistent with H2, those identifying as gay/lesbian, bisexual, questioning, pansexual, demisexual, asexual, and queer demonstrated higher ratings of depression and anxiety when compared with heterosexual participants. Perhaps the most important finding was the observation of the varying effect sizes across sexual orientation identities. Importantly, pansexual and demisexual individuals had the highest levels of depression and anxiety, whereas those who identified as gay/lesbian had the smallest when compared with heterosexuals.

Finally, in accordance with H3, participants who identified as TGNC in addition to a sexual minority identity had significantly higher scores on measures of depression and anxiety compared with both cisgender heterosexuals and cisgender sexual minority individuals. Interestingly, our data indicated comparatively more favorable outcomes for those identifying as TGNC/heterosexual, with outcomes fairly similar to those identifying as cisgender/sexual minority. These findings support the notion of a synergistic, interactive effect of gender identity and sexual orientation on mental health outcomes whereby participants who had minority status membership for both identities had the highest levels of anxiety and depression. This provides evidence of the additive effects of multiple sexual and gender minority statuses in a person's demography on mental health.

Each of the present findings are consistent with postulates of the minority stress model (Meyer, 2003), such that an unaccepting social environment results in external (i.e., prejudice) and internal (e.g., concealment, internalized heterosexism) stress processes which contribute to mental health disparities. Interestingly, although all individuals of sexual minority experienced poorer outcomes as a group compared with heterosexual individuals, it is worth noting that pansexual and demisexual individuals had significantly worse outcomes, even when compared with their gay and lesbian counterparts.

Consistent with research on attitudes toward bisexual individuals by both heterosexual (Herek, 2002) and gay and lesbian individuals (Roberts, Horne, & Hoyt, 2016), it appears that those identifying with an EI may also experience minority stress above and beyond that experienced by individuals possessing more accepted, known, and/or "mainstream" sexual and gender minority identities. Although additional research will be needed to identify the source of higher levels of anxiety or depression within these groups, one possibility is that such mental health problems may reflect the underlying experiences of discrimination experienced by EI groups, possibly even from gay and lesbian individuals themselves (as suggested by research on binegative stereotypes within the LGBTQ community; Dyar et al., 2017; Hayfield et al., 2014).

In addition, the effect of multiple minority stressors has been well established in individuals who are LGBTQ-POC, including negative outcomes for sexual (Zamboni & Crawford, 2007) and mental health (Díaz, Ayala, Bein, Henne, & Marin, 2001; Velez, Watson, Cox, & Flores, 2017). This supports the findings of additive effects for individuals of both sexual and gender minority status. However, because this study did not include measures or interviews examining external or internal minority stress process experiences by individuals with EIs, the connection between these constructs and the outcomes in this study are subject to further examination.

Limitations and Future Directions

The present study contained multiple limitations. The nonrandom nature of data collection most likely introduced bias and decreased the external validity. Similarly, as the nonprobabilistic sampling exclusively included undergraduate and graduate students attending college, findings may not be totally generalizable to all individuals in the LGBTQ community, especially those who do not attend higher education. We were also unable to control important identity variables such as length of time as a specific identity or history of previous identities. Additionally, given the nature of this cross-sectional/archival data project, mental health outcome variable selection was limited, and causality cannot be inferred.

Future studies should examine the relationship across gender identity, sexual orientation, and mental health outcomes using alternative and more comprehensive measures such as personality inventories and instruments designed to assess stress related to each identity. Comparisons of mental health outcomes and associated factors across these gender and sexual identities using longitudinal designs would also likely yield beneficial information for scientists and clinicians alike, especially studies that track the fluidity/stability of these identities through adolescence into adulthood. Qualitative studies may allow for detailed examination of differences between sexual and gender minorities and heterosexual and cisgender individuals. Furthermore, qualitative studies may be able to elucidate the specific mechanisms by which nonheterosexual and TGNC individuals experience minority stress, as well as other factors which contribute to the negative mental health outcomes.

Clinical Implications

The findings of this study support the need for clinical services that are sensitive to emergent and undefined gender and sexual identities. Those providing direct services should remain mindful of the intersectionality of identities and the unique multiple minority stressors that result. Though many clinical resources have been designed for the treatment of gender and sexual minorities, these resources tend to treat these groups as a whole, instead of recognizing the unique issues of separate identities. In addition, it is the responsibility of clinicians to remain educated about the experiences and identities of individuals of gender and sexual minority; many of these individuals report never being asked about their sexual or gender identities or having to educate their health care providers about their specific needs (Kitts, 2010; Kosenko, Rintamaki, Raney, & Maness, 2013; Solomon, Heck, Reed, & Smith, 2017).

Beyond simply recognizing the negative impact of multiple minority identities on mental health and therapeutic outcomes, examining the specific experiences of EI and TGNC individuals would allow for more directed interventions at both the individual and group level. For institutions such as hospitals, universities, and

corporations, preventative interventions at a group or institution-wide level (e.g., safe zone trainings) are necessary as human resource divisions and counseling centers are often limited in resources of time, money, and personnel. These interventions should include education about emergent sexual and gender identities, including resources to continue education beyond the intervention itself. Clinicians facilitating a group for gender and sexual minorities should be cognizant of the discrimination that can occur for members of these populations and work to make the group as beneficial for individuals of EI, TGNC, and multiple minority status.

The enacting of gender and sexuality-affirming services also extends beyond the therapeutic relationship to creating an environment that allows individuals to self-identify. One way of avoiding microaggressions in the intake process is to provide a space on paperwork for individuals to self-report their sexual and gender identities in addition to (or in replacement of) boxes for each of the more traditional identities. Office staff may also be encouraged to use gender neutral language in interactions with those accessing services (e.g., *partner* to refer to significant others, *they/them/their* pronouns, etc.). Such affirming services may help alleviate the stress associated with having a unique gender or sexual identity.

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