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Effects of Sexual and Gender Minority Stress on Depressive Symptoms Among Adolescents of Color in the United States

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Objective: There is a need for more research on minority stress theory (MST) with sexual and gender minority (SGM) adolescents of color, because of their disproportionate risk for depression. ***Method:*** We recruited 1,627 SGM adolescents of color in the United States to complete measures assessing lesbian, gay, bisexual, transgender, and queer (LGBTQ) climate, LGBTQ microaggressions within one's ethnoracial community, internalized LGBTQ stigma, stress management ability, and depressive symptoms. Using structural equation modeling, a hybrid measurement-structural model was tested, indicating good model fit. ***Results:*** Multiple significant indirect pathways linking LGBTQ climate and depressive symptoms emerged. A less positive LGBTQ climate was associated with more microaggression-related stress, more internalized LGBTQ stigma, and worse stress management ability, all of which were associated with greater depressive symptoms. A serial mediation with more microaggression-related stress being associated with greater internalized LGBTQ stigma approached significance. ***Conclusions:*** Our findings generally support MST processes in terms of depressive symptoms in SGM adolescents of color, suggesting that psychosocial interventions targeting these processes may have meaningful implications for the mental health of this vulnerable group.

Public Significance Statement
The stress related to being LGBTQ can contribute to risk of depression among adolescents of color. This study showed that the stressors of an unsupportive climate, as well as anti-LGBTQ sentiments from adolescents' own ethnoracial community, are directly and indirectly linked to depressive symptoms, through the internalization of stigma about being LGBTQ and poor stress management ability.

Keywords: LGBTQ, race/ethnicity, minority stress, depressive symptoms, adolescents

Minority stress theory (MST; Meyer, 2003) is a well-supported framework for conceptualizing distal-to-proximal, primarily sexual minority identity-related stress processes that most sexual minority individuals experience. While models for gender minority stress specifically have been proposed (e.g., Testa et al., 2015), MST remains an adequate framework for discussing sexual and gender minority (SGM) stress processes in general. According to MST, SGM individuals are at high risk for stress exposure due to their minority status. These sources of stress can range widely. These can include being in a heterosexist climate in which individuals perceive low comfort or safety about being lesbian, gay, bisexual, transgender, and queer (LGBTQ), especially when authority figures

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This research uses data from the lesbian, gay, bisexual, transgender, and queer (LGBTQ) National Teen Survey, designed by the last author and Rebecca M. Puhl, PhD, in collaboration with the Human Rights Campaign, and supported by the Office for Vice President of Research at the University of Connecticut. The authors acknowledge the important contributions of Ellen Kahn, Gabe Murchison, and Liam Miranda in their support, conceptualization, and management related to the LGBTQ National Teen Survey.

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All procedures stipulated within this research adhered to the principles of the Declaration of Helsinki. Data will be provided upon request to the corresponding author.

Terence H. W. Ching played lead role in conceptualization, writing of original draft and writing of review and editing, supporting role in data curation and formal analysis and equal role in methodology. Lucy Finkelstein-Fox played lead role in data curation and formal analysis and equal role in conceptualization, methodology, writing of original draft and writing of review and editing. Sharon Y. Lee played supporting role in data curation, formal analysis, writing of original draft and writing of review and editing and equal role in conceptualization and methodology. Ryan J. Watson played lead role in investigation, methodology and supervision, supporting role in data curation, formal analysis, writing of original draft and writing of review and editing and equal role in conceptualization.

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communicate unsupportive or outright negative messages about being LGBTQ (Bower & Klecka, 2009; Russell et al., 2014; Snapp et al., 2015). Other sources of minority stress can include interpersonal prejudice, aggression, or even violence (Myers et al., 2020). Because of these stressors, SGM individuals may feel compelled to conceal their identity, which can contribute to internalized stigma about being LGBTQ (i.e., internalized homophobia or transphobia; Bruce et al., 2015). This internalized stigma, if left unmitigated, is associated with various forms of psychopathology, including but not limited to depression (Delozier et al., 2020; Hatzenbuehler, 2009; Pitoňák, 2017).

From a developmental perspective, adolescence presents a unique window of time for examining SGM stress processes in the midst of broader identity exploration and formation. Studying MST among SGM adolescents is imperative, given the particular vulnerability of this population to various behavioral health problems. Indeed, stigma has been shown to induce hypervigilance, promote rumination, increase shame and social isolation, and worsen stress reactivity, processes that tax (and in some cases, overwhelm) adolescents' nascent self-regulation abilities (Hatzenbuehler & Pachankis, 2016). A larger need, however, is to continue to study the experience of minority stress for SGM adolescents of color, due to the complex experience of navigating SGM identity development within the context of their ethnoracial community during adolescence.

Intra-ethnoracial heterosexism, or stigma against being LGBTQ in one's ethnoracial community, is one aspect of minority stress among LGBTQ adolescents of color (Ching et al., 2018). For example, young SGM individuals of color consistently report experiencing considerable intragroup stigma (e.g., homophobia and/or transphobia) against their sexual and gender identity (Moradi et al., 2010; Ryan et al., 2009). This intragroup stigma may also explain the low rates of disclosure of SGM identity among individuals of color to members of their ethnoracial community (Aranda et al., 2015; Ghabrial, 2017; Rosario et al., 2004). Limited published research indicates that intragroup stigma against SGM identities (e.g., microaggressions against SGM identity by members of one's ethnoracial community) can be associated with shame about being LGBTQ and other negative mental health outcomes (e.g., depressive symptoms) among SGM individuals of color (Cyrus, 2017; McConnell et al., 2018; Sandil et al., 2015).

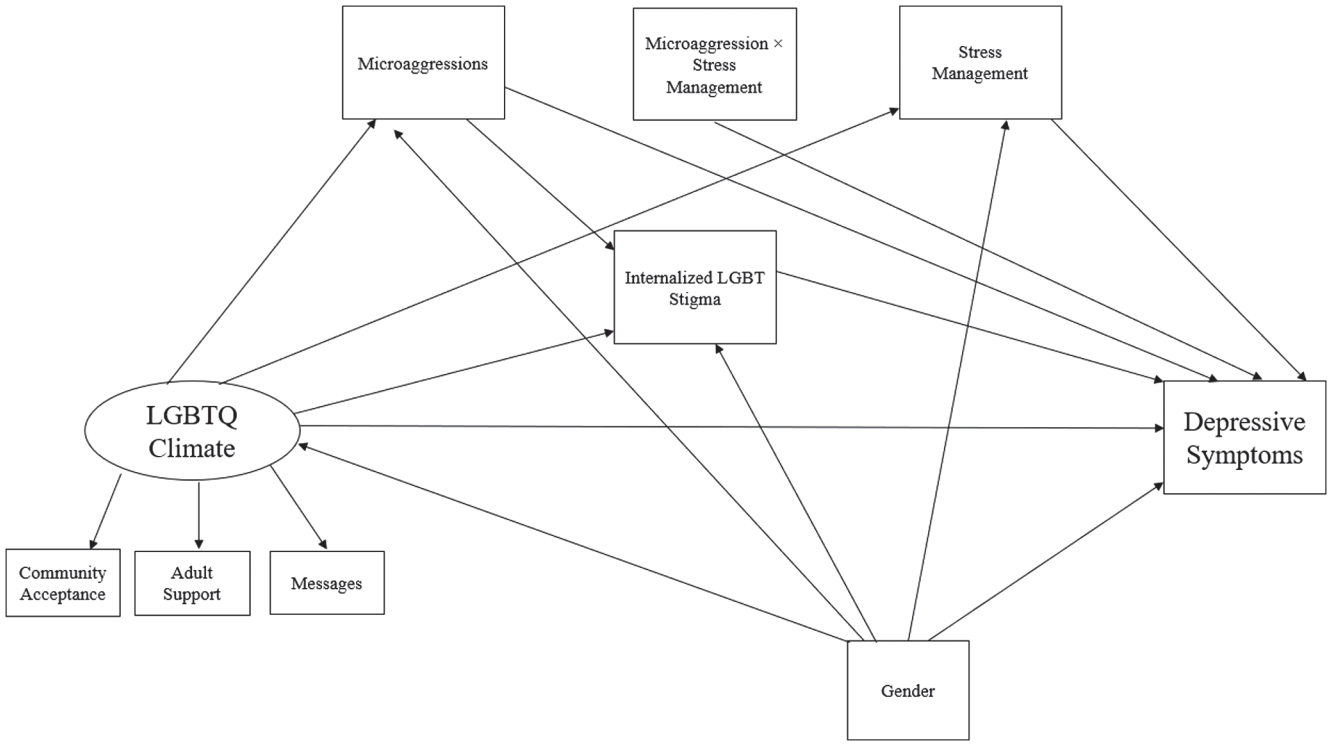
Other studies, albeit not specifically examining intra-ethnoracial LGBTQ stigma, have shown that SGM adolescents of color are generally at high risk for mental and physical health problems. SGM adolescents of color tend to have high rates of emotion regulation difficulties (Hatzenbuehler et al., 2008), problematic alcohol and substance use (Mereish & Bradford, 2014), risky sexual behaviors (Thoma et al., 2013), low feelings of school belonging (Poteat et al., 2011), and problematic diet pill use and purging and obesity (Austin et al., 2013). In the context of adolescent development, understanding core risk factors associated with such problems is key to interrupting their detrimental effects on mental and physical health, which may follow an adolescent into adulthood. One such core factor is depressive symptomatology (Lewinsohn et al., 1998), which disproportionately affects both LGB individuals of color (Choi et al., 2013) and adolescents of color (Rushton et al., 2002). Thus, focusing on depressive symptoms represents a particularly important outcome to study among SGM adolescents of color, especially in light of its close link to suicide (Ferrari et al., 2013), a significant public health concern among SGM adolescents (Bostwick et al., 2014; Duncan & Hatzenbuehler, 2014; Narang et al., 2018; Sutter & Perrin, 2016).

MST, however, is not a purely deficits-based model (Toomey et al., 2017). Studies from the stress management literature have demonstrated young SGM individuals of color's resilience in the face of minority stress by resorting to external and internal means of managing stress. In terms of external means, Lefevor et al. (2020) found that being able to obtain family and social support were inversely associated with psychological distress in a U.S. sample of Black sexual minority college students. Acceptance of SGM adolescents of color's sexual and gender identities from the social environment was also uniquely associated with lower internalized homophobia and/or transphobia (Cox et al., 2011). Research also shows that seeking social support can be an effective means of coping with LGBTQ-related microaggressions among people of color (Sadika et al., 2020). Indeed, family connectedness, as a specific form of social support, was consistently associated with better mental health among a sample of transgender adolescents of color in Canada (Veale et al., 2017). Other more proximal internal and external ways of managing and coping with minority stress among SGM adolescents of color include cognitive self-talk, appealing to religious beliefs as a means of self-acceptance, requesting others to use gender-syntonic pronouns, and spending time in queer spaces (Goldbach & Gibbs, 2015).

In summary, MST may be relevant for understanding how SGM stress and resilience is experienced by adolescents of color both within and outside of their ethnoracial community. However, extant studies examine MST in a piecemeal manner, capturing what we believe to be specific parts of a larger picture of possible distal to proximal stressors and protective factors for SGM adolescents of color. This is a gap we wish to address in this study. Specifically, we chose to focus on the processes and impact of SGM stress, both broadly and also in the context of one's ethnoracial community, on depressive symptoms among SGM adolescents of color. In this study, we focused on the subsample of SGM adolescents of color from a recent national survey of SGM-related experiences and behavioral health outcomes among LGBTQ residents of the United States aged 13–17.

In our hypothesized model (Figure 1), we designated the climate around SGM identities (LGBTQ Climate) as a distal latent factor, experiences of heterosexist microaggressions in one's ethnoracial community (Microaggressions) as a source of minority stress, internalized LGBTQ stigma as a more proximal stressor, stress management ability as a plausible protective buffer against the detrimental effects of microaggressions, with depressive symptoms as the outcome. We hypothesized that our model would demonstrate significant associations between minority stress processes, inter- and intrapersonal self-regulation resources, and depressive symptoms in a national sample of SGM adolescents of color. Specifically, we hypothesized that a less positive climate regarding LGBTQ identities would be associated with more severe depressive symptoms through multiple indirect pathways. First, we hypothesized that a less positive LGBTQ climate would be associated with more microaggression-related stress, greater internalized LGBTQ stigma, and worse stress management ability, each of which would in turn be associated with more severe depressive symptoms. The hypothesized association between LGBTQ climate and microaggression-related stress within one's ethnoracial community was based on how heterosexism may permeate the ecology of LGBTQ adolescents, in that LGBTQ

Figure 1
Hypothesized Model



Note. Gender was dummy-coded as cisgender male/female (0) versus gender-diverse (1). LGBTQ = lesbian, gay, bisexual, transgender, and queer.

microaggressions within one's ethnoracial community may reinforce perceptions of an anti-LGBTQ climate. Next, we hypothesized that a less positive LGBTQ climate would be associated with more microaggression-related stress, which would then be associated with greater internalized LGBTQ stigma that would in turn be associated with more severe depressive symptoms. Last, we hypothesized that stress management ability would lessen the effects of microaggression-related stress on depressive symptoms. To inform future work targeting the oft-neglected group of gender-diverse adolescents, we ran correlational analyses between gender (included as a covariate) and all study variables. Given the significantly higher prevalence of gender-based stress, trauma, and associated mental health problems found among gender-diverse individuals compared to their cisgender counterparts (Cogan et al., 2021; Tan et al., 2020), we hypothesized that gender-diverse adolescents in our sample would experience more severe minority stress processes and depressive symptoms than cisgender participants.

Method

Study Design, Participant Recruitment, and Sample Selection

Data were drawn from the *LGBTQ National Teen Survey*, a survey designed to advance understanding victimization, school experiences, family relationships, and emotional and mental wellness of LGBTQ adolescents. Data for the parent study were collected in partnership with the Human Rights Campaign (HRC) between April and December 2017. All respondents were English-speaking, identified as LGBTQ, 13–17 years of age, and resided in the United States at the time of survey completion.

LGBTQ adolescents were invited to participate in an anonymous, online, self-report survey using Qualtrics. Participants were recruited through social media and HRC's community partners, and provided informed consent to participate on the first page of the online survey. The online questionnaire assessed several topics, including demographics (e.g., sexuality, gender, ethnoracial identity), LGBTQ climate (e.g., acceptance, rejection, support from parents and teachers), SGM-specific experiences (e.g., LGBTQ microaggressions, internalized LGBTQ stigma), and mental and emotional well-being (e.g., self-esteem, depressive symptoms). Measures were presented in randomized order for each participant to account for order effects, with the exception of demographic questions, which were presented to all participants at the beginning of the survey. For their participation, adolescents were given the option to enter a random drawing for Amazon.com gift cards, and all participants were offered a 6-pack of HRC wristbands which were mailed to their provided address. The study protocol was approved by the institutional review board (IRB) of the fourth author's home institution.

A total of 29,291 participants began the survey, of whom 8,985 were screened ineligible and 3,006 were removed from the final data set for failure to complete the first section of surveys. An additional 199 individuals were removed due to duplicates or apparent mischievous responses, consistent with the data cleaning protocol in previous studies with the parent data set. Given the focus of the present research on minority stress experienced by SGM adolescents of color, analyses reported below included only self-identified participants of color (i.e.,

those that identified other than only non-Hispanic White in the initial demographic questions; $N = 6{,}203$).

Among the 6,203 self-reported participants of color included in the study, very high rates of item-level missingness (41.7%–58.0%) on all nondemographic items were observed, due to early termination of the online survey battery (i.e., immediately after the initial demographic section) or participants indicating "not sure" (coded as missing for the present analyses). Participants with missing data ($n = 4{,}576$) were: younger, $t(2966.19) = 5.56$, $p < .001$; more likely to be Black/African American and less likely to be multiracial or to indicate "other" race, $\chi^2(5) = 30.25$, $p < .001$; and reported slightly weaker confidence that their community was improving for LGBTQ people, $t(3{,}734) = 2.02$, $p < .05$. No other comparisons on primary study variables were significant (all ps $> .05$). Based on the sample selection protocol in previous studies with the parent data set, we elected a final sample of 1,627 participants of color with complete data on all variables of interest.

Participants in the final sample ($N = 1{,}627$) were spread across the United States, with 37.6% ($n = 612$) living in the South, 28.1% ($n = 457$) living in the West, 17.7% ($n = 288$) living in the Midwest, and 16.6% ($n = 270$) residing in the Northeast. The smallest proportion of the sample was 13 years of age (6.3%, $n = 102$), 11.9% ($n = 194$) were 14 years of age, 29.7% ($n = 320$) were 15 years of age, 28.0% ($n = 456$) were 16 years of age, and 34.1% ($n = 555$) were 17 years of age. The ethnoracial composition of the sample was 43.3% ($n = 704$) biracial or multiracial, 29.1% ($n = 473$) Hispanic/Latino/Mexican-American, 12.4% ($n = 202$) Asian or Pacific Islander, 12.3% ($n = 200$) Black/African-American, 1.2% ($n = 19$) American Indian or Alaska Native, and 1.8% ($n = 29$) other. Ethnoracial identity was measured through a checklist of the aforementioned categories (including non-Hispanic White) that respondents answered, with biracial or multiracial individuals grouped on the basis of having checked at least two of these categories.

Slightly more than two-thirds of the final sample identified as bisexual (36.6%; $n = 596$) or gay/lesbian (36.4%; $n = 593$), with a substantial minority identifying as pansexual (14.3%; $n = 232$). There were smaller numbers identifying as asexual (3.6%; $n = 58$), queer (3.4%; $n = 56$), questioning (1.8%, $n = 30$), straight (1.7%; $n = 28$), or endorsing another identity (2.1%; $n = 34$). Participants who identified as "straight" were retained because they all did not identify as cisgender. For gender identity, 43.9% ($n = 715$) of the sample identified as cisgender female, 24.8% ($n = 403$) as cisgender male, 6.8% ($n = 110$) as transgender male, 0.9% ($n = 14$) as transgender female, and 23.6% ($n = 385$) as transmasculine, transfeminine, or otherwise gender nonbinary.

Measures

LGBTQ Climate

Because our target population (i.e., adolescents) may not be savvy with structural inequities in the LGBTQ arena, LGBTQ climate was evaluated in three developmentally relevant, less "macro" ways that nonetheless tap into the culture and environment around being LGBTQ (Bower & Klecka, 2009). First, adult support around SGM identities was assessed using the sum of two items: "Do you agree that your teachers really care about you and give you encouragement and support?" (rated 0 [*strongly disagree*] to 4 [*strongly agree*]) and "How many teachers and staff at your school do you think are supportive of LGBTQ people" (rated 0 [*none of them*] to 3 [*all of them*]). These items were framed in the context of being LGBTQ. Participants had the option of responding "not sure" and "I don't know" to these items, in which cases their responses were marked as missing. A total score was calculated as the sum of two completed items (possible range = 0–7; item correlation = 0.40, $p < .001$). Second, LGBTQ climate was also evaluated using one item about community acceptance: "Do you believe things are getting better or worse in your community in terms of accepting lesbian, gay, bisexual, transgender and queer people?" The item was rated on a scale from 0 (*getting much worse*) to 4 (*getting much better*). Last, LGBTQ climate was evaluated by two additional categorical items related to messages respondents have received from others about being LGBTQ: "I have received positive messages about being LGBTQ" and "I have received negative messages about being LGBTQ." Participants answered "no," "yes," or "not sure," with "not sure" responses recoded as missing for the present study. "No" and "yes" responses were dummy-coded for the positive messages item (0 and 1, respectively), as well as reverse-coded for the negative messages item (1 and 0, respectively), such that higher sum scores of the two items indicated more positive messages about being LGBTQ (possible range = 0–2, item correlation = .03, $p > .05$). As such, LGBTQ climate was modeled in our analyses as a latent construct comprising the three aforementioned variables.

Microaggression-Related Stress

The six-item Heterosexism in Racial/Ethnic Minority Communities subscale of the LGBT People of Color Microaggression Scales (Balsam et al., 2011) assessed the extent to which respondents were bothered by LGBTQ microaggressions encountered within their ethnoracial communities (e.g., "Not being accepted by other people of your race/ethnicity because you are LGBT"). Items were rated on a scale from 0 (*not at all*) to 4 (*extremely*), with a response option of "didn't happen to me." Responses of "didn't happen to me" were coded as 0 ("not at all") for the present analyses, to provide a full summary of cumulative microaggression-related stress appraisals. Higher sum scores indicated higher stress in relation to experiencing microaggressions (possible range = 0–24; Cronbach's $\alpha = .83$).

Internalized LGBTQ Stigma

Four items adapted from Shidlo (1994) assessed aspects of internalized LGBTQ stigma: (a) "Whenever I think a lot about being LGBTQ, I feel critical of myself"; (b) "I am proud to be a part of the LGBTQ community" (reverse-coded); (c) "Whenever I think a lot about being LGBTQ, I feel depressed"; and (d) "I wish I was not LGBTQ." Items were rated on a scale from 0 (*strongly disagree*) to 3 (*strongly agree*), with higher sum scores indicating more internalized LGBTQ stigma (possible range = 0–12; Cronbach's $\alpha = .77$).

Stress Management Ability

Participants rated their overall effectiveness in managing stress on a scale from 1 (*ineffective*) to 10 (*effective*).

Depressive Symptoms

Depressive symptoms in the past week were assessed using a 10-item version of the Kutcher Adolescent Depression Scale (KADS;

Brooks, 2004); due to IRB guidelines on permissible questions with a parental waiver of consent, Item 11 asking about suicide and self-harm was not administered for the present study. Items on the KADS were rated on a scale from 0 (*hardly ever*) to 3 (*all the time*), with higher sum scores indicating higher depressive symptoms (possible range = 0–30; Cronbach's $\alpha = .90$).

Data Analysis

Initial data cleaning and bivariate correlations were conducted in SPSS (Version 26; IBM, 2019). Using structural equation modeling (SEM) in MPlus (Version 8.4; Muthén & Muthén, 1998–2017), the present study tested the hypothesized relationships among the latent construct of LGBTQ climate, LGBTQ microaggression-related stress as experienced within one's ethnoracial community, internalized LGBTQ stigma, stress management ability, and depressive symptoms, with gender as a covariate. All continuous predictor variables were grand mean-centered and the hypothesized observed interaction term (Microaggressions × Stress management ability) was created as a product of mean-centered predictors. In light of minority stress differences between cisgender and gender-diverse individuals, gender was dummy-coded as cisgender male/female (0) versus gender-diverse (i.e., transgender, gender nonbinary, etc.) (1), and was included in the structural model as a covariate. Standardized coefficients for continuous independent and dependent variables were generated using the STDYX command, whereas standardized coefficients for the dichotomous covariate (i.e., gender) predicting continuous dependent variables were generated using the STDY command to facilitate interpretation of group differences. Statistical significance of regression coefficients and indirect pathways was determined based on bootstrapped bias-corrected standard errors (10,000 samples). This method has demonstrated superiority for estimation of indirect effects, which rarely follow a normal distribution (Mackinnon et al., 2004).

First, the measurement model was run in the context of a saturated structural model to test the fit of the data to the latent variable. The latent variable of LGBTQ climate was measured by the three observed indicators of adult support, community acceptance, messages about being LGBTQ. Once the measurement model was determined to be a good fit to the observed data, structural models were evaluated for significant direct and indirect paths for distal and proximal stressors leading to depressive symptoms. As a test of deleted paths, we evaluated all possible structural paths in the model, subsequently trimming nonsignificant ($p > .05$) paths not supported by a priori hypotheses to achieve a parsimonious final model for hypothesis testing (Kline, 2005).

To assess model fit, we examined several indices in accordance with the following benchmarks: nonsignificant chi-square goodness-of-fit test, comparative fit index (CFI; Bentler, 1990) ≥ .95, Tucker–Lewis index (TLI; Tucker & Lewis, 1973) ≥ .95, root-mean-square error of approximation (RMSEA; Browne & Cudeck, 1992) ≤ .08, and standardized root-mean-square residual (SRMR) with values ≤ .08 (Hu & Bentler, 1999). Given the unreliability of TLI and tendency for significant chi-square goodness-of-fit tests in large samples such as ours, we primarily relied on the other indices to assess model fit. Coefficients for direct and indirect presented in-text are standardized; both standardized and unstandardized coefficients are provided in Table 1.

Results

Measurement Model

Table 2 presents the means, standard deviations, and correlations among study variables used in the SEM. The initial measurement model provided a good fit to the data, $\chi^2(12) = 15.08$, $p = .24$, CFI = 1.00, TLI = 1.00, RMSEA = .013, 90% CI [.000, .030], and SRMR = .012. LGBTQ climate was identified by adult support ($\beta = .61$, $p < .001$), community acceptance ($\beta = .41$, $p < .001$), and messages about being LGBTQ ($\beta = .47$, $p < .001$).

As a test of deleted paths, we next tested a just-identified[1] structural model with all causal paths specified, $\chi^2(13) = 12.69$, $p = .47$, CFI = 1.00, TLI = 1.00, RMSEA = .000, 90% CI [.000, .024], and SRMR = .011, to identify nonsignificant ($p > .05$) pathways that should be removed for a final test of our hypothesized model. Nonsignificant, exploratory structural paths that were trimmed from the saturated model included: (a) the effects of stress management ability and the Microaggressions × Stress management ability interaction term on internalized LGBTQ stigma (βs = −.04, and −.02 respectively, ps > .16); (b) the correlation of stress management ability with the Microaggressions × Stress management ability interaction term ($r = -.03$, $p = .41$); (c) the correlations of microaggression-related stress with stress management ability ($r = -.04$, $p = .13$) and the Microaggressions × Stress management ability interaction term ($r = -0.003$, $p = .93$) ; and (d) the correlation between LGBTQ climate and the Microaggressions × Stress management ability interaction term ($r = -0.002$, $p = .97$). We retained statistically nonsignificant hypothesized pathways (including the Microaggressions × Stress management ability interaction term predicting depression; see Figure 1) for a final confirmatory test in the pruned model.

When nonhypothesized, nonsignificant paths were trimmed, model fit indices for the hypothesized hybrid measurement/structural model indicated nonsignificantly different fit: $\chi^2(18) = 18.40$, $p = .43$, CFI = 1.00, TLI = 1.00, RMSEA = .004, 90% CI [.000, .023], and SRMR = .014, $\Delta\chi^2$ ($df = 5$) = 5.71. The hypothesized effect of the Microaggressions × Stress management ability interaction term on depression remained statistically nonsignificant ($\beta = .04$, $p = .11$) in the trimmed model. Thus, to facilitate interpretation of main effects, we reran the model excluding this interaction term. This final (nonnested) model with direct effects only demonstrated good fit to the observed data: $\chi^2(12) = 15.52$, $p = .21$, CFI = 1.00, TLI = 0.99, RMSEA = .013, 90% CI [.000, .030], and SRMR = .014. The final model with standardized coefficients is presented in Figure 2, with coefficients summarized in Table 1.[2]

Structural Model

Gender was significantly associated with several intermediary and outcome variables in the final model. Compared to cisgender

[1] To facilitate model convergence, the exogenous variable correlation between gender diverse identity and the Microaggressions × Stress management ability term was fixed at 0 in the just-identified structural model, but was freed in the following pruned model, accounting for 1 d*f*.

[2] We note that sensitivity analyses compared the results reported here to results of a model including dummy-coded variables for each race–ethnicity subgroup as covariates. Including all race-ethnicity covariates led to convergence issues in the initial measurement model, and thus we retained the simpler model. Interpretation of results is unchanged in structural models with/without race–ethnicity covariates.

Table 1
Results of Final Hybrid Measurement-Structural Model

Variable	*b* (*SE*)	β (*SE*)	*p*	95%CI for β
Measurement model				
LGBTQ climate				
Community acceptance	1.00 (0.00)	0.40 (0.03)	<.001	[0.33, 0.46]
Adult support	2.00 (0.21)	0.61 (0.03)	<.001	[0.55, 0.67]
Messages	0.72 (0.08)	0.48 (0.03)	<.001	[0.42, 0.53]
Structural model				
Depressive symptoms				
LGBTQ climate	−4.60 (0.90)	−0.24 (0.04)	<.001	[−0.32, −0.16]
Stress management	−0.98 (0.08)	−0.30 (0.02)	<.001	[−0.35, −0.25]
Microaggressions	0.19 (0.03)	0.17 (0.03)	<.001	[0.11, 0.22]
Internalized LGBTQ stigma	0.15 (0.07)	0.05 (0.03)	.043	[0.002, 0.10]
Gender	2.79 (0.37)	0.37 (0.05)	<.001	[0.27, 0.46]
Microaggressions				
LGBTQ climate	−6.13 (0.80)	−0.35 (0.03)	<.001	[−0.42, −0.28]
Gender	1.18 (0.37)	0.18 (0.06)	.002	[0.07, 0.29]
Internalized LGBTQ stigma				
LGBTQ climate	−1.71 (0.33)	−0.25 (0.04)	<.001	[−0.33, −0.17]
Microaggressions	0.06 (0.01)	0.15 (0.03)	<.001	[0.09, 0.21]
Gender	0.02 (0.15)	0.01 (0.06)	.87	[−0.10, 0.12]
Stress management				
LGBTQ climate	1.74 (0.27)	0.29 (0.04)	<.001	[0.22, 0.36]
Gender	−0.51 (0.13)	−0.22 (0.06)	<.001	[−0.33, −0.11]
LGBTQ climate				
Gender	−0.13 (0.03)	−0.34 (0.08)	<.001	[−0.49, −0.19]
Indirect effects				
LGBTQ climate → Microaggressions → Depressive symptoms	−1.13 (0.21)	−0.06 (0.01)	<.001	[−0.08, −0.04]
LGBTQ climate → Internalized LGBTQ stigma → Depressive symptoms	−0.25 (0.13)	−0.01 (0.01)	.043	[−0.03, −0.001]
LGBTQ climate → Stress management → Depressive symptoms	−1.71 (0.28)	−0.09 (0.01)	<.001	[−0.11, −0.07]
LGBTQ climate → Microaggressions → Internalized LGBTQ stigma → Depressive symptoms	−0.05 (0.03)	−0.003 (0.002)	.071	[−0.01, 0.000]

Note. Bias-corrected bootstrapped standard errors are provided separately for unstandardized (*b*) and standardized (β) coefficients. All continuous predictors were grand-mean centered for analysis. Standardized coefficients were generated using the STDY command (i.e., only outcome standardized) to facilitate interpretation of group differences for the dichotomous gender covariate. Gender was dummy-coded as cisgender male/female (0) versus gender-diverse (1). *SE* = standard error; CI = confidence interval; LGBTQ = lesbian, gay, bisexual, transgender, and queer.

adolescents, gender-diverse adolescents reported a less positive LGBTQ climate ($\beta = -.34$, $p < .001$), more microaggression-related stress ($\beta = .18$, $p = .002$), less stress management ability ($\beta = -.22$, $p < .001$), and more severe depressive symptoms ($\beta = .37$, $p < .001$). With all other paths held constant, gender-diverse adolescents did not experience significantly different internalized LGBTQ stigma than their cisgender peers ($\beta = .01$, $p = .87$).

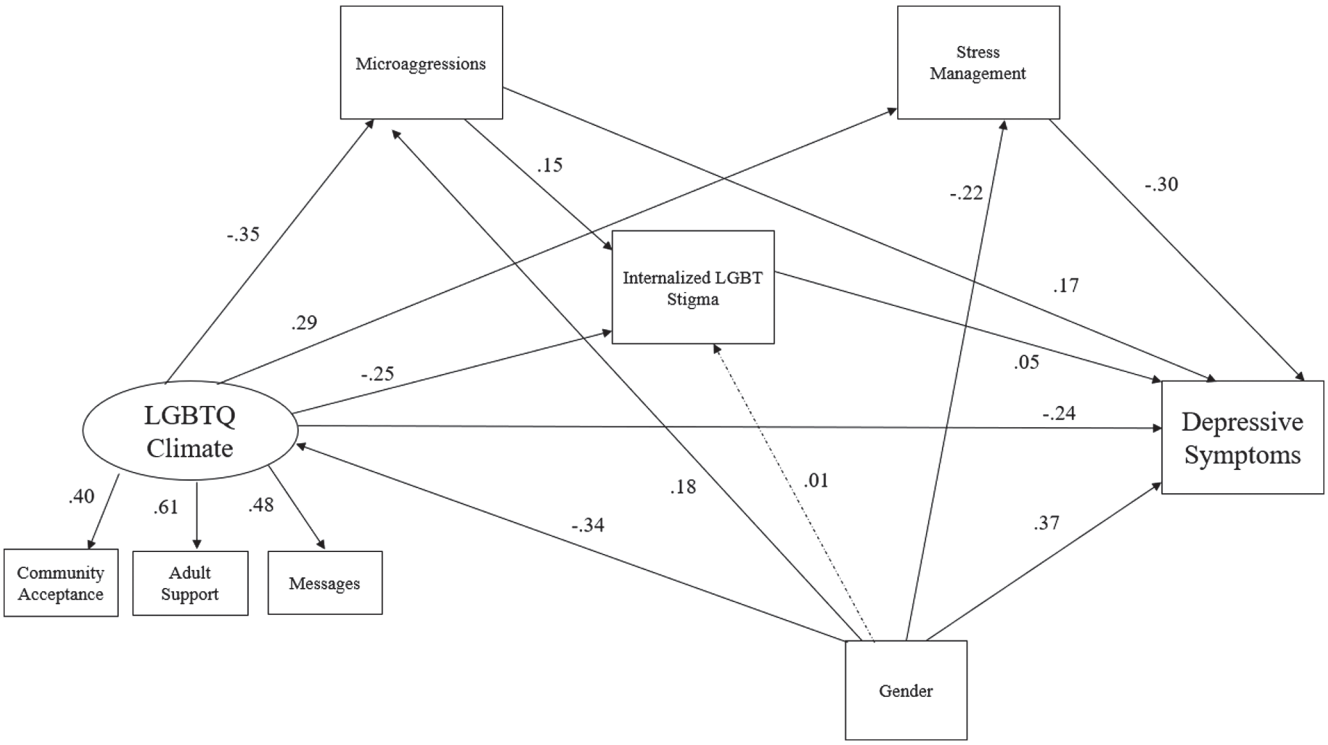
Overall, there was a moderately strong direct effect of LGBTQ climate on depressive symptoms ($\beta = -.24$, $p < .001$), such that a less positive climate was associated with more severe depressive symptoms above and beyond all intermediary pathways estimated. In addition, our model supported multiple indirect paths linking LGBTQ climate and depressive symptoms. First, we conceptualized microaggression-related stress as an intermediate variable between LGBTQ climate and

Table 2
Sample Descriptive and Bivariate Correlations (N = 1,627)

Variable	*N* (%)/*M* (Variance)	1	2	3	4	5	6	7	8	9
1. Gender	509 (31.3%)	—								
2. Community acceptance	0.00 (0.95)	−.12***	—							
3. Adult support	0.00 (1.63)	−.07***	.25***	—						
4. Messages	0.00 (0.34)	−.06**	.17***	.30***	—					
5. Stress management	0.00 (5.30)	−.15***	.13***	.18***	.12***	—				
6. Microaggressions	0.00 (45.46)	.14***	−.15***	−.20***	−.19***	−.15***	—			
7. Microaggressions × Stress management	−2.29 (245.90)	.02	.00	.00	−.02	−.03	.00	—		
8. Internalized stigma	0.00 (7.11)	.06*	−.10***	−.18***	−.15***	−.13***	.24***	−.02	—	
9. Depressive symptoms	13.73 (57.35)	.28***	−.18***	.25***	−.20***	−.43***	.33***	.05*	.21***	—

Note. All continuous predictors were mean-centered for analysis. Gender was dummy-coded as cisgender male/female (0) versus gender-diverse (1). All bivariate correlations are Pearson's correlations.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 2
Final Structural Model



Note. All coefficients are standardized, as in Table 2. Gender was dummy-coded as cisgender male/female (0) versus gender-diverse (1). Dotted lines indicate statistically nonsignificant ($p > .05$) a priori paths tested in the final model. All other paths are statistically significant at $p < .05$. LGBTQ = lesbian, gay, bisexual, transgender, and queer.

depressive symptoms. Supporting this hypothesis, a less positive climate was associated with more microaggression-related stress ($\beta = -.35$, $p < .001$), and greater microaggression-related stress was associated with more severe depressive symptoms ($\beta = .17$, $p < .001$; indirect effect = −0.06, $p < .001$, 95% CI [−0.08, −0.04]). In addition, when considering internalized LGBTQ stigma as a serial mediating variable in this path, a less positive climate was associated with more microaggression-related stress, which had a positive association with internalized LGBTQ stigma ($\beta = .15$, $p < .001$), which then had a small positive association with depressive symptoms ($\beta = .05$, $p = .04$). However, this serial indirect effect only approached significance based on bias-corrected bootstrapped standard errors (indirect effect = −0.003, $p = .07$, 95% CI [−0.01, 0.001]).

Another path supported our hypothesis that internalized LGBTQ stigma plays a mediating role between distal minority stress from the social environment and psychological health, such that a less positive LGBTQ climate was associated with more internalized LGBTQ stigma ($\beta = -.25$, $p < .001$), which in turn was associated with more severe depressive symptoms (indirect effect = −0.01, $p = .04$, 95% CI [−0.02, −0.001]). We concurrently estimated an indirect pathway linking LGBTQ climate, stress management ability, and depressive symptoms, such that less positive climate was associated with worse stress management ability ($\beta = .29$, $p < .001$), which, supporting our hypothesis, was directly negatively associated with depressive symptoms ($\beta = -.30$, $p < .001$; indirect effect = −0.09, $p < .001$, 95% CI [−0.11, −0.06]).

Discussion

In this study, we presented a well-fitted model that served to replicate key elements of MST in the context of also having an ethnoracial minority identity within a large sample of SGM adolescents of color. Overall, our model supported MST's basic premise that there are direct and indirect pathways from distal climate stressors to depressive symptoms via proximal inter- and intrapersonal factors (Meyer, 2003), albeit with small to moderate effects. In our model, we captured multiple sources of SGM identity-related stress (e.g., unsupportive school environment around an LGBTQ identity, LGBTQ microaggressions within one's ethnoracial community) and their effects (e.g., internalized LGBTQ stigma, poor stress management ability) that SGM youth of color may commonly experience. These factors have been hypothesized to contribute to overall psychological distress (Hatzenbuehler, 2009), a process which was generally supported by our model, as pertaining to depressive symptoms.

Our results indicate that when SGM adolescents of color find themselves in a climate of prejudice against LGBTQ identities, they are at risk for experiencing LGBTQ microaggressions as stressful when communicated by members of their own ethnoracial community. In this sense, heterosexism may be pervasive to LGBTQ adolescents, since anti-LGBTQ sentiments within one's ethnoracial community may reinforce perceptions of an anti-LGBTQ climate. This finding is consistent with observations of SGM identity-related prejudice and microaggressions within communities of color, in which

stigma against nonheteronormative identities may be perpetuated (Moradi et al., 2010). While not exclusive to one's ethnoracial community, the occurrence of LGBTQ microaggressions can be considered a significant invalidation of one's intrinsic, unchangeable identity (Munro et al., 2019). Being subject to prejudicial and invalidating expressions that undercut SGM adolescents of color's inherent identities is often considered a severe violation of the supportive bond that adolescents may share with adult authority figures in their ethnoracial community (Sadika et al., 2020), promoting shame and concealment of one's nonconforming sexual orientation and/or gender identity (Rosario et al., 2004). In our model, the serial indirect effect from a less positive LGBTQ climate to depressive symptoms through greater microaggression-related stress and internalized LGBTQ stigma approached significance. These findings indicate the plausible role of internalized LGBTQ stigma as a cognitive process that contributes to unwellness among SGM adolescents of color, according to MST (Hatzenbuehler, 2009; Meyer, 2003).

Our model also addresses the intermediary role of self-perceived stress management ability in minority stress processes among SGM adolescents of color. Specifically, a less positive climate was associated with worse stress management ability, which was then associated with more severe depressive symptoms. Thus, these data suggest that a negative LGBTQ climate (e.g., negative messages, lack of adult support, poor community acceptance) harms adolescents in the present sample by also reducing their inter- and intrapersonal resources for adaptive stress management. Toomey et al. (2018) found that LGB young adults who utilized avoidance-oriented coping strategies in the face of sexual orientation-related minority stress (e.g., avoiding people in general, or trying to put things out of one's mind) had significantly worse psychosocial adjustment and school achievement than those who pursued approach-oriented coping strategies (e.g., getting involved in LGBTQ organizations). In our study, we demonstrated the negative impact of poor stress management ability in the face of SGM stress in terms of worse depressive symptoms.

Although we did not set out to examine negative effects of multiple minority identities (e.g., whether transgender sexual minority adolescents of color would be more at risk for studied variables than their cisgender counterparts), our findings interestingly indicate that having a gender-diverse identity was uniquely associated with greater risk in multiple domains (i.e., a less supportive LGBTQ climate, more LGBTQ microaggression-related stress within one's ethnoracial community, worse stress management ability, and more severe depressive symptoms). This is consistent with other studies highlighting the increased prevalence of gender-based stress, trauma, and associated behavioral health problems that gender-diverse individuals' experience, compared to their cisgender counterparts (Cogan et al., 2021; Tan et al., 2020). For example, Garofalo et al. (2006) found high rates of participation in substance use and risky sexual behaviors (e.g., marijuana use, forced sexual encounters, exchanging sex for resources), as well as positive human immunodeficiency virus (HIV) status, particularly among African American transgender youth.

Certain limitations resided within our model. First, it was possible that external unmeasured variables (e.g., attention span, interest in the project, engagement with questions) might have accounted for missingness. While the paths in the present model elucidated relationships among distal and proximal factors that might contribute to depressive symptoms in SGM adolescents of color, we cannot infer causation due to the cross-sectional nature of the data. More importantly, because we sought to specifically examine SGM stress in terms of internalized LGBTQ stigma and LGBTQ microaggressions experienced within one's own ethnoracial community, we did not include additional measures looking at racist climate, ethnoracial microaggressions, sexual racism, and internalized racism. These constructs should be included in extensions of our model because they are relevant to the broader notion of intersectional stressors faced by SGM youth of color (Ching et al., 2018; Cyrus, 2017; Parks et al., 2004; Sandil et al., 2015). Additionally, stress management ability was self-reported using only one item. Future studies would benefit from measuring the different cognitive, affective, and behavioral components of stress management using a multi–item scale. Similarly, community acceptance was assessed using only one item and did not specify a specific referent community, and the items assessing messages about being LGBTQ received from others did not specify the individuals who communicated those messages. While intentionally phrased as general in scope, these items can be modified in future research to also include specific referents (e.g., acceptance within one's ethnoracial community or in society in general, messages received from peers, adults, etc.). Furthermore, race is a heterogenous construct, which highlights the need to test our model in different broad ethnoracial groups in future studies (see Footnote 2). For example, internalization of the "model minority myth" (i.e., that *all* Asian Americans are higher-achieving and better-functioning than other minoritized ethnroacial groups) may be a unique minority stress process faced by some Asian Americans (Kim & Lee, 2014; Park, 2011), thus requiring a different measure of internalized stigma than the one we used here. Other mood-related outcomes should also be examined in extensions of this model, including anxiety and anger. Last, our survey was limited to adolescents who had access to the internet; thus, our sample is missing the most vulnerable of SGM youth of color (e.g., those who are homeless and have no internet access). These are limitations and questions worth addressing in future research.

We hope that our findings can inform interventions to target the processes that put SGM adolescents of color at risk for depressive symptoms. Specifically, structural or policy modifications (e.g., in school settings) that explicitly promote a climate of acceptance and encourage exploration and expression of SGM identities may help buffer against SGM stress in youth of color. Extensive education about LGBTQ microaggressions and policies deterring their occurrence in school settings may also be helpful in mitigating their effects on the mental health of SGM students of color. Integrating skills in the classroom or therapy settings either through school counselors or school/clinical psychologists to intervene on internalized LGBTQ stigma and to improve LGBTQ-specific stress management may also be helpful in alleviating the long-term effects of SGM stress. Ideally, involving family members who are part of SGM adolescents' ethnoracial community as recipients of these interventions may help promote more targeted and holistic change (Parker et al., 2018). Therefore, it is imperative for school intervention programs to comprehensively target distal to proximal identity-related stressors (per MST) in better serving SGM adolescents of color. Some possible school-based interventions that been developed and examined include the affirmative supportive safe and empowering talk (ASSET) program (Craig, 2013) and the affirmative cognitive behavioral coping skills group intervention (AFFIRM) for SGM youth (Craig & Austin, 2016). However, it is unknown the extent to which these programs can be disseminated effectively with fidelity given the constraints of

the school or classroom context. It is also unknown how these programs can be adapted to incorporate a family or ethnoracial community intervention component.

To conclude, we recommend for future studies to measure intersectional stressors faced by SGM youth of color in order to test how MST can be extended to take these processes into account. We also recommend for more implementation science programs to be developed to test the feasibility, acceptability, and efficacy of holistic interventions for distal to proximal minority stress processes faced by SGM adolescents of color.

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