HHS Public Access

Author manuscript

Cultur Divers Ethnic Minor Psychol. Author manuscript; available in PMC 2021 April 01.

Published in final edited form as:

Cultur Divers Ethnic Minor Psychol. 2020 April ; 26(2): 239–249. doi:10.1037/cdp0000292.

Effects of Sexual/Gender Minority-and Race-Based Enacted Stigma on Mental Health and Substance Use in Female Assigned at Birth Sexual Minority Youth

Gregory Swann[1,2], **Jasmine Stephens**[1,2], **Michael E. Newcomb**[1,2], **Sarah W. Whitton**[3]

[1]Department of Medical Social Sciences, Northwestern University Feinberg School of Medicine, Chicago, IL

[2]Northwestern University Institute for Sexual and Gender Minority Health and Wellbeing, Chicago, IL

[3]Department of Psychology, University of Cincinnati, Cincinnati, OH

Abstract

Objective: People of color who are also sexual and gender minorities (SGM) experience forms of enacted stigma based on both their racial/ethnic identity and their SGM status. We set out to test the effects of enacted stigma specific to race/ethnicity and SGM identity on mental health and substance use problems among female-assigned at birth (FAB) SGM of color.

Method: Data come from a community-based sample of FAB SGM who also identified as racial/ethnic minorities (N = 352). The effects of racial discrimination, SGM victimization, and sexual orientation microaggressions on depression symptoms, anxiety symptoms, alcohol-related problems, and marijuana-related problems were tested using linear regression and negative binomial models.

Results: Enacted stigma based on both race/ethnicity and SGM status were significant predictors of mental health outcomes and alcohol-related problems within the same model, which suggested that both uniquely contributed to poorer health. There was little support for interactive effects between the multiple forms of enacted stigma. Marijuana-related problems were best explained by enacted stigma based on race/ethnicity only.

Conclusions: Racially-diverse FAB SGM are at unique risk of experiencing multiple forms of discrimination and aggression based on their minority identities that each contribute negatively to their wellbeing. Consideration of the multiple forms of enacted stigma they face is necessary for understanding health disparities in these populations.

Keywords

Sexual and Gender Minority; Race/ethnicity; Enacted Stigma; Mental Health; Substance Use

Corresponding Author: Gregory Swann, 625 N Michigan Ave Suite 14-027, Chicago, IL 60613, phone: 312-503-6519.

INTRODUCTION

People of color who experience higher levels of racially-or ethnically-based enacted stigma (i.e., discrimination, overt victimization, or covert acts of aggression) are more vulnerable to negative health outcomes such as mental health disorders and substance use problems (Brown et al., 2000; Carter, Lau, Johnson, & Kirkinis, 2017; Chae, Nuru-Jeter, Lincoln, & Jacob Arriola, 2012; Clark, 2014; Hurd, Varner, Caldwell, & Zimmerman, 2014). Similarly, sexual and gender minorities (SGM) who experience enacted stigma because of their sexual orientation or gender identity are more susceptible to those same negative health outcomes (Espelage, Aragon, Birkett, & Koenig, 2008; Lowry, Johns, Robin, & Kann, 2017; Marshal et al., 2012; McCabe, Bostwick, Hughes, West, & Boyd, 2010). The dual status of being a person of color and SGM puts one at risk of experiencing both racial and SGM-based enacted stigma. While previous research has documented the effects of enacted stigma on racial/ethnic minorities and SGMs individually, very little work has been done to research the experiences of those who exist at the intersection of both identities and are susceptible to negative experiences based on both their racial/ethnic identity and their SGM identity. This research is especially important for people who are female assigned at birth (FAB) who traditionally experience higher rates of mental health problems compared to their male counterparts (Hankin & Abramson, 2001; Hankin et al., 1998; Lewinsohn, Gotlib, Lewinsohn, Seeley, & Allen, 1998; McLean & Anderson, 2009).

The framework of minority stress theory describes the pathways through which many racial and sexual minorities experience negative health outcomes (Clark, Anderson, Clark, & Williams, 1999; Hatzenbuehler, 2009; Meyer, 2003). According to the theory, because of their minority status, racial and sexual minorities experience higher levels of enacted stigma, such as victimization and discrimination. This exposure creates stigma-related stress and increased vulnerability to substance use issues and mental health problems, such as depression and anxiety disorders. For instance, racial minorities might cope with experiences of racial discrimination by engaging in problematic substance use, such as binge drinking, which could explain higher rates of substance use problems in minority populations. Similarly, sexual minorities could be more prone to mental health problems as a result of increased stigma-related stress from bullying and victimization. For people with intersectional minority identities (e.g., who identify as both Black and SGM), this theory raises the question of if their experiences of victimization and discrimination compound to cause more negative outcomes because they have more potential pathways toward experiencing minority stress.

Research with SGM populations has strongly supported the processes proposed by minority stress theory. SGMs experience victimization (i.e., overt verbal abuse and physical abuse) at significantly higher rates in comparison to their heterosexual counterparts (Bontempo & D'Augelli, 2002; Espelage et al., 2008; Lowry et al., 2017; Shields, Whitaker, Glassman, Franks, & Howard, 2012). Within SGM samples, those who experience more victimization are at higher risk for a gamut of mental health problems, including symptoms of depression, anxiety, and suicidal ideation (Birkett, Newcomb, & Mustanski, 2015; Burton, Marshal, Chisolm, Sucato, & Friedman, 2013; Espelage et al., 2008; Kulick, Wernick, Woodford, & Renn, 2017; Mereish & Poteat, 2015; Mustanski & Liu, 2013; Swann, Forscher, Bettin,

Newcomb, & Mustanski, 2018). Previous research with SGMs has also indicated that more experiences of victimization are associated with higher risks of substance abuse, including higher rates of alcohol and marijuana use (Duncan, Hatzenbuehler, & Johnson, 2014; Goldbach, Tanner-Smith, Bagwell, & Dunlap, 2014; Huebner, Thoma, & Neilands, 2015; McCabe et al., 2010). For SGMs, overt victimization is associated with poorer outcomes, just as minority stress theory would predict, but there are also more covert pathways for SGM health disparities to develop.

Microaggressions refer to subtle or covert acts of discrimination toward a member of a minority group (e.g., referring to a stereotype, such as “all gay men are into fashion” or ignoring a customer because of their race) (Nadal et al., 2011; Sue et al., 2007). SGMs have reported these experiences as much more frequent than overt acts of victimization. For instance, in the 2015 National School Climate Survey, over 90% of SGM students reported hearing the word “gay” used in a negative way and over 60% heard negative comments about gender expression, but fewer than 30% reported harassment based on sexual orientation or gender expression and fewer than 15% reported physical assault based on sexual orientation or gender expression (Kosciw, Greytak, Giga, Villenas, & Danischewski, 2016). Similar to experiences of victimization, SGMs who experience more microaggressions based on their sexual orientation also report higher internalizing mental health problems and symptoms of depression (Kaufman, Baams, & Dubas, 2017; Kulick et al., 2017; Swann, Minshew, Newcomb, & Mustanski, 2016). Unlike with victimization, there has been very little research exploring the impact of sexual orientation microaggressions on substance use; however, the similarity between the constructs would suggest it as a fertile area for additional research. Even though less severe than more overt forms of victimization, the higher rate of sexual orientation-based microaggression experiences potentially makes minority stress and the subsequent negative consequences much more common for SGM.

The minority stress model (Clark et al., 1999; Hatzenbuehler, 2009; Meyer, 2003) has also found strong support in racial minority populations. Experiences of racial discrimination are common. For example, in a study of 2,490 racial minority adolescents, 73% reported racial/ethnic discrimination, with 42% describing these experiences as “somewhat” or “very disturbing” (Tobler et al., 2013), while another study that examined the experiences of African American students found that 70% experienced some level of current distress due to racial discrimination (Chao, Mallinckrodt, & Wei, 2012). The discrimination that people of color experience often takes on a myriad of forms (Bobo & Fox, 2003). It can occur both at an individual level, such as experiencing slurs or racial epithets from coworkers (Rosette, Carton, Bowes-Sperry, & Hewlin, 2013), as well as at a systemic level (e.g., people of color generally report lower rates of insurance compared to non-Hispanic/Latinx Whites) (Barnett & Berchick, 2017). This discrimination has also been found to have numerous mental and physical health implications (for a review, see Mays, Cochran, and Barnes (2007), Paradies et al. (2015), Priest et al. (2013), and Williams and Mohammed (2009)).

Experiences of racial/ethnic discrimination have generally been linked with higher rates of substance use for people of color, including abuse of alcohol and marijuana (Benner et al., 2018; Borrell, Kiefe, Williams, Diez-Roux, & Gordon-Larsen, 2006; Clark, 2014; Gibbons

et al., 2010; Gilbert & Zemore, 2016; Latzman, Chan, & Shishido, 2013; Romero, Martinez, & Carvajal, 2007; Unger, Schwartz, Huh, Soto, & Baezconde-Garbanati, 2014). Racial/ethnic discrimination has also been shown to have detrimental effects on mental health, including associations with higher rates of anxiety symptoms and depressive symptoms (Benner et al., 2018; Brown et al., 2000; Carter et al., 2017; Chae et al., 2012; Hurd et al., 2014; Pachter, Caldwell, Jackson, & Bernstein, 2018; Paradies et al., 2015). The associations between discrimination and poorer mental health and substance abuse identified in adults are also true for youth of color (Benner et al., 2018; Priest et al., 2013). Benner and colleagues noted, in a comparison of their meta-analysis performed with adolescent samples to previous meta-analyses that focused on adults, the observed effect sizes for racial/ethnic discrimination on mental health and substance use for adolescents were either similar or larger to what had previously been found with adult samples. Finally, based on the results of multiple previous meta-analyses, while different racial groups appear to experience different levels and types of racial discrimination, racial discrimination still has a broadly adverse effect on the mental and physical health of all ethnic/racial minority groups (Benner et al., 2018; Carter et al., 2017; Paradies et al., 2015).

The theoretical perspective of greater risk describes the cumulative risk for negative outcomes that arise for people with more than one minority status who experience multiple systems of oppression (Bowleg, Huang, Brooks, Black, & Burkholder, 2003; Greene, 1996; King, 2016). For SGM of color, this perspective suggests that exposure to enacted stigma based on racial/ethnic identity and enacted stigma based on SGM status could compound to cause worse health outcomes (i.e., each additional system of oppression adds additional burden that risks overwhelming a person's coping mechanisms). In contrast with greater risk is resilience. The resilience perspective theorizes that experiences of one system of oppression can foster skills and coping mechanisms to adapt to another system of oppression (Constantine & Sue, 2006; Moradi et al., 2010), for example, applying coping skills developed in response to experiences of racial discrimination to experiences of SGM-related stigma. There has been some research to suggest that SGM of color are at higher risk of experiencing mental health problems in response to enacted stigma based on sexual orientation (Diaz, Ayala, Bein, Henne, & Marin, 2001; Kulick et al., 2017), but few studies have examined enacted stigma based on both race and SGM status and the impacts of both on the mental health and substance use of SGM of color. Research that examines race-and SGM-based enacted stigma can begin to answer whether each have unique harmful effects, if one form of enacted stigma accounts for the majority of negative outcomes, or if experiencing both types of stigma leads to particularly negative outcomes.

The aim of the present study was to be the first to assess the negative effects of both SGM and race-based enacted stigma on mental health and substance use problems in SGM of color. By examining both effects, we were able to evaluate the unique effects of each on mental health and substance use when both forms of enacted stigma were considered simultaneously, and to test for additive effects of experiencing both. We focused on a sample who were FAB because of the limited existing research specifically examining the experiences of FAB SGM with enacted stigma. We hypothesized that SGM-and race/ethnicity-based discrimination would each be significantly associated with these negative health outcomes. Based on the greater risk perspective (Bowleg et al., 2003; Greene, 1996;

King, 2016), we also hypothesized that both forms of stigma would be significant in the same model and each account for additional risk. We also tested for interaction effects between the two forms of stigma to see if experiencing both forms of stigma exacerbated or attenuated poorer mental health and substance use outcomes. Finally, in our measurement of enacted stigma based on SGM status, we tested the effects of both SGM-specific victimization and microaggressions to determine if the two had different associations with health outcomes.

METHOD

Participants

FAB 400 is an ongoing cohort study of 488 young female-assigned at birth sexual and gender minorities (FAB SGM), focused on their health, development, and intimate relationships. FAB 400 includes two cohorts: (1) a late adolescent cohort recruited for FAB 400 in 2016–2017 (N =400; 16–20 years old at baseline), and (2) a young adult cohort comprised of FAB SGM participants from Project Q2, a study of SGM youth that began in 2007 (N = 88; 23–32 years old at the FAB 400 baseline assessment). Inclusion criteria for FAB 400 and Project Q2 were identical, requiring participants to be 16–20 years old when they enrolled, speak English, and either identify with a sexual or gender minority label, report same-gender attractions, or same-gender sexual behavior. To enroll in FAB 400, participants were also required to be female-assigned at birth. Each cohort was recruited using an incentivized snowball sampling approach, in which participants were recruited directly from various venues (i.e., SGM community organizations, health fairs, high school/college groups) and online social media advertisements, and then those enrolled participants could refer up to 5 peers to the study. Participants were paid $10 for each peer they successfully recruited into the cohort.

In 2016–2017, all 488 participants completed the FAB 400 baseline assessment. Participants were paid $50 for the baseline, which included a battery of self-report measures using computer-assisted self-interview. The study protocol was approved by the Institutional Review Board (IRB) at Northwestern University with a waiver of parental permission for participants under 18 years of age under 45 CFR 46, 408(c). Participants provided written informed consent, and mechanisms to safeguard participant confidentiality were used (i.e., a federal certificate of confidentiality). Given our focus on the intersection between racial and SGM discrimination, the current analytic sample excluded 130 participants who identified as non-Hispanic/Latinx White and six participants who identified their sexual orientation as heterosexual/straight (final analytic N = 352).

Participants in the analytic sample had an average age of 20.27 (SD = 3.81). The racial/ethnic breakdown of the sample was 47.4% Black/African American (N = 167), 33.8% Hispanic/Latinx (N = 119), 10.5% multiracial (N = 37), 6.8% Asian/Pacific Islander (N = 24), and 1.4% who identified their race as “other” (N = 5). The majority of the sample identified as bisexual (36.9%, N = 130), followed by 23.9% who identified as lesbian (N = 84), 16.5% who identified as pansexual (N = 58), 9.9% who identified as queer (N = 35), 5.7% who identified as unsure/questioning (N = 20), 3.4% who identified as gay (N = 12), 2.8% who said their orientation was not listed amongst the answer options (N = 10), and

0.9% who identified as asexual (N = 3). Most of the sample identified their gender identity as female (76.7%, N = 270), followed by 6.5% as gender non-conforming (N = 23), 4.8% as genderqueer (N = 17), 3.7% as non-binary (N = 13), 3.4% as transgender (N = 12), 3.1% as male (N = 11), and 1.7% who said their identity was not listed (N = 6).

Measures

SGM Victimization—Experiences of overt SGM victimization in the previous six months were measured using a 10-item scale developed by D'Augelli, Hershberger, and Pilkington (1998). Items ranged from less severe experiences (e.g., "Have you been verbally insulted because you are, or were thought to be gay, lesbian, bisexual, or trans?") to more severe (e.g., "Have you been attacked sexually because you are, or were thought to be gay, lesbian, bisexual, or trans?"). The frequency of each item was measured on a six-point Likert scale with options ranging from 0 ("Never") to 5 ("More than ten times"). A mean composite was created using all ten items (Cronbach's alpha = .82). Higher scores indicated more experiences of victimization.

Sexual Orientation Microaggressions—The Sexual Orientation Microaggression Inventory (SOMI) is a 19-item measure of experienced microaggressions in the previous six months (Swann et al., 2016). The SOMI measures microaggressions that correspond with anti-gay attitudes and expressions, heterosexism, societal disapproval, and denial of homosexuality. The SOMI has been previously validated with two racial/ethnic minority-majority samples of SGM youth. Each item on the SOMI was asked using a five-point scale with options measuring frequency of experience ranging from "not at all" to "about every day." A bi-factor model was fit to the data using MPlus and the general factor from that model was exported and used as our measure of microaggression experiences following recommendations for use of the SOMI from Swann et al. (2016). Fit statistics suggested an overall good fit to the data in the current sample (CFI = .93, RMSEA = .07, and SRMR = .05) similar to the fit Swann and colleagues found in previous samples of SGM youth. Higher scores on the SOMI factor indicated more experiences of microaggressions.

Experiences of Racial Discrimination—Experiences of racial and ethnic discrimination were measured using a 12-item form of the community version of the Brief Perceived Ethnic Discrimination Questionnaire (PEDQ-CV) (Brondolo et al., 2005). The PEDQ-CV is a measure of perceived experiences of discrimination based on a person's race or ethnicity (e.g., "Have others hinted that you are dishonest or can't be trusted?"). Items on the PEDQ-CV were measured on a 0–4 scale ranging from "never happened" to "happened very often." A mean composite was formed using all 12 items (Cronbach's alpha = .90). Higher scores indicated more experiences of perceived racial/ethnic discrimination.

Mental Health Problems—Symptoms of depression were measured using the Patient-Reported Outcomes Measurement Information System (PROMIS) Depression – short form 8b (Choi, Schalet, Cook, & Cella, 2014; Pilkonis et al., 2011). The PROMIS Depression is an 8-item measure of feelings of depression (e.g., "I felt hopeless") in the past seven days on a scale of 1 ("Never") to 5 ("Always"). A sum composite was created across the eight items (Cronbach's alpha = .94) with higher scores indicating more symptoms of depression.

Anxiety symptoms were measured using the PROMIS Anxiety – short form 8a (Pilkonis et al., 2011). The PROMIS Anxiety consists of eight items measuring feelings of anxiety (e.g., "I felt nervous") and was measured on the same scale and time frame as PROMIS Depression. The eight items were used to form a sum composite (Cronbach's alpha = .94) with higher scores indicating more symptoms of anxiety.

Alcohol and Marijuana-related Problems—Participants were administered the Alcohol Use Disorders Identification Test (AUDIT) to assess problems related to drinking behavior (Babor, Biddle-Higgins, DSaunders, & Monterio, 2001; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT is a 10-item questionnaire that asks about both use (e.g., "How often do you have a drink containing alcohol?") and problems associated with alcohol use (e.g., "How often during the past 6 months have you had a feeling of guilt or remorse after drinking?") in the previous six months. A sum score was calculated from the ten items (Cronbach's alpha = .81). Higher scores indicated more alcohol-related problems.

Marijuana problems were measured using the 8-item Cannabis Use Disorder Identification Test (CUDIT) (Adamson et al., 2010; Adamson & Sellman, 2003). Similar to the AUDIT, the CUDIT measures both marijuana use and problems associated with use in the past six months. A sum score was calculated from the eight items (Cronbach's alpha = .74). Higher scores indicated more marijuana-related problems.

Statistical Analyses

To test hypotheses, linear regression models were run for the PROMIS depression and PROMIS anxiety mental health outcomes. Negative binomial models were used for the AUDIT and CUDIT substance use outcomes to adjust for the positively skewed distribution of the data. All analyses were run in SPSS 25. Individual models controlling for demographic covariates (age, race/ethnicity, sexual orientation, and gender identity) were run first for each of the primary predictors (SGM victimization, sexual orientation microaggressions, and racial discrimination) with mental health and substance use outcomes. All three predictors were standardized using z-scores to make the three enacted stigma measures easier to compare within models. We followed up the individual models by testing eight multivariate models that all included demographic covariates and a combination of the primary predictors for each outcome: 1) demographic covariates only, 2) SGM victimization, 3) sexual orientation microaggressions, 4) racial discrimination, 5) SGM victimization and sexual orientation microaggressions, 6) SGM victimization and racial discrimination, 7) sexual orientation microaggressions and racial discrimination, 8) and a model with all three predictors. We compared model fit because of the correlated nature of the enacted stigma measures and the exploratory nature of these analyses. By comparing fit, we could achieve our study aim of determining if the measures of enacted stigma contributed uniquely to participants' mental health and substance use or if one source of enacted stigma superseded the others in explaining variance in our outcomes. Model fit for the mental health outcomes was measured using adjusted R^2. Fit for the substance use outcomes was assessed using Akaike's Information Criterion (AIC) and Bayesian Information Criterion (BIC). We used AIC and BIC for the substance use outcomes because

there is not a simple equivalent to adjusted R^2 values for negative binomial models. We tested our hypothesis that there would be multiplicative effects of experiencing both race/ethnicity and SGM based enacted stigma by testing models 5–8 both with and without interaction terms representing the interaction effects between the enacted stigma measures.

RESULTS

Preliminary Results

Participants in the current sample reported an average raw PROMIS depression score of 19.02 (SD = 7.94). That raw score is equivalent to a t-score of 57.7. The average t-score for most PROMIS measures in the general population is 50 with a standard deviation of 10 (Choi et al., 2014; Pilkonis et al., 2011). That means for PROMIS depression, raw scores in the general population average at 11 and fall within a standard deviation that translates to raw scores between 8 and 22. In our sample, 35.8% of participants reported scores above 22. The general population raw score average for PROMIS anxiety is 12 with the same standard deviation distribution of 8–22. The average in our sample was 19.67 (SD = 8.11) and 36.9% scored above 22. The mean AUDIT sum score for the sample was 3.49 (SD = 4.14). Scores for 13.1% of the sample indicated medium-levels of alcohol problems and scores for 1.4% of the sample indicated hazardous levels of alcohol problems. The CUDIT score mean was 4.76 (SD = 5.94). Scores for 13.9% of the sample suggested medium-levels of marijuana problems and scores for 11.4% of the sample suggested hazardous levels of marijuana problems.

Prior to testing hypotheses, preliminary analyses were run to determine if there were demographic differences in the predictors and assess zero-order correlations between variables. Linear regressions were run to test for demographic differences. Older participants had significantly lower sexual orientation microaggression scores (Beta = −0.04, SE = .01, p = .013). Asian (Beta = −0.59, SE = .21, p = .006) and multi-racial (Beta = −0.36, SE = .18, p = .042) participants reported lower microaggression scores compared to Black participants. There were no differences in microaggression scores based on gender identity or sexual orientation.

Asian-identifying participants reported fewer instances of SGM victimization (Beta = −.46, SE = .22, p = .033) and racial discrimination (Beta = −.48, SE = .22, p = .027) compared to Black participants. Cisgender participants reported fewer victimization experiences compared to participants of other gender identities (Beta = −.31, SE = .12, p = .013). There were no differences based on gender identity for racial discrimination and no differences based on age or sexual orientation for SGM victimization or racial discrimination.

Correlations between the primary predictors and outcomes are presented in Table 1. The SGM victimization scale was moderately positively correlated with the sexual orientation microaggressions factor (r = .56) and the racial discrimination measure (r = .41). The sexual orientation microaggressions factor and racial discrimination scale were also moderately positively correlated (r = .49).

Mental Health Symptoms

Individual bivariate linear regression models controlling for covariates with PROMIS depression scores as the outcome are shown in Table 2. SGM victimization, sexual orientation microaggressions, and racial discrimination were all significantly associated with depression scores when tested individually, such that higher levels of each were associated with higher depression scores. Model fit for mental health multivariate models is presented in Table 3 and substance use multivariate models in Table 4. The model consisting of sexual orientation microaggressions and racial discrimination explained the most variance in depression scores (adjusted-R^2 = .17). This model suggests that, despite having a significant association with depression in the individual models, SGM victimization did not account for a significant amount of unique variance once microaggressions and racial discrimination were accounted for. The results for the best-fitting model are shown in Table 5. The model indicated that both higher racial discrimination and sexual orientation microaggressions are uniquely associated with more symptoms of depression. The best-fitting model did not include the interaction effect of racial discrimination and microaggressions, meaning there were no significant multiplicative effects of experiencing both.

The pattern of results of the individual linear regression models with PROMIS anxiety scores was analogous to the PROMIS depression models. Higher scores of all three enacted stigma outcomes were individually associated with higher anxiety scores (Table 2). In the multivariate models, sexual orientation microaggressions and racial discrimination again explained the most variance in scores of PROMIS anxiety (adjusted-R^2 = .19; Table 3). Despite showing a significant association between SGM victimization and anxiety symptoms in the individual models, victimization did not account for enough unique variance to be included in the best-fitting multivariate model. Similar to results for depression, both higher sexual orientation microaggressions and racial discrimination were uniquely associated with anxiety symptoms (Table 5). The inclusion of interaction effects provided a worse fit to the data and suggested that there was no multiplicative effect between microaggressions and racial discrimination.

Alcohol and Marijuana-related Problems

In individual negative binomial models, higher SGM victimization, sexual orientation microaggressions, and racial discrimination were associated with higher alcohol problems (Table 2). The best-fitting multivariate model consisted of SGM victimization and racial discrimination (AIC = 1674.03, BIC = 1724.36; Table 4). Even though sexual orientation microaggressions on their own were significantly associated with higher problems, in the multivariate models they did not improve model fit when included with the other measures of enacted stigma. Experiences of both higher SGM victimization and higher racial discrimination were associated with FAB SGM reporting more alcohol problems, suggesting that each had a unique negative impact on alcohol behaviors (Table 5). The inclusion of an interaction term decreased the quality of model fit and suggests that there is no multiplicative association between the effects.

Higher levels of SGM victimization, sexual orientation microaggressions, and racial discrimination were each associated with reports of more marijuana-related problem

behaviors in the individual negative binomial models (Table 2). The best-fitting multivariate model included just racial discrimination, in addition to demographic covariates (AIC = 1790.76, BIC = 1837.22; Table 4). Based on the best-fitting model, it appeared that when racial discrimination was accounted for, measures of enacted stigma based on SGM status were not important for understanding marijuana problems, and more experiences of racial discrimination were the sole measure associated with more marijuana problems (Table 5).

DISCUSSION

In the current study, we sought to understand the effects of race/ethnicity-based and SGM-based enacted stigma on mental health and substance use in FAB SGMs who are also racial/ethnic minorities. Grounded in minority stress theory (Clark et al., 1999; Hatzenbuehler, 2009; Meyer, 2003), we explored whether enacted stigma stemming from SGM status and race/ethnicity had additive negative effects on these health-related outcomes and whether the two interacted, each exacerbating the negative effects of the other. Overall, results suggest that experiences of enacted stigma based on race/ethnicity and those based on SGM identity each have unique associations with mental health and substance use. Specifically, SGM-based microaggressions and racial discrimination were each uniquely associated with symptoms of depression and anxiety, and SGM-based victimization and racial discrimination were uniquely associated with more alcohol-related problems. Marijuana-related problem behaviors was the one outcome where one form of enacted stigma overshadowed the experiences of the other: Racial discrimination alone provided the best fit in explaining marijuana problems. Notably, across all mental health and substance use outcomes, there was no evidence of an interaction between the two types of enacted stigma, suggesting that there was an additive instead of multiplicative association of experiencing both. In other words, one form of enacted stigma did not become worse in the presence of the other, but FAB SGM who experienced both still experienced the worst outcomes.

Together, these findings suggest that for people with multiple minority statuses, it is critical to consider stigma-related experiences based on both identities to fully understand the associations between minority stressors and wellbeing. For all outcomes (anxiety, depression, alcohol, and marijuana-related problems), experiences of racial discrimination were significantly associated with poorer outcomes, even while controlling for SGM-based enacted stigma. Racial discrimination was also the only predictor that was included in the best-fitting models for all four outcomes. These results extend previous research that has documented racial discrimination as a significant risk factor for racial/ethnic minorities (Carter et al., 2017; Chae et al., 2012; Clark, 2014) by documenting that it has unique negative associations beyond those of stigma experienced as a result of another minority status (i.e., a SGM identity). Similarly, we found that SGM-based enacted stigma had significant associations with depression, anxiety, and alcohol problems, even after controlling for the effects of racial/ethnic discrimination. Building upon past evidence that SGM-related microaggressions raise risk for mental health issues (Kaufman et al., 2017; Swann et al., 2016), these results highlight how an SGM identity may pose unique risk for people of color, beyond the powerful risks associated with being a racial/ethnic minority.

Overall, the current findings suggest that young people who identify as both SGM and racial/ethnic minorities are at risk for several negative health outcomes related to the cumulative effects of the enacted stigma they experience based on each of their marginalized identities. Female-assigned at birth individuals with multiple minority statuses appear to be at unique risk of multiple forms of discrimination and those forms of discrimination are associated with worse mental health and substance use outcomes. Even though we did not find evidence of interaction effects between SGM and racial/ethnic related negative experiences, we did find evidence that both are uniquely associated with worse outcomes beyond the effects of the other (other than for marijuana outcomes). The lack of significant interaction effects we found failed to support the existence of multiplicative effects. For instance, we found no evidence that experiencing higher racial discrimination made FAB SGM more vulnerable to the negative effects of SGM stigma, or vice-versa. The significance of both forms of enacted stigma while in the same model for the majority of our outcomes suggested an additive effect of experiencing both that was consistent with the greater risk perspective (Bowleg et al., 2003; Greene, 1996; King, 2016), so for FAB SGM of multiple minority statuses, they appear to be more vulnerable to negative outcomes just by the nature of being susceptible to both forms of enacted stigma.

The significance of both forms of stigma in the majority of our models and the lack of significant attenuating interaction effects did not support a resilience framework (Constantine & Sue, 2006; Moradi et al., 2010) (i.e., exposure to one form of stigma making one less susceptible to the negative effects of another form of stigma). However, because we did not measure coping skills, the conclusions we can draw about this perspective are limited. This theory might also be better tested using a longitudinal approach where the effects of one form of enacted stigma on the other can be observed over time.

These findings have important implications for research and clinical intervention, especially in light of the higher rates of mental health (Bostwick et al., 2013; Mustanski, Garofalo, & Emerson, 2010) and substance use problems (Newcomb, Birkett, Corliss, & Mustanski, 2014; Talley, Hughes, Aranda, Birkett, & Marshal, 2014) that SGM youth experience. Research that ignores the unique experiences of racially/ethnically diverse SGM risks missing critical pieces of information toward understanding and preventing mental health and substance use risk in these populations. Researchers who examine the effects of SGM-related enacted stigma in racially/ethnically diverse SGM populations should account for negative experiences based on race/ethnicity. Findings also suggest that policy and interventions specifically targeting substance use and mental health problems in SGM people of color are warranted, given the additive risks for these issues they may face due to stigma based on each minority status. Interventions to promote health and wellbeing among SGM people of color are likely to benefit from an approach that addresses the unique stigma experiences they are likely to have based on their multiple marginalized identities. For example, helping SGM of color develop strategies other than alcohol and marijuana use to cope with racial/ethnic discrimination and anti-SGM experiences may help reduce risk for substance use and mental health problems.

The impact of enacted stigma is particularly important to consider in FAB SGM because their MAB counterparts receive more research attention both in general and specifically on

the topic of stigma. This is true despite research indicating that female youth experience more mental health problems compared to male youth (Hankin et al., 1998; Lewinsohn et al., 1998; Salk, Petersen, Abramson, & Hyde, 2016). FAB SGM must also contend with the societal disadvantages of being female (Leaper & Brown, 2018) and/or trans/gender-non-conforming (GNC) (Winter et al., 2016) in addition to experiencing stigma based on being SGM and a person of color. The current study did not examine experiences of sexist stigma in FAB SGM of color but their existence at the intersection of so many systems of oppression make them an important group to center in enacted stigma research. Exploring sexist stigma as an additional predictor of mental health and substance use behaviors is a crucial future direction for researchers studying this population.

Findings revealed new information on the relative contributions of overt vs covert enacted stigma based on SGM status. Consistent with previous research that has associated SGM-based victimization (i.e., overt enacted stigma) with depression and anxiety problems (Birkett et al., 2015; Burton et al., 2013; Espelage et al., 2008) and substance use (Goldbach et al., 2014; Huebner et al., 2015; McCabe et al., 2010), we found that SGM victimization was significantly associated with mental health, alcohol, and marijuana problem behaviors when other forms of enacted stigma were not included in the models. However, with the exception of alcohol-related problems, SGM victimization was not included in the best-fitting models for our outcomes. In contrast sexual orientation- based microaggressions (i.e., covert enacted stigma) were associated with both depression and anxiety, even after accounting for experiences of racial discrimination. That is, experiences of sexual orientation-based microaggressions, along with racial discrimination, explained more variance in mental health outcomes compared to models that included victimization. This pattern of findings suggests that covert stigma may affect SGM more strongly than do experiences of overt enacted stigma. It is possible that overt experiences of enacted stigma, such as being physically threatened or assaulted because of SGM status, while important to measure, are less potent in predicting mental health outcomes because they are less common compared to more subtle forms of stigma such as microaggressions. In the current sample, 45.1% of participants reported no experiences of victimization in the previous six months compared to only 2.3% who reported no experiences of microaggressions. The ubiquity of microaggression experiences might make them damaging to the mental health of a wider group of SGM than the less common experiences of victimization. It is also possible that microaggressions, because of their subtle nature, may be more likely to come from family and friends, which could give them a unique impact on mental health compared to overt victimization.

Limitations of the present study include how enacted stigma was measured. We measured SGM and race/ethnicity-based enacted stigma as separate unidimensional predictors. Intersectionality theory (Bauer, 2014; Cho, Crenshaw, & McCall, 2013; McCall, 2005) describes how multiple systems of oppression intersect to create unique forms of oppression that cannot be measured by considering each system separately. Previous research has found that SGM of color face distinctive forms of enacted stigma, such as racial discrimination from within SGM communities and anti-SGM bias from heterosexual members of their racial/ethnic groups that were not measured for this study (Balsam, Molina, Beadnell, Simoni, & Walters, 2011). We took an additive and a multiplicative approach to exploring

the associations between multiple forms of enacted stigma and mental health and substance use outcomes but that approach does not account for the unique intersectional experiences we did not measure. Future research should expand to include intersectional experiences of enacted stigma so that we have a fuller picture of how enacted stigma impacts the mental health and substance use behaviors of SGM of color. Additionally, because experiences of discrimination, overt victimization, and covert microaggressions are not exactly the same, observed differences in the contribution of enacted stigma based on race/ethnicity versus SGM identity may have reflected differences between the specific form of enacted stigma assessed. Future research is needed that measures enacted stigma based on race/ethnicity and based on SGM identity using the same approach (e.g., measuring both sexual orientation microaggressions and racial/ethnic microaggressions or measuring both racial/ethnic- and SGM-based perceived discrimination).

Further limitations include our measure of microaggressions which focused specifically on experiences based on sexual orientation whereas our measure of SGM victimization applied more broadly to experiences based on either sexual or gender identity. By excluding the few SGM in FAB400 who identified as heterosexual, we ensured that all participants had minority sexual identities; however, the 1/4 of participants who identified as gender minorities may have responded to the SGM victimization measure differently than the 3/4 of participants who identified as cisgender females. Because the present study used cross-sectional data, we cannot rule out the possibility of confounding variables or make confident conclusions about the direction of effects (i.e., mental health and substance use may raise risk for experiencing enacted stigma). Future longitudinal research is needed to explore the effects of SGM-and racial/ethnic-stigma on mental health over time and identify potential mechanisms of effect such as rumination and internalized stigma. Finally, the present study only included female-assigned at birth SGM. Further research should confirm that this pattern of results can be generalized to male-assigned at birth (MAB) samples. The results for SGM victimization are especially important to re-examine in MAB SGM, who experience higher rates of victimization compared to FAB SGM (Mustanski, Newcomb, & Garofalo, 2011; Russell, Ryan, Toomey, Diaz, & Sanchez, 2011).

Despite these limitations, the present study offers valuable evidence suggesting that racial minority SGM are at unique risk for mental health and alcohol use issues when they experience enacted stigma based on each of their minority identities. As such, it highlights the importance of assessing both racial/ethnic-and SGM-based stigma experiences when researching the effects of minority stress on SGM people of color. Findings also demonstrate that measurement of covert acts of anti-SGM stigma, like microaggressions, are necessary to understand the full experiences of SGM individuals. For racially-diverse SGM, consideration of all of their minority identities, and the nuances of their experiences, is crucial for understanding the health disparities that they face.

Funding:

This study was supported by a grant from the National Institute of Child Health and Human Development (grant no. R01HD086170: PI Dr. Sarah Whitton).

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Table 1

Zero-order Correlations for Enacted Stigma, Mental Health, and Substance Use Variables

Variable	1	2	3	4	5	6	7
1. SGM Victimization	-	0.56**	0.40**	0.15**	0.16**	0.15**	0.16**
2. Sexual Orientation Microaggressions		-	0.49**	0.28**	0.25**	0.12*	0.17**
3. Racial Discrimination			-	0.32**	0.29**	0.17**	0.26**
4. PROMIS Depression				-	0.73**	0.08	0.09
5. PROMIS Anxiety					-	0.12*	0.05
6. Alcohol Problems						-	0.36**
7. Marijuana Problems							-

Note PROMIS = Patient-Reported Outcomes Measurement Information System;

* $p < .05$,

** $p < .01$.

Table 2

Individual Enacted Stigma Variables on Mental Health and Substance Use Controlling for Demographics

	Mental Health Outcomes						Substance Use Outcomes					
	PROMIS Depression			PROMIS Anxiety			Alcohol Problems			Marijuana Problems		
Variable	***B (SE)***	***p-values***	***95% CI***	***B (SE)***	***p-values***	***95% CI***	***IRR***	***p-values***	***95% CI***	***IRR***	***p-values***	***95% CI***
SGM Victimization	1.02 (.42)	0.015	0.20: 1.85	1.14 (.42)	0.007	0.32: 1.97	1.26	0.001	1.10: 1.45	1.18	0.011	1.04: 1.34
Sexual Orientation Microaggressions	2.07 (.41)	<.001	1.27: 2.88	1.89 (.41)	<.001	1.08: 2.70	1.23	0.002	1.08: 1.40	1.21	0.003	1.07: 1.38
Racial Discrimination	2.47 (.39)	<.001	1.70: 3.25	2.35 (.40)	<.001	1.57: 3.13	1.27	0.001	1.10: 1.46	1.31	<.001	1.15: 1.49

Note. Models controlling for age, race/ethnicity, sexual orientation, and gender identity (not shown). IRR = Incident rate ratio. CI = Confidence interval.

Table 3

Multivariate Model Fit for Enacted Stigma Variables on Mental Health Outcomes

	PROMIS Depression			PROMIS Anxiety		
Variables	***Adjusted-R^2***	***F Statistic***	***p-value***	***Adjusted-R^2***	***F Statistic***	***p-value***
1. Demographics Only	0.062	3.61	<.001	0.102	5.47	<.001
2. LGBT Victimization (Vict)	0.076	3.89	<.001	0.119	5.76	<.001
3. Sexual Orientation Microaggressions (SOMI)	0.125	6.05	<.001	0.151	7.31	<.001
4. Racial Discrimination (RD)	0.156	7.54	<.001	0.183	8.93	<.001
5a. Vict, SOMI	0.123	5.50	<.001	0.149	6.64	<.001
5b. Vict, SOMI, Vict* SOMI	0.125	5.23	<.001	0.159	6.58	<.001
6a. Vict, RD	0.154	6.84	<.001	0.181	8.13	<.001
6b. Vict, RD, Vict*RD	0.153	6.32	<.001	0.182	7.55	<.001
7a. SOMI, RD	**0.170**	7.56	**<.001**	**0.192**	**8.64**	**<.001**
7b. SOMI, RD, SOMI*RD	0.168	6.97	<.001	0.191	7.98	<.001
8a. Vict, SOMI, RD	0.170	7.04	<.001	0.190	7.91	<.001
8b. Vict, SOMI, RD, Vict*SOMI, Vict*RD, SOMI*RD	0.165	5.67	<.001	0.191	6.57	<.001

Note Best fitting model in bold. Demographics include age, race/ethnicity, sexual orientation, and gender identity.

Table 4

Multivariate Model Fit for Enacted Stigma Variables on Substance Use Outcomes

	Alcohol Problems				Marijuana Problems			
Variables	***AIC***	***BIC***	***Likelihood Ratio Chi-Square***	***p-value***	***AIC***	***BIC***	***Likelihood Ratio Chi-Square***	***p-value***
1. Demographics Only	1689.83	1732.42	19.50	0.021	1799.25	1841.84	28.02	0.001
2. LGBT Victimization (Vict)	1677.40	1723.86	33.93	<.001	1797.15	1843.61	32.12	<.001
3. Sexual Orientation Microaggressions (SOMI)	1681.47	1727.93	29.86	0.001	1796.11	1842.58	33.16	<.001
4. Racial Discrimination (RD)	1678.15	1724.62	33.18	<.001	**1790.76**	**1837.22**	**38.51**	**<.001**
5a. Vict, SOMI	1677.88	1728.21	35.46	<.001	1797.37	1847.71	33.90	<.001
5b. Vict, SOMI, Vict* SOMI	1679.51	1733.72	35.82	<.001	1799.29	1853.50	33.98	0.001
6a. Vict, RD	**1674.03**	**1724.36**	**39.31**	**<.001**	1792.24	1842.58	39.03	<.001
6b. Vict, RD, Vict*RD	1675.24	1729.45	40.09	<.001	1794.23	1848.44	39.04	<.001
7a. SOMI, RD	1677.47	1727.81	35.86	<.001	1792.07	1842.41	39.20	<.001
7b. SOMI, RD, SOMI*RD	1679.40	1733.61	35.93	<.001	1793.68	1847.89	39.59	<.001
8a. Vict, SOMI, RD	1675.73	1729.94	39.60	<.001	1793.93	1848.14	39.34	<.001
8b. Vict, SOMI, RD, Vict*SOMI, Vict*RD, SOMI*RD	1680.69	1746.51	40.64	<.001	1798.95	1864.77	40.32	<.001

Note Best fitting model in bold. Demographics include age, race/ethnicity, sexual orientation, and gender identity.

Table 5

Best-fitting Multivariate Model for Enacted Stigma Variables on Mental Health and Substance Use Outcomes

	Mental Health Outcomes						Substance Use Outcomes					
	PROMIS Depression			PROMIS Anxiety			Alcohol Problems			Marijuana Problems		
Variables	***B (SE)***	***p-value***	***95% CI***	***B (SE)***	***p-value***	***95% CI***	***IRR***	***p-value***	***95% CI***	***IRR***	***p-value***	***95% CI***
SGM Victimization	-	-	-	-	-	-	1.18	0.034	1.01: 1.38	-	-	-
Sexual Orientation Microaggressions	1.15 (.45)	0.011	0.26: 2.04	0.99 (.45)	0.031	0.09: 1.88	-	-	-	-	-	-
Racial Discrimination	1.95 (.44)	<.001	1.08:2.81	1.90 (.45)	<.001	1.03:2.78	1.18	0.035	1.01: 1.37	1.31	<.001	1.14: 1.49
Age	−0.26 (.11)	0.023	−0.49: −0.04	−.27 (.12)	0.020	−0.49: −0.04	1.06	0.001	1.03: 1.09	1.02	0.473	0.98: 1.06
Race/Ethnicity												
Black (referent)	-	-	-	-	-	-	-	-	-	-	-	-
Latinx	0.54 (.91)	0.550	−1.24:2.32	1.98 (.91)	0.031	0.19: 3.77	1.32	0.042	1.01: 1.74	0.65	0.004	0.49: 0.87
Asian	1.07 (1.69)	0.525	−2.24: 4.39	1.86 (1.70)	0.275	−1.48:5.20	0.91	0.742	0.51: 1.63	0.17	0.002	0.06:0.52
Other	−4.10 (3.36)	0.223	−10.72:2.51	0.06 (3.39)	0.987	−3.44:2.61	2.24	0.013	1.19:4.21	1.73	0.043	1.02:2.94
Multiracial	−1.00 (1.36)	0.462	−3.68: 1.67	1.59 (1.37)	0.246	−1.11:4.29	2.06	<.001	1.44:2.93	1.18	0.388	0.81: 1.73
Sexual Orientation												
Lesbian/Gay (referent)	-	-	-	-	-	-	-	-	-	-	-	-
Bisexual/Pansexual	0.53 (.94)	0.576	−1.32:2.37	0.51 (.95)	0.594	−1.36:2.37	1.22	0.179	0.91: 1.62	1.31	0.084	0.96: 1.79
Queer	3.72 (1.48)	0.013	0.80: 6.63	2.34 (1.50)	0.118	−0.60: 5.28	1.67	0.015	1.10: 2.51	1.34	0.214	0.85: 2.12
Other	1.31 (1.53)	0.390	−1.69:4.31	−0.41 (1.54)	0.788	−3.44: 2.61	1.13	0.602	0.72: 1.77	0.93	0.785	0.56: 1.54
Cisgender	−2.07 (.99)	0.037	−4.02: −0.13	−4.32 (1.00)	<.001	−6.28: −2.36	1.29	0.068	0.98: 1.68	0.96	0.828	0.67: 1.37

Note. IRR = Incident rate ratio. CI = Confidence interval.