Original Research

Interpersonal Victimization, Substance Use, and Mental Health Among Sexual and Gender Minority Youth: The Role of Self-concept Factors

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Abstract

Reducing substance use and negative mental health outcomes of interpersonal victimization among sexual and gender minority youth (SGMY) represents a critical public health priority. Victimized individuals often develop cognitive schemas, or organized knowledge structures consisting of traits, values, and memories about the self, such as self-concept factors, in response to interpersonal victimization. Prior studies demonstrate the role of self-concept factors (e.g., mastery, control, and self-esteem) in explaining the relationship between victimization and substance use and mental health. However, mastery, control, and self-esteem have not been explored as mediators of interpersonal victimization and health among SGMY. This study is among the first to apply cognitive schema models of trauma-related health symptoms using a large sample of SGMY to examine (a) whether

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interpersonal victimization is associated with substance use (i.e., alcohol use, cannabis use, and cigarette use) and mental health problems (i.e., depressive symptoms, self-perceived stress, self-rated health issues) and (b) whether diminished sense of mastery and control and lower self-esteem can partially explain elevated rates of substance use and mental health problems in this population. We used the U.S.-based 2017 LGBTQ National Teen Survey (n = 17,112; M_{age} = 15.57, SD = 1.27); 6,401 (37.4%) identified as gay or lesbian, 7,396 (43.2%) as cisgender women, and 10,245 (59.9%) as White. Substance use and mental health variables were positively associated with interpersonal victimization variables and negatively associated with self-concept factors. Self-concept factors partially mediated the relationship between interpersonal victimization and mental health. This model explained 74.2% of the variance in mental health and 28.4% of the variance in substance use. Cognitive coping may represent an important modifiable factor that can be targeted by trauma-focused interventions in efforts to improve victimized SGMY's mental health. Findings call for the development of identity-affirmative, evidence-based, and trauma-focused interventions for SGMY to improve this populations' overall health.

Sexual and gender minority youth (SGMY) are at elevated risk of substance use and mental health problems compared to heterosexual, cisgender youth (Day et al., 2017; Price-Feeney et al., 2020). For example, sexual minority youth (i.e., youth who identify their sexual orientation as lesbian, gay, bisexual, queer, or another identity that is not heterosexual) are almost three times as likely to report substance use, including alcohol, marijuana, and tobacco, compared to their heterosexual counterparts (Hughes et al., 2016; Talley et al., 2016)—rates that persist into adulthood (Corliss et al., 2010; Fish et al., 2017; Marshal et al., 2008). Sexual-orientation-related disparities also exist in youths' mental health, such as depression and overall stress (Marshal et al., 2011; Mustanski et al., 2014; Scheer et al., 2019). Compared to cisgender youth, gender minority youth (i.e., youth whose gender identity does not

match their assigned sex at birth) are between 1.5 and 2.7 times as likely to report alcohol use, marijuana use, and cigarette use (Day et al., 2017) and are two-to-five times as likely to report mental health issues (Clark et al., 2014; Price-Feeney et al., 2020; Reisner et al., 2016; Veale et al., 2017). Together, these findings highlight the need for targeted prevention efforts for SGMY, especially given that substance use and mental health problems during adolescence can lead to long-term negative consequences, such as truancy, unemployment, and homelessness (Sawyer et al., 2012).

SGMY's greater exposure to interpersonal victimization (e.g., sexual or physical victimization, sexual harassment; Edwards et al., 2015) compared to cisgender, heterosexual youth may represent one determinant of youths' sexual orientation and gender identity disparities in substance use and mental health (Rhew et al., 2017; Scheer et al., 2019). Indeed, interpersonal victimization disproportionately affects SGMY compared to heterosexual youth (Dank et al., 2014; Edwards et al., 2015; James et al., 2016; McGeough & Sterzing, 2018; Scheer et al., 2019). There remains a dearth of literature, however, documenting SGMY's experiences of sexual harassment, specifically. Within the limited literature, nationally representative findings indicated that the odds of sexual harassment were two-to-five times higher for sexual minority youth than for heterosexual youth, and that 81% of gender minority youth reported sexual harassment (Mitchell et al., 2014). The current study aims to build on these emergent findings by providing prevalence rates of sexual harassment among a large national sample of SGMY.

Burgeoning research has identified the role of interpersonal victimization in explaining SGMY's increased risk for health problems relative to heterosexual, cisgender youth (Dank et al., 2014; Decker et al., 2018; Rostad et al., 2020; Scheer et al., 2019). Indeed, substance use and specific mental health conditions (e.g., depressive symptomology) and aspects of emotional wellbeing, including self-perceived stress and self-rated health, are necessary targets of health initiatives for SGMY who experience interpersonal victimization (Feller et al., 2018; Fish, 2020). Virtually no research, however, has examined cognitive schemas, such as self-concept factors or organized knowledge structures consisting of traits, values, and memories about the self, linking SGMY's interpersonal victimization experiences and health outcomes. Advancing knowledge of the modifiable pathways underlying SGMY's health risks could inform the development of affirmative treatments aimed to ameliorate victimized SGMY's substance use and mental health concerns (Fish, 2020; Pachankis, 2018; Scheer & Mereish, 2019).

Interpersonal Victimization, Cognitive Schemas, and Health

Cognitive schemas in general, and self-concept factors specifically, may remain latent until they are activated by external events, such as sexual victimization (Young, 1999). That is, victimization experiences may confer risk for the development of self-concept factors. In fact, individuals who experience victimization often develop self-concept factors in response to traumatic experiences where one's autonomy, resilience, safety, and trust are threatened (Beck et al., 1983; Dozois et al., 2009). For instance, interpersonal victimization experiences can lead to negative self-concept factors, such as feelings of powerlessness, a lack of control, and low self-esteem (Appiah-Kusi et al., 2017; Finkelhor & Browne, 1985; Wright et al., 2010). Notably, consistent evidence demonstrates that experiences of interpersonal victimization are particularly harmful for schemas related to self-worth and self-efficacy (Wright et al., 2010). However, knowledge gaps remain regarding whether interpersonal victimization is related to self-concept factors among SGMY. Such findings could enhance existing evidence-based clinical approaches for victimized SGMY to be validated in future clinical trials.

According to the stress process model (Pearlin & Schooler, 1978), self-concept factors are conceptualized as mechanisms through which stressors, including interpersonal victimization, impact health (Reed-Fitzke, 2020). For example, extant findings lend empirical support for the stress process model by demonstrating that victimized individuals often respond to these self-concept factors (e.g., a diminished sense of mastery and control and low self-esteem) with avoidance coping behaviors (e.g., substance use), providing empirical support for the self-medication hypothesis (Ehlers & Clark, 2000; Vujanovic et al., 2016). Other studies point to associations between these self-concept factors and poor mental health, consistent with the vulnerability model (Orth et al., 2015; Suzuki & Tomoda, 2015; Turner et al., 2017). Nevertheless, mastery, control, and self-esteem have not been explored as potential mediators of interpersonal victimization experiences and health among SGMY.

The Present Study

This study used a large national sample of SGMY to apply cognitive schema models of trauma-related health symptoms by examining (a) whether interpersonal victimization (i.e., past-year sexual victimization, past-year sexual victimization in dating relationships, past-year physical victimization in dating relationships, and past-year sexual harassment) is associated with

substance use and mental health problems among SGMY and (b) whether diminished sense of mastery and control and lower self-esteem can partially explain the elevated prevalence of substance use and mental health problems among victimized SGMY. Associations were examined while controlling for relevant demographic characteristics (e.g., age, race/ethnicity, sexual orientation, gender identity, U.S. region of residence). Analyses also adjusted for bias-based (i.e., SGM-specific), school- and cyber-bullying given the well-established connection between bullying and SGMY's substance use and mental health (Goldbach et al., 2014). Adjusting for these covariates allowed us to isolate the impact of victimization on substance use and mental health problems via diminished sense of mastery and control and lower self-esteem.

Method

Procedure

Between April 2017 and December 2017, as part of the LGBTQ National Teen Survey, online survey data were collected among racially diverse SGM adolescents. Data were collected by researchers at the University of Connecticut, in partnership with the Human Rights Campaign (HRC; Puhl et al., 2019; Watson et al., 2020). Participants met the following eligibility criteria: (a) aged 13-17; (b) self-reported ability to read English; (c) self-identification as lesbian, gay, bisexual, transgender, gender nonconforming, queer, and/or questioning; (d) self-reported current U.S. residence; and (e) internet access to complete the online survey via Qualtrics. Participants were recruited through HRC's network of community partners; social media; and with the assistance from social influencers (e.g., Jazz Jennings, Tyler Oakley). On average, participants completed the online survey in 43.3 minutes (median = 28.2 minutes). Participants were offered compensation in the form of wristbands or raffle entry for a $50 Amazon gift card. Participants provided assent through the Study Information page presented prior to the Qualtrics survey. Participants were informed that their participation was anonymous, voluntary, and could be terminated at any time. The University of Connecticut's Institutional Review Board approved all study protocols, including a waiver of parental consent.

Participants

In total, 20,306 eligible participants began the survey. Among those, 3,006 participants did not complete the initial demographic information, 12

participants appeared to have duplicate surveys based on IP addresses, and 23 participants began a survey but terminated it before completion and then completed a new survey and were excluded from all data analyses. A *post hoc* mischievous responders sensitivity analysis (Robinson-Cimpian, 2014) was conducted, and 74 participants were removed. A total of 17,112 (84.3%) participants completed the survey and were included in the current study.

Measures

Covariates.

Demographic variables. Participants reported their age, sexual orientation (i.e., gay or lesbian; bisexual; straight, that is, not gay; something else), gender identity (i.e., male, female, trans male/trans boy, trans female/trans girl, nonbinary, gender queer/gender nonconforming), race/ethnicity (i.e., Asian American, Biracial or Multiracial, Hispanic/Latinx, Native American, non-Hispanic Black, non-Hispanic White, "other"), and U.S. region of residence (i.e., Northeast, Midwest, South, West).

Disclosure of sexual orientation or gender identity. Sexual minority participants indicated whether they had disclosed their sexual orientation to their family/parents. Gender minority participants indicated whether they had disclosed their gender identity to their family/parents. These items were modified from the Outness Inventory (Mohr & Fassinger, 2000). Response options to both questions ranged from 0 (none) to 4 (all).

Bullying exposure. Bias-based bullying was assessed with six items. Response options ranged from 0 = never to 3 = ≥3 times. A dichotomous variable (0 = never, 1 = ≥1 time) was created to indicate lifetime experience of bias-based bullying. Past-12-month bullying on school property, bullying off school property, and cyberbullying exposure variables were analyzed as separate covariates (Centers for Disease Control and Prevention, 2015).

Substance use.

Alcohol use. Lifetime alcohol use was assessed with a single question from the 2015 National Youth Risk Behavior Survey (YRBS). Response options ranged from 0 (0 days) to 6 (≥ 100 days). Highest tertile was used to calculate the presence of any alcohol use (i.e., ≥ 3 days). Lifetime alcohol use was dichotomized as 0 days = 0 and ≥3 days = 1.

Cannabis use. Lifetime cannabis use was assessed with a single item based on the 2015 YRBS. Response options ranged from 0 (0 days) to 6 (≥ 100 days). Lifetime cannabis use was dichotomized as 0 days = 0 and ≥1 day = 1.

Cigarette use. Lifetime cigarette use was assessed with a single question based on the 2015 YRBS; 0 = No, 1 = Yes.

Mental health.

Stress. Self-perceived stress was assessed with a single question that asked participants to rate their average stress level (Wadden & Foster, 2006). Response options ranged from 1 (not stressed at all) to 10 (very stressed). Higher scores indicated higher self-perceived stress.

Depressive symptoms. We used a modified 10-item version of the Kutcher Adolescent Depression Scale (KADS; LeBlanc et al., 2002) to evaluate frequency of past-week depressive symptoms. We excluded one item pertaining to suicidality. Response options ranged from 0 (hardly ever) to 3 (all of the time). Responses were averaged, with higher scores indicating higher depressive symptoms. Cronbach's α = .90.

Self-rated health. Self-rated health was assessed with a single question based on the Project EAT-II Survey for High School Students (Neumark-Sztainer et al., 2003). Response options ranged from 0 (poor) to 3 (excellent). Higher scores indicated better self-perceived overall health.

Interpersonal victimization variables.

Past-year sexual victimization. Past-year sexual victimization was assessed with a single item based on the 2015 YRBS. Response options ranged from 0 (0 times) to 4 ($\geq$ 6 times). Past-year sexual victimization was dichotomized as 0 times = 0 and $\geq$1 time = 1.

Past-year sexual victimization in dating relationships. Past-year sexual victimization in dating relationships was assessed with a single item based on the 2015 YRBS. Response options ranged from 0 (I did not go out with anyone during the past 12 months/ 0 times) to 5 ($\geq$ 6 times). Past-year sexual victimization in dating relationships was dichotomized as 0 = I did not go out with anyone during the past 12 months or zero times, and 1 = $\geq$1 time.

Past-year physical victimization in dating relationships. Past-year physical victimization in dating relationships was assessed with a single item based on the 2015 YRBS. Response options ranged from 0 (I did not go out with anyone during the past 12 months/0 times) to 5 ($\geq$ 6 times). Past-year physical victimization in dating relationships was dichotomized as 0 = I did not go out with anyone during the past 12 months or zero times, and 1 = $\geq$1 time.

Past-year sexual harassment. Past-year sexual harassment was assessed with five items (American Association of University Women, 2011). Response options ranged from 0 = 0 times to 4 = $\geq$6 times. A dichotomous variable (0 = no, 1 = yes) was created to indicate any past-year sexual harassment.

Self-concept factors.

Mastery. Perceived mastery over stressors was assessed with the five-item Mastery Scale (Rosenberg, 1989). Response options ranged from 0 (strongly disagree) to 3 (strongly agree). Higher scores indicated greater mastery. Cronbach's α = .77.

Control. Three items assessed the extent that one regards their life chances as being under personal control versus being fatalistically determined (Rosenberg, 1989). Response options ranged from 0 (strongly disagree) to 3 (strongly agree). Higher scores indicated greater perceived control over life stressors. Cronbach's α = .59.

Self-esteem. Participants' sense of self-worth was assessed with the 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1989). Response options ranged from 1 (strongly disagree) to 4 (strongly agree). Higher scores reflected higher self-esteem. Cronbach's α = .91.

Statistical Analysis

SPSS version 26 (IBM Corporation, 2019) was used to analyze descriptive statistics and assess for bivariate associations. Binary logistic regressions were used to examine associations between study variables. Logistic regression analyses were adjusted for age, race/ethnicity, sexual orientation, gender identity, identity disclosure, U.S. region of residence, and bullying exposure. Associations between self-concept factors and mental health were then tested using Pearson product-moment coefficients given that they were treated as continuous, observed variables (Schober et al., 2018).

Next, we examined whether self-concept factors partially explained the relationship between interpersonal victimization, and substance use and mental health using mediation analyses. Specifically, we conducted a structural equation model using the full information maximum likelihood estimation to account for missing data in *Mplus* version 8.1 (Muthén & Muthén, 2018). Notably, our data were assumed to be missing at random given that nearly all missingness was attributable to early survey termination rather than the skipping of sensitive items (Murchison et al., 2019). As recommended (Anderson & Gerbing, 1988), we first tested a measurement model, in which covariances among factors of variables were freely estimated, and measurement errors were not allowed to correlate.

Model indices were used to determine which parameters could be freely estimated to significantly improve model fit. We added a covariance between the measurement errors of two variables if a modification index was 10 or greater (Lewis et al., 2014; Muthén & Muthén, 2018). The observed indicators were constrained to load onto their respective factor. The latent predictor

(i.e., interpersonal victimization) was indicated by the measures of sexual victimization, sexual victimization in dating relationships, physical victimization in dating relationships, and sexual harassment. The latent mediator (i.e., self-concept factors) was indicated by the measures of mastery, control, and self-esteem. The latent substance use factor was indicated by the measures of alcohol use, cannabis use, and cigarette use. The latent mental health factor was indicated by the measures of stress, depressive symptoms, and self-rated health issues.

We then tested the hypothesized structural path model to examine the direct relationships among interpersonal victimization, self-concept factors, substance use, and mental health as well as the indirect effect of interpersonal victimization on substance use and mental health through self-concept factors. Substance use was allowed to covary with mental health given this bivariate association. Each endogenous variable in the model was adjusted for the same covariates used in the logistic regression analyses. Finally, bias-corrected bootstrapping procedures were used to calculate indirect effect estimates with 95% confidence intervals from 1,000 samples drawn from the original dataset.

A significant indirect effect ($p < .05$) was interpreted as evidence of mediation. We assessed the model fit using the comparative fit index (CFI), Tucker-Lewis Index (TLI), standardized root-mean-square residual (SRMR), and root-mean-square error of approximation (RMSEA) and its 90% confidence interval to the data. Values of at least .95 for the CFI and TLI indicate that the model is a good fit to the data (Kline, 1998), while SRMR and RMSEA values of .06 or lower are acceptable (Hu & Bentler, 1999). Statistical tests at $p < .05$ were deemed significant for all statistical analyses.

Three *post hoc* sensitivity analyses with different configurations of the latent substance use variable were conducted: (a) the latent substance use factor was indicated by the measures of any alcohol use (as opposed to the highest tertile), cannabis use, and cigarette use; (b) an observed binge drinking variable (≥ 5 drinks within a couple of hours; Watson et al., 2021) was used; and (3) an observed polydrug use variable was used where participants who reported use of more than one substance in the past year was coded as having engaged in polydrug use (Daskalopoulou et al., 2014; Smith et al., 2011). *Post hoc* analyses revealed negligible differences in results from those presented below. That is, we found similarities in the direction, magnitude, and significance in the indirect effect of interpersonal victimization on substance use through self-concept factors when using the original latent substance use variable compared to the latent and observed substance use variables described above.

Results

Sample Description and Preliminary Analyses

Table 1 presents demographic information, presence of interpersonal victim-
ization, and substance use and mental health, including response options and
sample characteristics in the total sample. Participants' mean age was 15.57
(*SD* = 1.27). Most participants identified as White (59.9%). A majority of
participants identified as gay or lesbian (37.4%) and as cisgender women
(43.2%). Fewer than half of participants had disclosed their sexual orienta-
tion to family members (46.5%) and 12.8% had disclosed their transgender or
other gender minority identity to family members. Over half of the sample
reported experiencing some form of sexual harassment in the past year
(50.1%), 13.6% of SGMY reported experiencing sexual victimization in the
past year, 8.6% reported experiencing sexual victimization in dating relation-
ships in the past year, and 4.8% reported experiencing physical victimization
in dating relationships in the past year. A quarter of SGMY reported at least 3
days or more of alcohol use, 17.7% reported lifetime cannabis use, and 14.5%
reported lifetime cigarette use.

Table 1. Frequencies of Study Variables Among Sexual and Gender Minority Youth.

	M (SD)
Demographic Characteristics	
Age (range: 13-17; median = 15)	15.57 (1.27)
	n (%)
Race/ethnicity	
American Indian or Alaska Native	96 (0.6)
Asian or Pacific Islander	696 (4.1)
Biracial or Multiracial	2,508 (14.7)
Black or African American	959 (5.6)
Hispanic/Latinx	1,877 (11.0)
Middle Eastern/Arab American	53 (0.3)
Other	87 (0.5)
White	10,245 (59.9)
Gender identity	
Cisgender man	4,079 (23.8)
Cisgender woman	7,396 (43.2)
Transgender man	1,404 (8.2)

(continued)

Table 1. Continued

	M (SD)
Transgender woman	185 (1.1)
Transgender masculine/nonbinary	3,573 (20.9)
Transgender feminine/nonbinary	475 (2.8)
Sexual orientation	
Asexual	725 (4.2)
Bisexual	5,970 (34.9)
Gay or lesbian	6,401 (37.4)
Heterosexual	279 (1.6)
Other	358 (2.1)
Pansexual	2,256 (13.2)
Queer	699 (4.1)
Questioning	424 (2.5)
Sexual orientation disclosure to family	
A few or more	7,958 (46.5)
None	3,420 (20.0)
Transgender identity disclosure to family	
A few or more	2,183 (12.8)
None	1,662 (9.7)
Presence of interpersonal victimization Sexual victimization	2,321 (13.6)
Sexual victimization in dating relationships	1,472 (8.6)
Physical victimization in dating relationships	821 (4.8)
Sexual harassment	8,565 (50.1)
Presence of substance use Alcohol use[a]	4,275 (25.0)
Cannabis use	3,030 (17.7)
Cigarette use	2,474 (14.5)

Note. Percentages may not equal 100 due to missing data. Those who identified as heterosexual also identified as transgender or gender nonbinary and so were retained in the analyses.

[a]Highest tertile was used to calculate the presence of any alcohol use (i.e., ≥3 days).

Table 2 demonstrates bivariate associations between study variables. Interpersonal victimization variables and self-concept factors were significantly associated in the expected direction. That is, participants who reported sexual victimization, sexual and physical victimization in dating relationships, and sexual harassment were more likely to report a diminished sense of mastery and low self-esteem. Control was not associated with interpersonal victimization variables and self-esteem was not associated with physical victimization in dating relationships. Overall, substance use and mental health variables were positively associated with interpersonal victimization variables, negatively associated with self-concept factors, and positively associated with each other. Specifically, SGMY who reported sexual victimization, sexual and physical victimization in dating relationships, and sexual harassment were 1-2 times more likely to report alcohol use, cannabis use, cigarette use, stress, depressive symptoms, and self-rated health issues compared to SGMY who did not report interpersonal victimization.

Structural Equation Model of Associations Between Interpersonal Victimization With Self-concept Factors and Substance Use and Mental Health

Overall, the measurement model demonstrated good fit (CFI = .97; TLI = .95; SRMR = .05; RMSEA = .03, 90% CI [0.02, 0.04]). The latent factor measuring interpersonal victimization had high standardized loadings for sexual victimization ($\lambda = 0.56$), sexual victimization in dating relationships ($\lambda = 0.48$), physical victimization in dating relationships ($\lambda = 0.41$), and sexual harassment ($\lambda = 0.34$). Similarly, the latent factor measuring self-concept factors had strong factor loadings for mastery ($\lambda = 0.82$), control ($\lambda = 0.53$), and self-esteem ($\lambda = 0.92$). The latent factor measuring substance use had strong factor loadings for alcohol use ($\lambda = 0.56$), cannabis use ($\lambda = 0.62$), and cigarette use ($\lambda = 0.74$). Finally, the latent factor measuring mental health had adequate standardized loadings for stress ($\lambda = 0.50$), depressive symptoms ($\lambda = 0.87$), and self-rated health issues ($\lambda = 0.50$). Overall, the latent structural model also demonstrated good fit (CFI = .96; TLI = .96; SRMR = .03; RMSEA = .03, 90% CI [0.02, 0.03]).

As hypothesized and displayed in Figure 1, self-concept factors (i.e., mastery, control, and self-esteem) partially mediated the relationship between interpersonal victimization and mental health. Self-concept factors did not mediate the relationship between interpersonal victimization and substance use. Overall, this model explained 74.2% of the variance in mental health and 28.4% of the variance in substance use (Table 3).

Table 2. Bivariate Associations Between Interpersonal Victimization, Self-Concept Factors, Substance Use, and Mental Health.

	Sexual Victimization Adj. OR (95% CI)	Sexual Victimization in Dating Relationships Adj. OR (95% CI)	Physical Victimization in Dating Relationships Adj. OR (95% CI)	Sexual Harassment Adj. OR (95% CI)	Mastery Adj. OR (95% CI)	Control Adj. OR (95% CI)	Self-esteem Adj. OR (95% CI)	Alcohol Use Adj. OR (95% CI)	Cannabis Use Adj. OR (95% CI)	Cigarette Use Adj. OR (95% CI)	Stress Adj. OR (95% CI)	Depress. Adj. OR (95% CI)	Self-rated Health Issues Adj. OR (95% CI)
1. Sexual victimization	—	17.36*** (13.58, 22.18)	4.83*** (3.69, 6.33)	13.19*** (7.94, 21.93)	.84** (.72, .98)	.99 (.85, 1.16)	.73*** (.62, .84)	1.67*** (1.40, 1.99)	1.57*** (1.37, 2.01)	1.57*** (1.29, 1.90)	1.05* (1.01, 1.09)	1.55*** (1.36, 1.76)	1.16* (1.03, 1.31)
2. Sexual victimization in dating relationships		—	7.56*** (5.78, 9.89)	9.01*** (5.13, 15.84)	.72** (.60, .87)	.98 (.82, 1.17)	.76** (.64, .91)	1.50*** (1.23, 1.84)	1.57*** (1.27, 1.95)	1.63*** (1.31, 2.02)	1.07** (1.03, 1.11)	1.56*** (1.34, 1.80)	1.08 (.94, 1.24)
3. Physical victimization in dating relationships			—	3.89*** (2.14, 7.07)	.71** (.56, .90)	.84 (.67, 1.05)	.86 (.68, 1.08)	1.95*** (1.50, 2.53)	2.33*** (1.77, 3.05)	2.01*** (1.54, 2.63)	1.07** (1.02, 1.13)	1.65*** (1.36, 2.01)	1.17 (0.98, 1.40)
4. Sexual harassment				—	.70*** (.59, .83)	1.08 (.91, 1.29)	.79*** (.68, .92)	2.00*** (1.61, 2.48)	1.84*** (1.44, 2.36)	1.33* (1.04, 1.70)	1.03 (.98, 1.08)	1.53*** (1.33, 1.75)	1.25*** (1.10, 1.42)
7. Mastery					—	.45***	.69***	.80** (.69, .92)	.84* (.72, .99)	.77*** (.65, .90)	−.37***	−.61***	−.34***
8. Control						—	.51***	.90 (.78, 1.03)	.89 (.76, 1.04)	.88 (.75, 1.02)	−.24***	−.34***	−.27***
9. Self-esteem							—	.76*** (.66, .87)	.84* (.73, .98)	.73*** (.62, .85)	−.39***	−.67***	−.41***
10. Alcohol use								—	6.25*** (5.20, 7.52)	5.56*** (4.60, 6.72)	1.04* (1.01, 1.08)	1.32*** (1.18, 1.47)	1.14* (1.03, 1.27)
11. Cannabis use									—	8.38*** (6.88, 10.20)	1.04* (1.00, 1.08)	1.32*** (1.17, 1.49)	1.24*** (1.10, 1.40)

Table 2. Continued

	Sexual Victimization Adj. OR (95% CI)	Sexual Victimization in Dating Relationships Adj. OR (95% CI)	Physical Victimization in Dating Relationships Adj. OR (95% CI)	Sexual Harassment Adj. OR (95% CI)	Mastery Adj. OR (95% CI)	Control Adj. OR (95% CI)	Self-esteem Adj. OR (95% CI)	Alcohol Use Adj. OR (95% CI)	Cannabis Use Adj. OR (95% CI)	Cigarette Use Adj. OR (95% CI)	Stress Adj. OR (95% CI)	Depress. Adj. OR (95% CI)	Self-rated Health Issues Adj. OR (95% CI)
12. Cigarette use										—	1.05* (1.01, 1.09)	1.61*** (1.41, 1.83)	1.31*** (1.16, 1.49)
13. Stress											—	.45***	.25***
14. Depress.												—	−.41***

Note. ORs with 95% confidence intervals adjusted for age, race/ethnicity, sexual orientation, gender identity, disclosure of sexual orientation, disclosure of transgender identity, U.S. region of residence, bias-based victimization, bullying on school property, bullying off school property, and cyberbullying. Associations between interpersonal victimization and self-concept factors, substance use, and mental health, between self-concept factors and substance use, and between substance use and mental health were tested using a bivariate logistic regression. Associations between self-concept factors and mental health were tested using bivariate correlation.

Adj. OR = adjusted odds ratio; CI = confidence interval; Depress. = depressive symptoms.
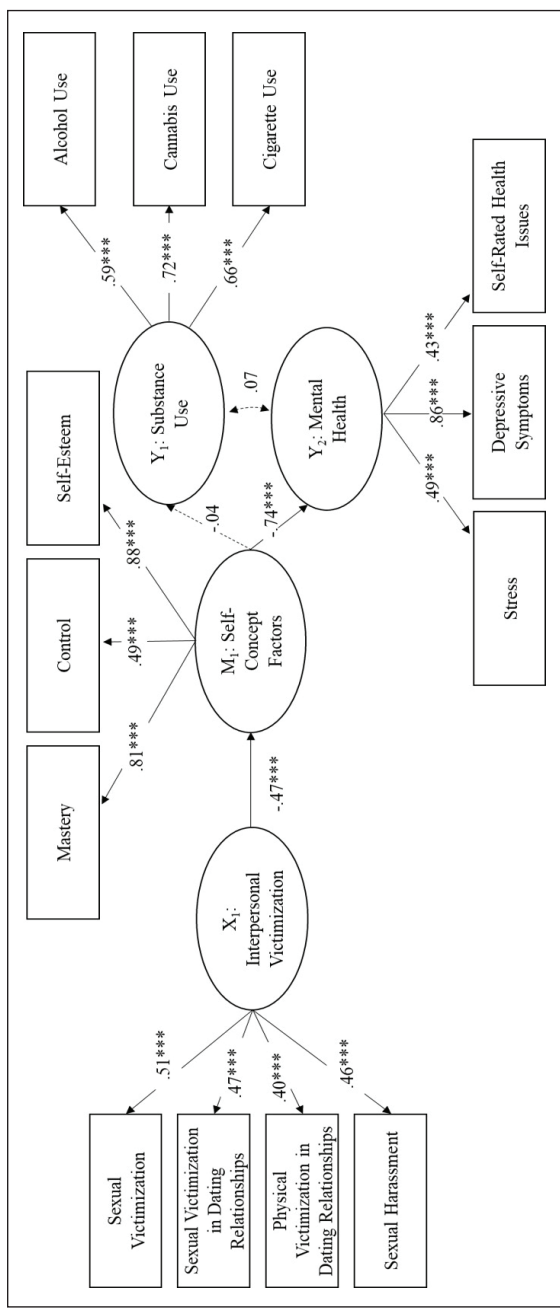
*p < .05, **p < .01, ***p < .001.

Figure 1. Indirect and direct effect of interpersonal victimization, substance use, and mental health mediated through self-concept factors.

Note. Values are standardized coefficient estimates. Dashed lines represent nonsignificant paths. Sexual victimization included any type of relationship. The model controls for age, race/ethnicity, sexual orientation, gender identity, disclosure of sexual orientation, disclosure of transgender identity, U.S. region of residence, bias-based victimization, bullying on school property, bullying off school property, and cyberbullying.

*p < .05, **p < .01, ***p < .001.

Table 3. Direct and Indirect Effect Estimates in the Structural Model of Interpersonal Victimization, Self-concept Factors, and Mental and Behavioral Health.

Specific Path or Covariance	Standardized Estimate (95% CI)	Standard Error	p Value	R^2
Interpersonal victimization to				
self-concept factors	−.47	.04	<.001	.04
Interpersonal victimization to				
substance use	.27	.05	<.001	
Interpersonal victimization to				
mental health	.23	.04	<.001	
Self-concept factors to				
substance use	−.04	.02	.12	
mental health	−.74	.03	<.001	
Covariance between				
substance use, mental health	.07	.04	.08	
Interpersonal victimization to substance use indirectly through				
self-concept factors	.02 (.01, .04)	.01	.12	.28***
Interpersonal victimization to mental health indirectly through				
self-concept factors	.35 (.27, .43)	.04	<.001	.74***

Note. Indirect effect estimates were calculated using bias-corrected bootstrapping procedures from 1,000 samples from the original dataset, with 95% confidence intervals reported in parentheses

Discussion

Although SGMY are exposed to high levels of interpersonal victimization that place them at an increased risk for negative health outcomes (Dank et al., 2014), few studies have examined the role of self-concept factors underlying this association. By extending cognitive schema models of trauma-related health symptoms to a large sample of SGMY, this study aimed to (a) examine the relationship between interpersonal victimization and substance use and mental health problems and (b) examine whether self-concept factors were related to victimized SGMY's increased risk of substance use and poor mental health. Physical and sexual victimization was associated with SGMY's substance use and negative mental health outcomes, consistent with prior

findings (Edwards et al., 2015; James et al., 2016; Scheer et al., 2019; Scheer & Mereish, 2019). This study is among the first to demonstrate that self-concept factors helped to explain the association between interpersonal victimization and mental health among SGMY. Moreover, this study is the first to highlight that these factors explain a substantial amount of the variance in mental health outcomes (74.2%), providing preliminary evidence for future longitudinal research to investigate self-concept factors as potential mediators of the relationship between victimization and health among SGMY. Further, high levels of victimization were found in this study, with half of participants reporting sexual harassment, 13.6% reporting sexual victimization, 8.6% reporting sexual victimization in dating relationships, and 4.8% reporting physical victimization in dating relationships, rates similar to those in the broader literature (Edwards et al., 2015; Scheer et al., 2019).

Previous studies have identified associations between self-concept factors and poor mental health (Suzuki & Tomoda, 2015; Turner et al., 2017). However, this is the first known study to extend existing trauma literature by demonstrating the role of diminished sense of mastery and control and lower self-esteem in helping to explain the elevated prevalence of mental health problems among a large sample SGMY with recent histories of victimization. This finding demonstrates that cognitive coping may represent a modifiable factor that can be targeted by trauma-focused interventions (e.g., trauma-focused cognitive-behavioral therapy [TF-CBT]; Cohen et al., 2012) in efforts to improve victimized SGMY's mental health. Many interventions tailored for SGMY target cognitive processes broadly (e.g., cognitive restructuring; Bochicchio et al., 2020; Sheinfil et al., 2019). However, our results underscore the importance of improving SGMY's awareness of trauma-related cognitions (e.g., through promoting emotion regulation and relaxation skills) and developing cognitive coping strategies to bolster SGMY's sense of control, mastery, and self-esteem (e.g., through encouraging positive self-talk; Cohen et al., 2012). For example, recent research highlights the importance of helping SGM populations in general to question the accuracy and utility of their negative thoughts or beliefs (e.g., blaming themselves for experiencing sexual assault) rather than to assume that these thoughts or beliefs are dysfunctional (Craig & Austin, 2016; Scheer et al., under review). Additionally, interventions that provide behavioral opportunities to exercise control and mastery (e.g., through role playing) may assist in helping victimized SGMY to generalize coping skills to future stressors (Cohen et al., 2012; Turner et al., 2017). Future research should consider adapting TF-CBT interventions for SGMY to improve this vulnerable populations' overall mental health.

Contrary to the self-medication hypothesis (Ehlers & Clark, 2000), self-concept factors did not mediate the relationship between victimization and substance use. Although previous studies have found associations between self-concept factors and substance use (Vujanovic et al., 2016), our findings suggest that substance use may not serve as an avoidant-based coping skill for victimized SGMY (Edwards, 2015). Alternatively, victimized SGMY's substance use motives may be due to other factors, such as to enhance pleasure or reduce negative affect (Feinstein & Newcomb, 2016) as well as perceptions of the extent to which other SGMY youth use alcohol and think it is acceptable to use alcohol (Edwards et al., 2020). Future research is needed to comprehensively assess SGMY's substance use motives in response to victimization experiences in order to identify critical windows of opportunity for preventing the development of substance use disorders in this population. Future studies should also consider examining the extent to which other substances (e.g., opiates) may serve to modify maladaptive cognitive schemas related to victimization among SGMY.

Limitations & Future Directions

The current study's findings should be considered in light of several study design and measurement limitations. First, the study collected data at a single time point and thus precludes temporal and causal inferences. Future longitudinal research is warranted to establish temporal sequencing and replicate these findings to provide stronger evidence of a mediation effect. Relatedly, several items used inconsistent timeframes (e.g., past-year victimization, lifetime substance use). Therefore, it is unclear whether participants used substances following victimization. Future longitudinal studies using ecological momentary assessment approaches would allow for an examination of the more immediate temporal influence of interpersonal victimization on substance use. While strong theoretical and empirical evidence, including this current study, suggests that self-concept factors are associated with, rather than independent of, victimization experiences (Lehavot et al., 2010; Pearlin & Schooler, 1978; Reed-Fitzke, 2020; Scheer et al., 2020; Wright et al., 2010), it is plausible that self-concept factors could buffer the health-corrosive impact of victimization experiences among SGMY. Additionally, while this study used three well-validated items to assess the extent to which participants' perceived control over their life stressors (Rosenberg, 1989), this measure demonstrated acceptable, as opposed to excellent or strong, reliability in the current study (Taber, 2018). However, the internal consistency of scales tends to be underestimated when consisting of fewer than 10 items (Dunn et al., 2014). As such, increasing the number of items could potentially

lead to acceptable values of Cronbach's alpha for this scale (Taber, 2018). Finally, we used the umbrella term "SGMY" which encompasses an array of sexual and gender identities. Although this term is helpful for aggregating a diverse group of people who share some identity characteristics (Sheinfil et al., 2019), it does not account for nuances in experiences of interpersonal victimization, self-concept factors, substance use, and mental health that may differ across sexual and gender identities. Future work should consider examining these experiences across various sexual orientation and gender identity subgroups among SGMY (e.g., nonbinary vs. binary gender identities). Finally, future research should examine how self-concept factors associated with and health consequences of interpersonal victimization among SGMY may vary across other intersecting identities, such as race/ethnicity, immigration status, or socioeconomic status.

Conclusion

SGMY are at disproportionately high risk for experiencing interpersonal victimization, substance use, and mental health problems compared to their cisgender, heterosexual peers (Day et al., 2017; Edwards et al., 2015; Price-Feeney et al., 2020; Rhew et al., 2017; Scheer et al., 2019). The current study examined the role of self-concept factors as a potential mediator of the relationship between interpersonal victimization and substance use and mental health outcomes among SGMY. Self-concept factors partially explained the relationship between interpersonal victimization and mental health, but not between interpersonal victimization and substance use. As efforts to address the disparate rates of substance use and mental health problems in SGMY increase, our findings underscore the importance of developing affirmative, trauma-focused interventions to bolster cognitive coping strategies in this at-risk and understudied population.

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Michelle R. Dalton, PhD, is a postdoctoral researcher in the Psychology Department at Syracuse University. Her research focuses on gender minority stress and gender dysphoria in transgender and nonbinary populations. She is interested in identifying protective mechanisms against the development of psychological distress to develop targeted clinical interventions.

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