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A Longitudinal Examination of Risk and Protective Factors for Cigarette Smoking among Lesbian, Gay, Bisexual and Transgender Youth

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Abstract

Purpose—Investigate change across development in two smoking outcomes (smoking status and rate), describe demographic differences in smoking, and longitudinally examine the effects of psychosocial variables on smoking (psychological distress, victimization, and social support) in lesbian, gay, bisexual and transgender (LGBT) youth.

Methods—Participants were 248 ethnically-diverse LGBT youth (ages 16–20 at baseline) from a longitudinal cohort study with six waves over 3.5 years. Baseline questionnaires included demographic variables and a measure of impulsivity, and longitudinal questionnaires included measures of cigarette smoking (status and average number of cigarettes smoked daily), LGBT-based victimization, psychological distress, and perceived social support. Analyses were conducted with Hierarchical Linear Modeling.

Results—Males had higher odds of smoking and smoking rate than females, but females' smoking rate increased more rapidly over time. Psychological distress was associated with higher odds of smoking and smoking rate at the same wave, and it predicted smoking rate at the subsequent wave. LGBT victimization was associated with higher odds of smoking at the same wave and predicted smoking rate at the subsequent wave. Finally, significant other support predicted higher odds of smoking and smoking rate at the subsequent wave, but family support was negatively correlated with smoking rate at the same wave.

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Conclusions—There are several viable avenues for development of smoking prevention interventions for LGBT youth. In order to optimize efficacy of prevention strategies, we must consider experiences with victimization, the impact of psychological distress, and optimizing support from families and romantic partners.

Keywords

LGBT youth; smoking; psychological distress; victimization; family support; romantic support

Introduction

Cigarette smoking increases risk for many cancers, cardiovascular diseases, and respiratory diseases (1), and it is the leading cause of preventable death in the United States (2). Smoking accelerates rapidly in adolescence into emerging adulthood (3). Earlier age of onset to smoking is associated with daily smoking and lifetime nicotine dependence (4), and even minimal smoking during adolescence significantly increases the risk for smoking in adulthood (5, 6). Subsequently, it is critical to understand factors that influence smoking behavior during this short window during which intervention efforts are most impactful.

Some populations are at greater risk for smoking, including lesbian, gay, bisexual and transgender (LGBT)¹ youth. Population-based surveys report higher rates of smoking among LGB individuals compared to heterosexuals, including adolescents and young adults (7–9). Furthermore, evidence suggests that LGB youth display faster acceleration of smoking into young adulthood (7). Given this disparity, and the subsequent risk for developing nicotine dependence and long-term health problems, identification of factors that shape the etiological pathway to nicotine dependence is critical to improving health outcomes and informing prevention efforts for LGBT youth.

Few studies have examined demographic differences in smoking within LGBT populations, which could inform targeted smoking prevention initiatives. Generally, smoking is less prevalent among Asians, Hispanic/Latinos, and African Americans compared to White individuals (10). Men tend to smoke more than women, though this gender difference is less pronounced among adolescents (10). The scant research on racial differences in smoking in LGB samples has replicated racial differences (11, 12). However, the gender gap in smoking observed in the general population may be less pronounced among LGB individuals, and preliminary evidence suggests that the smoking disparity between LGB and heterosexual adolescents is larger among females compared to males (8). Finally, recent studies suggest that bisexually-identified youth or youth who endorse sex with both sexes smoke at higher rates than exclusively gay/lesbian or heterosexual youth (7, 13).

Little research has identified the personality characteristics and psychosocial experiences that influence smoking among LGBT youth. In the general population, impulsivity has been linked to early onset of smoking, smoking maintenance, and nicotine dependence (4, 14).

¹Throughout the article, the LGBT acronym is used to describe the “LGBT community” or specific study samples that included all LGBT subgroups. The LGB acronym is used for samples that included lesbian, gay, and bisexual participant but did not include or specifically identify transgender participants.

Several psychosocial experiences, including discrimination, stress, and psychological distress, are associated with smoking in general samples (15–17). Minority stress theory posits that LGBT individuals may use maladaptive coping behaviors (e.g., smoking) because they experience chronic, socially-based stressors (e.g., stigma, victimization) (18, 19), which may account for elevated rates of smoking in this population. Accordingly, several psychosocial experiences related to minority stress have been found to increase risk of smoking among LGB youth, including victimization and depression (20, 21). Additionally, evidence suggests that affirming social conditions, including supportive social policies and families, protect LGB youth against smoking (21, 22). To our knowledge, no previous studies have simultaneously examined a more comprehensive profile of risk and protective factors as correlates of smoking across adolescent development.

The objective of the current study was to longitudinally investigate several theoretically selected risk and protective factors for smoking in a sample of LGBT youth. Specific aims included investigation of: (a) trajectories of smoking across development from adolescence into emerging adulthood; (b) group differences in smoking and developmental trajectories based on age at baseline, gender, race, sexual orientation, and impulsivity; and (c) longitudinal associations between psychosocial variables and smoking within persons (psychological distress, LGBT victimization, social support), including same-wave longitudinal correlations and cross-lagged associations (i.e., psychosocial variables predict smoking at the subsequent wave). Each aim was evaluated with two smoking outcomes: smoking status (likelihood of smoking) and smoking rate (number of cigarettes per day). Examination of these two pieces of information permits understanding of factors that contribute both to LGBT youths' involvement in smoking (the decision to smoke), as well as their smoking rate (level of health-risk).

Consistent with the literature (3), we hypothesized that the likelihood and rate of smoking would increase developmentally and that racial minority LGBT youth would smoke less than White youth. We expected that bisexual youth would smoke more than those who identified as gay/lesbian. We anticipated no gender differences in smoking, which stands in contrast to research in heterosexual populations (10) but is consistent with studies of LGBT youth (8). We hypothesized that LGBT victimization and psychological distress would be associated with increased smoking and that social support would be negatively associated with smoking.

Methods

Participants

Participants were a community sample of 248 LGBT youth from the Chicago area (ages 16–20 at baseline). Two participants were removed due to missing data on the impulsivity analytic ($N=246$). Of note, participants self-reported age and date of birth at baseline, but identification checks conducted at later waves of data collection resulted in an adjusted sample size compared to previous reports. Table 1 displays demographic characteristics of the sample.

Procedure and Design

We employed an accelerated longitudinal design involving six follow-ups over 3.5 years (23). A modified respondent driven sampling approach (24) was used for recruitment that involved an initial convenience sample (i.e., flyers in LGBT neighborhoods and college listservs; 38%) and subsequent waves of incentivized peer recruitment (62%). Participants were paid \$25 to \$40 for participation at each time point. At each visit, participants completed self-report measures of health behaviors, mental health, and psychosocial variables. Data for analyses were from six waves (2007–2012; baseline and 6-, 12-, 18-, 30-, and 42-month follow-up), and retention at each wave was 85%, 90%, 79%, 77%, and 82%, respectively. Retention rates may differ from previous reports based on differences between analytic samples. The Institutional Review Boards approved this protocol.

Measures

Demographics—Baseline demographics questionnaire assessed participant age, birth sex, race/ethnicity, self-reported sexual orientation, living situation, and education.

Cigarette Smoking—Smoking status and rate were assessed each visit using a self-report measure. Smoking status was assessed with the item, “Do you currently smoke cigarettes?” Participants indicated “yes” or “no.” Current smoking rate was assessed with the item, “How many cigarettes a day do you smoke?” Participants who reported no current smoking were coded zero for smoking rate.

Multidimensional Scale of Perceived Social Support (MSPSS) (25)—MSPSS is a measure of social support, including subscales for perceived family, peer, and significant other support. The multifactor structure of the scale has been supported with confirmatory factor analysis (26). The MSPSS demonstrated adequate internal consistency across all waves (Cronbach’s α ranged from .88 to .95).

LGBT Victimization—A 10-item measure based on D’Augelli et al. (27) assessed frequency of various victimization experiences (e.g., verbal threats, physical assault) “because you are, or were thought to be, gay, lesbian, bisexual, or transgender” during the 6 months before each wave. Frequency ratings ranged from never (coded 0) to three or more times (coded 3). A composite variable was created by calculating the mean of all items (28). Cronbach’s α in our sample ranged from .77 to .93.

Brief Symptom Inventory (BSI 18) (29)—The Global Severity Index of the BSI 18 is a self-report measure of psychological distress during the previous week. The BSI 18 is a widely-used psychiatric screening tool in epidemiological studies and clinical settings. The BSI 18 has adequate reliability and convergent validity with the longer version and related measures (30). The BSI 18 demonstrated strong internal consistency across waves (Cronbach α ranged from .91 to .94).

Barratt Impulsiveness Scale (BIS-11) (31)—The BIS-11 is a 30-item measure that assesses impulsivity, including motor impulsiveness, perseverance, attention, cognitive instability, cognitive complexity, and self-control. Participants used a 4-point Likert scale

(1=“rarely/never true of you” to 4=“almost always/always true of you”) to rate statements. A total score was computed by summing all items. The psychometric properties of the BIS-11 are well-documented (32). The BIS-11 was standardized via *z*-score transformation for ease of interpretation. Cronbach’s α was .76.

Analyses

Data analyses were conducted using Hierarchical Linear Modeling (HLM) (33). Parallel analyses were run for both smoking outcome variables: smoking status and smoking rate at each wave. Smoking status (dichotomous) was modeled with a Bernoulli distribution and results are presented as odds ratios (OR). Smoking rate (count) was modeled with a Poisson distribution and results are presented as event-rate ratios (ERR) (i.e., change in the event-rate of the outcome for each unit increase in the independent variable). All models accounted for overdispersion in the outcome variable (i.e., standard deviation of the outcome is larger than the mean). Maximum likelihood estimation was used to model both smoking outcome variables, and estimates are from the population-average model using robust standard errors.

Results

Participants reported smoking a mean of 2.56 ($SD=4.42$; range 0–40) cigarettes per day across time points. At any given time point, 17.3% were light smokers (i.e., smoked 1–4 cigarettes per day) and 23.8% smoked 5 or more cigarettes per day. In addition, 39.9% were abstainers throughout the study. Participants reported a mean score of 64.77 ($SD=10.81$; range: 30–120) on the impulsivity scale at baseline. Participants reported means of 0.40 ($SD=0.63$; range: 0–3) for LGBT victimization, 0.73 ($SD=0.71$; range: 0–4) for psychological distress, and 5.09 ($SD=1.29$; range: 1–7) for perceived social support across waves.

In HLM, we first ran unconditional models for both smoking outcome variables with no predictor variables entered to evaluate the extent to which variability in smoking status and rate was due to individual/group differences (between-subjects characteristics) or change over time (within-subjects factors). This can be expressed with a weighted Kappa for dichotomous outcomes and an intraclass correlation coefficient (ICC) for count outcomes. Participants were largely consistent in smoking status across waves (weighted Kappa=.94), and approximately 27% of the variance in smoking rate was due to within-subjects factors that varied over time (ICC=.73).

Group Differences in Smoking

Group differences in smoking are presented in Table 2. Male-born participants were approximately 56% more likely than females to smoke (OR=1.56, $p=.052$), and male-born youth had a 54% higher rate of smoking (ERR=1.54, $p<.001$). Further, a one standard deviation increase in impulsivity was associated with a 25% increase in odds of smoking (OR=1.25; $p<.05$) and a 37% increase in smoking rate (ERR=1.37, $p<.001$). Age at baseline was not associated with odds of smoking, but youth who were older at baseline had a significantly higher smoking rate (ERR=1.10, $p<.05$). There were no sexual orientation

differences in odds of smoking, but gay/lesbian youth smoked at a higher rate than bisexual youth ($ERR=0.78, p<.05$). There were no racial differences in either smoking status or rate.

Trajectories of Smoking (change over time)

A Level 1 random-slope model was tested to evaluate heterogeneity in individuals' smoking outcomes over time (as indexed by age in months at each wave). Smoking status did not significantly change with age ($OR=0.95, p=.112$), but the chi-square test of the Level 1 random effect was significant, $\chi^2(236, N=246) = 511.88, p<.001$, indicating that developmental trajectories of smoking status differed between individuals. Similarly, smoking rate did not significantly change with age ($ERR = 0.98, p = .084$), though the developmental trajectories of rate of smoking also differed between individuals, $\chi^2(236, N=246) = 471.52, p <.001$.

Baseline variables were tested as moderators of the developmental trajectory of each smoking outcome variable. Only one variable moderated the developmental trajectory of smoking status (statistical trend); male-born participants' likelihood of smoking decreased over time while female-born participants' smoking status remained stable (see Figure 1; $OR=0.86, p=.052$). In terms of smoking rate, initial rates were lower in female-born participants but females' smoking rate increased over time while males' smoking rate decreased (see Figure 1; $ERR=0.93, p<.01$). Additionally, participants who were younger at baseline increased their smoking rate over time, while the smoking rate of those older at baseline decreased (see Figure 1; $ERR=0.98, p<.05$). Finally, more impulsive participants increased their smoking rate over time while less impulsive youth decreased (see Figure 1; $ERR=1.04, p<.01$). Neither race nor sexual orientation moderated the developmental trajectory of smoking rate.

Longitudinal Correlational and Cross-Lagged Analyses

Results for longitudinal analyses are reported in Table 3. Psychological distress was longitudinally associated with both increased odds of smoking ($OR=1.28, p<.05$) and smoking rate ($ERR=1.24, p<.001$) at the same wave. LGBT victimization was longitudinally associated with increased odds of smoking ($OR=1.18, p<.05$) at the same wave but not with smoking rate ($ERR=1.01, p=.740$). Perceived social support was not significantly associated with either odds of smoking ($OR=1.00, p=.967$) or smoking rate ($ERR=0.98, p=.145$) at the same wave.

Next, we conducted longitudinal cross-lagged analyses in which psychosocial variables predicted smoking outcomes at the subsequent wave. Both psychological distress ($ERR, 1.10; p < .05$) and LGBT victimization ($ERR, 1.16; p < .001$) predicted an increased smoking rate but did not predict odds of smoking. Perceived social support predicted increased odds of smoking ($OR, 1.17; p < .05$) and smoking rate ($ERR, 1.09; p < .01$).

We conducted several follow-up analyses to examine the unexpected finding that perceived social support predicted smoking behavior. First, we conducted a cross-lagged analysis with the subscales of the MSPSS as predictors of smoking. Perceived significant other support predicted both smoking status ($OR, 1.08; p = .082$) and rate ($ERR, 1.09; p < .001$), but

neither family nor peer support predict smoking. Because perceived family and peer support did not predict smoking behavior, we examined whether these aspects of support were longitudinally correlated with smoking. Neither subscale was associated with smoking status at the same wave, but perceived family support was associated with decreased smoking rate at the same wave (ERR, .95; $p < .01$).

To test for model robustness in the longitudinal analyses, we winsorized the average number of cigarettes smoked per day at three standard deviations from the mean (winsorized range 0–27) to reduce the influence of outliers. The overall pattern of results was unaltered, but the statistical significance at $p < .05$ changed for two effects. Gay/lesbian youth no longer smoked at a significantly higher rate than bisexual youth (ERR=0.82, $p=.114$). Additionally, age at baseline no longer moderated the developmental trajectory of smoking rate (ERR=1.00, $p=.833$).

Discussion

The current analyses provide important information on group differences in smoking behavior in LGBT youth and examine multiple longitudinal risk and protective factors for smoking. Many of the findings were inconsistent with hypotheses and provide new insight into group-specific processes that confer or protect against risk for smoking in LGBT youth across development. Observed demographic differences and relations between psychosocial processes and smoking outcomes may help inform targeted smoking prevention interventions for this population.

In contrast to hypotheses, neither smoking status nor rate increased over time. However, baseline age moderated the developmental trajectory of smoking rate. Participants who were younger at baseline experienced an increase in rate of smoking over time, while those who were older at baseline experienced a decrease (this effect did not reach significance with winsorized outcome). The baseline age range (ages 16–20) and longitudinal range (ages 16–25) represent critical periods in terms of developmental change in smoking behavior. The moderating effect we observed in these analyses may represent a non-linear trajectory, such that smoking increases in the late teens and then normatively begins to decline in young adulthood. Longitudinal studies with larger sample sizes are necessary in order to examine these non-linear trajectories.

Also inconsistent with expectations, male-born LGBT were more likely to smoke and they smoked at higher rates compared to females. This contradicts previous findings indicating that female-born LGBT youth smoked at the highest rates (8). Our study indicates that LGBT birth sex differences in smoking may be more similar to those found in general populations than was previously believed. However, over time male-born LGBT youth decreased their odds and rate of smoking, while female-born LGBT youth simultaneously escalated their rate of smoking and appeared to catch up to their male-born counterparts by 3.5 year follow-up. It may be that having a dual-disadvantaged status (i.e., sexual minority and female-born) confers greater risk for smoking, thus accounting for the sharper acceleration in female-born LGBT youth. As this cohort continues to age, we will be able to observe whether birth sex disparities in smoking disappear or whether female-born sexual

minorities continue to accelerate to the point where they smoke at a significantly higher rate than males.

Contrary to hypotheses and previous findings (11, 12), the current study found no racial differences in either smoking status or rate. Importantly, this was an urban sample which may have certain unique demographic characteristics, including lower socioeconomic status (SES). Evidence suggests that lower SES is associated with greater likelihood of smoking (34), which may account for the lack of racial differences in the current analyses. Alternatively, having a sexual minority status exposes LGBT youth of all races to stressors that may exacerbate smoking risk (18, 19), which may diminish the influence protective processes that are more common amongst racial minorities (e.g., tight-knit family structures) (35). However, it is also possible that we lacked power to detect group differences due to limited numbers of participants from certain racial groups.

Also inconsistent with expectations, gay/lesbian youth smoked at a significantly higher rate than bisexuals (this effect did not reach significance with winsorized outcome). Despite several published studies indicating that bisexuals smoke more than exclusively gay/lesbian individuals and heterosexuals (7, 13), others have found no differences between gays/lesbians and bisexuals in mental health outcomes (36) and alcohol use (28). Moreover, studies have indicated that connectedness to the LGBT community is a risk factor for substance use (37). To the extent that gay/lesbian youth are more connected to the LGBT community, this may help to explain the current findings. Finally, consistent with a wealth of previous research (14), impulsivity was associated with higher odds and rate of smoking. It appears that impulsivity functions similarly in LGBT youth to increase smoking risk. Indeed, during adolescence brain areas implicated in self-regulation, decision-making and risk-forecasting are still under development (e.g., incomplete myelination) (38), and as such, adolescents may struggle to appreciate the future consequences of their behavior.

In terms of longitudinal correlates and predictors, LGBT victimization and psychological distress were linked to smoking, which is consistent with hypotheses and minority stress theory (19). Psychological distress was longitudinally correlated with increased odds of smoking and smoking rate at the same wave, and it predicted smoking rate at the subsequent wave. LGBT victimization was longitudinally correlated with higher odds of smoking (but not smoking rate), and it predicted higher smoking rate at the subsequent wave. Taken together, these findings highlight the importance of examining multiple indicators of smoking behavior when examining risk factors, as well as examining risk factors as both longitudinal correlates and predictors. Further, appreciation for the differential impact of these psychosocial variables on smoking risk may help to reduce both the initiation and maintenance of smoking over time.

Contrary to expectations, social support was not longitudinally correlated with smoking behavior at the same wave, and it actually predicted increased smoking behavior at the subsequent wave. Follow-up analyses of the subscales of the MSPSS revealed that a link between significant other support and smoking behavior at the subsequent wave was driving this effect. Romantic relationships tend to be brief during this developmental period, and most of these relationships had likely ended by the subsequent wave. As such, youth may

have escalated their smoking behavior as a result of the dissolution of these relationships (39). Furthermore, evidence suggests that some adolescents smoke more when in relationships with other smokers (40), which may have contributed to this effect. Conversely, the family support subscale was negatively correlated with smoking rate at the same wave, and improving family support may be a promising target for reducing smoking among LGBT youth.

Despite several strengths, including the longitudinal design and diverse sample, limitations should be noted. We used a convenience sample that is not nationally representative, which may have introduced bias into the study and may have contributed to unexpected findings. However, nationally representative surveys do not assess constructs that are nuanced to the experiences of LGBT youth (e.g., LGBT victimization). We also did not make comparisons with heterosexual youth because our sample included only individuals who endorsed same-gender attractions. Future research should address whether findings are consistent with general adolescent samples by including a heterosexual comparison group or routinely assessing sexual orientation in large population-based health surveys. Finally, we acknowledge that we were unable to assess several important variables relevant to smoking (e.g., conduct problems, academic achievement, transitions out of the home) due to limitations in study measures. Our smoking outcomes were also limited. Our prevalence item ("Do you currently smoke cigarettes?") did not specify a timeframe which may not have captured the full range of smoking behavior.

Despite these limitations, the current study represents a critical next step in determining which subgroups of LGBT youth are at increased risk for smoking and under what conditions. It is clear that there are a number of viable avenues for the development of smoking prevention interventions, and we must consider the unique experiences of LGBT youth when developing these messages. The current findings suggest that addressing LGBT victimization experiences, appreciating the impact of psychological distress, and optimizing support from families and romantic partners may go a long way towards improving the efficacy of prevention strategies.

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Implications and Contribution

The current study indicates that there are important subgroup differences in smoking within LGBT youth, and several psychosocial experiences are key correlates of smoking status and rate. We must consider experiences with victimization, the impact of depression and anxiety, and fostering support from families and romantic partners to optimize interventions.

Figure 1. Moderating Effects of Group Difference Variables on Change in Smoking Behavior Over Time

NOTE: (A) The effect of birth sex on trajectory of smoking status ($p=.052$). (B) The effect of birth sex on trajectory of smoking rate. (C) The effect of age at baseline on trajectory of smoking rate. (D) The effect of impulsivity on trajectory of smoking rate. Figures C and D group youth into low and high levels of age and impulsivity by averaging the lower and upper quartiles of each variable. This is done for illustrative purposes.

Table 1

Description of LGBT Youth Sample at Baseline (analytic sample; N=246); n (%)

Variable	Value
Birth Sex	
Male	121 (49.2)
Female	125 (50.8)
Sexual Identity	
Male	107 (43.5)
Female	119 (48.4)
Male-to-Female Transgender	12 (4.9)
Female-to-Male Transgender	8 (3.3)
Sexual Orientation	
Gay	84 (34.1)
Lesbian	68 (27.9)
Bisexual	70 (28.7)
Questioning/Unsure/Other	24 (9.8)
Race/Ethnicity	
White/Caucasian	34 (13.8)
Black/African American	141 (57.3)
Hispanic/Latino	28 (11.4)
Other	43 (17.5)
Living Situation	
Living with Parents	146 (59.8)
Other Stable Housing	86 (34.5)
Unstable Housing	14 (5.7)
Highest Level of Education	
College	14 (5.7)
Partial College	55 (22.5)
High School	64 (26.2)
Partial High School	100 (40.7)
Less than High School	13 (5.3)

Table 2

Demographic and Group Differences in Smoking

Demographic/ Group Differences	Any Smoking		Number of Cigarettes/Day		p-value
	Odds Ratio	Confidence Interval	Event-Rate Ratio	Confidence Interval	
Age at Baseline	1.10	0.95 – 1.27	.185	1.10	1.02 – 1.19
White/Caucasian (reference)	--	--	--	--	--
African American	1.04	0.59 – 1.85	.894	1.13	0.82 – 1.54
Hispanic/Latino	1.53	0.67 – 3.48	.309	1.26	0.90 – 1.77
Other Race	1.13	0.53 – 2.39	.758	1.09	0.75 – 1.58
Birth Sex (male)	1.56	1.00 – 2.44	.052	1.54	1.22 – 1.95
Sexual Orientation (bisexual)	0.88	0.56 – 1.37	.556	0.78	0.62 – 0.99
Impulsivity	1.25	1.01 – 1.54	<.05	1.37	1.23 – 1.51

NOTE: Impulsivity was standardized via z-score transformation for ease of interpretation.

Table 3

Longitudinal Correlates and Predictors of Smoking in LGBT Youth

Longitudinal Effect	Any Smoking		Number of Cigarettes/Day	
	Odds Ratio	Confidence Interval	Event-Rate Ratio	Confidence Interval
<u>Longitudinal Correlates</u>				
LGBT Victimization	1.18	1.01 – 1.37	1.01	0.96 – 1.06
Psychological Distress	1.28	1.04 – 1.57	1.24	1.17 – 1.32
Perceived Social Support	1.00	0.91 – 1.09	0.98	0.95 – 1.01
<u>Cross-Lagged Predictors</u>				
LGBT Victimization	1.13	0.97 – 1.32	1.16	1.09 – 1.23
Psychological Distress	1.13	0.95 – 1.36	1.10	1.01 – 1.20
Perceived Social Support	1.17	1.04 – 1.32	1.09	1.02 – 1.16

NOTE: All analyses were conducted while adjusting for the effects of age at baseline, participant birth sex, race/ethnicity, sexual orientation, and impulsivity.