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EXPANDING, REFINING, AND REPLICATING RESEARCH ON HIGH SCHOOL GAY-
STRAIGHT STUDENT ALLIANCES AND SEXUAL MINORITY YOUTH

By

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Dissertation

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for the degree of

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Expanding, Refining, and Replicating Research on High School Gay-Straight Student Alliances and Sexual Minority Youth

Chairperson: Dr. Bryan N. Cochran

Sexual minority youth are at-risk for engaging in negative health behaviors and for experiencing at-school victimization. Specific benefits of attending a high school with a gay-straight student alliance (GSA), including lower risk for suicide, fewer alcohol problems and lower levels of psychological distress, have been reported. Limitations in the previous research studies, especially the use of retrospective designs, small sample sizes, and samples limited to a single geographic region, call into question the generalizability of these benefits. In an effort to overcome the aforementioned limitations, this analysis of data from 316 sexual minority high school students identified individual/family-, community-, and school-level variables that predicted academic, mental health, and substance use outcomes.

After controlling for these and other demographic variables, results indicate that youth attending a high school with a GSA reported more favorable substance use outcomes when compared to peers attending a high school without a GSA. However, this association was not present when examining mental health outcomes, which may indicate that GSAs promote favorable mental health outcomes in sexual minority young adults by way of reduced substance use in late adolescence. This association may also be the result of undetected interaction effects or non-linear associations among predictor and outcome variables. Practical and theoretical implications of the findings are discussed, along with suggestions for future research. Important limitations of this study are reviewed.

Dedication

I would like to dedicate this dissertation to three people.

My first psychology instructor- you taught your students to celebrate diversity and encouraged us to be ourselves.

My dentist- you provided me with a winning smile, a mother's unconditional love, and unwavering support to pursue my dreams.

My eighth grade gym teacher- you accepted your gay son when it was not easy to do, and you are without a doubt, my favorite golf partner.

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Chapter One: Background

The first modern attempt to study the experiences of “gay youth” was published in 1972 (Roesler & Deisher, 1972). The sample included 60 young men between the ages of 16 and 22, and many of these young men had histories of prostitution. As you can probably imagine, many of the participants reported experiencing psychological distress, and almost half of the sample had sought help from a mental health professional (Roesler & Deisher, 1972). Unfortunately, this study typifies many of the early investigations that attempted to examine the lives and experiences of sexual minority youth. As you will see, researchers and mental health providers studied sexual minority youth out of compassion and concern. Simultaneously, these early scholars depicted the experiences of this population in such a way that “problems” and “issues” were highlighted, while terms like “healthy coping” or “resilience” were of minimal mention (Savin-Williams, 2001a). More recent investigations regarding sexual minority youth have emphasized protective factors and strengths of this population, though this research is still in its infancy.

Important Definitions

Throughout this report the term “sexual minority youth” is used to combine minority gender identities (e.g., transgender, transsexual, or gender-queer individuals) and minority sexual orientations (e.g., individuals who identify as gay, lesbian, bisexual, or questioning, or individuals who report having same-sex or both-sex attractions) (Savin-Williams, 2001b). Sexual orientation is often conceptualized as a tridimensional construct involving sexual self-identification, sexual behavior, and sexual attraction (Sell, 1997). Researchers have typically used self-identification as gay, lesbian, bisexual, or heterosexual as indices of sexual orientation; however, when multiple domains of sexual

orientation are assessed, important discrepancies in risk for mental health (Bostwick, Boyd, Hughes, & McCabe, 2009) and substance use disorders (McCabe, Hughes, Bostwick, West, & Boyd, 2009) are observed.

On the other hand, gender identity refers to an individual's internal sense of being masculine, feminine, or androgynous (Haas et al., 2011). Gender identity is a continuous multidimensional construct that includes gradations of maleness to femaleness and masculine to feminine, while allowing for an individual to self-identify as neither male nor female (Fausto-Sterling, 2000). The term "transgender" can be used to refer to people who live some portion of their lives in the gender role of the opposite biological sex (Lawrence, Shaffer, Snow, Chase, & Headlam, 1996). According to Lev (2004), others may use transgender more broadly to refer to people who embody an array of gender expressions and identities (e.g. from feminine men and masculine women, to drag queens, cross-dressers, and individuals seeking sex reassignment surgery).

The term "sexual minority youth" is used herein to refer to adolescents who do not identify as heterosexual, but rather identify as gay, lesbian, bisexual, queer, or with another non-heterosexual minority identity. This term is also used to refer to youth who do not identify with the traditional gender binary and youth who feel that their biological sex does not align with their internal sense of gender. Finally, the term "sexual minority youth" is also used to refer to youth who endorse having same-sex or both-sex sexual attractions, or those who endorse having engaged in sexual activity with members of the same-sex, while also identifying as heterosexual.

As previous research is reviewed, the terminology that best reflects the samples under study will be utilized. As opposed to recent research studies, which commonly use

words like lesbian, gay, bisexual and transgender (LGBT) or sexual minority youth, early research studies often used gay or homosexual as a ‘catch-all’ to refer to gay males and lesbian females. Additionally, the word homosexual, which is often used to refer to gay males, and less often in reference to lesbian females, is routinely used in the early studies that examined the experiences of sexual minority youth.

Studies of Sexual Minority Youth

In characterizing the history of research conducted with sexual minority youth, Savin-Williams (2005) identifies four periods of somewhat distinct research efforts. The first period occurred in the 1970s and 1980s, when researchers acknowledged the existence of gay youth, “almost as if gay youth [were] a separate species” (p. 49, Savin-Williams, 2005). Many, if not most, studies conducted at this time were severely limited due to biased methodology related to the recruitment of participants.

This trend continued into the second period of research specified by Savin-Williams (2005), which involved research conducted in the 1980s and 1990s. Research conducted during this period tended to emphasize the risks associated with being a sexual minority adolescent, with a specific emphasis on suicidality, substance misuse, and risky sexual behavior. As research designs and methodologies began to improve, a shift away from identifying risk-factors for negative health outcomes can be observed; this shift toward research that emphasizes the resiliency, creativity, and pride of sexual minority youth characterizes Savin-Williams’s third period, which is the 2000s.

The final time period specified by Savin-Williams (2005) is that of “the future” (p. 50). Savin-Williams argues, or better yet, he expresses optimism that in the future,

sexual minority youth will be found to be quite ordinary, “neither better nor worse off than other adolescents” (p.50).

What follows is a review of the existing research conducted with sexual minority youth. This is followed by an overview of population-based research that demonstrates increased risks for developing mental health and substance use disorders for sexual minority youth relative to heterosexual youth. The theoretical explanations for this increased risk are discussed, along with relevant research that has identified known risk factors for developing these negative health outcomes. This introduction closes with a discussion of high school gay-straight student alliances as a potential factor that may offset risks associated with living in a society that stigmatizes sexual minority youth.

Early Research Involving Sexual Minority Youth

In 1972, Roesler and Deisher conducted the first empirical investigation of gay male adolescents. A sample of 60 young men, ages 16 to 22, participated in interviews that explored identity development and coming out processes. Forty participants were “introduced to [the authors] through acquaintances who knew the young men had homosexual experiences” (p. 1018), nine participants were located in gay social venues (e.g., gay bars, beaches, and parks), and 11 participants were referred to the researchers after being “rejected” (p. 1018) by the military.

Roesler and Deisher (1972) assessed aspects of sexual orientation and sexual minority identity development (e.g., ages of first sexual activity with male and/or female partners and coming out timelines). The researchers also inquired as to whether participants had ever sought mental health services; 48% had visited a psychiatrist, 31% endorsed having made a suicide attempt, and 11% endorsed multiple suicide attempts.

The results reported by Roesler and Deisher (1972) highlight two lines of research, one involving coming out processes and the other focused on suicide, which would receive significant attention in years to come.

Given the findings reported by Roesler and Deisher (1972), some psychodynamic scholars attempted to explain the psychosocial maladjustment reported among gay male adolescents as a “defense against disturbing sexual feelings and impulses” (p. 689, Wellisch, DeAngelis, & Paternite, 1981). Halikas and Rimmer (1974) speculated that adolescents might engage in substance use or homosexual acts as a way of escaping or testing limits and boundaries. Socarides (1981) concluded that homosexuality was a psychic defense against anxiety stemming from a pre-Oedipal disturbance. According to this view, homosexuals failed to navigate the separation-individuation stage of early childhood and thus were likely to engage in unhealthy behaviors, such as homosexuality and substance use (Socarides, 1981).

On the other hand, Martin (1982) asserted that homosexuality is a normal variation in human sexuality, and he presented an alternative explanation for the maladjustment associated with gay and lesbian youth. Martin argued that the health risks associated with being a gay adolescent male were the result of prejudices (primarily homophobia), which were similar to all other forms of prejudice, such as racism and anti-Semitism. While specifying homophobia as the underlying cause of distress among gay adolescents, Martin also made the assumption that coming out was a painful, isolating, anxiety provoking process. An additional contribution made by Martin involved his efforts to have sexual education curricula include accurate health information for gay

male adolescents and to include discussions of homosexuality in a non-pathological manner.

Emphasizing Risks. Calls for the medical community to provide specific sexual health services to gay men were made in the late 1970s, once it was recognized that gay men evidenced increased risk for gonorrhea and syphilis infection relative to heterosexual men (Judson, 1977). With the onset of the human immunodeficiency virus (HIV) epidemic in the 1980s, the importance of this issue grew exponentially. Though researchers interested in adolescent homosexuality continued to theorize and study identity development processes (see Malyon, 1982), a substantial body of research emphasized the sexual health behaviors associated with HIV and sexually transmitted diseases (STD). Researchers began to study gay and bisexual male adolescents who were particularly at-risk for contracting HIV and STDs. Research efforts unintentionally propagated an unfortunate association between the “gay adolescent” and at-risk populations, such as sex workers (Boyer, 1989; Cates, 1989; Schaffer & DeBlassie, 1984) illicit and injection drug users (Garrison, 1989; Wellisch et al., 1981), and incarcerated youth (Nader, Wexler, Patterson, & McKusick, 1989).

Gary Remafedi, M.D., who worked in the Department of Pediatrics at the University of Minnesota, conducted two of the most notable studies of this period. Remafedi (1987a) conducted interviews with 29, self-identified, gay and bisexual teenagers. Remafedi’s participants were recruited from a public health department clinic and by advertisements placed on a gay radio show and in a gay news publication. Remafedi reported on the process of identifying as a gay or bisexual male, which was “typically painful for all parties involved” (p. 328). Fifty-five percent of participants

reported experiencing verbal abuse, while negative reactions from parents (43%) and friends (41%), discrimination (37%) and physical assault (30%) were also common stressors reported by the participants.

Remafedi (1987b) also collected and reported data related to the physical and mental health challenges of the 29 participants. Specifically, Remafedi indicated that 80% of participants had poor school performance, 72% had mental health challenges that required services, 58% had substance misuse problems, 48% had run away from home, 45% had contracted a STD, and 34% had attempted suicide. Remafedi (1987a) acknowledged that “the sample may not represent the concerns of gay and bisexual youth from other cultures, races, and socioeconomic strata” (p. 329), and Remafedi (1987b) noted that the recruitment methods may have resulted in a biased sample. However, Remafedi (1987b) argued that sample bias was unlikely because participants were recruited from multiple settings and because participants were not recruited from mental health settings. Overall, the general consensus of scholarly reviews indicates that a number of methodological limitations hindered the generalizability of Remafedi’s findings.

In addition to Remafedi’s (1987a, 1987b) studies of gay and bisexual male adolescents and young adults living in Minneapolis-Saint Paul, Emery Hetrick, M.D., and Damien Martin, Ed.D. who were affiliated with New York University, also began to highlight the needs of sexual minority youth. Hetrick and Martin (1987) and Martin and Hetrick (1988) discussed the common presenting problems of clients served by their organization, The Institute for the Protection of Lesbian and Gay Youth, Inc. (IPLGY), which was founded in 1979. Martin and Hetrick reported that over 2,000 youth and

young adults sought services from the IPLGY during its first two years of operation. During this time, the median age of clients seeking in-person counseling services was 17.1, while the median age of clients utilizing telephone-based crisis counseling services was 15.4. The IPLGY clientele were ethnically diverse with 35% identifying as White, while African American and Hispanic clients represented 40% and 20% of clients, respectively. The primary concerns that led youth to seek services involved isolation, family challenges, and experiences of violence and suicide.

Hetrick and Martin (1987) reported that approximately 33% of IPLGY clients reported experiencing violence and abuse as a result of their sexual minority statuses. Forty-nine percent of clients reported that family members were perpetrators of the violence and abuse they suffered. In turn, Hetrick and Martin discussed the coping strategies that their clients used to navigate stigmatizing and sometimes dangerous environments. Not surprisingly, this discussion focused on those strategies that had “negative implications for the development of a mature adult sense of self” (p. 35). The authors discussed how youth were encouraged to “think very carefully before coming out to their parents” (p. 35). Although the authors noted that some youth had families that were accepting, the emphasis of this discussion was on the negative implications of staying closeted (e.g., constant self-monitoring, fear and anxiety related to being outed, self-hatred, relationships with heterosexuals that are characterized by deceit, and relationships with homosexuals that are eroticized) and the negative implications of coming out (e.g., parental rejection, homelessness, and gender deviance).

As Hetrick and Martin (1987) summarized their experiences, they emphasized that “the major developmental issues [for sexual minority youth] revolve around their

entry into a stigmatized social identity” (p.40). The authors acknowledged that their emphasis on risks and negative coping strategies might give “the impression that homosexuality invariably leads to unhappiness” (p.40); however, “nothing in [their] discussion should be construed as suggested that the homosexual oriented, as a group, are less well-adjusted than their heterosexual counterparts” (p. 40). The authors then briefly discussed the importance of providing safe environments, healthy environments, for sexual minority youth. Hetrick and Martin noted that these environments would be beneficial for heterosexual youth, so they could also be provided with accurate information about their homosexual peers. Finally, the authors noted that sexual minority youth “have amazing resilience” (p. 40), yet this statement was, unfortunately, not elaborated upon in greater detail.

Summary. In reviewing the initial research conducted with sexual minority youth, it should be evident that the results were likely biased due to the selective sampling of youth who were most likely to be “at-risk” for experiencing negative physical and mental health outcomes. By the late 1980’s an unfortunate image of gay adolescents had been portrayed. Although researchers advocated for the physical and mental health needs of gay youth, the published research from this period is frequently criticized on methodological grounds. Savin-Williams (2005) argued that these early investigators knew their samples were biased, and yet they minimized this major limitation to emphasize the inherent risks associated with being a gay or lesbian adolescent, in order to secure financial resources that would fund future research studies.

Methodological Improvements

Critiques of the early investigations of sexual minority youth highlighted the methodological limitations associated with recruiting youth from mental health agencies and sexual health clinics (Savin-Williams, 1994, 2001a, 2005). Savin-Williams (2005) also noted that an overreliance on retrospective studies and studies with small sample sizes, along with the lack of longitudinal research designs, clearly limited the generalizability of these early investigations. Anhalt and Morris (1998) suggested that researchers should attempt to assess multiple domains of sexual orientation and recruit participants from schools and community settings in order to obtain representative samples of sexual minority youth. In reviewing previous research related to suicidal behaviors, Anhalt and Morris emphasized that future research must also include heterosexual comparison groups; in turn, this would allow for statistical control over other factors that might place youth at-risk for attempting suicide besides sexual orientation.

With the limitations of previous research in mind, researchers began to study sexual minority youth using more rigorous methods that included population-based sampling and longitudinal research designs beginning in the late 1990s and 2000s. In addition, specific theoretical explanations that attempted to explain why sexual minorities were at-risk for experiencing psychological distress and substance misuse were proposed and refined in the 1990s and 2000s.

Longitudinal and Population-based Research Designs. Fergusson, Horwood, and Beautrais (1999) used a New Zealand birth cohort consisting of 1,265 children born in 1977 to examine the extent to which lesbian, gay, and bisexual (LGB) young adults

were at-risk for developing mental health disorders. At age 21, 1,007 members of the original birth cohort were sampled and questioned about their sexual orientation identification and sexual behaviors since age 16. The researchers administered semi-structured interviews to the participants (at ages 15 – 16 and 18 – 21) and to the parents of the participants. After controlling for sociodemographic variables, the results indicated that the LGB identified young adults evidenced increased risks for major depression (odds ratio [OR] = 4.0; 95% confidence interval [CI] = 1.8 – 9.3), generalized anxiety disorder (OR = 2.8; CI = 1.2 – 6.5), substance abuse or dependence other than nicotine (OR = 1.9; CI = 0.9 – 4.2; $p = .086$) and lifetime suicide attempts (OR = 6.2; CI = 2.7 – 14.3) relative to heterosexual young adults.

Using data from the 1993 Massachusetts Youth Risk Behavior Survey, which contained data from 1,668 sexually active students (total sample, $n = 3,054$) in grades 9 through 12, Faulkner and Cranston (1998) found that youth who reported ever having a same-sex sexual partner(s) ($n = 105$) reported more alcohol use, binge drinking behaviors, marijuana use, cocaine use, injection drug use, and other drug use, relative to youth who reported only opposite-sex sexual behavior ($n = 1,563$). Youth who reported same-sex sexual partners also evidenced increased risk for having seriously considered suicide, having attempted suicide once, having attempted four or more times, and having made an attempt that required medical attention within the past 12 months. In addition, youth who reported same-sex sexual partners also evidenced increased risk of feeling unsafe at school, being threatened with a weapon at school, having property stolen or damaged at school, and being in a physical fight while at school. Faulkner and Cranston noted important limitations of the study, including the sample size, which required the

authors to combine youth with same-sex and both-sex sexual behavior histories and prohibited the authors from controlling for demographic characteristics and experiences of abuse and victimization for substance use and suicidality outcomes.

Russell and Joyner (2001) analyzed data from the first wave of the National Longitudinal Study of Adolescent Health to examine the link between sexual orientation and suicidality. The sample included 11,940 youth in grades 7 to 12 and was weighted to represent a national sample of adolescents in the United States. Sexual minority status was classified based upon reports of either same-sex attraction or same-sex romantic relationships, and sexual minorities represented 7% of the sample. After controlling for age and family background, sexual minority participants were more likely to report suicidal thoughts and having attempted suicide. In addition, youth who reported having suicidal thoughts or attempts were more likely to report feeling hopeless or depressed, to abuse alcohol, and to have had a family member who attempted suicide.

Russell and Joyner (2001) highlighted the potential for gender-by-sexual orientation effects to exist in relation to suicide outcomes, with female participants evidencing a somewhat greater risk for experiencing suicidal thoughts relative to males. Additional gender-by-sexual orientation interactions were reported by Ziyadeh et al. (2007), who analyzed data from 9,731 early and middle adolescents, ages 9 – 14, who were part of the Growing Up Today Study. After controlling for sociodemographic (e.g., age, race/ethnicity, maturation, and geographic region) and psychosocial (e.g., depression, self-esteem, adult-in-home alcohol use, and attendance at religious services) factors, the results indicated that ‘mostly heterosexual’ girls and lesbian/bisexual girls were at elevated risk for past month alcohol use, past-year binge drinking behaviors, and

early initiation (e.g. before the age of 12) of alcohol use relative to heterosexual females. Males who identified as ‘mostly heterosexual’ also evidenced increased risk for past-year binge drinking behaviors, relative to heterosexually identified males; however, no significant differences between heterosexual males and gay/bisexual males were detected.

A key finding reported by Russell and Joyner (2001) involved the role of victimization and abuse experiences in relation to suicide outcomes. Regardless of sexual orientation, victimization experiences were associated with suicidality, and for sexual minority participants, victimization experiences partially mediated the relationship between sexual orientation and suicidality. Victimization and having a family member or friend attempt or commit suicide were the strongest predictors of suicide attempts among the participants in Russell and Joyner’s analytic sample.

Abuse and Victimization among Sexual Minority Youth

Several well-designed studies have demonstrated that sexual minority youth report experiencing victimization and abuse at higher rates than heterosexual youth. Specifically, LGB youth have been found to experience more abuse perpetrated by family members when compared to heterosexual youth (Balsam, Rothblum, & Beauchaine, 2005; Corliss, Cochran, & Mays, 2002; Saewyc et al., 2006; Temeo, Templer, Anderson & Kotler, 2001). Additionally, experiencing parental verbal and physical abuse is a factor that has been related to suicide attempts among transgender youth (Grossman & D’Augelli, 2007).

Saewyc and colleagues (2006) combined data from seven population-based surveys to compare the abuse histories of LGB and heterosexual youth and found that LGB youth were more likely to report histories of physical and sexual abuse. Among

females, lesbians and bisexuals reported the highest prevalence rates of sexual abuse, with estimates ranging from 25 – 50% reporting a history of sexual abuse. The prevalence of sexual abuse among heterosexual and mostly heterosexual females ranged from slightly less than 10% to approximately 25%. The prevalence of sexual abuse among gay males was slightly more than 25%, while approximately 20% of bisexual males endorsed having a history of sexual abuse. With respect to physical abuse, estimates for gay and bisexual males ranged from 20 – 33%, while 12.5% of heterosexual males reported having experienced physical abuse. Physical abuse comparisons of lesbian and bisexual females with heterosexual females were inconclusive.

Using data from a sample of 168 homeless adolescents, Cochran, Stewart, Ginzler, and Cauce (2002) found that LGBT youth were more likely to have left home as a result of physical abuse when compared to a matched sample of homeless, heterosexual youth. Failing to conform to gender-norms (i.e. boys who express more feminine behaviors and girls who express more masculine behaviors) also appears to be related to childhood abuse experiences among LGBT youth (D’Augelli, Grossman, & Starks, 2006; Grossman, D’Augelli, Howell, & Hubbard, 2006).

Evidence from population-based studies demonstrates that experiencing verbal, physical, and sexual abuse in childhood is associated with a number of negative health outcomes (Chartier, Walker, & Naimark, 2009; Springer, Sheridan, Kuo, & Carnes, 2007). Additional evidence suggests that the association between childhood abuse and negative health outcomes also extends to LGBT people. For example Robohm, Litzenberger, and Pearlman (2003) found that lesbian and bisexual women with a history of childhood sexual abuse (CSA) were more likely to experience a number of emotional

and behavioral challenges including anxiety, attempted suicide, unsafe sex, and problematic substance use. More recently, Wilsnack et al. (2008) reported higher rates of problematic drinking and experiences of CSA among lesbian and bisexual women when compared to exclusively heterosexual women. Similar associations between childhood abuse and health risk behaviors, especially unsafe sexual practices, have been reported for gay and bisexual males (Brennan, Hellerstedt, Ross, & Wells, 2007; Lenderking et al., 1997; Neisen & Sandall, 1990; Rosario, Schrimshaw, & Hunter, 2006; Saewyc et al., 2006).

At-school victimization. The victimization of youth at school is a factor associated with negative mental health outcomes for LGBT individuals. A number of studies have found that LGBT youth report experiencing significantly more at-school victimization than their heterosexual peers. Bontempo and D'Augelli (2002) used data collected from 9,188 high school students who completed the Youth Risk Behavior Survey in Massachusetts and Vermont and found that LGB youth reported higher levels of at-school victimization when compared to heterosexual youth. Furthermore, when the entire sample was classified as either experiencing high or low levels of at-school victimization, LGB youth in the high victimization group reported significantly more challenges related to substance use and suicidality than heterosexual youth in the high victimization category.

Using a community sample of 97 sexual minority high school students and a matched comparison sample of heterosexual students, Williams, Connolly, Pepler, and Craig, (2005) found more reports of bullying, harassment, and depression among LGBT youth. Victimization at school and social support were found to mediate the associations

between sexual orientation and psychological distress; these findings highlight how the school environment can relate to both positive and negative mental health outcomes.

D'Augelli, Pilkington, and Hershberger (2002), collected data from 350 LGB youth and young adults age 14 – 21 and found that high school victimization experiences were associated with current mental health problems. Specifically, 9% of the variance in mental health symptoms was accounted for by at-school victimization, while 92% of the sample was between the ages of 18 and 20, suggesting that the effects of at-school victimization may extend beyond the high school years and impact psychosocial adjustment.

According to the Gay, Lesbian, and Straight Education Network's (GLSEN) 2005 National School Climate Study (NSCS), which consisted of more than 6,000 sexual minority high school students, 86% reported being verbally harassed at school within the past year, 44% reported being physically harassed, and 22% reported being physically assaulted (Kosciw & Diaz, 2006). GLSEN (2008) sampled 1,580 public school principals and found that approximately 30% reported that their teachers were either "fair" or "poor" at being able to address the bullying of sexual minority students. Additionally, 95% of principals reported that students at their schools are harassed based upon gender expression, while 92% reported harassment based upon sexual orientation. Only 21% of principals reported that harassment occurred "often" or "very often."

Overall, at-school victimization disproportionately impacts LGBT youth and has been shown to be related to lower levels of school belonging, feeling unsafe at school, poorer academic performance, more substance use, and more depressive symptomatology.

Minority Stress Hypothesis

To account for the development of psychological distress among LGB people, researchers, most notably Ilan Meyer (1995, 2003), have proposed and empirically investigated the concept of minority stress. Meyer (2007) highlights three assumptions that underlie the minority stress model. First, minority stress is unique in that it is a form of stress that is added above and beyond the general stressors that are experienced by all people. Experiencing minority stress requires members of the stigmatized minority to develop additional coping mechanisms to successfully adapt to the stress. Second, minority stress is chronic and stable within our society and culture. Third, minority stress is socially based and embedded within “social processes, institutions, and structures beyond the individual...Applied to lesbians, gay men, and bisexuals, a minority stress model posits that sexual prejudice is stressful and may lead to adverse mental health outcomes” (Meyer, 2007 pg. 244).

Meyer (1995) specified that three independent processes underlie the minority stress hypothesis and give rise to psychological distress. The first process involves the internalization of societal homophobia. Herek, Chopp, and Strohl (2007) use the term “sexual stigma” to refer to the societal belief system that belittles, discredits, and invalidates sexual minority identities in relation to heterosexuality. For gay men, Meyer specifies that the internalization of sexual stigma or societal homophobia occurs in childhood and adolescence, long before the man self-identifies as gay. Furthermore, a gay man must balance internalized homophobia with the knowledge that he himself is gay, which according to Meyer, gives rise to psychological distress, especially during the coming out process.

The second process that underlies the minority stress hypothesis involves the stress experienced, for example, by the vigilant gay man who attempts to minimize the stigma associated with identifying as a gay man. As Hetrick and Martin (1987) discussed, sexual minority adolescents may cope with stigma by hiding their sexual minority status from others. Constant vigilance was required so the sexual minority adolescent in hiding did not accidentally 'out' himself. The gay man, as described by Meyer (1995), is also vigilant in his general mistrust of others within the dominant, heterosexist culture. Meyer indicates that this vigilance leads to coping fatigue, which in the context of high levels of societal stigma, leads to psychological distress.

The final process that leads to psychological distress involves the actual experience of discrimination and violence. Meyer (1995) notes that gay men and lesbian women are becoming more visible in society, and with this visibility also comes opportunities to experience discrimination and violence. Societal heterosexism, according to Meyer, gives rise to discrimination and violence, and events such as hearing homophobic comments or jokes can give rise to feelings of rejection and fears of violence that result in increased psychological distress.

Meyer (1995) proposed and tested the minority stress hypothesis using a sample of 741 gay men from New York City. He hypothesized that each of the three processes would have an independent effect on indicators of distress (e.g., demoralization, guilt, sexual problems, suicide, and AIDS-related traumatic stress) and that when the three minority stress processes were combined, their effect on the distress variables would be greater than the sum of their individual effects. After controlling for potential confounding variables (e.g., demographic characteristics, community affiliations/social

supports, and intimate relationships), Meyer found that the three minority stress processes, considered independently and as a group, predicted psychological distress in gay men.

Though Meyer (1995) outlined the minority stress hypothesis in reference to gay men, he did specify that similar processes might exist and account for increased psychological distress among lesbian women and bisexual men and women. Meyer (2003) refined the minority stress processes to include lesbian women and bisexual populations. He also reframed the processes (e.g., internalized homophobia, societal stigma, and discrimination and violence) to account for additional research findings that demonstrated how the concealment of one's sexual orientation could also contribute to distress (Cole, Kemeny, Taylor & Visscher, 1996a, 1996b; DiPlacide, 1998). Meyer's (2003) model conceptualized minority stress as three distal-to-proximal processes: "(a) external, objective, stressful events and conditions (chronic and acute), (b) expectations of such events and the vigilance this expectation requires, and (c) the internalization of negative societal attitudes" (p. 676). Meyer (2003) characterized the concealment of one's sexual orientation as a proximal stressor because the stress effect results from within the individual, and because the assessment of the stress effect is subjective and dependent upon the individual's perceptions and appraisals.

Meyer's (2003) revised model also took into account general stressors found within the environment, as well as coping and social support, which may offset or reduce the burden of minority stress processes. In an effort to elucidate the mechanisms that link stigma to mental health challenges, Hatzenbuehler, Nolen-Hoeksema and Dovidio (2009) investigated the mediating roles of coping and social support in the context of Meyer's

minority stress model. Results of two experimental studies suggest that emotion regulation strategies in response to stigma mediate the relationship between experiencing stigma and psychological distress. Hatzenbuehler and colleagues also reported that perceived quality of social support and a tendency to self-isolate mediated the relationship between experiencing stigma and psychological distress.

The conceptual and theoretical contributions of Meyer (1995, 2003) and Hatzenbuehler (2009) are widely acknowledged. Meyer's (2003) minority stress processes can be applied to the experiences of sexual minority youth to explain why this population has demonstrated increased risks for various substance misuse and mental health outcomes. At the same time, research guided by this theoretical model has yet to fully explore the effect of social support(s) (e.g., family support, peer support, teacher support, etc.) in the relationship between stigma and mental health outcomes. Given that adolescents spend a great deal of their time in the schools, research involving school-based forms of social support is warranted and may help to identify environmental factors that offset the mental health risks that are produced by societal stigma.

Gay-Straight Student Alliances and Sexual Minority Youth

School-based clubs and organizations that support the needs of sexual minority students and their allies are commonly referred to as gay-straight alliances (GSAs). The goals of GSAs typically involve improving the school climate for sexual minority youth and educating the school community about sexual minority issues (GLSEN, 2007). Additionally, GSAs can be a place where sexual minority youth are able to spend time with peers, and thus GSAs may increase social support for club members or attendees (Jordan, 2000).

In 1988 the first GSA was founded in Massachusetts, and currently the number of registered high school-based GSAs in the nation has grown to more than 4,000 (GLSEN, 2012). The rapid proliferation of GSAs in the nation, especially over the past 10 years, has highlighted the need and interest for specific groups for sexual minority youth (Griffin, Lee, Waugh, & Beyer, 2005). Of the 7,261 middle and high school students who participated in the 2009 NSCS, 44.6% reported attending a school with a GSA or similar club (Kosciw, Greytak, Diaz, & Bartkiewicz, 2010). This figure is consistent with data from the 2005 NSCS, where 47.2% of the 1,732 respondents endorsed attending a high school with a GSA (Kosciw & Diaz, 2006). In comparison, results from the first (2003) NSCS revealed that only 30.9% of respondents endorsed attending a high school with a GSA (Kosciw, 2004). Fetner and Kush (2008) found that GSAs were more likely to form in liberal urban and suburban areas, in larger school districts with greater financial resources, and in communities with existing support groups for LGBT youth.

Previous research has identified a number of school-related benefits associated with attending a high school with a GSA. First, LGBT students attending a high school with a GSA report hearing fewer homophobic comments at school when compared to peers attending a school without a GSA (Szalacha, 2003). Second, LGBT youth who attend high schools with GSAs report feeling safer than LGBT peers who do not attend a high school with a GSA (Kosciw & Diaz, 2006; Walls, Kane, & Wisneski, 2010). The association between GSAs and feelings of safety may account for the finding of less truancy due to fear and discomfort among LGBT youth who attend a high school with a GSA (Kosciw & Diaz, 2006; Walls et al., 2010). Third, LGBT youth attending a high school with a GSA have also been found to report having more supportive school

teachers and staff members; moreover, these youth also appear more likely to have higher GPAs, and a greater sense of belonging to their schools when compared LGBT youth attending a high school without a GSA (Kosciw & Diaz, 2006; Szalacha, 2003; Walls et al., 2010).

Attending a high school with a GSA also appears to impact substance use and mental health outcomes. For example, Goodenow, Szalacha, and Westheimer (2006) analyzed data from the 1999 Massachusetts Youth Risk Behavior Survey and found that attending a high school with a GSA was associated with reduced risk for experiencing at-school victimization and for having a past-year suicide attempt; teacher and staff support for LGBT students was also found to offset suicide risk. Walls, Freedenthal, and Wisneski (2008) collected data from 182 sexual minority youth (ages 14 – 21) who had sought services from a Denver-based social services agency. After controlling for feelings of hopelessness, homelessness, and substance use, Walls and colleagues found that GSA status¹ was associated with lower risk for past-year suicidal ideation and past-year suicide attempts.

Additionally, Heck, Flentje, and Cochran (2011) recruited 145 LGBT young adults (ages 18 – 20) from college and university LGBT student organizations and examined whether attending a high school with a GSA was associated with favorable school, substance use, and mental health outcomes. After controlling for childhood abuse histories, community-level characteristics, and sexual orientation, Heck and colleagues found that participants who had attended a high school with a GSA reported (at the time

¹ Because Walls and colleagues' (2008; 2010) studies included both high school- and college-age participants, it is unclear if reports regarding GSA presence/membership are limited to only high school GSAs or if college/university LGBT student groups are also considered as GSAs.

of assessment) fewer problems related to alcohol use, fewer symptoms of depression, and lower levels of general psychological distress, when compared to participants who did not attend a high school with a GSA. The participants who had attended a high school with a GSA also reported (retrospectively) experiencing less at-school victimization than those who did not attend a high school with a GSA.

Toomey, Ryan, Diaz, and Russell (2011) analyzed data from 245 LGBT young adults (ages 21 – 25) recruited from the greater San Francisco Bay Area to assess the relationships between attending a high school with a GSA, participating in GSA-related activities, GSA effectiveness in promoting school safety, and young adult well being. After controlling for demographic characteristics, Toomey and colleagues found that attending a high school with a GSA was associated with lower levels of depression and greater self-esteem, but not associated with lifetime suicide attempts and substance misuse. Participating in GSA-related activities and perceptions of GSA effectiveness in promoting school safety were associated with fewer problems related to substance abuse.

Study Objectives and Hypotheses

The overarching objective of this study is to refine, replicate, and expand the research base related to the potential benefits of attending a high school with a GSA. Refinement will be achieved by addressing or resolving four methodological limitations that are found in previous, peer-reviewed, quantitative, research on high school GSAs. First, two prior studies investigating the benefits of GSAs have analyzed data from samples that are geographically restricted to two states, California (Toomey et al., 2011) and Massachusetts (Goodenow et al., 2006), which tend to be more progressive in terms of the rights of LGBT persons. Also, two studies have relied solely upon retrospective

participant reports regarding high school experiences (Heck et al., 2011; Toomey et al., 2011). A third limitation of this research involves a failure to assess important confounding variables, and a failure to assess key variables using standardized measures. For example, one study (Walls et al., 2010), which reported favorable school outcomes in association with GSA presence and membership, failed to control for demographic and community characteristics, while two additional studies (Goodenow et al., 2006; Walls et al., 2008) used only one or two items to measure important constructs such as childhood abuse and school victimization. A fourth limitation, which is common to all of the peer-reviewed studies in this area (Goodenow et al., 2006; Heck et al., 2011; Toomey et al., 2011; Walls et al., 2008, 2010), involves the analysis of sample sizes that are too small to test whether the potential benefits of GSAs are consistent across levels of ethnicity, gender, and sexual orientation.

Replication will be achieved by testing whether GSA status predicts outcomes in manner similar to what has been reported in the prior investigations. Specifically, research that has found associations between GSAs and higher feelings of school belonging (Heck et al., 2011), lower levels of at-school victimization (Goodenow et al., 2006; Heck et al., 2011), lower levels of depression and psychological distress (Heck et al., 2011; Toomey et al., 2011) and fewer alcohol-related problems (Heck et al., 2011). This study may also help to resolve conflicting findings related to the benefits of GSAs; specifically, Walls and colleagues (2010) failed to detect a significant difference in sexual minority youths' experiences of harassment at school (both general and sexual orientation-specific) based upon GSA status, while Toomey and colleagues (2011) reported that after controlling for demographic characteristics, GSAs were not associated

with substance misuse, among other outcomes. Clearly, replication and the resolution of conflicting results, in the context of a methodological improvements, are warranted and of substantial importance.

Finally, expansion will be achieved by investigating the potential benefits associated with GSAs in relation to mental health and substance use outcomes that have not been previously investigated. For example, sexual minority youth are at increased risk for using illicit drugs relative to their heterosexual peers (Faulkner & Cranston, 1998), yet no study to date has investigated whether GSA status is related to problematic drug use. The potential for GSAs to be associated with additional favorable mental health and substance use outcomes, given the previous research, appears promising.

As outlined in Figure 1, this study will test three models for each outcome variable to determine whether GSA status predicts more favorable outcomes after controlling for the effects of individual/family-level predictors (Model 1), community-level predictors (Model 2), and school-level predictors (Model 3). A fourth model will then be constructed for each outcome variable by entering the significant predictors from Models 1 – 3 into the second block of a regression. Demographic variables (other than those included in Models 1 – 3) that differ among GSA+ and GSA- youth will be entered at the first block and GSA status will be entered at the third block of the model.

Hypothesis One: School outcomes. After controlling for the significant individual/family-, community-, and school-level predictors derived from Models 1 – 3, it is predicted that GSA status will be a significant predictor of three school outcomes. It is expected that GSA+ youth will report more favorable outcomes with respect to their

feelings of school belonging, experiences of at-school victimization, and high school grade point average.

Hypothesis Two: Substance use outcomes. For the substance use outcomes under investigation, at-school victimization will be included with the other school-level predictors in Model 3 for each individual outcome. At-school victimization is being selected as a possible school-level predictor because multiple studies have demonstrated that this variable predicts problematic substance use (Bontempo & D’Augelli, 2002) and mental health outcomes (Toomey et al., 2010; Williams et al., 2005). After controlling for the significant predictors from Models 1 – 3, it is expected that GSA status will predict the substance use outcomes of intoxication history, age of first alcohol intoxication, problematic alcohol use, and problematic illicit drug use. Furthermore, it is expected that GSA+ youth will report more favorable substance use outcomes relative to GSA- youth.

Hypothesis Three: Mental health outcomes. Again, at-school victimization will be included with the other school-level predictors in Model 3 for each mental health outcome. After controlling for significant predictors from Models 1 – 3, it is predicted that GSA status will be a significant predictor of five mental health outcomes. These outcomes include symptoms of anxiety, depression, posttraumatic stress disorder, somatization, and general psychological distress. GSA+ youth are expected to show significantly fewer challenges related to these mental health outcomes relative to GSA- youth.

Chapter Two: Methods

Participants

A total of 316 sexual minority youth completed an online survey between August 15, 2011 and December 16, 2011. Data collection is ongoing and will end on May 1, 2012; therefore, the sample descriptions, procedures, analyses, and associated results contained herein all refer to the current sample as of the time of this report. Inclusion criteria for this study require that participants identify with a minority sexual orientation (e.g. gay, lesbian, bisexual, queer, etc.) or gender identity (e.g., transgender, transsexual, etc.), be attending a public or private high school, and be between the ages of 16 and 20. Participants who identify as heterosexual and meet the school and age criteria are included only if they endorse a history of same-sex or both-sex sexual behavior or attractions.

Participant progression through the study. Between August 15, 2011 and December 16, 2011 a total of 593 potential participants accessed the online survey and provided electronic consent (see Appendix A) to participate in the study. Participants then completed the screening questions listed in Appendix B. Nine cases were removed from the dataset because the first screening question was left unanswered. Some or all of these cases may have been the result of research assistants accessing the survey but failing to enter a code (i.e. 999) in the first verbatim response, which would indicate that the person accessing the survey was not a potential participant. Next, 77 cases were removed as a result of not meeting the school criterion, 33 of the remaining cases were

removed for not meeting the age criterion, and 45 were removed for not meeting the sexual minority status criterion. An additional 19 cases were removed as a result of not completing all five screening questions.

A total of 410 participants completed the screening questions and met the inclusion criteria; however, three cases were dropped due to ages entered in the demographic questionnaire (e.g., two participants indicated that they were 15 years old and one reported being 42 years old). Next, six cases were removed because the participants indicated that they lived outside the United States or Canada. Of the remaining 401 participants, 85 failed to complete more than 80% of the survey items and were removed from the dataset.

Demographic characteristics of the analytic sample. Of the 316 participants included in the analytic sample, 54.4% ($n = 172$) identified as female, 37.7% ($n = 119$) identified as male, and 7.9% ($n = 25$) identified as transgender (female to male = 10; male to female = 4) or with another minority gender identity (other gender = 11). The average age of participants was 16.75 years ($SD = 0.78$); 44.6% ($n = 141$) of participants were 16 years old, 38.0% ($n = 120$) were 17 years old, 15.5% ($n = 49$) were 18 years old, and 1.9% ($n = 6$) were 19 years old.

Approximately 70% ($n = 217$) of participants identified as Caucasian, while 9.2% ($n = 29$) identified as Hispanic, Chicano, or Mexican American, 8.5% ($n = 27$) identified as African American or Black, 4.4% ($n = 14$) identified as American Indian, Native American, or Alaskan Native, 4.1% ($n = 13$) identified as Asian American, and 5.1% ($n = 16$) selected “other” to best represent their ethnic or racial background. Finally, 67.4% ($n = 213$) of participants selected “single” to reflect their relationship status, while 20.9% ($n = 66$) selected “married” to reflect their relationship status, while 11.7% ($n = 37$) selected “partnered” to reflect their relationship status, and 1.4% ($n = 4$) selected “other” to reflect their relationship status.

= 66) and 11.7% ($n = 37$) selected “committed relationship” and “dating” to reflect their relationship statuses, respectively.

Sexual orientation. When assessed categorically, 41.1% ($n = 130$) of participants reported identifying as gay or lesbian, 28.2% ($n = 89$) reported identifying as bisexual, 10.1% ($n = 32$) reported identifying as straight or heterosexual, 9.2% ($n = 29$) selected “unsure” to reflect their sexual orientation, 7.6% ($n = 24$) selected “queer” to reflect their sexual orientation, while 3.8% ($n = 12$) selected “other” as the option that best describes their sexual orientation. However, when sexual orientation identification was assessed on a continuous scale from 1 (*Heterosexual*) to 5 (*Bisexual*) to 9 (*Gay or Lesbian*), only 1.6% ($n = 5$) of participants provided a response of 1. The mean response for this scale was 6.06 ($SD = 2.25$).

Education and community population. Participants reported on the population of the city or town where they attend high school. Percentages and number of participants associated with each population interval are as follows: Less than 2,500 inhabitants (10.4%, $n = 33$); 2,500 – 4,999 inhabitants (12.7%, $n = 40$); 5,000 – 9,999 inhabitants (9.2%, $n = 29$); 10,000 – 49,999 inhabitants (26.9%, $n = 85$); 50,000 – 250,000 inhabitants (23.4%, $n = 74$); more than 250,000 inhabitants (17.4%, $n = 55$). With respect to current education levels, 2.2% ($n = 7$) of participants reported being in 9th grade, 17.4% ($n = 55$) in 10th grade, 38.6% ($n = 122$) in 11th grade, and 41.8% ($n = 132$) in 12th grade. In addition, 83.5% ($n = 264$) of participants reported attending a public high school and 16.5% ($n = 52$) reported attending a private high school. Of the participants attending private high schools, 48.1% ($n = 25$) reported that their high school has a religious affiliation, while 51.9% ($n = 27$) said that their school did not have a religious

affiliation. Finally, 71.5% ($n = 226$) of participants endorsed attending a high school with a GSA, and 28.5% ($n = 90$) of participants reported that their high schools did not have a GSA.

Procedure

Recruitment methods. Multiple methods of recruitment were employed by the research team between 8/15/2011 and 12/16/2011 and are discussed in the following sections. The recruitment process is ongoing and continued efforts are underway to distribute the recruitment materials. The discussion that follows is a detailed description of the recruitment process and associated outcomes; however, on a number of occasions the researchers received inquiries from persons requesting either additional recruitment materials and/or permission to distribute the recruitment materials in a manner beyond what was suggested in the recruitment letter. For example, one employee of a LGBT community organization requested additional recruitment cards because she was planning to attend a weekend workshop for sexual minority high school students and wanted to promote the study at the workshop. Because our goal was to collect data from as many participants as possible, we did not limit the methods that other individuals used to promote the study and instead adopted a position that trusts individuals (whether they be GSA advisors, PFLAG members, facilitators of groups for sexual minority youth, etc.) to know how to best reach the youth in their communities who are a part of the target sample.

High school GSAs. First, the research team identified high schools that are likely to have GSAs. Research team members reviewed the websites of state-level organizations that advocate on behalf of sexual minority youth and obtained listings of high schools

with GSAs. Listings of this kind were obtained for 12 states and the information obtained varied somewhat from state to state (i.e. some states provided only the name and address of the high school, while other states provided more detailed information such as the name, address, and telephone number for the high school, the GSA club name, the GSA advisor's name, and a web address for the GSA).

Next, research assistants searched the social networking site Facebook in an effort to find a "groups" page for each GSA that was listed. Once a Facebook group was located, the research team posted the recruitment message on the 'wall' of the group. In addition, the research team searched Facebook in an effort to locate additional GSAs and other student clubs/organizations for sexual minority youth. Facebook was also searched for groups that might be of interest to youth in the target population or groups that might advocate on behalf of the target population. Search terms used to identify these groups appear in Table 1.0.

LGBT community centers and community groups. In addition, the research team mailed hard copies of the recruitment materials to 115 LGBT community centers and community groups for LGBT youth (seven recruitment packets were returned undeliverable). Community centers and groups were encouraged to post recruitment fliers on bulletin boards and to distribute recruitment cards at events that would be attended by youth in the target population. This initial mailing also requested that recruitment information be posted on websites affiliated with the organization, including social media sites, and if possible, distributed using list-servs that might reach members of the target population. Finally, the initial mailing requested that the community centers and groups contact the researcher via e-mail to confirm that the materials had been received and

distributed. This request was made in an effort to track recruitment outcomes; however, very few community centers and groups sent this verification e-mail. As a result, a follow-up e-mail was sent to each community center and group that asked whether the recruitment materials had been received and distributed. The follow-up e-mail asked what methods were used for distribution and contained a short recruitment message that the community centers and groups could post on any websites, social media or otherwise. A total of 45 community groups were determined to have distributed the recruitment materials, three community groups declined to distribute the materials, and recruitment outcomes could not be determined for sixty groups. In the latter case, (e.g., a community center or group did not respond to the follow-up e-mail), the research team searched Facebook in an attempt to locate a Facebook page or group that could be accessed. If located, a research team member posted the recruitment message to the ‘wall’ of this Facebook page.

PFLAG chapters. In addition to LGBT community centers and community groups for LGBT youth, hard copies of the recruitment materials were mailed to a total of 381 PFLAG (Parents, Families, and Friends of Lesbians and Gays) chapters across the U.S. In order for a chapter to be eligible to receiving this mailing, a physical address and e-mail address had to be available so that the materials could be mailed and a follow-up e-mail could be sent. Given the timing of this report, outcomes for this recruitment method are currently unavailable; however, 43 mailings were undeliverable and returned to the research team.

LGBT college and university student groups. Next, a research team member searched Facebook to identify college and university LGBT student organizations with

Facebook pages or groups using the contacts from a prior study. The recruitment message was then posted to the Facebook ‘wall’ of 60 groups that were located and accessible.

The rationale for this recruitment effort is as follows: Although these groups are comprised primarily of college-aged LGBT people, a minority of members may be part of the target population and may also be youth who do not attend high schools with GSAs or are not members of their schools’ GSAs; thus these youth may reflect a subset of eligible participants who might never be reached by the other recruitment methods.

Survey process and incentives. After potential participants clicked the survey hyperlink or entered the web address for the study into an Internet browser, they were directed to an informed consent page. Participants were instructed to read the consent page, and if willing to take part in the study, electronically give consent by clicking an “I agree” button. Participants were automatically redirected to a second webpage where they could enter an e-mail address and be entered into a drawing to win one of ten \$10 electronic gift cards. After entering an e-mail address, participants were again automatically redirected to third webpage and asked to complete five questions to ensure that all participants who continued on with the survey met the inclusion criteria. Participants who did not meet the inclusion criteria were informed that they did not need to complete the second portion of the study, which was actually the survey instrument used for analytic purposes.

Survey Instrument and Associated Measures

The following sections provide an overview of the measures that were used to assess the predictor and outcome variables under investigation.

Demographic and social history questionnaire. Participants provided standard demographic information (e.g., age, gender, relationship status, ethnicity/racial status, population, etc.); these items are included in Appendix C. Sexual orientation (identification) was assessed by asking, “Which of the following best describes your sexual orientation?” Response options included: a) Bisexual; b) Gay or Lesbian; c) Straight or Heterosexual; d) Unsure; or e) Other. A nine-point continuous scale was also used to measure this construct. Participants were asked to describe themselves using a scale from 1 (*Heterosexual or Straight*) to 5 (*Bisexual*) to 9 (*Gay or Lesbian*). The behavioral component of sexual orientation was assessed using the following item, “In your lifetime, have your sexual partners been (check all that apply)” and response options included: a) Male; b) Female; c) Transgender; and d) This question does not apply to me. The attraction component of sexual orientation was assessed by the following item, “In your lifetime, have you found yourself attracted to (check all that apply)” and response options included: a) Males; b) Females; c) Transgender people; and d) I’ve not found myself attracted to anyone regardless of gender.

Gender nonconformity was assessed by asking participants to rate themselves on a nine-point scale from 1 (*Extremely Feminine*) to 5 (*Neutral*) to 9 (*Extremely Masculine*). The ratings of participants who identified their gender as male and participants who identified as Transgender (M2F) were reverse scored so that higher ratings on this scale reflected a greater degree of self-reported gender nonconformity. Eleven participants selected the “other” gender option, and as a result their gender nonconformity scores could not be calculated. Overall mean gender non-conformity scores were entered for these 11 participants; however, the Model 4 regressions (see

analysis section) that included gender nonconformity as a variable were conducted twice, both with and without these 11 participants, to determine whether inputting the mean value for gender nonconformity impacted the results.

Finally, participants also reported ages associated with various LGBT developmental milestones. Each participant was asked: a) “At what age did you first notice having a sexual attraction to someone of the same sex?” b) “At what age did you first tell someone that you were gay/lesbian/bisexual/transgender?” c) “At what age did you first have consensual sex with a member of the opposite sex?” and d) “At what age did you first have consensual sex with a member of the same sex?” Each question was followed by the statement, “Please enter 0 if this does not apply to you.”

High school characteristics and resources. Participants were asked, “What grade in high school are you in?” Response options included: a) Freshman (9th Grade); b) Sophomore (10th Grade); c) Junior (11th Grade); and d) Senior (12th Grade). Participants were asked, “Do you consider yourself to be “out” to students and teachers at your high school?” Response options included: a) Yes; b) No; and c) Does not apply. If a participant answered the previous question in the affirmative, a follow-up question asked, “If you are out to your high school, in what year did you come out?” Response options included: a) I came out before I entered high school; b) Freshman; c) Sophomore; d) Junior; e) Senior; and f) Does not apply.

Participants were asked if their high school is: a) Public high school; b) Private, co-ed school (i.e. private but males and females both attend); c) Private, all boys school; d) Private, all girls school. If a participant endorsed attending a private high school, a follow-up, yes-or-no, question asked if the school has a religious affiliation. Open-ended

(verbatim response) items asked participants, “What is your current high school grade point average (GPA)?” “How many teachers, staff members, or administrators at your school are openly supportive of LGBT students?” and “What state do you currently reside in?”

School climate for LGBT students was assessed using the sum of the following two items: a) “Please rate how safe your high school is for LGBT students” and b) “Please rate how accepting your high school is of LGBT students.” Each item was rated on a five-point scale where one equals “extremely safe” (or “extremely accepting”), two equals “somewhat safe” (or “somewhat accepting”), three equals “neutral,” four equals, “somewhat unsafe” (or “somewhat non-accepting”), and five equals “extremely unsafe” (or “extremely non-accepting”).

The following item assessed GSA status: “Does your high school have a gay-straight student alliance, queer alliance, or group for LGBT students and their allies?” Yes-or-no response options were provided and participants who responded in the affirmative were asked, “are you a member of this group or do you attend this group’s meetings?” Open-ended (verbatim response) items asked participants to provide reasons for membership/attendance at meetings or non-membership/non-attendance at meetings. Responses to these items may be analyzed thematically in future studies. Participants who reported attending a high school with a GSA also completed a nine-item measure (see Appendix D) that was developed based on the results of Heck, Lindquist, Stewart, Brennan, and Cochran (2013). Participants’ responses to this measure may also be analyzed in future studies. Finally, the following item assessed whether the participants were attending a high school with an inclusive bullying policy, “Does your high school

have a specific policy that protects LGBT students from bullying and harassment?”

Response options included “yes,” “no” and “I don’t know.” Participants who answered in the affirmative were asked to “Please rate the effectiveness of your high school’s policy that protects LGBT students from bullying and harassment” using a scale where one means “Extremely effective,” two means “Somewhat effective,” three means “Neutral,” four means “Somewhat ineffective,” and five means, “Extremely ineffective.”

School victimization, school belonging and teacher/peer support. The Olweus’ Bullying and Victimization Scale (Olweus, 1994) was used to measure at-school victimization. The scale contains nine questions that assess various forms of bullying and victimization (e.g. “I was called mean names, was made fun of, or teased in a hurtful way”). Consistent with previous research (Heck et al., 2011) an additional item, “I heard gay jokes and homophobic comments being made by other students” was added to this measure. Additionally, after each victimization item, a follow-up question assessed whether the participant felt the victimization experience (if endorsed) was “mostly related” to the participant’s sexual orientation or gender identity. This method allowed for the calculation of a global index of school victimization and a sexual orientation/gender identity-specific index of victimization, which has commonly been used as an index of victimization experiences in previous studies (D’Augelli 2002; D’Augelli et al., 2002; Heck et al., 2011).

For each school victimization item, participants indicated how often they experienced each form of at-school victimization using a Likert scale ranging from 0 (*this hasn’t happened to me in the past couple of months*) to 4 (*this has happened to me several times a week*). For an item to count towards the total sexual orientation-specific

victimization score, participants had to indicate that they felt a given victimization experience(s) was due to their sexual minority status. Thus, this total score is one that is comprised of victimization experiences that are uniquely linked to sexual orientation or gender identity and not other factors that may also put youth at-risk for experiencing at-school victimization.

School belonging was assessed using a modified version of the five-item school connectedness scale outlined in Waters and Cross (2010). Because this measure is typically administered to students at school, the modifications reflected administration of the measure outside the school setting. The five items are: “I feel close to people at my high school,” “I feel like I am a part of my high school,” “I am happy to be at my high school,” “The teachers at the high school I attend treat students fairly,” and “I feel safe in my high school.” The five items were developed as a part of the Add Health study, and together, they have demonstrated sound reliability and validity (Sieving et al., 2001). The items were rated using a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*); the sum of participants’ ratings for the five items provides an index of school belonging, where higher scores indicate higher levels of school belonging. Waters and Cross reported factor loadings ranging from .67 to .81 and an internal consistency reliability coefficient of .80 for these five items. The items closely resemble the four item scale used by Rostosky and colleagues (2003) and the five item scale used by Heck and colleagues (2011), which were used to assess school belonging among sexual minority youth; both studies reported internal consistency reliability coefficients equal to .81.

Teacher and peer support were measured using the revised items from the Classroom Life Scale (Johnson, Johnson, Buckman, & Richards, 1985) provided by Van

Ryzin, Gravely, and Roseth (2009). To assess teacher support, four questions that measure teacher personal support and four questions that measure teacher academic support were administered. Examples of items include “My teachers really care about me,” and “My teachers care about how much I learn.” Participants responded to each item using a five-point Likert scale ranging from 1 (*never*) to 5 (*always*). The average of the teacher personal support items and the average of the teacher academic support items were summed as an index of teacher support. Internal consistency reliability coefficients above .90 for the teacher connectedness and support measure have been reported in previous studies (Van Ryzin et al., 2009). Five items (e.g. In this school, other students like me the way I am) were used to assess peer personal support and four items (e.g. “In this school, other students like to help me learn”) were used to assess peer academic support. The same five-point Likert scale was used to respond to the nine peer support items. The average of the peer personal support items and the average of the peer academic support items were summed as an index of peer support. Internal consistency reliability coefficients for the peer support scale were above .92 in a previous study (Van Ryzin et al., 2009).

Individual and family variables. Individual and family variables were measured using the Outness Inventory (OI; Mohr & Fassinger, 2000), the Childhood Trauma Questionnaire, Short Form (CTQ-SF; Bernstein et al., 2003), the Sensation Seeking items from the UPPS Impulsive Behavior Scale (Whiteside & Lynam, 2001) and two items that were used to assess parental acceptance by D’Augelli (2002). The OI is an 11-item scale that measures the degree to which LGBT people are open to others (e.g., mother, father, siblings, extended family members etc) about their sexual orientation. In addition to an

overall outness score, confirmatory factor analyses (conducted separately for men and women) using a large sample of adults have provided evidence for the three subscales of the OI: outness to family, outness to world, and outness to religion (Mohr & Fassinger, 2000). All 11 items were used and two items were added to assess outness to “other students at my high school” and “teachers at my high school.” For each item, participants rated their level of outness on a scale from 1 (*person definitely does NOT know about your sexual orientation status*) to 7 (*person definitely knows about your sexual orientation status and it is OPENLY talked about*). For each item participants also have the option to select 0 (*not applicable to your situation; there is no such person or group of people in your life*). The total outness score is the average of all non-zero responses.

The CTQ-SF is 27-item self-report measure of childhood abuse and neglect. Confirmatory factor analysis of the measure revealed five subscales: emotional abuse (e.g., *People in my family called me things like “stupid,” “lazy,” or “ugly”*), physical abuse (e.g., *I believe that I was physically abused*), sexual abuse (e.g., *Someone molested me*), emotional neglect (e.g., *I felt loved*) and physical neglect (e.g., *I had to wear dirty clothes*) (Bernstein et al., 2003). Response options for each of the statements range from 1 (*Never true*) to 5 (*Very often true*). Subscale scores were calculated by summing the individual items from a given subscale and then dividing that score by the number of subscale items that were answered. A childhood abuse score was then calculated by summing the emotional, physical and sexual abuse subscales. Acceptable internal consistency reliability coefficients have been demonstrated using adolescent samples ($\alpha = .89, .86, \text{ and } .95$ for the emotional, physical, and sexual abuse subscales, respectively; Bernstein et al., 2003). Thirteen participants had missing data on this measure; however

all thirteen completed more than 85% of the items and thus their data were retained using the process described above.

Twelve items from the UPPS Impulsive Behavior Scale (Whiteside & Lynam, 2001) were selected to provide an index of sensation seeking, a personality trait that is predictive of substance use among adolescents generally and associated with higher densities of familial drug use disorders among adolescents (Handley et al., 2011). The twelve items (e.g., *I'll try anything once; I would enjoy parachute jumping*) are rated on four-point scale: 1 (*Disagree Strongly*), 2 (*Disagree Somewhat*), 3 (*Agree Somewhat*), and 4 (*Agree Strongly*). Higher scores are indicative of people who enjoy taking risks and engaging in activities that could be dangerous; excellent internal consistency reliability ($\alpha = .90$) and acceptable convergent and discriminant validity data exists for the UPPS Impulsive Behavior Scale (Whiteside & Lynam, 2001).

To measure parental support, two items from D'Augelli, (2002) were administered after participants completed the OI. The two items assessed how a participant's mother and father reacted upon learning about the sexual minority status of the participant. If a participant's mother and/or father were unaware of this information, participants indicated how accepting they anticipated their mothers and fathers level of acceptance to be upon learning this information. Response options included: 1 (*Rejecting*); 2 (*Intolerant, but not rejecting*); 3 (*Tolerant, but not accepting*); and 4 (*Accepting, or it would not matter*). Participants also had the option to select "no such person exists in my life" when rating mother and father acceptance. For participants who provided ratings for mother and father acceptance, a parental acceptance score was

calculated by computing the average of the two scores. If a participant only provided one rating, that rating was used as the participant's parental acceptance score.

Community resources and climate. Participants were asked about the number of LGBT-specific resources that are available in their communities (see Appendix E). Participants were provided a list of possible resources and asked to check whether a given resource was available in their community. The list included: a) *LGBT Community Center*; b) *A summer PRIDE event*; c) *LGBT youth groups*; d) *PFLAG (parents families and friends of lesbians and gays) groups*; e) *LGBT-friendly counselors/therapists*; f) *LGBT-friendly sexual health organizations*; g) *LGBT-friendly churches or church groups* and h) *other* (with the option to specify the resource). The number of community resources was calculated by summing the number of resources participants reported having in their communities.

Community climate for LGBT students was assessed using the sum of the following two items: a) "Please rate how safe your community is for LGBT people" and b) "Please rate how accepting your community is of LGBT people." Each item was rated on a five-point scale where one equals "extremely safe" (or "extremely accepting"), two equals "somewhat safe" (or "somewhat accepting"), three equals "neutral," four equals "somewhat unsafe" (or "somewhat non-accepting"), and five equals "extremely unsafe" (or "extremely non-accepting"). These items split the single item, "Please rate the safety for and acceptance of LGBT people in your community," used in previous research (Heck et al., 2011) into two separate items, and will likely provide a better estimate of the climate for LGBT people in the communities where participants reside.

Measures for substance use outcomes. The Alcohol Use Disorders

Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993), the Drug Abuse Screening Test (DAST; Skinner, 1982), and the Age of Initiation of Alcohol and Drug Use (AOI; unpublished measure; Finn, 2006) were used to assess problematic the substance use outcomes that are under investigation.

The AUDIT contains 10 items that assess the frequency of alcohol consumption, potential alcohol dependence, and harmful aspects of alcohol use (Saunders et al., 1993). The AUDIT is scored on a scale from 0 – 40, with higher scores indicating more problematic alcohol use, and has demonstrated sound psychometric qualities across a number of empirical investigations (see Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009, for review). Acceptable internal consistency reliability ($\alpha = .77$) has been reported in a previous study of LGBT young adults (Heck et al., 2011).

The DAST is a 20-item self-report measure designed to identify individuals who are experiencing problems related to illicit substance use. Participants responded to items such as, “Can you get through the week without using drugs” and “Have you lost friends because of your use of drugs,” using a yes/no response method. Scores for the DAST range from 0 to 20, with higher scores indicating more severe drug use problems. Generally, a score of 6 – 10 indicates that an individual is likely to meet diagnostic criteria for a substance misuse disorder (Skinner, 1982).

The AOI is a seven-item questionnaire designed to assess the ages of first alcohol and drug use, given that a participant endorses such use. The instructions specify that participants should attempt to approximate ages of initiation in half-year increments in an effort to obtain more precise data. The questionnaire also assesses ages of first alcohol

use with and without parental consent, age of first alcohol intoxication, first illicit drug used (e.g. marijuana, methamphetamine, cocaine, etc.).

In addition to the AOI questions, the survey also queried pre-gaming/pre-partying behaviors, participants' past month alcohol consumption behaviors, the number of binge drinking episodes participants had experienced over the past month, and participants' lifetime use/misuse of a variety of substances (e.g., cocaine, methamphetamines, heroine, misuse of prescription pain, ADHD, and anti-anxiety medications). Future analyses of the dataset will likely examine individual/family-, community-, and school-level factors that predict these additional substance use outcomes.

Measures for mental health outcomes. To measure mental health outcomes, participants completed the Brief Symptom Inventory (BSI; Derogatis, 1993) and the PTSD Checklist- Civilian version (PCL-C; Elhai, Gray, Kashdan, & Franklin, 2005; Weathers, Litz, Herman, Huska, & Keane, 1993). The Brief Symptom Inventory (BSI; Derogatis, 1993), which contains 53 items that assess how often over the past week participants experienced general psychological distress in relation to specific problems (e.g. feeling lonely; feeling blue) on a scale from 0 (*not at all*) to 4 (*extremely*), was administered to assess anxiety, depression, somatization, and general psychological distress. The BSI has been used to assess psychological distress among sexual minority youth in previous studies; internal consistency reliability coefficients ranging from ($\alpha = .70$ to $.89$) have been reported for the nine subscales of the BSI (D'Augelli, 2002; Derogatis, 1993), while coefficients above $.95$ have been reported for Global Severity Index (GSI) score (D'Augelli, 2002; Heck et al., 2011). Scores for the BSI subscales were calculated by summing the values for the items that load onto each subscale, and

then dividing that value by the number of subscale items that were answered. The GSI, which is the most sensitive distress indicator, was calculated by summing the values for all items that were answered, and then dividing that value by the number of items that were answered.

Finally, the PCL-C (Elhai et al, 2005; Weathers et al., 1993) was used to assess posttraumatic stress disorder symptoms. The PCL-C is a 17-item measure that assesses the frequency with which participants have experienced a number of posttraumatic stress disorder symptoms over the past month using a scale from 1 (*not at all*) to 5 (*extremely*). In primary care settings, a score of 25 indicates that additional screening/assessment for PTSD is warranted, while a score of 30 – 38 is generally characteristic of an individual who meets diagnostic criteria (Walker, Newman, Dobie, Ciechanowski, & Katon, 2002). Reliability coefficients above .90 have been consistently reported for the PCL-C (see Blanchard, Jones-Alexander, Buckley, & Forneris, 1996, or McDonald & Calhoun, 2010 for review).

Analytic Strategy

The three models outlined in Figure 1 were tested using linear and logistic regression analyses, depending upon the outcome variable being examined. For Model 1, childhood abuse, gender nonconformity, parental support, outness, sensation seeking and sexual orientation (measured continuously) were entered into the first block of the model when testing each outcome variable. Next, GSA status was entered into the second block to determine whether GSA status accounts for a significant amount of variance above and beyond the individual/family-level factors entered into the first block.

Model 2 was tested by entering community climate, the number of community resources, and population in the first block of the regression. High school GSA status was then entered into the second block to determine if GSA status is a significant predictor within the context of the community-level factors entered into the first block.

Model 3 was tested by entering school climate, the presence or absence of an inclusive school bullying policy, teacher support, and peer support into the first block of the regression model. School victimization was also entered into the first block of the regression models for mental health and substance use outcome variables. High school GSA status was entered into the second block of the model to determine whether GSA status predicts the outcomes of interest above and beyond the school-level factors entered into the first block.

Next, a fourth and final model was tested for each outcome variable. Sociodemographic variables (e.g., age, gender, relationship status, school [public versus private school] setting) that differed between GSA+ and GSA- youth were entered into the first block of each regression. At block two, all significant predictors identified in models 1 – 3 for a given outcome variable were entered. GSA status was then entered into the third block of the regression. In sum, this analytic strategy was developed to identify the strongest predictors of various academic, mental health, and substance use outcomes, and then determine whether GSA status is a significant predictor of a given outcome in the context of the identified predictors.

Current high school GPA was intended to be an academic outcome variable; however, the method used to assess this variable (i.e., an open-ended, verbatim response option) resulted in data that were not appropriate for analysis. Responses to the survey

item that assessed participants GPA (*What is your current high school GPA?*) were not consistently reported on a 0.0 – 4.0 scale. For example, five participants' responses suggested that they did not know their current GPAs. Forty-four participants entered a GPA above 4.0 (range 4.08 – 8.2), while 13 participants entered a number or percentage greater than 69 (range 70 – 95.7). Finally, one participant entered “B+” and a second participant entered “good” in the response box.

As a result of the inconsistent GPA reporting, the planned regressions cannot be carried out in a valid and reliable fashion (see Appendix H for additional discussion and results of one attempt to remedy this problem). Although unfortunate, future studies that assess GPA will likely adopt a question similar to one that is included in the Youth Risk Behavior Survey, “During the past 12 months, how would you describe your grades in school?” Response options include: a (*Mostly A's- GPA of 3.51 or higher*), b (*Mostly B's- GPA of 2.51 to 3.50*), c (*Mostly C's- GPA of 1.51 to 2.50*), d (*Mostly D's- GPA of 0.51 to 1.50*), e (*Mostly F's- GPA of 0.50 or lower*), and f (*Not Sure*).

Chapter Three: Results

Internal consistency reliabilities (Cronbach's alpha) were calculated for each measure associated with the predictor and outcome variables: .80 (school victimization); .82 (school belonging); .83 (DAST); .84 (CTQ-SF); .88 (OI); .88 (sensation seeking); .92 (peer support, teacher support, and AUDIT); .95 (PCL-C) and .97 (BSI). Table 2.0 displays the sample range, sample means and standard deviations, and a comparison of GSA+ and GSA- means for the individual/family-, community-, and school-level predictors under investigation.

Next, bivariate correlations were calculated for the community climate, school climate, and parental acceptance items. The community safety for and community acceptance of LGBT people items had mean scores of 2.54 ($SD = 0.99$) and 2.80 ($SD = 1.13$), respectively. A significant positive correlation between community safety and community acceptance was detected ($r = .738, p < .001$, two-tailed). The school safety for and school acceptance of LGBT students items had mean scores of 2.36 ($SD = 1.04$) and 2.64 ($SD = 1.19$), respectively. A significant positive correlation between school safety and school acceptance was detected ($r = .753, p < .001$, two-tailed). Mother and father acceptance ratings had mean scores of 3.20 ($SD = 1.00$) and 2.90 ($SD = 1.17$), respectively. A significant positive correlation between mother and father ratings was detected ($r = .456, p < .001$, two-tailed).

Determining Demographic Covariates

The demographic characteristics of GSA+ and GSA- youth were examined to determine which, if any, demographic variables would be entered in the first block of the Model 4 regressions associated with each outcome variable. With respect to age, GSA+

youth ($M = 16.61$, $SD = 0.65$) reported being younger than GSA- youth ($M = 17.09$, $SD = 0.98$). Assuming that the variances for the group means are not equal, this difference was statistically significant ($t = -4.28$, $df = 121.05$, $p < .001$).

A significant association between GSA status and relationship status was evident in the data: $\chi^2 (2, n = 316) = 6.55$, $p = .038$ (for the following comparisons, the percentage of GSA+ youth for each outcome is in parentheses). Specifically, among GSA- youth, 72.2% (65.5%) reported being single, 15.6% (10.2%) reported that they were dating, but not in a committed relationship, and 12.2% (24.3%) reported being in a committed relationship. When participants were grouped by gender into categories of male, female, or transgender/other gender, a significant association between GSA status and gender was evident: $\chi^2 (2, n = 316) = 28.09$, $p < .001$. Specifically, 60.0% (28.8%) of the GSA- youth identified as male, 32.2% (63.3%) identified as female, and 7.8% (8.0%) identified as transgender or with another gender. When school setting (e.g., public versus private school setting) was examined, a significant association between GSA status and setting emerged: $\chi^2 (1, n = 316) = 26.07$, $p < .001$. For this outcome, 66.7% (90.3%) of GSA- youth reported attending a public school; of the 52 participants who reported that they were attending a private high school, 22 (or 42.3%) reported that their school had a GSA.

As a result of the aforementioned findings, age, gender, relationship status, and school setting were selected as demographic covariates for entry at block one of each Model 4 regressions associated with each outcome variable. Age was entered as a continuous variable, while gender, relationship status, and school setting were dummy coded to account for their categorical nature. Two variables, *Gender1* and *Gender2*, were

created for gender. For the *Gender1* variable, females and transgender/other gender participants were coded as zero and males were coded as one. For the *Gender2* variable, males and transgender/other gender participants were coded zero and females were coded as one. Two variables, *Relationship1* and *Relationship2*, were created for relationship status. For the *Relationship1* variable, participants who were dating or in a committed relationship were coded as zero and participants who were single were coded as one. For the *Relationship2* variable, participants who were single or in a committed relationship were coded as zero and participants who were dating were coded as one. One variable, *School*, was created to represent public versus private school setting. Participants attending a public school were coded as one and those at private schools were coded as two.

Additional covariate considerations. Participant ethnicity was considered for inclusion as a covariate because a significant association between GSA status and this variable was evident in the data: $\chi^2(5, n = 316) = 39.71, p < .001$ (for the following comparisons, the percentage of GSA+ youth for each outcome is in parentheses). Specifically, among GSA- youth 55.6% (73.9%) identified as Caucasian or European American, 14.4% (6.2%) identified as African American or Black, 14.4% (0.4%) identified as American Indian, Native American, or Alaskan Native, 10.0% (8.8%) identified as Hispanic, Chicano, or Mexican American, 4.4% (5.3%) selected the “other ethnicity” option, and 1.1% (5.3%) identified as Asian American.

Participant ethnicity was not included as a covariate in this preliminary analysis of the dataset for two reasons. First, the cell sizes for some minority groups, though large

enough to *compute* a Chi-Square statistic², violate the Central Limit Theorem, which specifies that for a multinomial distribution, a normal distribution may be supplemented for null hypothesis testing, provided that the sample in question is sufficiently large³ (Hays, 1994). Second, the creation of a dichotomous ethnicity variable is also contraindicated due to large mean differences in outcomes that exist across levels of ethnicity. For example, Asian American participants' mean AUDIT total score ($M = 3.00$; $SD = 3.98$) is similar to that of participants who identified as Hispanic, Chicano, or Mexican American ($M = 4.14$; $SD = 6.35$) and as Caucasian ($M = 2.99$; $SD = 4.89$), but significantly different ($p < .001$) from participants who identified as African American ($M = 10.74$; $SD = 9.08$) and American Indian/Native American/Alaskan Native ($M = 14.57$; $SD = 5.76$). Grouping all minority participants together conflates these differences. It is anticipated that once data collection is complete, the ethnicity cell sizes will be sufficiently large, such that violations of Central Limit Theorem will no longer be of concern.

Additional demographic variables (e.g., sexual orientation, population) that typically serve as covariates in other studies, especially those that utilize population-based data, are not included as covariates in the first block of each Model 4 because these variables are being considered as predictors within their respective models. If a variable

² Although the cell sizes are large enough to *compute* this statistic, three cells had cell counts that were less than five and thus violate the assumptions of this statistical test. At the same time, when participant ethnicity is coded such that all non-Caucasian ethnicities are grouped together, a 2x2 Chi-Square analysis reveals a significant association: $\chi^2(1, n = 316) = 5.05, p = .024$.

³ A sample size of $n = 30$ is generally accepted as sufficient to meet this assumption (Hays, 1994).

such as sexual orientation or population is found to significantly predict a given outcome, it is retained and included in the Model 4 for that outcome.

Summary. Given the demonstrated psychometric soundness of the measures/items used to operationalize the predictor and outcome variables under investigation, and with the covariate selection complete, our attention now turns to the modeling results. The following sections review these results beginning with the school outcomes, followed by the substance use and mental health outcomes.

School Outcomes

School belonging. With respect to school belonging, GSA+ youth reported higher scores ($M = 18.22$, $SD = 4.43$) on the five-item measure of school belonging, relative to GSA- youth ($M = 16.21$, $SD = 5.15$). Assuming that the variances for the group means are not equal, this difference was statistically significant ($t = -3.26$, $df = 144.31$, $p < .001$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of school belonging.

Individual/family predictors (Model 1) of school belonging. At block one, a significant model emerged $F(6, 309) = 6.19$, $p < .001$. The individual/family-level predictors explained 9% of the variance in school belonging scores. Table 3.1 depicts the standardized and unstandardized beta weights for the predictors. Sensation seeking, parental acceptance, and childhood abuse were all significant predictors of school belonging scores at block one and were retained as predictors for the fourth school belonging regression.

After entering GSA status at block two, all three of the retained variables remained statistically significant predictors of school belonging scores. At block two the

model remained significant $F(7, 308) = 6.60, p < .001$ and explained 11.1% of the variance in school belonging scores. The change in R square ($\Delta R^2 = .023$) was statistically significant $\Delta F(1, 308) = 8.20, p = .004$ and suggests that GSA status is a significant predictor of school belonging scores above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of school belonging. At block one, a significant model emerged $F(3, 312) = 29.02, p < .001$. The community-level predictors explained 21.1% of the variance in school belonging scores. Table 3.2 depicts the standardized and unstandardized beta weights for the predictors. Community climate and population were both significant predictors of school belonging scores at block one and were retained as predictors for the fourth school belonging regression.

After entering GSA status at block two, both community climate and population remained statistically significant predictors of school belonging scores. At block two the model remained significant $F(4, 311) = 21.75, p < .001$ and explained 20.9% of the variance in school belonging scores. The change in R square ($\Delta R^2 = .000$) was not statistically significant $\Delta F(1, 311) = .16, p = .686$ and suggests that GSA status is not a significant predictor of school belonging scores above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of school belonging. At block one, a significant model emerged $F(4, 311) = 97.88, p < .001$. The school-level predictors explained 55.2% of the variance in school belonging scores. Table 3.3 depicts the standardized and unstandardized beta weights for the predictors. All of the school-level predictors were

significant predictors of school belonging scores at block one and were retained as predictors for the fourth school belonging regression.

After entering GSA status at block two, the retained predictors from block one remained statistically significant. At block two the model remained significant $F(5, 310) = 78.19, p < .001$ and explained 55.1% of the variance in school belonging scores. The change in R square ($\Delta R^2 = .000$) was not statistically significant $\Delta F(1, 310) = 0.31, p = .578$ and suggests that GSA status is not a significant predictor of school belonging scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of school belonging. For the fourth school belonging regression, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., sensation seeking, parental acceptance, childhood abuse, community climate, population, school climate, peer support, teacher support, and the presence or absence of an inclusive bullying policy) were entered at block two, and GSA status was entered at block three. At block one, a significant model emerged $F(6, 308) = 3.73, p = .001$. The demographic variables as a whole explained 5.0% of the variance in school belonging scores, while age and gender were significant predictors of this outcome. Table 3.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two and three.

Age and gender were non-significant once the retained variables from Models 1 – 3 were entered at block two, while the overall model at block two remained significant $F(15, 299) = 32.52, p < .001$. The change in R square ($\Delta R^2 = .552$) was statistically significant $\Delta F(9, 299) = 48.28, p < .001$ and the significant predictors of

school belonging scores at block two were relationship status, population, school climate, peer support, teacher support and the presence or absence of an inclusive bullying policy.

After entering GSA status at block three, the significant predictors from block two remained unchanged and the overall model remained significant $F(16, 298) = 30.42, p < .001$. The final model explained 60.0% of the variance in school belonging scores and the change in R square ($\Delta R^2 = .000$) was not statistically significant $\Delta F(1, 298) = 0.21, p = .664$ and suggests that GSA status is not a significant predictor of school belonging scores above and beyond the demographic and retained predictors entered at blocks one and two, respectively.

At-school victimization. With respect to experiencing school victimization as a result of one's sexual or gender minority status, GSA+ youth reported lower scores ($M = 3.39, SD = 4.05$) on the revised Olweus' Bullying and Victimization Scale (Olweus, 1994), relative to GSA- youth ($M = 9.54, SD = 6.92$). Assuming that the variances for the group means are not equal, this difference was statistically significant ($t = 7.92, df = 114.10, p < .001$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of school belonging.

Individual/family predictors (Model 1) of at-school victimization. At block one, a significant model emerged $F(6, 309) = 14.50, p < .001$. The individual/family-level predictors explained 20.4% of the variance in scores of at-school victimization, specific to participants' sexual orientation or gender identity. Table 4.1 depicts the standardized and unstandardized beta weights for the predictors. Sensation seeking, sexual orientation,

and childhood abuse were significant predictors of at-school victimization scores at block one and were retained as predictors for the fourth at-school victimization regression.

After entering GSA status at block two, all three of the retained variables remained statistically significant predictors of at-school victimization scores. At block two the model remained significant $F(7, 308) = 27.79, p < .001$ and explained 37.3% of the variance in at-school victimization scores. The change in R square ($\Delta R^2 = .167$) was statistically significant $\Delta F(1, 308) = 84.14, p < .001$ and suggests that GSA status is a significant predictor of at-school victimization scores above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of at-school victimization. At block one, a significant model emerged $F(3, 312) = 21.22, p < .001$. The community-level predictors explained 16.1% of the variance in at-school victimization scores. Table 4.2 depicts the standardized and unstandardized beta weights for the predictors. All three community level variables were significant predictors of at-school victimization scores at block one and were retained for the fourth school victimization regression.

At block two, the three community predictors entered at block one remained statistically significant predictors of at-school victimization scores in the context of GSA status, which was also a significant predictor in the model. At block two the model remained significant $F(4, 311) = 34.15, p < .001$ and explained 29.6% of the variance in at-school victimization scores. The change in R square ($\Delta R^2 = .136$) was statistically significant $\Delta F(1, 311) = 60.76, p < .001$ and suggests that GSA status is a significant predictor of at-school victimization above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of at-school victimization. At block one, a significant model emerged $F(4, 311) = 34.56, p < .001$. The school-level predictors explained 29.9% of the variance in at-school victimization scores. Table 4.3 depicts the standardized and unstandardized beta weights for the predictors. School climate, teacher support, and peer support were all significant predictors of at-school victimization scores at block one and were retained as predictors for the fourth regression.

Two of the retained predictors (peer support and teacher support) from block one were significant predictors of at-school victimization scores at block two; school climate was not a significant predictor once GSA status was entered into the model. In addition, the presence or absence of inclusive bullying policies was a significant predictor of at-school victimization scores at block two; however, the positive unstandardized regression coefficient ($b = 1.34, t = 2.25, p = .025$) for the bully policy variable (dummy coded where 0 indicates that no such policy exists or unsure if a policy exists and 1 indicates that a policy exists) appears to suggest that, in the context of the other school variables entered at block two, youth who report that their high school has policy that prohibits bullying based upon a person's sexual orientation or gender identity are predicted to have an at-school victimization score that is 1.34 points higher than youth who report that their school has no such policy or report not knowing if their school has such a policy.

Additionally, the negative unstandardized regression coefficient ($b = -4.90, t = -7.70, p < .001$) for GSA status (dummy coded where 0 indicates GSA- and 1 indicates GSA+) appears to suggest that, in the context of the other school variables entered at block two, youth who report that their high school has a GSA are predicted to have an at-school victimization score that is almost 5 points lower than youth who report that their

school does not have a GSA. At block two the overall model remained significant $F(5, 310) = 44.68, p < .001$ and explained 40.9% of the variance in at-school victimization scores. The change in R square ($\Delta R^2 = .111$) was statistically significant $\Delta F(1, 310) = 59.24, p < .001$ and suggests that GSA status is a significant predictor of at-school victimization scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of at-school victimization. For the fourth at-school victimization regression, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., sensation seeking, sexual orientation, childhood abuse, community climate, number of community resources, population, school climate, peer support, and teacher support) were entered at block two, and GSA status was entered at block three. At block one, a significant model emerged $F(6, 309) = 10.29, p < .001$. The demographic variables as a whole explained 15.0% of the variance in at-school victimization scores, while age and gender were significant predictors of this outcome. Table 4.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two and three.

The demographic differences with respect to age and gender were non-significant once the retained predictors from Models 1 – 3 were entered at block two, and the overall model at block two remained significant $F(15, 300) = 18.20, p < .001$. The change in R square ($\Delta R^2 = .310$) was statistically significant $\Delta F(9, 300) = 19.73, p < .001$ and the significant predictors of at-school victimization scores at block two were school setting,

sexual orientation, childhood abuse, number of community resources, population, school climate, and teacher support.

After entering GSA status at block three, school setting and school climate were no longer significant predictors of at-school victimization scores; peer support, which was not a significant predictor at block two, was a significant predictor at block three. The remaining significant predictors from block two were significant at block three, and the overall model remained significant $F(16, 299) = 20.32, p < .001$. The final model explained 49.5% of the variance in scores of at-school victimization. The change in R square ($\Delta R^2 = .044$) was statistically significant $\Delta F(1, 299) = 27.76, p < .001$ and suggests that GSA status is a significant predictor of school victimization scores above and beyond the demographic and retained predictors entered at blocks one and two, respectively.

Substance Use Outcomes

Problematic alcohol use. Problematic alcohol use, as indicated by higher scores on the AUDIT (Saunders et al., 1993), was assessed, and GSA+ youth reported lower scores ($M = 2.21, SD = 4.30$) on this measure relative to GSA- youth ($M = 9.28, SD = 7.40$). Assuming that the variances for the group means are not equal, this difference was statistically significant ($t = 8.51, df = 113.74, p < .001$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of problematic alcohol use.

Individual/family predictors (Model 1) of AUDIT total scores. At block one, a significant model emerged $F(6, 309) = 10.97, p < .001$. The individual/family-level predictors explained 16% of the variance in total scores on the AUDIT. Table 5.1 depicts

the standardized and unstandardized beta weights for the predictors. Gender nonconformity and childhood abuse were both significant predictors at block one and were retained as predictors for the fourth regression.

After entering GSA status at block two, gender nonconformity was no longer a statistically significant predictor of total scores on the AUDIT. At block two the model remained significant $F(7, 308) = 24.47, p < .001$ and explained 34.3% of the variance in AUDIT total scores. The change in R square ($\Delta R^2 = .182$) was statistically significant $\Delta F(1, 308) = 87.13, p < .001$ and suggests that GSA status is a significant predictor of AUDIT total scores above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of AUDIT total scores. At block one, a significant model emerged $F(3, 312) = 3.56, p < .001$. The community-level predictors explained 2.4% of the variance in AUDIT total scores. Table 5.2 depicts the standardized and unstandardized beta weights for the predictors. Population was the only significant predictor of AUDIT total scores and was retained for the fourth regression model.

With the entry of GSA status at block two, population was no longer a significant predictor of AUDIT total scores; however, community climate emerged as a significant predictor of this outcome. At block two the model remained significant $F(4, 311) = 30.90, p < .001$ and explained 27.5% of the variance in AUDIT total scores. The change in R square ($\Delta R^2 = .251$) was statistically significant $\Delta F(1, 311) = 109.20, p < .001$ and suggests that GSA status is a significant predictor of AUDIT total scores above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of AUDIT total scores. At block one a significant model emerged $F(5, 310) = 46.05, p < .001$. The school-level predictors explained 41.7% of the variance in AUDIT total scores. Table 5.3 depicts the standardized and unstandardized beta weights for the predictors. Teacher support, peer support, and school victimization were significant predictors of AUDIT total scores at block one and were retained as predictors for the fourth regression.

All of the retained predictors from block one were significant predictors of AUDIT total scores at block two, when GSA status was entered into the model. The directionality of the effects of teacher support and peer support on AUDIT total scores was divergent at both blocks of the model. At block two, the negative unstandardized regression coefficient ($b = -1.10, t = -5.80, p < .001$) for teacher support scores suggests that for every one increment increase in teacher support, AUDIT total scores are predicted to decrease by 1.10 points; however, the positive unstandardized regression coefficient ($b = 0.78, t = 4.50, p < .001$) for peer support scores suggests that for every one increment increase in peer support, AUDIT total scores are predicted to increase by 0.78 points.

At block two the overall model remained significant $F(6, 309) = 47.91, p < .001$ and explained 47.2% of the variance in AUDIT total scores. The change in R square ($\Delta R^2 = .056$) was statistically significant $\Delta F(1, 309) = 33.25, p < .001$ and suggests that GSA status is a significant predictor of AUDIT total scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of AUDIT total scores. Because gender nonconformity was a significant predictor of this outcome, Model 4 for AUDIT

total scores was calculated twice. It was first calculated using the full sample and then calculated with a subsample that excluded the 11 participants whose gender nonconformity scores could not be calculated and thus were replaced with the mean gender nonconformity score. For both regressions on AUDIT total scores, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., gender nonconformity, childhood abuse, population, peer support, teacher support, and school victimization) were entered at block two and GSA status was entered at block three. At block one a significant model emerged $F(6, 309) = 14.67, p < .001$. The demographic variables as a whole explained 20.7% of the variance in AUDIT total scores; age and school setting were significant predictors of this outcome. Table 5.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two and three.

Age was no longer a significant predictor at block two; however, gender and school setting were significant predictors of AUDIT total scores at block two. The overall model at block two remained significant $F(12, 303) = 26.47, p < .001$. The change in R square ($\Delta R^2 = .290$) was statistically significant $\Delta F(6, 303) = 30.00, p < .001$. The remaining significant predictors of AUDIT total scores at block two were childhood abuse, gender nonconformity, teacher support, peer support, and school victimization.

With the exception of gender nonconformity, the significant predictors from block two remained significant after GSA status was entered at block three. The overall model was significant $F(13, 302) = 26.90, p < .001$. The final model explained 51.7% of the variance in AUDIT total scores, and the change in R square ($\Delta R^2 = .025$) was statistically

significant $\Delta F(1, 302) = 16.20, p < .001$, which suggests that GSA status is a significant predictor of AUDIT total scores above and beyond the demographic and retained predictors entered at blocks one and two, respectively. The final unstandardized regression coefficient ($b = -2.73, t = -4.03, p < .001$) for GSA status (dummy coded where 0 indicates GSA- and 1 indicates GSA+) suggests that, in the context of demographic, individual, family, community and school variables, youth who report that their high school has a GSA are predicted to have an AUDIT total score that is almost 2.73 points lower than youth who report that their school does not have a GSA.

Excluding the 11 participants who indicated “other” gender identity from the analysis had minimal effects on the results of the fourth regression model; at all three blocks the model was significant (p -values $< .001$). At block one, age and school setting were again significant predictors of AUDIT total scores. The demographic variables accounted for 21.6% in the outcome variable, an increase of approximately 0.9% from block one of the regression using the full sample.

At block two, age ($b = 0.73, t = 1.99, p = .047$) and school setting ($b = 2.54, t = 3.49, p < .001$) were significant predictors of AUDIT total scores (previously age was not a significant predictor at block two, $b = 0.64, t = 1.79, p = .075$). Childhood abuse scores, gender nonconformity, teacher support, peer support, and victimization, which were significant predictors at block two when the entire sample was used, were again significant. At block two the model accounted for 48.9% of the variance in the outcome variable, a decrease of approximately 0.3% from block two of the regression calculated using the full sample.

At block three, the only significant demographic variable was school setting ($b = 1.90, t = 2.61, p = .010$). Although the two gender variables were significant predictors when the regression was calculated using the full sample, they were not significant predictors (p -values $> .20$) at block three of the regression calculated using the subsample. The variables that were significant predictors of AUDIT total scores at block three of the regression using the full sample were again significant at block three of the regression using the subsample. At block three the model accounted for 51.3% of the variance in AUDIT total scores, a decrease of approximately 0.4% from block three of the regression using the full sample.

History of alcohol intoxication. The item, “How old were you the first time you got drunk (drinking to the point where you were giddy, silly, impaired, or sick)” was used to assess history and age of first alcohol intoxication. Of the 316 participants included in the analytic sample, 147 (46.5%) reported that they had never been intoxicated. Twenty percent of the GSA- youth and 57.1% of the GSA+ youth reported that they had never been intoxicated; a chi-square analysis revealed a significant association between GSA status and having a history of alcohol intoxication: $\chi^2 (1, n = 316) = 35.57, p < .001$. Three logistic regressions were calculated to identify significant individual/family-, community-, and school-level predictors of having a history positive for alcohol intoxication.

Individual/family predictors (Model 1) for history of alcohol intoxication. For the first logistic regression, individual/family-level predictors (e.g., childhood abuse, gender nonconformity, outness, parental acceptance, sensation seeking, and sexual orientation) were entered as covariates and GSA status (with GSA+ youth as the

reference group) was entered as the predictor variable. A total of 316 cases were analyzed and the full model significantly predicted histories positive for alcohol intoxication (omnibus $\chi^2 = 48.29$, $df = 7$, $p < .001$); the model accounted for between 14.2% and 18.9% of the variance in this outcome. The model was able to correctly predict 72.8% and 59.8% of negative and positive histories of alcohol intoxication, respectively. Overall, the model correctly predicted 65.8% of cases. Table 6.1 depicts the Wald statistic and associated probability values and standardized beta weights with 95% confidence intervals for each of the predictor variables. In the final model, the standardized regression coefficients for sensation seeking scores ($b_i^* = 1.03$; 95% confidence interval [CI] = 1.001 – 1.062) and GSA status ($b_i^* = 5.62$; 95% CI = 3.025 – 10.459) were both statistically significant. When the covariates were included in the model without GSA status (omnibus $\chi^2 = 13.53$, $df = 6$, $p = .035$), childhood abuse was the only significant predictor ($b_i^* = 1.60$; 95% CI = 1.087 – 2.345), and thus was retained for the fourth logistic regression predicting histories of alcohol intoxication.

Community predictors (Model 2) for history of alcohol intoxication. For the second logistic regression, community-level predictors (e.g., community climate, population, number of LGBT community resources) were entered as covariates and GSA status was entered as the predictor variable. The full model significantly predicted histories positive for alcohol intoxication (omnibus $\chi^2 = 43.85$, $df = 4$, $p < .001$); the model accounted for between 13.0% and 17.3% of the variance in this outcome. The model was able to correctly predict 78.2% and 55% of negative and positive histories of alcohol intoxication, respectively. Overall, the model correctly predicted 65.8% of cases. Table 6.2 depicts the Wald statistic and associated probability values and standardized

beta weights with 95% confidence intervals for each of the predictor variables. In the final model, the standardized regression coefficient for GSA status ($b_i^* = 6.65$; 95% CI = 3.502 – 12.623) was statistically significant. When the covariates were included in the model without GSA status (omnibus $\chi^2 = 3.52$, $df = 3$, $p = .318$), none of the community-level predictors were significant predictors for histories of alcohol intoxication.

School predictors (Model 3) for history of alcohol intoxication. For the third logistic regression, school-level predictors (e.g., the presence or absence of inclusive bullying policies, peer support, teacher support, school climate, and school victimization) were entered as covariates and GSA status was entered as the predictor variable. The full model significantly predicted histories positive for alcohol intoxication (omnibus $\chi^2 = 64.35$, $df = 6$, $p < .001$); the model accounted for between 18.5% and 24.7% of the variance in this outcome. The model was able to correctly predict 67.1% and 65.1% of negative and positive histories of alcohol intoxication, respectively. Overall, the model correctly predicted 66.0% of cases. Table 6.3 depicts the Wald statistic and associated probability values and standardized beta weights with 95% confidence intervals for each of the predictor variables. In the final model, the standardized regression coefficient for peer support ($b_i^* = 1.33$; 95% CI = 1.121 – 1.590), teacher support ($b_i^* = 0.68$; 95% CI = 0.560 – 0.821), and GSA status ($b_i^* = 3.99$; 95% CI = 1.969 – 8.073) were statistically significant. When the covariates were included in the model without GSA status (omnibus $\chi^2 = 48.57$, $df = 5$, $p < .001$), peer support ($b_i^* = 1.42$; 95% CI = 1.200 – 1.685), teacher support ($b_i^* = 0.67$; 95% CI = 0.558 – 0.810), and school victimization ($b_i^* = 1.08$; 95% CI = 1.021 – 1.137) were significant predictors and were retained for the fourth logistic regression.

Demographic and retained predictors (Model 4) for history of alcohol

intoxication. For the fourth logistic regression predicting histories of alcohol intoxication, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered as covariates. The retained predictors from Models 1 – 3 (e.g., childhood abuse, peer support, teacher support, and school victimization) were entered at block two and GSA status was entered at block three. Collectively, the covariates significantly predicted histories of alcohol intoxication (omnibus $\chi^2 = 15.43$, $df = 6$, $p = .017$); the model accounted for between 4.8% and 6.4% of the variance in this outcome. Individually, none of the covariates were significant predictors of histories of alcohol intoxication. Table 6.4 depicts the Wald statistic and associated probability values and standardized beta weights with 95% confidence intervals for each of the covariates and predictor variables included in the models.

With the entry of the retained predictors at block two, the model (omnibus $\chi^2 = 50.39$, $df = 10$, $p < .001$) accounted for between 14.7% and 19.7% of the variance in this in histories of alcohol intoxication. At block two, the model was able to correctly predict 61.9% and 65.1% of negative and positive histories of alcohol intoxication, respectively. Overall, the model correctly predicted 63.6% of cases. Peer support ($b_i^* = 1.32$; 95% CI = 1.121 – 1.553), teacher support ($b_i^* = 0.69$; 95% CI = 0.565 – 0.883), and at-school victimization ($b_i^* = 1.09$; 95% CI = 1.027 – 1.155) were all significant predictors at block two.

With the entry of GSA status at block three, the model (omnibus $\chi^2 = 66.17$, $df = 11$, $p < .001$) accounted for between 18.9% and 25.2% of the variance in this in histories

of alcohol intoxication. At block two, the model was able to correctly predict 74.1% and 66.3% of negative and positive histories of alcohol intoxication, respectively. Overall, the model correctly predicted 69.9% of cases. Peer support ($b_i^* = 1.32$; 95% CI = 1.115 – 1.560), teacher support ($b_i^* = 0.69$; 95% CI = 0.565 – 0.842), and GSA status ($b_i^* = 3.85$; 95% CI = 1.929 – 7.674) were all significant predictors at block three. These results suggest that after accounting for important individual/family- and school-level predictors, youth who do not attend a high school with a GSA are at increased risk for having a history that is positive for alcohol intoxication.

Age of first alcohol intoxication. When participants who denied ever being intoxicated are excluded from analysis, GSA+ youth reported a later age of first alcohol intoxication ($M = 15.10$, $SD = 1.75$) relative to GSA- youth ($M = 13.92$, $SD = 2.15$). Assuming unequal variances, this difference was statistically significant ($t = -3.78$, $df = 135.10$, $p < .001$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of age of first intoxication among participants who reported a history positive for this outcome ($n = 169$). Also, as noted in the discussion and reported in Appendix G, these analyses were re-ran excluding youth who had an age of first alcohol intoxication prior to high school

Individual/family predictors (Model 1) for age of first alcohol intoxication. At block one, the model was not statistically significant $F(6, 162) = 1.31$, $p = .258$. The individual/family-level predictors explained 1.1% of the variance in ages of first intoxication. Table 7.1 depicts the standardized and unstandardized beta weights for the predictors. None of the individual/family-level predictors were significant at block one.

With the entry of GSA status at block two, a significant model emerged $F(7, 161) = 2.95, p = .006$ and explained 7.5% of the variance in ages of first intoxication. The change in R square ($\Delta R^2 = .068$) was statistically significant $\Delta F(1, 161) = 12.28, p = .001$ and suggests that GSA status is a significant predictor of ages of first alcohol intoxication in the context of the individual/family-level predictors entered at block one. Significant effects for the individual/family-level predictors were not detected at block two.

Community predictors (Model 2) for age of first alcohol intoxication. At block one, the model was not statistically significant $F(3, 165) = 1.46, p = .227$. The community-level predictors explained 0.8% of the variance in ages of first intoxication. Significant effects for the three community-level predictors were not detected at block one. Table 7.2 depicts the standardized and unstandardized beta weights for the predictors.

At block two a significant model emerged $F(4, 164) = 4.41, p = .002$ and explained 7.5% of the variance in ages of alcohol use intoxication. The change in R square ($\Delta R^2 = .071$) was statistically significant $\Delta F(1, 164) = 12.94, p < .001$ and suggests that GSA status is a significant predictor of ages of first intoxication beyond the community-level predictors entered at block one. Once again, none of the community level predictors were significant at block two.

School predictors (Model 3) for age of first alcohol intoxication. At block one, a significant model emerged $F(5, 163) = 3.12, p = .010$. The school-level predictors explained 5.9% of the variance in ages of first intoxication; school climate and peer support were significant predictors of this outcome. Table 7.3 depicts the standardized and unstandardized beta weights for the predictors.

When GSA status was entered at block two, the effect of peer support was no longer significant. Although weakened, the effect of school climate remained significant at block two. The overall model remained significant $F(6, 162) = 3.77, p = .002$ and explained 9% of the variance in ages of first alcohol intoxication. The change in R square ($\Delta R^2 = .035$) was statistically significant $\Delta F(1, 162) = 6.49, p = .012$ and suggests that GSA status is a significant predictor of ages of first alcohol intoxication above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) for age of first alcohol intoxication. For the fourth regression on ages of first alcohol intoxication, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., school climate and peer support) were entered at block two and GSA status was entered at block three. At block one, the model was not significant $F(6, 162) = 0.92, p = .485$, as none of the demographic variables were significant predictors of ages of first intoxication. Table 7.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two, and three.

At block two, the only significant predictor of ages of first intoxication was school climate. The overall model at block two was not significant $F(8, 160) = 1.82, p = .076$. The change in R square ($\Delta R^2 = .051$) was statistically significant $\Delta F(2, 160) = 4.43, p = .013$. With the entry of GSA status at block three, the effect of school climate was no longer significant. The unstandardized regression coefficient ($b = 1.24, t = 3.22, p = .002$) for GSA status (dummy coded where 0 indicates GSA- and 1 indicates GSA+) suggests that, in the context of demographic and school variables, youth who report that their high

school has a GSA are predicted to have an age of first alcohol intoxication that is roughly 15 months later than youth who report that their school does not have a GSA. The overall model was significant $F(9, 159) = 2.86, p = .004$. The final model explained 9.1% of the variance in ages of first alcohol intoxication.

Problematic drug use. Problematic drug use, as indicated by higher scores on the DAST (Skinner, 1982), was assessed, and GSA+ youth reported lower scores ($M = 1.15, SD = 2.30$) on this measure relative to GSA- youth ($M = 2.64, SD = 3.79$). Assuming that the variances for the group means are not equal, this difference was statistically significant ($t = 3.49, df = 115.95, p < .001$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of problematic drug use.

Individual/family predictors (Model 1) of DAST total scores. At block one, a significant model emerged $F(6, 309) = 4.14, p = .001$. The individual/family-level predictors explained 5.6% of the variance in total scores on the DAST. Table 8.1 depicts the standardized and unstandardized beta weights for the predictors. Sensation seeking and childhood abuse were both significant predictors at block one and were retained as predictors for the fourth regression.

After entering GSA status at block two, sensation seeking and childhood abuse remained statistically significant predictors of total scores on the DAST. At block two the model remained significant $F(7, 308) = 5.49, p < .001$ and explained 9.1% of the variance in DAST total scores. The change in R square ($\Delta R^2 = .037$) was statistically significant $\Delta F(1, 308) = 12.66, p < .001$ and suggests that GSA status is a significant

predictor of drug use problems above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of DAST total scores. At block one, a significant model emerged $F(3, 312) = 6.32, p < .001$. The community-level predictors explained 4.8% of the variance in DAST total scores. Table 8.2 depicts the standardized and unstandardized beta weights for the predictors. Community climate was a significant predictor of DAST total scores at block one.

With the entry of GSA status at block two, community climate remained significant, while population, which was not a significant predictor at block one, was now a significant predictor of DAST total scores. At block two the model remained significant $F(4, 311) = 8.35, p < .001$ and explained 8.5% of the variance in DAST total scores. The change in R square ($\Delta R^2 = .040$) was statistically significant $\Delta F(1, 311) = 13.69, p < .001$ and suggests that GSA status is a significant predictor of DAST total scores above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of DAST total scores. At block one, a significant model emerged $F(5, 310) = 8.46, p < .001$. The school-level predictors explained 10.6% of the variance in DAST total scores. Table 8.3 depicts the standardized and unstandardized beta weights for the predictors. School climate and teacher support were significant predictors of DAST total scores at block one and were retained as predictors for the fourth regression.

When GSA status was entered at block two, teacher support was no longer a significant predictor of DAST total scores, while ratings of school climate remained statistically significant. The overall model remained significant $F(6, 309) = 7.40, p <$

.001 and explained 10.9% of the variance in DAST total scores. The change in R square ($\Delta R^2 = .006$) was not statistically significant $\Delta F(1, 309) = 1.99, p = .159$ and suggests that GSA status is not a significant predictor of DAST total scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of DAST total scores. For the fourth regression on DAST total scores, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., sensation seeking, childhood abuse, community and school climate, and teacher support) were entered at block two and GSA status was entered at block three. At block one, the model was not significant $F(6, 309) = 1.94, p = .074$. The demographic variables as a whole explained 1.8% of the variance in DAST total scores; relationship status was a significant predictor of this outcome. Table 8.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two, and three.

At block two none of the demographic variables were significant predictors of DAST total scores. The overall model at block two was significant $F(11, 304) = 6.16, p < .001$. The change in R square ($\Delta R^2 = .146$) was statistically significant $\Delta F(5, 304) = 10.85, p < .001$. The significant predictors of DAST total scores at block two were sensation seeking, teacher support, and school climate.

At block three, the significant predictors of DAST total scores were sensation seeking and school climate. Teacher support and GSA status approached statistical significance. The unstandardized regression coefficient ($b = -0.82, t = -1.97, p = .05$) for GSA status (dummy coded where 0 indicates GSA- and 1 indicates GSA+) suggests that,

in the context of demographic, individual, family, community and school variables, youth who report that their high school has a GSA are predicted to have an DAST total score that is 0.82 points lower than youth who report that their school does not have a GSA. The overall model was significant $F(12, 304) = 6.02, p < .001$. The final model explained 16.1% of the variance in DAST total scores and the change in R square ($\Delta R^2 = .010$) approached statistical significance $\Delta F(1, 303) = 3.88, p = .05$.

Mental Health Outcomes

Psychological distress. Psychological distress was measured using the Brief Symptom Inventory (Derogatis, 1993). The Global Severity Index (GSI) of the BSI provides an index of a participant's level of psychological distress that combines information regarding the number of symptoms of many common psychological disorders and individual experiences and the intensity of distress that an individual experiences as a result of the symptoms. Although GSA+ youth reported lower GSI scores ($M = 1.03, SD = 0.83$) relative to GSA- youth ($M = 1.07, SD = 0.69$), this difference was not statistically significant ($t = 0.413, df = 314, p = .320$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of GSI scores.

Individual/family predictors (Model 1) of BSI GSI scores. At block one, a significant model emerged $F(6, 309) = 18.51, p < .001$. The individual/family-level predictors explained 25.0% of the variance in GSI scores. Table 9.1 depicts the standardized and unstandardized beta weights for the predictors. Childhood abuse, gender nonconformity, and sensation seeking were all significant predictors of GSI scores.

After entering GSA status at block two, childhood abuse and sensation seeking remained statistically significant predictors of GSI scores. Gender nonconformity was not statistically significant at block two, while parental acceptance approached statistical significance ($b = -0.09, t = -1.97, p = .050$). At block two the model remained significant $F(7, 308) = 16.04, p < .001$ and explained 25% of the variance in GSI scores. The change in R square ($\Delta R^2 = .003$) was not statistically significant $\Delta F(1, 308) = 1.17, p = .281$ and suggests that GSA status is a not significant predictor of GSI scores above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of BSI GSI scores. At block one, a significant model emerged $F(3, 312) = 4.43, p = .005$. The community-level predictors explained 3.2% of the variance in GSI scores. Table 9.2 depicts the standardized and unstandardized beta weights for the predictors. Community climate and population were significant predictors of GSI scores at block one.

With the entry of GSA status at block two, community climate and population were again significant predictors of GSI scores. The model remained significant $F(4, 311) = 3.57, p < .007$ and explained 3.2% of the variance in GSI scores. The change in R square ($\Delta R^2 = .003$) was not statistically significant $\Delta F(1, 311) = 0.99, p = .321$ and suggests that GSA status is not a significant predictor of GSI scores above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of BSI GSI scores. At block one a significant model emerged $F(5, 309) = 14.75, p < .001$. The school-level predictors explained 18.0% of the variance in GSI scores. Table 9.3 depicts the standardized and unstandardized beta weights for the predictors. At-school victimization, peer support, and teacher support

were significant predictors of GSI scores at block one and were retained as predictors for the fourth regression.

When GSA status was entered at block two, all three of the retained predictors from block one remained statistically significant. The overall model also remained significant $F(6, 308) = 13.62, p < .001$ and explained 19.4% of the variance in GSI scores. The change in R square ($\Delta R^2 = .017$) was statistically significant $\Delta F(1, 308) = 6.63, p = .010$ and suggests that GSA status is a significant predictor of GSI scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of BSI GSI scores. Because gender nonconformity was a significant predictor of this outcome, Model 4 for GSI scores was calculated twice. It was first calculated using the full sample and then calculated with a subsample that excluded the 11 participants whose gender nonconformity scores could not be calculated and were replaced with the mean gender nonconformity score. For both regressions on GSI scores, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., childhood abuse, community climate, gender non-conformity, population, sensation seeking, peer support, teacher support, and at-school victimization) were entered at block two and GSA status was entered at block three.

At block one of the regression using the full sample a statistically significant model emerged $F(6, 309) = 2.56, p = .019$. The demographic variables as a whole explained 2.9% of the variance in GSI scores; gender was a significant predictor of this outcome. Table 9.4 depicts the standardized and unstandardized beta weights for the

predictors entered at blocks one, two, and three. At block two, age, in addition to gender, was a significant predictor of GSI total scores. The overall model at block two was significant $F(14, 301) = 11.74, p < .001$. The change in R square ($\Delta R^2 = .306$) was statistically significant $\Delta F(8, 301) = 17.78, p < .001$. In addition to age and gender, the significant predictors of GSI scores at block two were childhood abuse, peer support, and at-school victimization.

In addition to the significant predictors from block two, which remained significant at block three, GSA emerged as a significant predictor of GSI scores. However, the positive unstandardized regression coefficient ($b = 0.27, t = 2.45, p = .015$) for GSA status (dummy coded where 0 indicates GSA- and 1 indicates GSA+) suggests that, in the context of demographic, individual/family-, community- and school-level predictors, youth who report that their high school has a GSA are predicted to have a GSI score that is 0.27 points higher than youth who report that their school does not have a GSA. The directionality of this association, when considered in the context of peer support ($b = -0.07, t = -2.79, p = .006$) and school victimization ($b = 0.03, t = 3.21, p = .001$) may be the result of an interaction between the one of both of the latter two predictors and GSA status, or may suggest the presence of non-linear associations among the predictors and outcome variables. At block three, the overall model was significant $F(15, 300) = 11.54, p < .001$. The final model explained 33.4% of the variance in GSI scores and the change in R square ($\Delta R^2 = .013$) was statistically significant $\Delta F(1, 300) = 6.01, p = .015$.

When the regression was calculated a second time using the subsample of participants, the two gender variables were the only predictors that appeared to be

impacted. The unstandardized regression coefficients associated with these two variables increased in magnitude with the exclusion of the 11 participants. Table 9.5 depicts the unstandardized regression coefficients for the gender variables, the adjusted r square for each block of the regressions, and the overall F statistic at each block of each regression.

Depression. Depressive symptomatology was measured using the depression subscale of the Brief Symptom Inventory (Derogatis, 1993). Mean scores on this subscale of the BSI were nearly identical for GSA+ ($M = 1.37$, $SD = 1.13$) and GSA- ($M = 1.35$, $SD = 0.87$) youth. Assuming unequal variances, this difference was not statistically significant ($t = -0.205$, $df = 212.09$, $p = .419$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of BSI depression subscale scores.

Individual/family predictors (Model 1) of BSI depression subscale scores. At block one, a significant model emerged $F(6, 309) = 9.45$, $p < .001$. The individual/family-level predictors explained 13.9% of the variance in depression scores. Table 10.1 depicts the standardized and unstandardized beta weights for the predictors. Childhood abuse and parental acceptance were statistically significant predictors of this outcome at block one and were retained for the fourth regression.

After entering GSA status at block two, childhood abuse and parental acceptance were again statistically significant predictors of depression scores. At block two the model remained significant $F(7, 308) = 8.35$, $p < .001$ and explained 14% of the variance in depression scores. The change in R square ($\Delta R^2 = .004$) was not statistically significant $\Delta F(1, 308) = 1.62$, $p = .204$ and suggests that GSA status is a not significant predictor of

depressive symptomatology above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of BSI depression subscale scores. At block one, a significant model emerged $F(3, 312) = 3.38, p = .019$. The community-level predictors explained 2.2% of the variance in depression subscale scores, while community climate was a significant predictor of this outcome at block one. Table 10.2 depicts the standardized and unstandardized beta weights for the predictors.

At block two, community climate was again a significant predictor of depression subscale scores. The model remained significant $F(4, 311) = 3.05, p = .017$ and explained 2.5% of the variance in depression subscale scores. The change in R square ($\Delta R^2 = .006$) was not statistically significant $\Delta F(1, 311) = 2.03, p = .115$ and suggests that GSA status is not a significant predictor of this outcome above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of BSI depression subscale scores. At block one, a significant model emerged $F(5, 309) = 9.66, p < .001$. The school-level predictors explained 12.1% of the variance in depression scores. Table 10.3 depicts the standardized and unstandardized beta weights for the predictors. Peer support and the presence or absence of inclusive bullying policies were significant predictors of depression scores at block one.

When GSA status was entered at block two, school victimization ($b = 0.03, t = 2.61, p = .009$), which was not a significant predictor at block one, emerged as a significant predictor of depression scores. Peer support ($b = -0.13, t = -3.43, p = .001$) remained significant, but the presence or absence of an inclusive school bullying policy

variable ($b = 0.17, t = 1.29, p = .198$) was no longer a statistically significant predictor of depression scores. Also, GSA status emerged as a significant predictor of this outcome; however, the positive unstandardized regression coefficient ($b = 0.32, t = 2.08, p = .038$) suggests that in the context of other school variables, youth who report that their high school has a GSA are predicted to have a depression score that is 0.32 points higher than youth who report that their school does not have a GSA. Again, the directionality of this association should be considered in the context of peer support and school victimization scores and may be the result of an interaction between the one of both of the latter two predictors and GSA status, or may suggest the presence of non-linear associations among the predictors and outcome variable. The overall model remained significant $F(6, 308) = 8.85, p < .001$ and explained 13.0% of the variance in depression scores. The change in R square ($\Delta R^2 = .012$) was statistically significant $\Delta F(1, 308) = 4.33, p = .038$ and suggests that GSA status is a significant predictor of depression scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of BSI depression subscale scores. For the fourth regression on BSI depression subscale scores, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., childhood abuse, parental acceptance, community climate, peer support, and the presence or absence of an inclusive school bullying policy) were entered at block two and GSA status was entered at block three. At block one, the model that emerged was not statistically significant $F(6, 308) = 2.06, p = .057$. The demographic variables as a whole explained 2.0% of the variance in depression scores;

gender was a significant predictor of this outcome. Table 10.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two, and three.

At block two, age, in addition to gender, was a significant predictor of depression scores. The overall model at block two was significant $F(11, 303) = 9.00, p < .001$. The change in R square ($\Delta R^2 = .208$) was statistically significant $\Delta F(5, 303) = 16.70, p < .001$. In addition to age and gender, the significant predictors of depression scores at block two were childhood abuse, parental acceptance, and peer support.

With the exception of age, the significant predictors of depression scores from block two remained significant at block three. The overall model was significant $F(12, 302) = 8.34, p < .001$. The final model explained 21.9% of the variance in depression subscale scores; however, the change in R square ($\Delta R^2 = .003$) was not statistically significant $\Delta F(1, 302) = 1.03, p = .311$.

Anxiety. General symptoms of anxiety (e.g., nervousness, shakiness, tenseness, fearfulness, etc.) were measured using the anxiety subscale of the Brief Symptom Inventory (Derogatis, 1993). Mean scores on this subscale of the BSI were nearly identical for GSA+ ($M = 0.93, SD = 0.98$) and GSA- ($M = 0.91, SD = 0.81$) youth ($t = -0.22, df = 314, p = .414$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of BSI anxiety subscale scores.

Individual/family predictors (Model 1) of BSI anxiety subscale scores. At block one, a significant model emerged $F(6, 309) = 16.95, p < .001$. The individual/family-level predictors explained approximately 23.3% of the variance in anxiety scores. Table 11.1 depicts the standardized and unstandardized beta weights for the predictors.

Childhood abuse and sensation seeking were both statistically significant predictors of this outcome at block one and were retained for the fourth regression.

After entering GSA status at block two, childhood abuse and sensation seeking were again statistically significant predictors of anxiety scores. At block two the model remained significant $F(7, 308) = 15.23, p < .001$ and explained 24% of the variance in anxiety scores. The change in R square ($\Delta R^2 = .009$) was statistically significant $\Delta F(1, 308) = 3.94, p = .048$ and suggests that GSA status is a significant predictor of anxiety scores above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of BSI anxiety subscale scores. At block one, a significant model emerged $F(3, 312) = 2.78, p = .041$. The community-level predictors explained 1.7% of the variance in anxiety scores, while community climate was a significant predictor of this outcome. Table 11.2 depicts the standardized and unstandardized beta weights for the predictors.

At block two, community climate was again a significant predictor of anxiety scores. The model remained significant $F(4, 311) = 2.52, p = .041$ and explained 1.9% of the variance in anxiety scores. The change in R square ($\Delta R^2 = .005$) was not statistically significant $\Delta F(1, 311) = 1.71, p = .192$ and suggests that GSA status is not a significant predictor of this outcome above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of BSI anxiety subscale scores. At block one, a significant model emerged $F(5, 309) = 10.40, p < .001$. The school-level predictors explained 13% of the variance in anxiety scores. Table 11.3 depicts the standardized and unstandardized beta weights for the predictors. School victimization, teacher support, and

peer support were significant predictors of anxiety scores at block one, while the presence or absence of inclusive bullying policies approached statistical significance ($b = 0.22, t = 1.97, p = .050$).

When GSA status was entered at block two, school victimization and teacher support were again significant predictors of anxiety scores. Peer support was not a significant predictor at block two, and the effect of the inclusive bullying policy variable ($b = 0.12, t = 1.03, p = .305$) no longer approached statistical significance. GSA status emerged as a significant predictor of anxiety scores; however, the positive unstandardized regression coefficient ($b = 0.40, t = 2.99, p = .003$) suggests that in the context of other school variables, youth who report that their high school has a GSA are predicted to have an anxiety score that is 0.40 points higher than youth who report that their school does not have a GSA. Again, the directionality of this association should be considered in the context of peer support and school victimization scores and may be the result of an interaction between the one of both of the latter two predictors and GSA status, or may suggest the presence of non-linear associations among the predictors and outcome variable. The overall model remained significant $F(6, 308) = 10.38, p < .001$ and explained 15.2% of the variance in anxiety scores. The change in R square ($\Delta R^2 = .024$) was statistically significant $\Delta F(1, 308) = 8.95, p = .003$ and suggests that GSA status is a significant predictor of anxiety scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of BSI anxiety subscale scores.

For the fourth regression on BSI anxiety scores, demographic variables (e.g., age, gender,

relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., childhood abuse, sensation seeking, community climate, peer support, teacher support, the presence or absence of an inclusive school bullying policy, and school victimization) were entered at block two and GSA status was entered at block three. At block one, the model that emerged was statistically significant $F(6, 308) = 2.90, p = .009$. The demographic variables as a whole explained 3.5% of the variance in anxiety scores; gender was a significant predictor of this outcome. Table 11.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two, and three. At block two gender, childhood abuse, peer support, and school victimization were significant predictors of anxiety scores. The overall model at block two was significant $F(13, 301) = 11.54, p < .001$ and the change in R square ($\Delta R^2 = .279$) was statistically significant $\Delta F(7, 301) = 17.99, p < .001$.

At block three, gender, childhood abuse, and school victimization were again significant predictors of anxiety scores; however, the effect of peer support was lost. The overall model was significant $F(14, 300) = 11.33, p < .001$. The final model explained 31.5% of the variance in anxiety subscale scores and the change in R square ($\Delta R^2 = .013$) was statistically significant $\Delta F(1, 300) = 6.02, p = .015$. Again, the positive unstandardized regression coefficient ($b = 0.32, t = 2.45, p = .015$) suggests that in the context of other school variables, youth who report that their high school has a GSA are predicted to have an anxiety subscale score that is 0.32 points higher than youth who report that their school does not have a GSA. Again, this association should be considered in the context of the other predictors in the model and may suggest the

presence of non-linear associations and/or interaction effects that are not accounted for in the model.

Somatization. Symptoms of somatization were measured using the somatization subscale of the Brief Symptom Inventory (Derogatis, 1993). Mean scores on this subscale of the BSI did not differ significantly ($t = 1.18$, $df = 314$, $p = .121$, one-tailed) between GSA+ ($M = 0.62$, $SD = 0.72$) and GSA- ($M = 0.73$, $SD = 0.65$) youth. Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of BSI depression subscale scores.

Individual/family predictors (Model 1) of BSI somatization subscale scores. At block one, a significant model emerged $F(6, 309) = 12.47$, $p < .001$. The individual/family-level predictors explained approximately 17.9% of the variance in somatization scores. Table 12.1 depicts the standardized and unstandardized beta weights for the predictors. Childhood abuse was the only statistically significant predictor of somatization scores at block one; however, sensation seeking approached statistical significance ($b = -0.01$, $t = -1.97$, $p = .050$).

After entering GSA status at block two, the predictors and their associated beta weights remained relatively unchanged; childhood abuse scores remained significant and sensation seeking scores approached statistical significance. At block two the model remained significant $F(7, 308) = 10.66$, $p < .001$ and explained 17.7% of the variance in somatization scores. The change in R square ($\Delta R^2 < .001$) was not statistically significant $\Delta F(1, 308) = 0.04$, $p = .849$ and suggests that GSA status is a not significant predictor of somatization scores above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of BSI somatization subscale scores. The model that emerged at block one was not statistically significant $F(3, 312) = 2.38, p = .070$. The community-level predictors explained 1.3% of the variance in somatization scores, was population was a significant predictor of this outcome. Table 12.2 depicts the standardized and unstandardized beta weights for the predictors.

When GSA status was entered at block two, none of the community predictors were statistically significant predictors of somatization scores; the overall model was not significant $F(4, 311) = 1.80, p = .129$ and explained 1.0% of the variance in somatization scores. The change in R square ($\Delta R^2 < .001$) was not statistically significant $\Delta F(1, 311) = 0.09, p = .767$ and suggests that GSA status is not a significant predictor of somatization scores above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of BSI somatization subscale scores. At block one, a significant model emerged $F(5, 309) = 13.67, p < .001$. The school-level predictors explained 16.8% of the variance in somatization scores. Table 12.3 depicts the standardized and unstandardized beta weights for the predictors. School climate, school victimization, and teacher support were significant predictors of somatization scores at block one. Of interest is the negative unstandardized regression coefficient ($b = -0.05, t = -2.38, p = .018$) for school climate. Because higher ratings of school climate indicate a more hostile school climate for sexual minority youth, this association suggests that for every one increment increase in school climate, somatization subscale scores are predicted to decrease by .05 points, when considered in the context of other school variables at block one.

However, when GSA status was entered at block two, school climate only approached statistical significance ($b = -0.04$, $t = -1.97$, $p = .050$). Victimization and teacher support remained significant predictors of somatization scores. The overall model remained significant $F(6, 308) = 11.78$, $p < .001$ and explained 17.1% of the variance in somatization scores. The change in R square ($\Delta R^2 = .005$) was not statistically significant $\Delta F(1, 308) = 2.05$, $p = .153$ and suggests that GSA status is not a significant predictor of somatization scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of BSI somatization subscale scores. For the fourth regression on BSI somatization subscale scores, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., childhood abuse, sensation seeking, population, teacher support, school climate, and school victimization) were entered at block two and GSA status was entered at block three. At block one, the model that emerged was statistically significant $F(6, 309) = 2.82$, $p = .011$. The demographic variables as a whole explained 3.4% of the variance in somatization scores; gender was a significant predictor of this outcome. Table 12.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two, and three.

At block two, gender, childhood abuse, teacher support, school climate, and school victimization were significant predictors of somatization scores. An association similar to the one detected in the first block of Model 3 emerged between school climate and somatization scores. The overall model at block two was significant $F(12, 303) = 10.91$, $p < .001$. The change in R square ($\Delta R^2 = .250$) was statistically significant $\Delta F(6,$

303) = 18.07, $p < .001$. The model accounted for 27.4% of the variance in somatization scores at block two.

At block three, gender, childhood abuse, teacher support, school climate, and school victimization were again significant predictors of somatization scores. Unlike the results of Model 3, at block two the entry of GSA status did not reduce the effect of school climate to the point of non-significance. The overall model was significant $F(13, 302) = 10.18, p < .001$. The final model explained 27.5% of the variance in somatization scores; however, the change in R square ($\Delta R^2 = .003$) was not statistically significant $\Delta F(1, 302) = 1.29, p = .257$.

PTSD. Symptoms of PTSD were measured using the PTSD CheckList- Civilian Version (PCL-C; Elhai et al., 2005; Weathers et al., 1993). Although GSA+ youth reported lower mean scores ($M = 35.57, SD = 16.35$) on the PCL-C relative to GSA- youth ($M = 38.04, SD = 15.62$), this difference was not statistically significant ($t = 1.23, df = 314, p = .109$, one-tailed). Three hierarchical regressions were calculated to identify significant individual/family-, community-, and school-level predictors of PCL-C scores.

Individual/family predictors (Model 1) of PCL-C scores. At block one, a significant model emerged $F(6, 309) = 16.71, p < .001$. The individual/family-level predictors explained approximately 23% of the variance in PCL-C scores. Table 13.1 depicts the standardized and unstandardized beta weights for the predictors. Childhood abuse was the only statistically significant predictor of PCL-C scores at block one; however, gender nonconformity approached statistical significance ($b = 0.93, t = 1.97, p = .050$).

After entering GSA status at block two, the significant predictors from block one and their associated beta weights remained relatively unchanged; childhood abuse remained significant and sensation seeking approached statistical significance. At block two the model remained significant $F(7, 308) = 14.27, p < .001$ and explained 22.8% of the variance in PCL-C scores. The change in R square ($\Delta R^2 < .001$) was not statistically significant $\Delta F(1, 308) = 0.00, p = .986$ and suggests that GSA status is a not significant predictor of PCL-C scores above and beyond the individual/family-level predictors entered at block one.

Community predictors (Model 2) of PCL-C scores. The model that emerged at block one was statistically significant $F(3, 312) = 4.38, p = .005$. The community-level predictors explained 3.1% of the variance in PCL-C scores, while population and community climate were significant predictors of this outcome at block one. Table 13.2 depicts the standardized and unstandardized beta weights for the predictors.

Again, when GSA status was entered at block two, the significant predictors from block one remained relatively unchanged. The overall model was significant $F(4, 311) = 3.27, p = .012$ and explained 2.8% of the variance in PCL-C scores. The change in R square ($\Delta R^2 < .001$) was not statistically significant $\Delta F(1, 311) = 0.01, p = .944$ and suggests that GSA status is not a significant predictor of PCL-C scores above and beyond the community-level predictors entered at block one.

School predictors (Model 3) of PCL-C scores. At block one, a significant model emerged $F(5, 309) = 11.44, p < .001$. The school-level predictors explained 14.3% of the variance in PCL-C scores. Table 13.3 depicts the standardized and unstandardized beta

weights for the predictors. School victimization, teacher support, and peer support scores were all significant predictors of PCL-C scores at block one.

When GSA status was entered at block two, the effect for peer support was no longer statistically significant ($b = -0.89, t = -1.54, p = .124$). Victimization and teacher support remained significant predictors of PCL-C scores at block two. The overall model remained significant $F(6, 308) = 10.14, p < .001$ and explained 14.9% of the variance in PCL-C scores. The change in R square ($\Delta R^2 = .009$) was not statistically significant $\Delta F(1, 308) = 3.23, p = .073$ and suggests that GSA status is not a significant predictor of PCL-C scores above and beyond the school-level predictors entered at block one.

Demographic and retained predictors (Model 4) of PCL-C scores. For the fourth regression PCL-C scores, demographic variables (e.g., age, gender, relationship status, school [public versus private] setting) that differed between GSA+ and GSA- participants were entered at block one. The retained predictors from Models 1 – 3 (e.g., childhood abuse, population, school climate, peer support, teacher support, and school victimization) were entered at block two and GSA status was entered at block three. At block one, the model that emerged was statistically significant $F(6, 309) = 2.96, p = .008$. The demographic variables as a whole explained 3.6% of the variance in PCL-C scores; gender was a significant predictor of this outcome. Table 13.4 depicts the standardized and unstandardized beta weights for the predictors entered at blocks one, two, and three.

At block two, gender, childhood abuse, peer support, and school victimization were significant predictors of PCL-C scores. The overall model at block two was significant $F(12, 303) = 11.15, p < .001$. The change in R square ($\Delta R^2 = .252$) was

statistically significant $\Delta F(6, 303) = 18.33, p < .001$. The model accounted for 27.9% of the variance in PCL-C scores at block two.

At block three, gender, childhood abuse, and school victimization were again significant predictors of PCL-C scores. The overall model was significant $F(13, 302) = 10.66, p < .001$. The final model explained 28.5% of the variance in PCL-C scores; however, the change in R square ($\Delta R^2 = .008$) was not statistically significant $\Delta F(1, 302) = 3.62, p = .058$

Summary of Results

Table 14.0 reviews, across models, the associations between GSA status and each outcome variable under investigation. The results provide partial support for the first hypothesis regarding school outcomes. Specifically, GSA status was associated with favorable school belonging outcomes in the context of individual/family-level predictors (Model 1); however, no association with this outcome was detected across other contexts (Models 2 – 4). The results of Models 1 – 4 for at-school victimization were consistent with the first hypothesis, which predicted that GSA status would predict at-school victimization and that the presence of a GSA would be associated with less at-school victimization.

With a single exception (e.g., DAST Model 3), the modeling results are consistent with the second hypothesis regarding substance use outcomes. Generally speaking, across substance use outcomes and contexts (e.g., Models 1 – 4), attending a high school with a GSA was associated with more favorable substance use outcomes, ranging from lower risk for having a history for alcohol intoxication, to fewer alcohol and drug problems and later ages of first alcohol intoxication.

The results failed to support the third hypothesis regarding mental health outcomes. In fact, the results of six models (e.g., BSI GSI Models 3 and 4; BSI Anxiety Subscale Models 1, 2, and 4; BSI Depression Model 3) ran counter to expectation. Across all contexts and possible outcomes ($n = 44$ [11 outcomes and four models per outcome]) analyzed, GSAs were associated with more favorable outcomes on 20 occasions, less favorable outcomes on six occasions, and not associated with the specified outcome on 18 occasions.

Chapter 4: Discussion

Research into the protective factors that may offset the effects of discrimination and victimization is limited; this is particularly the case for GSAs, which are a relatively new phenomenon. To date, only six quantitative studies examining the potential benefits associated with GSAs have been published in peer-reviewed forums. Given this current state of GSA-related research, the primary objective of this cross-sectional study of sexual minority high school students was to refine, replicate, and expand the research base involving the potential benefits of attending a high school with a GSA for sexual minority youth.

Refining the Research Involving GSAs

Refinement is achieved in this instance by overcoming methodological limitations found in previous peer-reviewed publications that investigate the potential benefits of GSAs. Four such limitations include: a) the geographical restrictions of samples to states with more favorable climates for sexual minority persons (Goodenow et al., 2006; Toomey et al., 2011), b) the use of retrospective designs (Heck et al., 2011; Toomey et al., 2011), c) the failure to adequately assess, using psychometrically sound measures, and control for potential confounding variables (Goodenow et al., 2006; Walls et al., 2008, 2010) and d) the analysis of small samples, which prevents researchers from testing whether potential benefits of GSAs are consistent across levels of ethnicity, gender, and sexual orientation (Goodenow et al., 2006; Heck et al., 2011; Toomey et al., 2011; Walls et al., 2008, 2010).

This study, which utilizes a sample of high school students recruited from across the United States and Canada, clearly overcomes the first and second limitations found in

previous research. Figure 2 depicts the number of participants included in the analytic sample from each state and Canada. Figure 3 depicts the same information but is updated to include all participants who met the inclusion criteria and completed the survey as of April 1, 2012. This study addresses the third limitation by accounting for a wide array of variables that have either been found, in previous peer-reviewed research, to be associated with the outcomes of interest, or would likely be associated with the outcomes of interest based upon minority stress theory (Meyer 1995, 2003). Finally, this study addresses the fourth limitation, perhaps albeit to a lesser extent, because data were collected from 316 sexual minority high school students who are diverse with respect to gender, sexual orientation, and ethnicity. With the goal of refinement achieved, attention can now be focused on the replication of previous research involving GSAs.

Replicating the Research Involving GSAs

This study was designed in part to replicate prior research involving the benefits associated with GSAs; it was also hoped that this study would resolve conflicting findings that have been reported in the literature. With respect to school belonging, the results of this study suggest that in the context of individual/family-level predictors, GSA status is a significant predictor of school belonging. However, this effect is not significant in the context of community- and school-level predictors, nor is it significant when controlling for demographic variables and the strongest predictors of school belonging across individual/family-, community-, and school-level predictors. Based on the results of the modeling, relationship status, population, school climate, and support from teachers and peers are all significant predictors of school belonging.

However, from the theoretical standpoint of the Student School Engagement model (see Seelman, Walls, Hazel, & Wisneski, 2012), the construct of school belonging is but one of three domains of school engagement; the other two domains, aspirations (e.g., a student's perceptions regarding the value and importance of his or her education and investment in educational achievement) and student productivity (e.g., behavioral and cognitive strategies that monitor and maximize one's learning), were not measured in this study. Perhaps if these two domains had been measured and the outcome variable been school engagement, GSA status would have significantly predicted this outcome. Seelman et al. (2012) recently reported a significant interaction effect between GSA status and school engagement in predicting high school GPA; specifically, the relationship between school engagement and GPA was stronger in the presence of a GSA.

Finally, if the constructs of student and teacher support overlap with the engagement domain of school belonging, which the results of Models 3 and 4 may suggest given the magnitude of the associations among these two predictors and school belonging, the inclusion of these two predictors in the models may not have been advisable. However, if these three constructs are distinctly different from one another, the results may simply indicate that teacher and peer support are excellent of school belonging. Previous research suggests that school belonging is also highly correlated with school victimization (Heck, Lindquist, Macheck, & Cochran, under review), and the inclusion of interaction effects (e.g., GSA status \times school victimization; GSA status \times teacher support; and GSA status \times peer support) in future models may be necessary to better understand the relationship among these variables.

The results of the modeling efforts appear consistent with prior research (Goodenow et al., 2006; Heck et al., 2011) that has found an association between attending a high school with a GSA and experiencing less at-school victimization. The results demonstrate that in the context of individual/family-, community-, and school-level predictors (individually and when the strongest predictors across these levels are entered together with demographic characteristics), GSA status is a significant predictor of at-school victimization. In addition, childhood abuse, sexual orientation, community resources, population, and support from teachers and peers are also significant predictors of at-school victimization.

Next, with respect to depression and psychological distress, the results failed to replicate the findings of Heck and colleagues (2011) and Toomey and colleagues (2011). Specifically, in the context of individual/family- and community-level predictors, GSA status was not a significant predictor of depression or psychological distress. In the context of school-level predictors, GSA status was found to be a significant predictor of these outcomes; however, the directionality of these associations was counter to expectations. This was also the case for the final model predicting psychological distress.

Two possible explanations for this finding were discussed in the previous chapter (e.g., undetected interaction effects or non-linear relationships among variables may be present and better account for the directionality of the relationship). It is also important to note that GSA status was significantly associated with alcohol and drug problems. Specifically, GSA- youth had significantly higher scores on the AUDIT and DAST, relative to GSA+ youth. This level of substance misuse among GSA- youth may be a form of coping, albeit avoidance-based and maladaptive in nature, and could perhaps

explain why these youth are not reporting more psychological distress and depressive symptomatology.

Finally, it is possible that GSA status is negatively associated with mental health outcomes during the late high school years, but positively associated with mental health outcomes in young adulthood. Perhaps attending a high school with a GSA results in more favorable mental health outcomes in young adulthood by increasing social support systems, while decreasing school victimization and substance misuse during the high school years. It is important to keep in mind that the participants in the current study are at very different developmental stages than the college students (ages 18 – 20) and young adults (ages 21 – 25) included in the two previous studies that reported an association between attending a high school with a GSA and favorable mental health outcomes.

Expanding the Research Base Involving GSAs

The current study sought to expand the research base involving the benefits associated with GSAs by investigating whether attending a high school with a GSA is associated with fewer drug use problems, a later age of first alcohol intoxication, and fewer anxiety, PTSD, and somatization symptoms. With respect to problematic drug use, results suggest that GSA status is a significant predictor of this outcome in the context of individual/family- and community-level predictors. The results also suggest that when considered only in the context of school-level predictors, GSA status is not a significant predictor of problematic drug use. Finally, when considered in the context of demographic variables and only the strongest individual/family-, community-, and school-level predictors, GSA status is likely ($p = .05$) to be a significant predictor of this

outcome. Results of the modeling indicate that sensation seeking and school climate are also significant predictors of drug use problems.

The next effort to expand the research base involved two sets of models: the first used logistic regression to test whether GSA- youth are at increased risk for having a history that is positive for alcohol intoxication, and the second used hierarchical regression to determine whether GSA status is associated with a later first age of alcohol intoxication, among those youth with a positive history for this outcome. Results of the logistic regression modeling suggest that in all the contexts examined, youth who are not attending a high school with a GSA are at increased risk for having experienced alcohol intoxication. Peer and teacher support were both significant predictors of this outcome; however, teacher support was associated with lower risk and peer support was associated with higher risk. None of the demographic variables were significant predictors of having experienced alcohol intoxication when considered in the context of the childhood abuse, peer and teacher support, and GSA status.

When participants who denied having a history of alcohol intoxication were excluded from analysis, GSA status was a significant predictor of the age of first alcohol intoxication. In addition to GSA status, only two predictors, school climate and peer support, were significant predictors of this outcome. The results indicate that sexual minority youth who report having more support from peers have an earlier age of first alcohol intoxication, while those who report that their schools are more hostile for LGBT students also have earlier ages of first alcohol intoxication.

These modeling results must be interpreted with caution because 37 of the 165 participants who reported having experienced alcohol intoxication reported an age of first

intoxication that was less than 13.50 years. Using 13.50 as a conservative estimate of the age when the average child in the United States enters high school, 28 GSA- and nine GSA+ youth reported experiencing alcohol intoxication prior to high school. It is possible that some of the nine GSA+ youth did attend a middle school with some form of student support group for sexual minority youth, yet it is very unlikely that any of the 28 GSA- youth attended such a middle school, so long as they attended middle and high school within the same school district. When the 37 participants who reported an age of first alcohol intoxication that was less than 13.5 were excluded from analysis, the mean ages first alcohol intoxication for GSA+ ($M = 15.47$, $SD = 1.07$) and GSA- ($M = 15.24$, $SD = 1.03$) youth were not significantly different from one another ($t = -1.179$, $df = 126$, $p = .121$, one-tailed). See Appendix G for additional information and modeling results that are based on the sample of 128 participants who reported an age of first alcohol intoxication that was greater than 13 years.

Clearly, causal relationships between GSA status and all of the outcomes included in this study cannot be established using a cross-sectional design, and as a result, the strongest inference that can be made is to say that the presence of a GSA is likely indicative of an environment that may promote favorable school and substance use outcomes. This is perhaps most true in the case of age of first alcohol intoxication, given that at least 22.4% of the participants included in this analysis reported experiencing alcohol intoxication prior to entering high school, and thus before possible exposure to the variable that theoretically would help delay the age at which sexual minority youth have this experience.

As a final avenue for extending the research base it was predicted that GSA status would be a significant predictor of anxiety, PTSD, and somatization symptoms. Counter to expectations, GSA status did not emerge as a predictor of PTSD and somatization symptoms in any of the contexts under investigation. However, childhood abuse, gender, population, school victimization, school climate, and teacher support all emerged as significant predictors of somatization symptoms. The negative association between school climate and somatization is challenging to explain, because it suggests that schools with more hostile climates for LGBT youth are associated with less somatization symptomatology. In the mental health models, the strength of school climate and school victimization as predictors fluctuates when considered in the context of GSA status. The relationships among these variables are quite complex, and the directionality of certain relationships may be the result of undetected interaction effects or non-linear relationships between variables. Gender, childhood abuse, and school victimization were all found to be significant predictors of PTSD symptoms.

In the case of anxiety symptoms, GSA status was a significant predictor of this outcome in the context of individual/family- and school-level predictors; yet as was the case when predicting psychological distress, the negative association between GSA status and anxiety symptoms runs counter to expectations. This occurs in the context of school victimization, which was a significant predictor of anxiety symptoms, in addition to gender and childhood abuse.

Implications

The results of this investigation have multiple implications across a number of domains. The following sections discuss these implications as they relate to existing

theory and public policy. This is followed by a discussion of the implications for clinical and school psychologists.

Theoretical implications. The results of this investigation support previous research and theory (Meyer, 1995, 2003) that specifies minority stress processes, which are causal mechanisms for explaining why sexual minorities experience elevated rates of psychiatric illness and substance misuse. The results indicate that sexual minority youth experience stressors that are related to their minority status or statuses, and impact their mental health and substance use. In this study, school victimization provides an index of the distal minority stress process of experiencing prejudice events (Meyer, 2003), and consistent with previous research (Bontempo & D'Augelli, 2002; D'Augelli, 2002; Goodenow et al., 2006; Walls et al., 2008), this process was a significant predictor of multiple mental health and substance use outcomes.

To be clear, this investigation was not intended to test any portion of Meyer's (2003) minority stress theory. However, this theory helped guide the selection of some of the variables that were included in the models. For example, Meyer (2003) specified that coping and social support reduces the impact that stress (both general and minority-specific forms) has on mental health outcomes. Hatzenbuehler (2009) specified a mediation framework in an effort to better understand the relationships between experiencing stress, coping and social support, and mental health outcomes. Within this mediation framework, a greater emphasis is placed on coping through emotion regulation strategies (Hatzenbuehler, 2009; Hatzenbuehler et al., 2009), while the full extent of the benefits associated with social support are perhaps under-developed. In turn, the inclusion of parental acceptance, peer support, and teacher support, which were

significant predictors of multiple mental health and substance use outcomes, was justifiable and suggests that these variables should be examined and incorporated into existing theory.

Furthermore, a small but growing body of research indicates that GSAs are associated with favorable school, mental health, and substance use outcomes, which suggests that group resources, like GSAs, should be investigated and incorporated into existing theory. Meyer (2003) noted one complication of this effort, which is the fact that group-level resources may contribute to more favorable outcomes by enhancing an individual's coping efforts; however, individual differences (e.g., personality characteristics) may prevent some individuals from accessing group-level resources. A better understanding of the factors that contribute to an individual's ability to access group-level resources will be pivotal, and thus implications exist for better understanding factors that result in GSA-membership and non-membership.

Public policy implications. The results of this study also have implications for public policies regarding the safety of sexual minority youth in schools. Specifically, the results demonstrate the importance of providing opportunities for sexual minority youth and their allies to form groups or GSAs, which can provide an institutional venue for social support and help to advance the unique needs of sexual minority youth (Toomey et al., 2010). While the federal court system, under the 1984 Federal Equal Access Act, has consistently upheld the rights of sexual minority youth to form GSAs in schools, youth who attempt to start a GSA sometimes encounter resistance from school administrators, which may hinder the development or stability of the GSA as a school group (Heck et al., 2012).

A second potential public policy implication involves state and federal legislative efforts to enact policies and programs that are designed to monitor and protect categories of youth who are disproportionately victimized at school. An example of such legislation is the Safe Schools Improvement Act (S. 506), which is intended to amend the Elementary and Secondary Education Act of 1965 in an effort to prevent the bullying of youth based upon, among other things, perceived or actual sexual orientation or gender identity. Similar bills (H.R. 2262, H.R. 3132 and S. 3739) have never advanced out of their respective Senate or House committees. Research that demonstrates the benefits of GSAs and the needs of sexual minority students, in conjunction with public policy efforts that disseminate this evidence beyond the academic realm, may eventually help sexual minority youth live happier, healthier lives.

Implications for academic clinical psychologists. Important implications exist for both academic and practicing clinical psychologists. Recently, Kazdin and Blase (2011) highlighted how traditional models of psychotherapy fail to reach individuals in greatest need and called upon psychologists to consider new, integrative paradigms for reducing the prevalence of mental illness. Atkins and Frazier (2011) stated that the burden of mental illness is “so long standing, so vast, and so unresponsive to current methods and models that a new comprehensive approach that utilizes levers of change at multiple levels is required” (pp. 484). In lieu of revising the traditional individual, couples, family, and group models of psychotherapy, Atkins and Frazier called for a public health approach that takes advantage of naturalistic opportunities to integrate mental health promotion into community settings and allocates resources more equally across the continuum of prevention and intervention.

Atkins, Hoagwood, Kutash, and Seidman (2010) called for a fundamental change in the conceptualization of child, adolescent and school mental health services and proposed an ecological approach that assesses a child's school functioning and provides intervention within this naturalistic setting. Given the elevated rates of bullying, psychological distress, substance use, and suicide reported among sexual minority youth, it is evident that the current school mental health system is failing to meet the needs of this population. However, the establishment of GSAs in schools represents one vehicle for adopting and implementing a public health approach to meet the needs of sexual minority youth.

Implications for clinical practice. One component of competence for working with LGBT clients involves knowing what risk factors might place a client at elevated risk for experiencing psychological distress and substance misuse (Heck, Flentje, & Cochran, 2013). Routinely assessing sexual minority youth for childhood trauma/abuse is warranted, given that childhood abuse was a significant predictor of negative health outcomes across the internalizing – externalizing spectrum in this study. At the same time, another component of competence for working with LGBT clients involves having knowledge of the protective factors, both intraindividual and environmental, that offset risks for experiencing negative health outcomes.

For example, the results also highlight the benefits associated with having school-based support for sexual minority youth. Specifically, teacher support was associated with fewer alcohol problems and lower levels anxiety, general distress, PTSD symptomatology and somatization. In turn, clinical psychologists should consider asking about the amount of support sexual minority youth feel they receive from their teachers.

In addition, clinical psychologists should consider assessing community and school climates to understand whether sexual minority youth feel safe and supported in these contexts. Finally, the results also indicate that clinical psychologists who work with sexual minority youth should know that school-based supports do exist and may promote favorable health outcomes. Clinical psychologists should be knowledgeable about the specific resources, school-based or otherwise, that exist their communities so that appropriate referrals/recommendations or advocacy efforts can be made, as appropriate.

Implications for school psychologists. According to the National Association of School Psychologists (NASP, 2008), school psychologists possess a unique training that blends research, assessment, counseling/intervention/prevention knowledge, and an appreciation for culture and diversity. As a result, members of this profession are perhaps an under-utilized resource for identifying and removing barriers that prevent GSAs from developing or compromise the stability of existing GSAs. Because GSAs often empower sexual minority students to take a more active role in advocating for their needs and rights (Russell, Muraco, Subramaniam, & Laub, 2009), the formation of new GSAs may often be a student-led effort. As a result, the longevity of a GSA in a school may be dependent upon the GSA members themselves and less dependent upon teachers and administrators. School psychologists are therefore in a unique position to help empower teachers and staff members to consider methods that ensure the longevity of GSAs. School psychologists may also assist students who hope to form a GSA by sponsoring or helping to identify a sponsor for such a club.

School psychologists should also consider providing recommendations to administrators for improving the school climate for sexual minority youth. Russell,

McGuire, Laub, and Manke (2006) recommend the following: (1) establish and publicize an anti-bullying policy that specifically prohibits bullying based upon factors such as sexual orientation, gender, and gender identity; (2) train teachers to recognize and intervene when students engage in behaviors that are homophobic or transphobic in nature; (3) support the establishment of GSAs or similar student organizations; (4) integrate information about sexual orientation and gender identity into educational curricula and modern conceptualizations of diversity. Recently, Toomey, McGuire, and Russell (2012) reported that schools with curricula inclusive of sexual minority issues and GSAs are perceived as safer for gender nonconforming male students.

A school psychologist's role may include advocating for changes in policies through brief conversations and suggestions with teachers, staff, and administrators; this process may be effective in shaping the school climate towards acceptance of LGBT youth. School psychologists may also consider working with teachers and administrators to help these individuals decide how to effectively prevent homophobic slurs and bullying (e.g., by having teachers discuss the topic at the beginning of each semester and/or incorporating antidiscrimination policies into syllabi). They may also recommend self-disclosure on the part of the teachers and staff members by encouraging these individuals to express offense to homophobic language. School psychologists can also assist teachers in developing appropriate disciplinary actions in an effort to foster a supportive and affirming atmosphere (Graybill et al., 2009; NASP, 2003).

Limitations

Although the current investigation was developed to refine, replicate and expand the research involving GSAs, there are still a number of areas for methodological concern

that limit the generalizability of the results and prevent causal inferences from being drawn. First, because participants were not randomly assigned to schools with and without GSAs, causality cannot be inferred with regard to the relationship between GSA status and any of the outcome variables of the study.

Second, the participants reported on experiences and behaviors within the context of communities and states that are likely to have varying levels of systemic and/or institutionalized homophobia, which can give rise to varying degrees of psychopathology (Hatzenbuehler, Keyes, & Hasin, 2009). Recent research demonstrates that “social climate” of a given community is related to suicide risk (Hatzenbuehler, 2011). Hatzenbuehler operationalized “social climate” within a given county by calculating the proportions of same-sex couples, Democrats, schools with GSAs, schools with anti-bullying policies that protect sexual minorities, and schools with anti-discrimination policies that protect sexual minorities. More supportive social environments, (i.e., environments with a greater proportion of the aforementioned variables) were associated with reductions in suicide risk among a population-based sample of LGB youth living in Oregon (Hatzenbuehler, 2011). Although this study did control for some of the same community- and school-level variables, statistical control over state-level systemic factors was not obtained.

Additional limitations of this study involve the community-based sample design and the self-selection of participants into the study. Although meticulous efforts were made so that the recruitment process and outcomes could be described in as much detail as possible, there was no way to determine the exact participation rate or know if the

results are applicable to those individuals who were targeted by the recruitment efforts, but decided not to complete the survey.

Next, the results may not generalize to sexual minority individuals who are older, who “come out” later in life, or those who drop out of high school. Sexual minority youth who have dropped out of high school or are homeless were not specifically targeted by the recruitment methods. If GSAs do enhance school belonging and reduce at-school victimization, youth who drop out of school may be more likely to have been attending schools without a GSA, and if more of these youth were to be included in this study, the effect sizes for GSA status might actually be larger than what was reported.

At the same time, the effect sizes reported herein might be over-inflated due to the recruitment process and timing of data analysis. The recruitment process, described in a general and simplified sense, may have introduced an increased level of sampling bias within the analytic sample used for this analysis. For example, rather than starting to recruit participants from each of the five primary recruitment sources at the same time, efforts were focused on exhausting one recruitment source (e.g., GSAs), and then progressing to a second (e.g., Facebook groups likely to be of interest to sexual minority youth), and then progressing onto a third (e.g., LGBT community centers) fourth (e.g., college/university LGBT student groups) and fifth (e.g., PFLAG groups). As a result, the participants included in the analytic sample are primarily comprised of those who were recruited from GSAs, other Facebook groups of interest to sexual minority youth, and some LGBT community centers. The participants who completed the survey after December 15, 2011 may comprise a different subset of sexual minority youth relative to those who completed before this date. Thus, future analyses using the full sample would,

theoretically, better reflect the population of interest and be less impacted by sampling bias.

Future Directions

In the future, longitudinal designs that follow cohorts of youth from adolescence to young adulthood, while collecting data regarding the presence of absence of school-based support groups, could allow researchers to better understand the potential benefits associated with GSAs. Although a longitudinal design of this nature would be untenable without sizeable funding, future research studies that evaluate youth who live in the same cities or towns but attend different high schools (presumably with and without school-based support groups such as GSAs) would help to control for environmental factors when studying the potential benefits of GSAs. Additionally, recruiting heterosexual siblings of participants could provide some controls for genetic factors and family environment. Though random assignment may not be feasible, additional control over these factors may allow researchers to examine the unique variance that can be accounted for by GSAs in relation to various outcome variables of interest.

Also, programmatic evaluations that utilize pre/post designs that monitor the impact of GSA formation on the school environment may be more feasible to conduct in the absence of extramural funding. Evaluations of this nature could elicit student and staff perceptions of the safety for and acceptance of sexual minority youth in schools, the attendance and performance of these youth, and the frequency with which disciplinary actions are taken in response to homophobia and transphobia. Research already suggests that perceptions of GSA effectiveness in promoting a safe school environment are associated with well-being in young adulthood (Toomey et al., 2011), and future research

that identifies what aspects of GSAs contribute to school safety would be valuable to the scientific community, non-profit organizations that help to promote the success of GSAs in schools, and school districts interested in implementing best practices for creating supportive school environments.

Finally, GSAs in and of themselves reflect the type of public health intervention that Atkins and Frazier (2011) argue is needed to reduce the burden of mental illness in our nation. GSAs also offer a vehicle for delivering future prevention and intervention programs to sexual minority youth who are at-risk for experiencing psychological distress, attempting suicide, and developing substance misuse. Researchers should consider developing resiliency-based prevention programs that target youth who are most at-risk for being bullied (e.g., youth who are viewed by peers or teachers as highly gender nonconforming in late elementary or middle school) and teach healthy coping and emotion regulation skills in the context of an affirming environment. If youth who are most at-risk for experiencing bullying are willing GSA participants during the middle and high school years, the delivery of such prevention programs by way of GSAs would clearly embody a model of mental health promotion that “enhances the natural synergy” between schools and mental health delivery (pp. 484, Atkins & Frazier, 2011).

In the end, if GSAs are associated with more favorable health outcomes for sexual minority youth, future research must attempt to maximize these benefits, while also advancing theories that help explain why sexual minority youth are an at-risk population in the first place. Public health approaches aimed at reducing bullying and victimization and promoting favorable mental health and substance use outcomes among sexual minority youth are long over due. Research indicates that sexual minority youth

who attend high schools with school-based support groups for sexual minority youth, anti-bullying and non-discrimination policies, and LGBT-inclusive curricula report more favorable academic and health outcomes. Continued research and additional public policy efforts that support the adoption of these academic- and health-promoting strategies are necessary for the betterment of this population.

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Figure 1. Modeling Overview Displaying Predictor and Outcome Variables

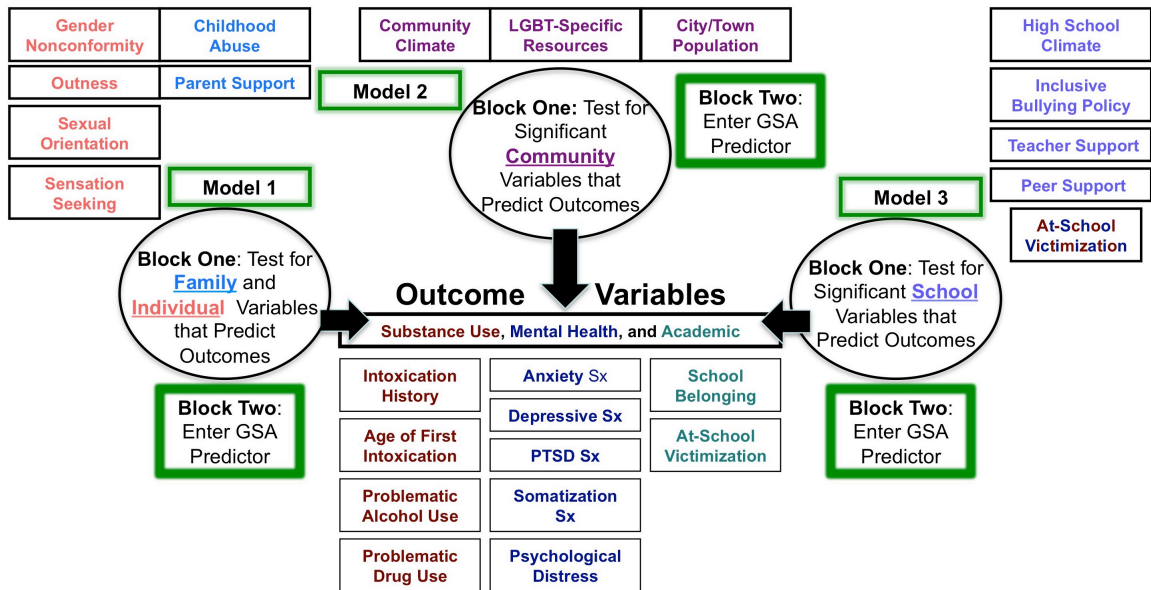


Figure 3.

Geographical Representation Among Participants as of April 1, 2012

- States with Zero Participants
- States with 1 - 4 Participants
- States with 5 - 9 Participants
- States with 10 - 14 Participants
- States with 15 - 20 Participants
- States with 20+ Participants

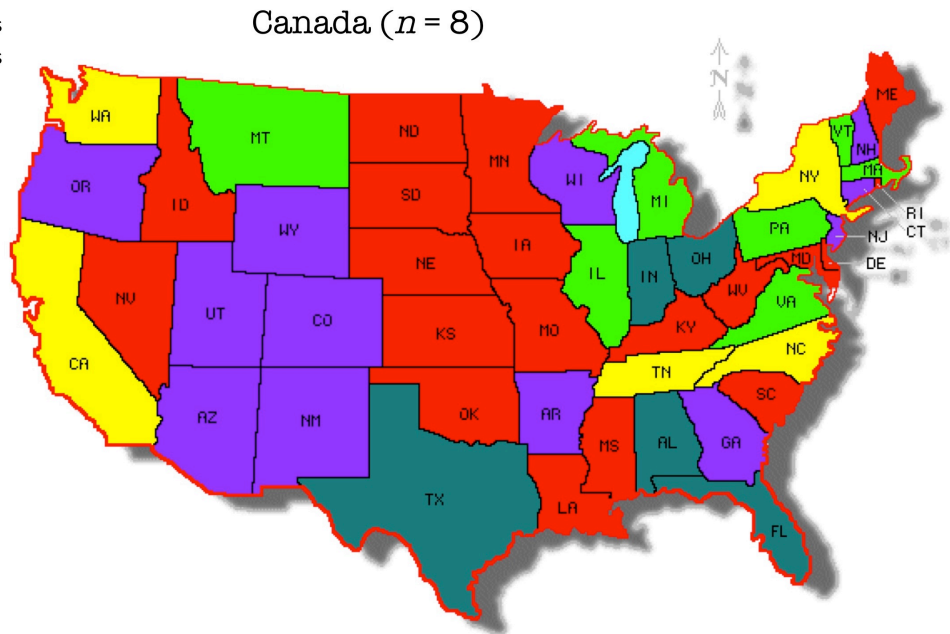
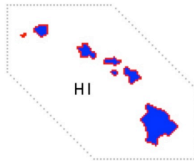


Table 1.0

Search Terms to Identify Facebook Groups for Sexual Minority Youth

LGBT (Q) (QI)	Bisexual	Gender queer	Queer teens
GLBT (Q) (QI)	Bisexual boys	Equality	Queer youth
LGBT (Q) (QI) youth	Bisexual girls	Lesbian	Rainbow
GLBT (Q) (QI) youth	Bisexual teens	Lesbian teens	Rainbow Teens
LGBT (Q) (QI) teens	Bisexual youth	Lesbian youth	Rainbow Youth
GLBT (Q) (QI) teens	Gay	Lesbian girls	Sexual minority
F2M	Gay boys	Pansexual	Transgender
M2F	Gay and Lesbian	Pansexual teens	Transgender teens
Asexual	Gay Community	Pansexual youth	Transgender youth
Asexual teens	Gay teens	PRIDE (GAY)	
Asexual youth	Gay youth	Queer	

Note. For states where it was difficult to identify resources specific for sexual minority youth, the research team searched Facebook using the name of a state and combinations of the search terms above. For example we searched for groups in Minnesota using search terms such as: *Minnesota Gay*, *LGBT Minnesota*, and *Minnesota Gay PRIDE*.

Table 2.0

Range, Means, and Comparisons of GSA+ and GSA- Youth with Respect to Predictor Variables Under Investigation

Predictors	Sample Range	Sample <i>M</i> (<i>SD</i>)	GSA+ <i>M</i> (<i>SD</i>)	GSA- <i>M</i> (<i>SD</i>)	<i>t</i>
<i>Individual/Family</i>					
Childhood Abuse	1.07 – 4.14	1.90 (0.65)	1.84 (0.61)	2.07 (0.72)	2.662**
Gender Nonconformity	1 – 9	4.22 (1.73)	4.41 (1.62)	3.75 (1.91)	-3.086**
Outness	1 – 7	3.57 (1.46)	3.67 (1.46)	3.36 (1.45)	-1.711 [†]
Parent Acceptance	1 – 4	3.07 (0.91)	3.16 (0.89)	2.82 (0.92)	-3.086**
Sensation Seeking	13 – 48	33.29 (8.31)	33.29 (8.24)	33.30 (8.51)	0.008
Sexual Orientation	1 – 9	6.06 (2.25)	5.85 (2.33)	6.59 (1.94)	2.649**
<i>Community</i>					
Community Climate	2 – 10	5.34 (1.98)	4.92 (1.78)	6.40 (2.07)	5.944***
Community Resources	0 – 8	2.97 (2.52)	3.21 (2.59)	2.38 (2.27)	-2.831**
Population	1 – 6	3.92 (1.57)	4.12 (1.46)	3.42 (1.74)	-3.381**
<i>School</i>					
School Climate	2 – 10	5.00 (2.08)	4.49 (1.81)	6.28 (2.18)	6.891***
Support – Peers	2 – 10	6.35 (1.90)	6.51 (1.87)	5.93 (1.91)	-2.470*
Support – Teachers	2 – 10	7.80 (1.73)	8.12 (1.51)	7.00 (1.98)	-4.841***

Note: Standard deviations that are in bold indicate that equal variances for the GSA+ and GSA- means are not assumed; the *t*-statistic reflects this inequality.

[†]*p* < .10, **p* < .05, ***p* < .01, ****p* < .001.

Table 3.1

Model 1 Hierarchical Regression Predicting School Belonging

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	-1.13** (0.41)	-0.96* (0.41)	-0.132
Gender Nonconformity	-0.08 (0.15)	-0.18 (0.15)	-0.064
Outness	0.14 (0.19)	0.09 (0.19)	0.028
Parent Acceptance	0.77* (0.31)	0.70* (0.31)	0.134
Sensation Seeking	0.11*** (0.03)	0.11*** (0.03)	0.196
Sexual Orientation	0.00 (0.12)	0.07 (0.12)	0.031
<i>Gay-Straight Alliance</i>			
GSA Status		1.69** (0.59)	0.162
Adjusted R^2	0.090	0.111	
F-value	6.19***	6.60***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3.2

Model 2 Hierarchical Regression Predicting School Belonging

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	-0.86*** (0.13)	-0.85*** (0.14)	-0.355
Community Resources	0.02 (0.11)	0.02 (0.11)	0.012
Population	0.75*** (0.16)	0.73*** (0.16)	0.244
<i>Gay-Straight Alliance</i>			
GSA Status		0.23 (0.57)	0.022
Adjusted R^2	0.211	0.209	
F-value	29.02***	21.75***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3.3

Model 3 Hierarchical Regression Predicting School Belonging

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>School Predictors</i>			
Bully Policy	-1.00* (0.41)	-0.94* (0.43)	-0.09
School Climate	-0.59*** (0.10)	-0.61*** (0.10)	-0.27
Support - Peers	1.02*** (0.12)	1.00*** (0.12)	0.40
Support - Teachers	0.80*** (0.12)	0.82*** (0.13)	0.30
<i>Gay-Straight Alliance</i>			
GSA Status		-0.26 (0.46)	-0.02
Adjusted R^2	0.552	0.551	
F-value	97.88***	78.19***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3.4

Model 4 Hierarchical Regression Predicting School Belonging

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	-1.05** (0.35)	-0.12 (0.24)	-0.13 (0.24)	-0.022
Gender1	1.98 [†] (1.04)	0.19 (0.69)	0.17 (0.69)	0.018
Gender2	2.36* (0.99)	0.21 (0.66)	0.24 (0.67)	0.026
Relationship1	0.84 (0.68)	1.14* (0.44)	1.13* (0.44)	0.113
Relationship2	0.90 (0.96)	1.15 [†] (0.63)	1.13 [†] (0.63)	0.078
School	1.43* (0.72)	0.51 (0.48)	0.43 (0.51)	0.034
<i>Retained Predictors</i>				
Childhood Abuse		-0.10 (0.29)	-0.09 (0.29)	-0.013
Parent Acceptance		0.07 (0.20)	0.07 (0.20)	0.014
Sensation Seeking		0.02 (0.02)	0.02 (0.02)	0.027
Community Climate		-0.07 (0.11)	-0.07 (0.12)	-0.031
Population		0.26* (0.12)	0.26* (0.12)	0.089
Bully Policy		-1.08** (0.40)	-1.04* (0.41)	-0.102
School Climate		-0.58*** (0.11)	-0.59*** (0.12)	-0.262
Support-Peer		0.93*** (0.12)	0.92*** (0.12)	0.374
Support-Teacher		0.79*** (0.13)	0.80*** (0.13)	0.296
<i>Gay-Straight Alliance</i>				
GSA Status			-0.23 (0.49)	-0.022
Adjusted R^2	0.050	0.601	0.600	
F-value	3.73**	32.52***	30.42***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4.1

Model 1 Hierarchical Regression Predicting At-School Victimization

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	3.04 ^{***} (0.46)	2.48 ^{***} (0.42)	0.282
Gender Nonconformity	-0.03 (0.17)	0.28 [†] (0.16)	0.083
Outness	0.18 (0.22)	0.35 [†] (0.19)	0.090
Parent Acceptance	-0.63 [†] (0.35)	-0.38 (0.31)	-0.060
Sensation Seeking	-0.11 ^{**} (0.04)	-0.11 ^{**} (0.03)	-0.155
Sexual Orientation	0.52 ^{***} (0.14)	0.31 [*] (0.12)	0.122
<i>Gay-Straight Alliance</i>			
GSA Status		-5.52 ^{***} (0.60)	-0.434
Adjusted R^2	0.204	0.373	
F-value	14.50 ^{***}	27.79 ^{***}	

[†] $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

Table 4.2

Model 2 Hierarchical Regression Predicting At-School Victimization

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	0.84 ^{***} (0.16)	0.47 ^{**} (0.16)	0.160
Community Resources	0.29 [*] (0.13)	0.26 [*] (0.12)	0.116
Population	-1.16 ^{***} (0.20)	-0.91 ^{***} (0.19)	-0.249
<i>Gay-Straight Alliance</i>			
GSA Status		-5.05 ^{***} (0.65)	-0.398
Adjusted R^2	0.161	0.296	
F-value	21.22 ^{***}	34.15 ^{***}	

[†] $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

Table 4.3

Model 3 Hierarchical Regression Predicting At-School Victimization

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	β
<i>School Predictors</i>			
Bully Policy	0.12 (0.62)	1.34* (0.59)	0.107
School Climate	0.51** (0.15)	0.18 (0.14)	0.067
Support - Peers	-0.40* (0.18)	-0.61*** (0.17)	-0.202
Support - Teachers	-1.24*** (0.19)	-0.92*** (0.18)	-0.276
<i>Gay-Straight Alliance</i>			
GSA Status		-4.90*** (0.64)	-0.386
Adjusted R^2	0.299	0.409	
F-value	34.56***	44.68***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4.4

Model 4 Hierarchical Regression Predicting At-School Victimization

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	1.47*** (0.41)	0.15 (0.35)	-0.06 (0.34)	-0.008
Gender1	-0.72 (1.21)	0.41 (1.01)	0.18 (0.97)	0.016
Gender2	-3.97** (1.15)	-1.85 [†] (0.96)	-1.39 (0.92)	-0.121
Relationship1	0.39 (0.78)	-0.22 (0.63)	-0.39 (0.61)	-0.032
Relationship2	-0.72 (1.11)	-1.20 (0.90)	-1.55 [†] (0.87)	-0.087
School	1.00 (0.83)	1.58* (0.69)	0.34 (0.70)	0.022
<i>Retained Predictors</i>				
Childhood Abuse		1.53*** (0.41)	1.65*** (0.39)	0.187
Sensation Seeking		-0.03 (.03)	-0.04 (0.03)	-0.055
Sexual Orientation		0.32** (.12)	0.30** (.11)	0.115
Community Climate		0.16 (0.17)	0.02 (0.16)	0.005
Community Resources		0.27* (0.11)	0.28** (0.11)	0.125
Population		-0.63*** (.17)	-0.50** (0.17)	-0.137
School Climate		0.48** (0.16)	0.25 (0.16)	0.090
Support-Peer		-0.32 [†] (0.17)	-0.45** (0.16)	-0.148
Support-Teacher		-0.85*** (0.18)	-0.73*** (0.18)	-0.219
<i>Gay-Straight Alliance</i>				
GSA Status			-3.47*** (.66)	-0.273
Adjusted R^2	0.150	0.450	0.495	
F-value	10.29***	18.20***	20.32***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5.1

*Model 1 Hierarchical Regression Predicting Alcohol Use Disorders
Identification Test Scores*

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	3.56 ^{***} (0.52)	2.93 ^{***} (0.46)	0.306
Gender Nonconformity	-0.57 ^{**} (0.19)	-0.23 (0.17)	-0.063
Outness	-0.06 (0.24)	0.14 (0.21)	0.032
Parent Acceptance	-0.40 (0.39)	-0.12 (0.35)	-0.018
Sensation Seeking	-0.00 (0.04)	-0.00 (0.04)	-0.005
Sexual Orientation	0.25 (0.15)	0.01 (0.14)	0.003
<i>Gay-Straight Alliance</i>			
GSA Status		-6.25 ^{***} (0.67)	-0.453
Adjusted R^2	0.160	0.343	
F-value	10.972 ^{***}	24.474 ^{***}	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5.2

*Model 2 Hierarchical Regression Predicting Alcohol Use Disorders**Identification Test Scores*

Predictor Variables	Block 1 <i>b</i> (SE)	Block 2 <i>b</i> (SE)	β
<i>Community Predictors</i>			
Community Climate	0.17 (0.19)	-0.39* (0.17)	-0.123
Community Resources	0.12 (0.16)	0.08 (0.13)	0.032
Population	-0.72** (0.23)	-0.35† (0.21)	-0.088
<i>Gay-Straight Alliance</i>			
GSA Status		-7.47*** (0.72)	-0.541
Adjusted R^2	0.024	0.275	
F-value	3.56***	30.90***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5.3

*Model 3 Hierarchical Regression Predicting Alcohol Use Disorders**Identification Test Scores*

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>School Predictors</i>			
Bully Policy	-0.48 (0.62)	0.56 (0.62)	0.04
School Climate	0.03 (0.15)	-0.18 (0.15)	-0.06
Support - Peers	1.02*** (0.18)	0.78*** (0.17)	0.24
Support - Teachers	-1.20*** (0.20)	-1.10*** (0.19)	-0.30
Victimization	0.57*** (0.06)	0.44*** (0.06)	0.40
<i>Gay-Straight Alliance</i>			
GSA Status		-4.12*** (0.71)	-0.30
Adjusted R^2	0.417	0.472	
F-value	46.05***	47.91***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5.4

Model 4 Hierarchical Regression Predicting Alcohol Use Disorders Identification Test Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	1.87*** (0.43)	0.64 [†] (0.36)	0.54 (0.35)	0.068
Gender1	2.42 [†] (1.27)	2.56* (1.05)	2.54* (1.02)	0.198
Gender2	-0.14 (1.20)	1.63 (1.02)	1.99* (1.00)	0.159
Relationship1	1.00 (0.82)	0.67 (0.65)	0.51 (0.64)	0.038
Relationship2	1.84 (1.16)	1.53 (0.94)	1.05 (0.93)	0.054
School	3.89*** (0.87)	2.55*** (0.72)	1.92** (0.72)	0.114
<i>Retained Predictors</i>				
Childhood Abuse		1.22** (0.43)	1.37** (0.42)	0.143
Gender Nonconformity		-0.30* (0.15)	-0.18 (0.15)	-0.049
Population		0.05 (0.17)	0.11 (0.17)	0.027
Support-Teacher		-0.89*** (0.19)	-0.85*** (0.19)	-0.235
Support-Peer		0.68*** (0.17)	0.65*** (0.16)	0.197
Victimization		0.48*** (0.06)	0.40*** (0.06)	0.363
<i>Gay-Straight Alliance</i>				
GSA Status			-2.73*** (0.68)	-0.198
Adjusted R^2	0.207	0.492	0.517	
F-value	14.67***	26.47***	26.90***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6.1

Model 1 Logistic Regression Predicting History of Alcohol Intoxication

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Final <i>W</i>	Exp(β) [95% CI]
<i>Individual/Family Predictors</i>				
Childhood Abuse	0.47 (0.20)	0.36 (0.21)	2.88	1.43 [1.01 – 2.15]
Gender Nonconformity	-0.09 (0.07)	-0.01 (0.08)	0.01	0.99 [0.86 – 1.15]
Outness	0.03 (0.09)	0.09 (0.09)	0.99	1.10 [0.92 – 1.31]
Parent Acceptance	-0.10 (0.14)	-0.02 (0.15)	0.02	0.98 [0.73 – 1.31]
Sensation Seeking	0.03 (0.01)	0.03 (0.02)	4.05	1.03 [1.01 – 1.06]
Sexual Orientation	-0.09 (0.05)	-0.08 (0.06)	2.09	0.92 [0.82 – 1.03]
<i>Gay-Straight Alliance</i>				
GSA Status		1.73 (0.32)	29.78	5.62 [3.03 – 10.46]
Model χ^2	13.53*	48.29***		

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6.2

Model 2 Logistic Regression Predicting History of Alcohol Intoxication

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Final <i>W</i>	Exp(β) [95% CI]
<i>Community Predictors</i>				
Community	0.02 (0.06)	-0.12 (0.07)	2.96	0.89
Climate				[0.77 – 1.02]
Community	0.06 (0.05)	0.06 (0.05)	1.15	1.06
Resources				[0.95 – 1.18]
Population	-0.13 (0.08)	-0.06 (0.09)	0.52	0.94
				[0.80 – 1.11]
<i>Gay-Straight Alliance</i>				
GSA Status		1.89 (0.53)	33.55	6.65
				[3.50 – 12.62]
Model χ^2	3.52	43.85***		

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6.3

Model 3 Logistic Regression Predicting History of Alcohol Intoxication

Predictor Variables	Block 1 <i>b (SE)</i>	Block 2 <i>b (SE)</i>	Final <i>W</i>	Exp(β) [95% CI]
<i>School Predictors</i>				
Bully Policy	-0.06 (0.28)	0.39 (0.29)	1.83	0.68 [0.38 – 1.19]
School Climate	0.14 (0.07)	0.07 (0.08)	0.87	1.07 [0.93 – 1.25]
Support - Peers	0.35 (0.09)	0.29 (0.09)	10.49	1.34 [1.12 – 1.59]
Support - Teacher	-0.40 (0.10)	-0.39 (0.10)	15.77	0.68 [0.56 – 0.82]
Victimization	0.07 (0.03)	0.03 (0.03)	1.28	1.04 [0.98 – 1.10]
<i>Gay-Straight Alliance</i>				
GSA Status		1.38 (0.36)	14.77	3.99 [1.97 – 8.07]
Model χ^2	48.57 ^{***}	64.35 ^{***}		

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6.4

Model 4 Logistic Regression Predicting History of Alcohol Intoxication

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	Final <i>W</i>	Final Exp(β) [95% CI]
<i>Demographics</i>					
Age	0.36 (0.16)	0.16 (0.18)	0.11 (0.18)	0.33	1.11 [0.78 – 1.59]
Gender1	-0.03 (0.46)	-0.01 (0.50)	0.12 (0.51)	0.05	1.12 [0.41 – 3.05]
Gender2	0.15 (0.44)	-0.06 (0.48)	-0.12 (0.49)	0.07	0.88 [0.34 – 2.29]
Relationship1	-0.07 (0.30)	0.01 (0.31)	0.09 (0.32)	0.72	1.09 [0.59 – 2.02]
Relationship2	-0.78 (0.45)	-0.72 (0.47)	-0.56 (0.48)	1.34	0.57 [0.22 – 1.47]
School	-0.47 (0.33)	-0.30 (0.37)	0.07 (0.40)	0.03	1.07 [0.49 – 2.33]
<i>Retained Predictors</i>					
Childhood Abuse		0.00 (0.21)	0.06 (0.22)	0.78	1.06 [0.69 – 1.64]
Support-Peer		0.28 (0.08)	0.28 (0.09)	10.43	1.32 [1.12 – 1.56]
Support-Teacher		-0.38 (0.09)	-0.37 (0.10)	13.31	0.69 [0.57 – 0.84]
Victimization		.086 (0.03)	0.05 (0.03)	2.22	1.05 [0.99 – 1.12]
<i>Gay-Straight Alliance</i>					
GSA Status			1.35 (0.35)	14.64	3.85 [1.93 – 7.67]
Model χ^2	15.43*	50.39***	66.17***		

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7.1

Model 1 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	β
<i>Individual/Family Predictors</i>			
Childhood Abuse	-0.40 [†] (0.22)	-0.31 (0.21)	-0.12
Gender Nonconformity	0.16 [†] (0.09)	0.08 (0.09)	0.08
Outness	-0.07 (0.12)	-0.12 (0.11)	-0.09
Parent Acceptance	0.12 (0.19)	0.09 (0.18)	0.04
Sensation Seeking	-0.00 (0.02)	-0.01 (0.02)	-0.05
Sexual Orientation	0.01 (0.08)	0.07 (0.08)	0.08
<i>Gay-Straight Alliance</i>			
GSA Status		1.15 ^{**} (0.33)	0.29
Adjusted R^2	0.011	0.075	
F-value	1.31	2.95 ^{**}	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7.2

Model 2 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	β
<i>Community Predictors</i>			
Community Climate	-0.14 (0.08)	-0.04 (0.08)	-0.041
Community Resources	0.00 (0.07)	-0.01 (0.06)	-0.009
Population	-0.10 (0.10)	-0.15 (0.10)	-0.117
<i>Gay-Straight Alliance</i>			
GSA Status		1.19 ^{***} (0.33)	0.297
Adjusted R^2	0.008	0.075	
F-value	1.46	4.41 ^{**}	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7.3

Model 3 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>School Predictors</i>			
Bully Policy	-0.05 (0.35)	-0.41 (0.37)	-0.09
School Climate	-0.21* (0.08)	-0.16* (0.08)	-0.18
Support - Peers	-0.23* (0.11)	-0.19 [†] (0.11)	-0.17
Support - Teachers	0.10 (0.11)	0.07 (0.11)	0.07
Victimization	-0.05 (0.03)	-0.02 (0.03)	-0.05
<i>Gay-Straight Alliance</i>			
GSA Status		1.00* (0.39)	0.25
Adjusted R^2	0.059	0.090	
F-value	3.12*	3.77**	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7.4

Model 4 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1 <i>b (SE)</i>	Block 2 <i>b (SE)</i>	Block 3 <i>b (SE)</i>	β
<i>Demographics</i>				
Age	0.19 (0.21)	0.13 (0.21)	0.17 (0.21)	0.07
Gender1	0.00 (0.64)	-0.19 (0.63)	-0.00 (0.61)	0.00
Gender2	0.65 (0.61)	0.46 (0.61)	0.38 (0.59)	0.10
Relationship1	-0.15 (0.43)	-0.16 (0.42)	-0.07 (0.41)	-0.02
Relationship2	-0.58 (0.54)	-0.45 (0.53)	-0.40 (0.52)	-0.07
School	0.19 (0.43)	0.19 (0.43)	0.70 (0.45)	0.14
<i>Retained Predictors</i>				
School Climate		-0.23** (0.08)	-0.11 (0.08)	-0.12
Support-Peer		-0.12 (0.10)	-0.15 (0.10)	-0.13
<i>Gay-Straight Alliance</i>				
GSA Status			1.24** (0.39)	0.31
Adjusted R^2	-0.003	0.038	0.091	
F-value	0.92	1.82 [†]	2.86**	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 8.1

Model 1 Hierarchical Regression Predicting Drug Abuse Screening Test Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	β
<i>Individual/Family Predictors</i>			
Childhood Abuse	0.65* (0.25)	0.52* (0.25)	0.118
Gender Nonconformity	-0.14 (0.09)	-0.07 (0.09)	-0.043
Outness	0.01 (0.12)	0.05 (0.12)	0.024
Parent Acceptance	-0.25 (0.19)	-0.19 (0.19)	-0.061
Sensation Seeking	0.06** (0.02)	0.06** (0.02)	0.184
Sexual Orientation	0.03 (0.07)	-0.02 (0.07)	-0.018
<i>Gay-Straight Alliance</i>			
GSA Status		-1.29*** (0.36)	-0.203
Adjusted R^2	0.056	0.091	
F-value	4.14**	5.49***	

Note:

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 8.2

Model 2 Hierarchical Regression Predicting Drug Abuse Screening Test Scores

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	0.34 ^{***} (0.09)	0.24 ^{**} (0.09)	0.165
Community Resources	0.07 (0.07)	0.06 (0.07)	0.053
Population	0.19 [†] (0.11)	0.25 [*] (0.11)	0.139
<i>Gay-Straight Alliance</i>			
GSA Status		-1.37 ^{***} (0.37)	-0.215
Adjusted R^2	0.048	0.085	
F-value	6.32 ^{***}	8.35 ^{***}	

[†] $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

Table 8.3

Model 3 Hierarchical Regression Predicting Drug Abuse Screening Test Scores

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>School Predictors</i>			
Bully Policy	-0.16 (0.35)	-0.01 (0.37)	-0.00
School Climate	0.40 ^{***} (0.09)	0.37 ^{***} (0.09)	0.27
Support - Peers	0.19 [†] (0.10)	0.15 (0.10)	0.10
Support - Teachers	-0.22 [*] (0.11)	-0.21 [†] (0.11)	-0.13
Victimization	0.03 (0.03)	0.01 (0.04)	0.03
<i>Gay-Straight Alliance</i>			
GSA Status		-0.60 (0.43)	-0.10
Adjusted R^2	0.106	0.109	
F-value	8.46 ^{***}	7.40 ^{***}	

[†] $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

Table 8.4

Model 4 Hierarchical Regression Predicting Drug Abuse Screening Test Scores

Predictor Variables	Block 1 <i>b (SE)</i>	Block 2 <i>b (SE)</i>	Block 3 <i>b (SE)</i>	β
<i>Demographics</i>				
Age	0.02 (0.22)	-0.17 (0.21)	-0.23 (0.21)	-0.063
Gender1	0.03 (0.65)	0.36 (0.61)	0.26 (0.61)	0.044
Gender2	-0.42 (0.62)	0.13 (0.58)	0.20 (0.58)	0.034
Relationship1	-0.31 (0.42)	-0.31 (0.39)	-0.36 (0.39)	-0.058
Relationship2	1.24* (0.60)	0.88 (0.56)	0.81 (0.56)	0.091
School	-0.28 (0.45)	-0.07 (0.42)	-0.36 (0.45)	-0.046
<i>Retained Predictors</i>				
Childhood Abuse		0.35 (0.25)	0.37 (0.25)	0.083
Sensation Seeking		0.07*** (0.02)	0.07*** (0.02)	0.199
Community Climate		0.04 (0.10)	0.01 (0.10)	0.009
School Climate		0.34** (0.10)	0.29** (0.10)	0.209
Support-Teacher		-0.20* (0.10)	-0.19 [†] (0.10)	-0.111
<i>Gay-Straight Alliance</i>				
GSA Status			-0.82 [†] (0.42)	-0.129
Adjusted R^2	0.018	0.153	0.161	
F-value	1.94 [†]	6.16***	6.02***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9.1

Model 1 Hierarchical Regression Predicting Brief Symptom Inventory Global Severity Index Scores

Predictor Variables	Block 1	Block 2	β
	b (SE)	b (SE)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	0.53 ^{***} (0.06)	0.54 ^{***} (0.06)	0.446
Gender Nonconformity	0.05 [*] (0.02)	0.04 [†] (0.02)	0.087
Outness	-0.03 (0.03)	-0.03 (0.03)	-0.062
Parent Acceptance	-0.09 [†] (0.05)	-0.09 [†] (0.05)	-0.106
Sensation Seeking	-0.01 [*] (0.01)	-0.01 [*] (0.01)	-0.124
Sexual Orientation	-0.01 (0.02)	-0.00 (0.02)	-0.006
<i>Gay-Straight Alliance</i>			
GSA Status		0.10 (0.09)	-.056
Adjusted R^2	0.250	0.250	
F-value	18.51 ^{***}	16.04 ^{***}	

[†] $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

Table 9.2

Model 2 Hierarchical Regression Predicting Brief Symptom Inventory Global Severity Index Scores

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	0.06* (0.02)	0.07** (0.03)	0.175
Community Resources	0.01 (0.02)	0.01 (0.02)	0.030
Population	-0.07* (0.03)	-0.07* (0.03)	-0.140
<i>Gay-Straight Alliance</i>			
GSA Status		0.10 (0.10)	0.060
Adjusted R^2	0.032	0.032	
F-value	4.43**	3.57**	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9.3

Model 3 Hierarchical Regression Predicting Brief Symptom Inventory Global Severity Index Scores

Predictor Variables	Block 1	Block 2	β
	b (SE)	b (SE)	
<i>School Predictors</i>			
Bully Policy	0.14 (0.09)	0.06 (0.10)	0.04
School Climate	-0.03 (0.02)	-0.02 (0.02)	-0.04
Support - Peers	-0.09** (0.03)	-0.08** (0.03)	-0.18
Support - Teachers	-0.06* (0.03)	-0.07* (0.03)	-0.15
Victimization	0.03*** (0.01)	0.04*** (0.01)	0.31
<i>Gay-Straight Alliance</i>			
GSA Status		0.29* (0.11)	0.17
Adjusted R^2	0.180	0.194	
F-value	14.75***	13.62***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9.4

Model 4 Hierarchical Regression Predicting Brief Symptom Inventory Global Severity Index Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	0.02 (0.06)	-0.12* (0.05)	-0.11* (0.05)	-0.106
Gender1	-0.62** (0.18)	-0.36* (0.15)	-0.36* (0.15)	-0.220
Gender2	-0.60*** (0.17)	-0.16 (0.15)	-0.20 (0.15)	-0.125
Relationship1	0.08 (0.11)	0.03 (0.10)	0.05 (0.10)	0.029
Relationship2	0.23 (0.16)	0.14 (0.14)	0.19 (0.14)	0.077
School	0.10 (0.12)	0.07 (0.11)	0.14 (0.11)	0.066
<i>Retained Predictors</i>				
Childhood Abuse		0.48*** (0.06)	0.46*** (0.06)	0.381
Gender Nonconformity		0.03 (0.02)	0.02 (0.02)	0.034
Sensation Seeking		-0.01 (0.01)	-0.01 (0.01)	-0.052
Community Climate		-0.01 (0.02)	0.01 (0.02)	0.014
Population		-0.00 (0.03)	-0.01 (0.03)	-0.014
Support-Peer		-0.08** (0.03)	-0.07** (0.03)	-0.171
Support-Teacher		-0.03 (0.03)	-0.03 (0.03)	-0.067
Victimization		0.02** (0.01)	0.03** (0.01)	0.208
<i>Gay-Straight Alliance</i>				
GSA Status			0.27* (0.11)	0.152
Adjusted R^2	0.029	0.323	0.334	
F-value	2.56*	11.74***	11.54***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9.5

Unstandardized Regression Coefficients for Gender Variables Included in the Two Model 4 Hierarchical Regressions Predicting Brief Symptom Inventory Global Severity Index Scores

	Block 1 <i>b</i> (<i>n</i> = 316)	Block 1 <i>b</i> (<i>n</i> = 305)	Block 2 <i>b</i> (<i>n</i> = 316)	Block 2 <i>b</i> (<i>n</i> = 305)	Block 3 <i>b</i> (<i>n</i> = 316)	Block 3 <i>b</i> (<i>n</i> = 305)
Gender1	-.62**	-1.00***	-.360*	-.653**	-.358*	-.643**
Gender2	-.60***	-.992***	-.162	-.474*	-.198	-.502*
Adjusted <i>R</i> ²	0.029	0.057	0.323	0.322	0.334	0.333
F-value	2.562*	4.049**	11.737***	11.312***	11.537***	11.138***

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

Table 10.1

Model 1 Hierarchical Regression Predicting Brief Symptom Inventory Depression Subscale Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	β
<i>Individual/Family Predictors</i>			
Childhood Abuse	0.44*** (0.09)	0.46*** (0.09)	0.282
Gender Nonconformity	0.06 [†] (0.03)	0.05 (0.03)	0.086
Outness	-0.02 (0.04)	-0.03 (0.04)	-0.037
Parent Acceptance	-0.19** (0.07)	-0.20** (0.07)	-0.171
Sensation Seeking	-0.01 [†] (0.01)	-0.01 [†] (0.01)	-0.103
Sexual Orientation	-0.02 (0.03)	-0.01 (0.03)	-0.017
<i>Gay-Straight Alliance</i>			
GSA Status		0.17 (0.13)	0.071
Adjusted <i>R</i> ²	0.139	0.140	
F-value	9.45***	8.35***	

[†] *p* < .10, * *p* < .05, ** *p* < .01, *** *p* < .001.

Table 10.2

*Model 2 Hierarchical Regression Predicting Brief Symptom Inventory
Depression Subscale Scores*

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	β
<i>Community Predictors</i>			
Community Climate	0.08* (0.03)	0.09** (0.03)	0.172
Community Resources	-0.02 (0.03)	-0.02 (0.03)	-0.043
Population	-0.03 (0.04)	-0.04 (0.04)	-0.054
<i>Gay-Straight Alliance</i>			
GSA Status		0.20 (0.14)	0.086
Adjusted R^2	0.022	0.025	
F-value	3.38*	3.05*	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 10.3

*Model 3 Hierarchical Regression Predicting Brief Symptom Inventory
Depression Subscale Scores*

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>School Predictors</i>			
Bully Policy	0.26* (0.13)	0.17 (0.13)	0.08
School Climate	0.00 (0.03)	0.02 (0.03)	0.04
Support - Peers	-0.15*** (0.04)	-0.13** (0.04)	-0.23
Support - Teachers	-0.04 (0.04)	-0.05 (0.04)	-0.07
Victimization	0.02† (0.01)	0.03** (0.01)	0.18
<i>Gay-Straight Alliance</i>			
GSA Status		0.32* (0.16)	0.14
Adjusted R^2	0.121	0.130	
F-value	9.66***	8.85***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 10.4

Model 4 Hierarchical Regression Predicting Brief Symptom Inventory Depression Subscale Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	-0.07 (0.08)	-0.15* (0.07)	-0.14 [†] (0.08)	-0.102
Gender1	-0.73** (0.24)	-0.44* (0.22)	-0.43* (0.22)	-0.198
Gender2	-0.69** (0.23)	-0.28 (0.21)	-0.30 (0.21)	-0.141
Relationship1	0.11 (0.16)	0.07 (0.14)	0.08 (0.14)	0.035
Relationship2	0.29 (0.22)	0.24 (0.20)	0.25 (0.20)	0.077
School	-0.04 (0.17)	0.01 (0.15)	0.06 (0.16)	0.021
<i>Retained Predictors</i>				
Childhood Abuse		0.44*** (0.09)	0.44*** (0.09)	0.271
Parent Acceptance		-0.16* (0.06)	-0.17* (0.06)	-0.142
Community Climate		0.00 (0.03)	0.01 (0.03)	0.025
Bully Policy		0.22 [†] (0.13)	0.19 (0.13)	0.083
Support-Peer		-0.16*** (0.03)	-0.16*** (0.03)	-0.285
<i>Gay-Straight Alliance</i>				
GSA Status			0.15 (0.15)	
Adjusted R^2	0.020	0.219	0.219	
F-value	2.06 [†]	9.00***	8.34***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 11.1

*Model 1 Hierarchical Regression Predicting Brief Symptom Inventory
Anxiety Subscale Scores*

Predictor Variables	Block 1	Block 2	β
	b (SE)	b (SE)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	0.63 ^{***} (0.07)	0.65 ^{***} (0.07)	0.458
Gender Nonconformity	0.03 (0.03)	0.02 (0.03)	0.038
Outness	-0.03 (0.03)	-0.04 (0.03)	-0.061
Parent Acceptance	-0.08 (0.06)	-0.09 (0.06)	-0.086
Sensation Seeking	-0.01 [*] (0.01)	-0.01 [*] (0.01)	-0.118
Sexual Orientation	0.00 (0.02)	0.01 (0.02)	0.028
<i>Gay-Straight Alliance</i>			
GSA Status		0.21 [*] (0.11)	0.103
Adjusted R^2	0.233	0.240	
F-value	16.95 ^{***}	15.23 ^{***}	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 11.2

*Model 2 Hierarchical Regression Predicting Brief Symptom Inventory
Anxiety Subscale Scores*

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	0.07* (0.03)	0.08** (0.03)	0.167
Community Resources	0.03 (0.02)	0.03 (0.02)	0.087
Population	-0.06† (0.04)	-0.07† (0.04)	-0.114
<i>Gay-Straight Alliance</i>			
GSA Status		0.16 (0.12)	0.079
Adjusted R^2	0.017	0.019	
F-value	2.78*	2.52*	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 11.3

*Model 3 Hierarchical Regression Predicting Brief Symptom Inventory
Anxiety Subscale Scores*

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	β
<i>School Predictors</i>			
Bully Policy	0.22 [†] (0.11)	0.12 (0.12)	0.06
School Climate	-0.02 (0.03)	0.00 (0.03)	0.00
Support - Peers	-0.07* (0.03)	-0.05 (0.03)	-0.09
Support - Teachers	-0.08* (0.04)	-0.09* (0.04)	-0.16
Victimization	0.03** (0.01)	0.05*** (0.01)	0.29
<i>Gay-Straight Alliance</i>			
GSA Status		0.40** (0.14)	0.20
Adjusted R^2	0.130	0.152	
F-value	10.40***	10.38***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 11.4

Model 4 Hierarchical Regression Predicting Brief Symptom Inventory Anxiety Subscale Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	0.05 (0.07)	-0.08 (0.06)	-0.07 (0.06)	-0.06
Gender1	-0.76*** (0.21)	-0.50** (0.18)	-0.49** (0.18)	-0.25
Gender2	-0.59** (0.20)	-0.15 (0.17)	-0.17 (0.17)	-0.09
Relationship1	0.02 (0.14)	-0.03 (0.12)	-0.01 (0.12)	-0.01
Relationship2	0.31 (0.19)	0.24 (0.17)	0.28 [†] (0.16)	0.10
School	0.12 (0.15)	0.04 (0.13)	0.12 (0.13)	0.05
<i>Retained Predictors</i>				
Childhood Abuse		0.59*** (0.08)	0.56*** (0.08)	0.39
Sensation Seeking		-0.01 (0.01)	-0.01 (0.01)	-0.06
Community Climate		-0.01 (0.03)	0.01 (0.03)	0.02
Bully Policy		0.20 [†] (0.11)	0.13 (0.11)	0.06
Support-Peer		-0.07* (0.03)	-0.05 [†] (0.03)	-0.11
Support-Teacher		-0.02 (0.03)	-0.03 (0.03)	-0.06
Victimization		0.03* (0.01)	0.04** (0.01)	0.22
<i>Gay-Straight Alliance</i>				
GSA Status			0.32* (0.13)	0.16
Adjusted R^2	0.035	0.304	0.315	
F-value	2.90**	11.54***	11.33***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 12.1

*Model 1 Hierarchical Regression Predicting Brief Symptom Inventory
Somatization Subscale Scores*

Predictor Variables	Block 1	Block 2	β
	b (SE)	b (SE)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	0.44 ^{***} (0.06)	0.43 ^{***} (0.06)	0.401
Gender Nonconformity	0.04 [†] (0.02)	0.04 [†] (0.02)	0.089
Outness	-0.00 (0.03)	-0.00 (0.03)	-0.005
Parent Acceptance	-0.03 (0.04)	-0.03 (0.04)	-0.038
Sensation Seeking	-0.01 [†] (0.00)	-0.01 [†] (0.00)	-0.102
Sexual Orientation	0.00 (0.02)	0.00 (0.02)	0.004
<i>Gay-Straight Alliance</i>			
GSA Status		-0.02 (0.09)	-0.010
Adjusted R^2	0.179	0.177	
F-value	12.47 ^{***}	10.66 ^{***}	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 12.2

*Model 2 Hierarchical Regression Predicting Brief Symptom Inventory
Somatization Subscale Scores*

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	0.04 [†] (0.02)	0.03 (0.02)	0.094
Community Resources	0.01 (0.02)	0.01 (0.02)	0.048
Population	-0.05* (0.03)	-0.05 [†] (0.03)	-0.118
<i>Gay-Straight Alliance</i>			
GSA Status		-0.03 (0.09)	-0.018
Adjusted R^2	0.013	0.010	
F-value	2.38 [†]	1.80	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 12.3

*Model 3 Hierarchical Regression Predicting Brief Symptom Inventory
Somatization Subscale Scores*

Predictor Variables	Block 1	Block 2	β
	$b (SE)$	$b (SE)$	
<i>School Predictors</i>			
Bully Policy	0.11 (0.08)	0.08 (0.09)	0.05
School Climate	-0.05* (0.02)	-0.04 [†] (0.02)	-0.12
Support - Peers	-0.04 (0.02)	-0.03 (0.03)	-0.08
Support - Teachers	-0.08** (0.03)	-0.09** (0.03)	-0.21
Victimization	0.03*** (0.01)	0.04*** (0.01)	0.31
<i>Gay-Straight Alliance</i>			
GSA Status		0.15 (0.10)	0.09
Adjusted R^2	0.168	0.171	
F-value	13.67***	11.78***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 12.4

Model 4 Hierarchical Regression Predicting Brief Symptom Inventory Somatization Subscale Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	0.06 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.07
Gender1	-0.55** (0.16)	-0.42** (0.14)	-0.41** (0.14)	-0.29
Gender2	-0.46** (0.15)	-0.17 (0.13)	-0.18 (0.13)	-0.12
Relationship1	0.02 (0.10)	-0.02 (0.09)	-0.01 (0.09)	-0.01
Relationship2	0.14 (0.15)	0.09 (0.13)	0.10 (0.13)	0.05
School	0.19 [†] (0.11)	0.06 (0.10)	0.10 (0.10)	0.05
<i>Retained Predictors</i>				
Childhood Abuse		0.34*** (0.06)	0.33*** (0.06)	0.31
Sensation Seeking		-0.00 (0.00)	-0.00 (0.00)	-0.04
Population		0.00 (0.02)	0.00 (0.02)	0.00
School Climate		-0.05** (0.02)	-0.04* (0.02)	-0.13
Support-Teacher		-0.07** (0.02)	-0.07** (0.02)	-0.17
Victimization		0.03*** (0.01)	0.03*** (0.01)	0.28
<i>Gay-Straight Alliance</i>				
GSA Status			0.11 (0.10)	0.07
Adjusted R^2	0.034	0.274	0.275	
F-value	2.82*	10.91***	10.18***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.1

Model 1 Hierarchical Regression Predicting PTSD Checklist Total Scores

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	10.63 ^{***} (1.28)	10.63 ^{***} (1.30)	0.429
Gender Nonconformity	0.93 [†] (0.47)	0.93 [†] (0.48)	0.099
Outness	-0.72 (0.60)	-0.72 (0.60)	-0.065
Parent Acceptance	-1.71 [†] (0.97)	-1.71 [†] (0.97)	-0.097
Sensation Seeking	-0.15 (0.10)	-0.15 (0.10)	-0.075
Sexual Orientation	-0.18 (0.38)	-0.18 (0.38)	-0.025
<i>Gay-Straight Alliance</i>			
GSA Status		0.03 (1.88)	0.001
Adjusted R^2	0.230	0.228	
F-value	16.71 ^{***}	14.27 ^{***}	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.2

Model 2 Hierarchical Regression Predicting PTSD Checklist Total Scores

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	1.17* (0.49)	1.19* (0.51)	0.145
Community Resources	0.15 (0.40)	0.15 (0.40)	0.023
Population	-1.42* (0.60)	-1.43* (0.61)	-0.139
<i>Gay-Straight Alliance</i>			
GSA Status		0.15 (2.14)	0.004
Adjusted R^2	0.031	0.028	
F-value	4.38**	3.27*	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.3

Model 3 Hierarchical Regression Predicting PTSD Checklist Total Scores

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>School Predictors</i>			
Bully Policy	1.37 (1.94)	0.30 (2.02)	0.01
School Climate	-0.38 (0.50)	-0.17 (0.50)	-0.02
Support - Peers	-1.13* (0.56)	-0.89 (0.57)	-0.10
Support - Teachers	-1.50* (0.62)	-1.58* (0.62)	-0.17
Victimization	0.64*** (0.18)	0.78*** (0.19)	0.28
<i>Gay-Straight Alliance</i>			
GSA Status		4.22 [†] (2.35)	0.12
Adjusted R^2	0.143	0.149	
F-value	11.44***	10.14***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.4

Model 4 Hierarchical Regression Predicting PTSD Checklist Total Scores

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	1.01 (1.22)	-1.67 (1.11)	-1.44 (1.11)	-0.07
Gender1	-12.36** (3.61)	-8.52** (3.18)	-8.25* (3.17)	-0.25
Gender2	-12.02** (3.43)	-4.77 (3.08)	-5.06 (3.07)	-0.16
Relationship1	2.23 (2.33)	1.62 (2.02)	1.86 (2.01)	0.05
Relationship2	6.27 [†] (3.31)	4.77 (2.91)	5.42 [†] (2.92)	0.11
School	3.01 (2.49)	2.00 (2.20)	3.19 (2.27)	0.07
<i>Retained Predictors</i>				
Childhood Abuse		9.25*** (1.33)	8.95*** (1.33)	0.36
Community Climate		-0.08 (0.43)	0.22 (0.46)	0.03
Population		-0.34 (0.54)	-0.44 (0.54)	-0.04
Support-Peer		-1.15* (0.53)	-0.98 [†] (0.54)	-0.12
Support-Teacher		-0.66 (0.60)	-0.74 (0.60)	-0.08
Victimization		0.40* (0.18)	0.51** (0.19)	0.18
<i>Gay-Straight Alliance</i>				
GSA Status			4.24 [†] (2.23)	0.12
Adjusted R^2	0.036	0.279	0.285	
F-value	2.96**	11.15***	10.66***	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 14.0

Summary of Outcomes Associated with GSA Status by Model

Outcome Variable	
School Belonging	Relationship between GSA Status and Outcome Variable
Model 1	Better Outcome
Model 2	No Relationship
Model 3	No Relationship
Model 4	No Relationship
School Victimization	Relationship between GSA Status and Outcome Variable
Model 1	Better Outcome
Model 2	Better Outcome
Model 3	Better Outcome
Model 4	Better Outcome
AUDIT Total Scores	Relationship between GSA Status and Outcome Variable
Model 1	Better Outcome
Model 2	Better Outcome
Model 3	Better Outcome
Model 4	Better Outcome
History of Alcohol Intoxication	Relationship between GSA Status and Outcome Variable
Model 1	Better Outcome
Model 2	Better Outcome
Model 3	Better Outcome
Model 4	Better Outcome
Age of First Alcohol Intoxication	Relationship between GSA Status and Outcome Variable
Model 1	Better Outcome
Model 2	Better Outcome

Model 3	Better Outcome
Model 4	Better Outcome
<hr/>	
DAST Total Scores	Relationship between GSA Status and Outcome Variable
Model 1	Better Outcome
Model 2	Better Outcome
Model 3	No Relationship
Model 4	Better Outcome
<hr/>	
BSI Global Severity Index	
Scores	Relationship between GSA Status and Outcome Variable
Model 1	No Relationship
Model 2	No Relationship
Model 3	Worse Outcome
Model 4	Worse Outcome
<hr/>	
BSI Depression Subscale	
Scores	Relationship between GSA Status and Outcome Variable
Model 1	No Relationship
Model 2	No Relationship
Model 3	Worse Outcome
Model 4	No Relationship
<hr/>	
BSI Anxiety Subscale Scores	
	Relationship between GSA Status and Outcome Variable
Model 1	Worse Outcome
Model 2	No Relationship
Model 3	Worse Outcome
Model 4	Worse Outcome
<hr/>	
BSI Somatization Subscale	
Scores	Relationship between GSA Status and Outcome Variable
Model 1	No Relationship
Model 2	No Relationship
Model 3	No Relationship

Model 4	No Relationship
PTSD Checklist Total Scores	
Relationship between GSA Status and Outcome Variable	
Model 1	No Relationship
Model 2	No Relationship
Model 3	No Relationship
Model 4	No Relationship

Appendix A

Consent Form Text

Project Directors:

Nicholas Heck, M.A.
Bryan Cochran, Ph.D.
The University of Montana
Department of Psychology
Skaggs Building Room 143
Missoula, MT 59812
(406)-243-2391

Thank you for your interest in our study. The purpose of this study is to learn about teenagers' high school experiences, development, and everyday lives. We would like to know more about your high school environment, community, and family in order to better understand your experiences. You must be at least 16 years old to participate in this study, and your participation is entirely voluntary.

If you agree to take part in this study, you will complete an online survey. The FIRST part of the survey contains five demographic questions. Some people will only be asked to complete the FIRST part of the survey, while others will be asked to complete the SECOND part of the survey.

If you are asked to complete the SECOND part of the survey, you will answer basic questions about yourself, and questions about your family, school, and community. You will also be asked about your mental health and your experiences with alcohol and drugs. Finally, you will be asked about any experiences of abuse, victimization, or bullying that you might have had. Some of the questions may ask you to think about bad things that have happened in your life. It is possible that some people may feel sad or uncomfortable while participating in this study. Remember, you are volunteering to participate in this study, so you can choose to stop participating at any time, and you can choose to skip questions, especially those that might make you uncomfortable. More information about the study and a list of resources will be provided to you at the end of the survey. If participating in this study makes you feel sad or upset, please use these resources.

If you complete the FIRST part of the survey, you will have the option of entering your e-mail address into a drawing to win one of ten, \$10 electronic gift cards for an online retailer (i.e. an Amazon.com gift card or an iTunes gift card). If you are asked to complete the SECOND part of the survey, you will also have the option of entering your e-mail address into a second drawing where you could win one of ten, \$20 electronic gift cards for an online retailer. It will take approximately five minutes to complete the FIRST part of the survey and 25 minutes to complete the SECOND part of the survey. All of the information that you provide will be kept confidential and your data cannot be connected to your e-mail address. Your e-mail address and your data will be stored in

separate databases that are stored on a secure server within the Department of Psychology at The University of Montana.

Although we believe that the risk of taking part in this survey is minimal, the following liability statement is required of all University of Montana consent forms:

In the event you are injured as a result of this assessment you should immediately seek appropriate medical treatment. If the injury is caused by negligence of the University or any of its employees, you may be entitled to reimbursement or compensation pursuant to the Comprehensive State Insurance Plan established under the authority of M.C.A. Title 2, Chapter 9. In the event of a claim for such injury, further information may be obtained from the University's Claims representative or University Legal Counsel.

Although you may not benefit directly from taking part in this study, the results may be used to develop or modify school policies and programs. Your participation is very important and could help make schools safer for lesbian, gay, bisexual, transgender, queer, and questioning (LGBTQQ) teens and their allies. After completing the survey, additional information about this study and resources that can help LGBTQQ teens will be provided to you.

If you have any questions about this study, please call Bryan Cochran at (406) 243-2391 or Nicholas Heck at (812) 320-2089, or you can email us at bryan.cochran@umontana.edu or nicholas.heck@umontana.edu. Please remember that we cannot guarantee the confidentiality of any information sent by email. If you have any questions regarding your rights as a research subject, you may contact The University of Montana's Research Office at (406) 243-6670 and ask to speak with the IRB Chair.

By clicking the "I Agree" button below, I give my consent to take part in this study. Clicking this button also means that I am at least 16 years old and have read the description of this research study. I have been told about the risks and benefits involved, and all my questions have been answered to my satisfaction. Furthermore, I understand that if I have questions in the future, I can contact the researchers to have my question answered. Finally, I voluntarily agree to take part in this study.

Appendix B

Initial Survey Questions to Ensure that Participants Met the Inclusion Criteria

Please answer the following five questions.

1. Are you currently enrolled as a high school student at a public or private school?
 - a. Yes
 - b. No

2. Are you currently 16, 17, 18, or 19 years old?
 - a. Yes
 - b. No

3. Do you currently identify as gay, lesbian, bisexual, transgender, queer, or with another similar identity?
 - a. Yes
 - b. No

4. In your lifetime, have you found yourself attracted to members of the same gender (i.e. if you identify as male, have you found yourself attracted to other males?)
 - a. Yes
 - b. No

5. In your lifetime, have you ever engaged in sexual activity with a member of the same gender (i.e. if you identify as female, have you ever engaged in sexual activity with another female?)
 - a. Yes
 - b. No

If a participant selected “a. Yes” in response to each of the first three questions, the participant did not answer the last two questions. Instead, the participant was directed to the first page of the full survey and a message that read, “You qualify for the SECOND part of the survey!!! Your input is very important to our research and you input could help improve the lives of LGBTQ youth. The rest of the survey will take about 20 – 25 minutes to complete. After you finish the survey, you will be provided with additional information about the study. You will also have the option of entering your e-mail address into a SECOND raffle where you could win one of ten, \$20 electronic gift cards!”

If a participant did not meet the inclusion criteria, the participant received the following message, “Thank you for your interest in our study. You do not need to complete the second part of the survey. You will be contacted by e-mail if you are selected to win one of the ten, \$10 gift cards.”

Appendix C

Demographic Questionnaire

1. Gender
 - a. Male
 - b. Female
 - c. Transgender (Male to Female)
 - d. Transgender (Female to Male)
 - e. Other

2. Age _____

3. What is your current relationship status?
 - a. Single
 - b. Dating, but not in a committed relationship
 - c. In a committed relationship
 - d. Married or in a domestic partnership

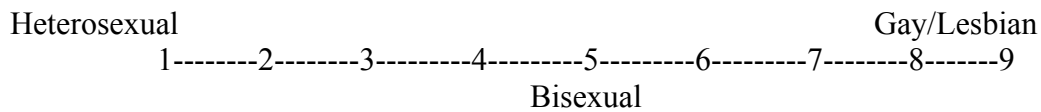
4. How would you best describe your ethnic or racial background?
 - a. African American or Black
 - b. American Indian or Native American
 - c. Hispanic/Chicano/Mexican American
 - d. Asian American
 - e. Caucasian or European American
 - f. Other

5. About how many people live in the town or city where you attend high school?
 - a. LESS THAN 2,500
 - b. 2,500-4,999
 - c. 5,000-9,999
 - d. 10,000-49,999
 - e. 50,000-250,000
 - f. MORE THAN 250,000

1-----2-----3-----4-----5-----6-----7-----8-----9
Extremely Feminine Extremely Masculine

How would you rate yourself using the scale above, where 1 means extremely feminine and 9 means extremely masculine? _____

6. Which of the following best describes your sexual orientation?
- Bisexual
 - Gay or Lesbian
 - Straight or Heterosexual
 - Unsure
 - Other



USING THE SCALE ABOVE, HOW WOULD YOU RATE YOUR SEXUAL ORIENTATION? _____

7. In your lifetime, have your sexual partners been (check all that apply):
- Male
 - Female
 - Transgender
 - This question does not apply to me
8. In your lifetime, have you found yourself attracted to (check all that apply):
- Males
 - Females
 - Transgender people
 - I've not found myself attracted to anyone, regardless of gender.
9. At what age did you first notice having a sexual attraction to someone of the same sex? (Please enter 0 if this does not apply to you.) _____
10. At what age did you first tell someone that you were gay/lesbian/bisexual/transgender? (Please enter 0 if you never told anyone or if this question does not apply to you) _____
11. At what age did you first have consensual sex with a member of the opposite sex? (Please enter 0 if this does not apply to you.) _____
12. At what age did you first have consensual sex with a member of the same sex? (Please enter 0 if this does not apply to you.) _____
13. What grade in high school are you in?
- Freshman (9th Grade)
 - Sophomore (10th Grade)
 - Junior (11th Grade)
 - Senior (12th Grade)

14. Do you consider yourself to be “out” to students and teachers at your high school?
- a. Yes
 - b. No
 - c. Does not apply

15. If you are out to your high school, in what year did you come out?
- a. I came out before I entered high school
 - b. Freshman
 - c. Sophomore
 - d. Junior
 - e. Senior
 - f. Does not apply

16. What is your current grade point average (GPA)? _____

17. What state do you currently reside in? _____

18. Is your high school a:
- a. Public high school
 - b. Private, co-ed school (i.e. private but males and females both attend)
 - c. Private, all boys school
 - d. Private, all girls school

If you attend a private high school, does your school have a religious affiliation?

- a. Yes
- b. No

Appendix D

Gay-Straight Alliance Survey

Please use the scale below to respond to the following items regarding your high school's gay-straight alliance, queer alliance, or LGBT student group.

- 1 = Strongly Disagree
 - 2 = Somewhat Disagree
 - 3 = Neither Agree nor Disagree
 - 4 = Somewhat Agree
 - 5 = Strongly Agree
-

1. The gay-straight alliance at my school has meetings that are well attended. ____
2. The gay-straight alliance at my school has meetings that are poorly planned or poorly organized. ____
3. The gay-straight alliance at my school hosts events that are well attended by other students who are not members. ____
4. The gay-straight alliance at my school puts on school-wide events that are respected by the entire school. ____
5. The administrators at my school are supportive of the gay-straight alliance. ____
6. The teachers at my high school complain about the gay-straight alliance. ____
7. There is a lot of diversity among the members of the gay-straight alliance at my school. ____
8. The gay-straight alliance at my school is new or is just starting up. ____
9. The gay-straight student alliance at my high school is a success. ____

Appendix E

Community Characteristics Questions

1. Does your community offer any of the following resources (check all that apply):
 - a. LGBT Community Center
 - b. A summer PRIDE event
 - c. LGBT youth group(s)
 - d. PFLAG (parents, families, and friends of lesbians and gays) group(s)
 - e. LGBT-friendly counselors/therapists
 - f. LGBT-friendly sexual health organizations
 - g. LGBT-friendly churches or church groups
 - h. Other (please specify _____)

2. Please rate how safe your community is for LGBT people:
 - a. Extremely safe
 - b. Somewhat safe
 - c. Neutral
 - d. Somewhat unsafe
 - e. Extremely unsafe

3. Please rate how accepting your community is of LGBT people:
 - f. Extremely accepting
 - g. Somewhat accepting
 - h. Neutral
 - i. Somewhat non-accepting
 - j. Extremely non-accepting

Appendix F

Debriefing Form

Information about This Study and Resources

Thank you very much for your time and effort in completing this research study! This study was designed to identify factors that may cause adolescents to experience psychological distress or develop problems with alcohol and other drugs. The study also looked at whether gay-straight student alliances help to reduce bullying and improve the lives of LGBT youth.

We want to make sure that you have resources if you are experiencing any distress, or if your participation in this study brought up any negative feelings like sadness or anxiety. Below are a number of different resources that LGBT youth may find helpful.

National Suicide Prevention Lifeline

The National Suicide Prevention Lifeline is available 24 hours a day, seven days a week for people who are feeling depressed or hopeless.

To access confidential support services: 1-800-273-TALK

The GLBT National Help Center (www.glnh.org)

The GLBT National Help Center provides free and confidential telephone and Internet counseling, information, and local resources for LGBT people.

To access confidential counseling resources call: 1-888-843-4564

It Gets Better Project (www.itgetsbetter.org)

The It Gets Better Project was developed to assist LGBT teens that may be experiencing bullying within their school environment. In addition to the crisis-related resources that are provided, the website also contains blogs and online videos that are developed to provide youth with support and networking opportunities.

The Trevor Project (www.thetrevorproject.org)

The Trevor Project provides access to resources, including telephone- and chat-based counseling services and question-and-answer services for youth who may have questions about their sexual orientation or gender identity. The website can also help youth build support in their community.

To access confidential counseling services call: 1-866-488-7386

If you would like more information about LGBT issues in education, please visit the Gay, Lesbian, and Straight Education Network at www.glsen.org

If you have any questions, comments, or concerns about the study, please call Dr. Bryan Cochran at (406) 243-2391 or Nick Heck at (812) 320-2089. You may also email us at bryan.cochran@umontana.edu or nicholas.heck@umontana.edu. Please remember that we cannot guarantee the confidentiality of any information sent by email.

Investigators: Bryan Cochran (406) 243-2391 Nick Heck (812) 320-2089

The Office of the Vice President for Research and Development, in conjunction with the Institutional Review Board (IRB) for the use of human subjects in research, oversees research at the University of Montana. If you have questions or concerns about this study, you may contact them at (406) 243-6670 or <http://www.umt.edu/research/complianceinfo/IRB/default.aspx>

Appendix G

Additional Age of First Alcohol Intoxication Results

A total of 128 participants reported an age of first alcohol intoxication that was greater than 13.00 ($M = 15.39$; $SD = 1.06$). The frequency table below depicts the percentage of participants associated with each age reported.

Frequency table for ages of first alcohol intoxication.

Age	Frequency	Percent
13.50	4	3.1
14.00	20	15.6
14.50	4	3.1
15.00	45	35.2
15.50	1	0.8
16.00	31	24.2
16.50	8	6.3
17.00	10	7.8
17.50	1	0.8
18.00	4	3.1

The tables below provide results of the four regression models predicting ages of first alcohol intoxication using the sample of 128 participants. Results of Model 1 indicate that outness was the only significant predictor of this outcome. The overall model predicting ages of first alcohol intoxication was not significant.

Model 1 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1 <i>b (SE)</i>	Block 2 <i>b (SE)</i>	β
<i>Individual/Family Predictors</i>			
Childhood Abuse	0.14 (0.14)	0.16 (0.14)	0.104
Gender Nonconformity	0.04 (0.06)	0.04 (0.06)	0.531
Outness	0.15* (0.07)	0.13 [†] (0.08)	0.183
Parent Acceptance	-0.11 (0.12)	-0.11 (0.12)	-0.093
Sensation Seeking	0.01 (0.01)	0.01 (0.01)	0.097
Sexual Orientation	0.05 (0.05)	0.06 (0.05)	0.111
<i>Gay-Straight Alliance</i>			
GSA Status		0.18 (0.21)	0.083
Adjusted R^2	0.049	0.047	
F-value	2.085 [†]	1.892 [†]	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Results of Model 2 indicate that none of the community-level factors were significant predictors of ages of first alcohol intoxication. Once again, the overall model predicting ages of first alcohol intoxication was not significant.

Model 2 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	-0.01 (0.05)	0.01 (0.05)	0.027
Community Resources	-0.01 (0.04)	-0.01 (0.04)	-0.022
Population	-0.05 (0.06)	-0.07 (0.06)	-0.107
<i>Gay-Straight Alliance</i>			
GSA Status		0.33 (0.22)	0.148
Adjusted R^2	-0.018	-0.007	
F-value	0.248	0.765	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Results of Model 3 suggest that none of the school-level factors were significant predictors of ages of first alcohol intoxication. Again, the overall model was not significant.

Model 3 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	
<i>School Predictors</i>			
Bully Policy	-0.20 (0.21)	-0.30 (0.23)	-0.132
School Climate	-0.01 (0.05)	0.00 (0.05)	0.003
Support - Peers	0.00 (0.07)	0.02 (0.07)	0.033
Support - Teachers	0.00 (0.07)	-0.01 (0.07)	-0.017
Victimization	-0.02 (0.02)	-0.01 (0.02)	-0.047
<i>Gay-Straight Alliance</i>			
GSA Status		0.29 (0.26)	0.131
Adjusted R^2	-0.021	-0.020	
F-value	0.466	0.594	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

For Model 4, demographic variables were entered at block one, outness was entered at block two, and GSA status was entered at block three. At block one, two, and three none of the demographic variables were significant predictors of ages of first alcohol intoxication. At blocks two and three, outness was a significant predictor of ages of first alcohol intoxication; however, GSA status and the overall model were not significant. The final unstandardized regression coefficient ($b = 0.251$, $t = 1.052$, $p = .037$) for outness indicates that, in the context of demographic variables and GSA status, for every one-increment increase in outness, ages of first alcohol intoxication are predicted to increase by 0.251 units. This suggests that of the students who reported an

age of first alcohol intoxication that was greater than 13 years, increases in outness is associated with a later age of first alcohol intoxication.

Model 4 Hierarchical Regression Predicting Age of First Alcohol Intoxication

Predictor Variables	Block 1 <i>b</i> (SE)	Block 2 <i>b</i> (SE)	Block 3 <i>b</i> (SE)	β
<i>Demographics</i>				
Age	0.23 [†] (0.13)	0.22 [†] (0.13)	0.23 [†] (0.13)	0.183
Gender1	0.15 (0.49)	0.23 (0.48)	0.22 (0.48)	0.105
Gender2	0.18 (0.47)	0.24 (0.46)	0.17 (0.47)	0.082
Relationship1	-0.06 (0.26)	0.03 (0.26)	0.04 (0.26)	0.017
Relationship2	-0.02 (0.34)	0.05 (0.33)	0.04 (0.33)	0.013
School	-0.22 (0.26)	-0.18 (0.25)	-0.07 (0.27)	-0.027
<i>Retained Predictors</i>				
Outness		0.16* (0.07)	0.14* (0.07)	0.194
<i>Gay-Straight Alliance</i>				
GSA Status			0.25 (0.24)	0.113
Adjusted R^2	-0.019	0.018	0.018	
F-value	0.598	1.323	1.297	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix H

Transformation of GPA and Associated Results

The challenges associated with carrying out the modeling process using the verbatim responses provided by the participants in relation to the GPA question were discussed in the Methods Section. However, the GPA responses were reviewed and recoded to provide a tentative examination of what the modeling results might suggest regarding the possible associations between the individual/family-, community-, and school-level factors and GPA. Prior to recoding certain responses, two subgroups of participants were excluded from the dataset.

First, participants ($n = 20$) who failed to respond to the GPA item or responded with a statement such as, “I don’t know” were excluded from analysis. Second, all participant GPA responses from 4.080 through 8.200 ($n = 44$) were excluded from analysis, which increases the percentage of cases that are based on a 0.00 to 4.00 GPA scale for subsequent analyses. The primary reason for not including the GPA models with the other results is due to the fact that participants reported GPA values on at least more than one scale. This exclusion does not resolve the problem entirely, but in theory it increases the reliability and validity of the results. Of the 44 cases excluded for this reason, 19 (43.2%) were linked to GSA- participants. Thus there did not appear to be a significant association between GSA status and the reporting of a GPA in the range of 4.080 – 8.200⁴. Of the remaining 252 cases, 14 cases had responses that required transformation. The table below documents the transformations that were made.

⁴ A 2x2 Chi-Square analysis reveals a non-significant association: $\chi^2(1, n = 296) = 3.15$, $p = .075$.

Transformation of Verbatim Responses to the GPA Item

Response Prior to Transformation	Response After Transformation	Frequency of Occurrence
70	1.70	1
76.7	2.30	1
80	2.70	2
85	3.00	1
85%	3.00	1
87	3.30	1
89.21	3.30	1
90	3.70	3
93	4.00	1
95.7	4.00	1
B+	3.30	1

The previous analytic strategy involving four hierarchical regressions was used to identify predictors of GPA and the impact that GSA status has on this outcome. A total of 252 cases were included for analysis ($M = 3.338$; $SD = 0.561$). Although the average GPA of GSA+ youth ($M = 3.371$; $SD = 0.526$) was higher than that of GSA- youth ($M = 3.243$; $SD = 0.644$), this difference was not statistically significant ($t = -1.585$, $df = 250$, $p = .057$, one-tailed).

Results of Model 1 predicting high school GPA indicate that GSA status is a significant predictor of high school GPA, when considered in the context of individual- and family-level predictors. At blocks one and two, childhood abuse was also a significant predictor of this outcome.

Model 1 Hierarchical Regression Predicting High School Grade Point Average

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Individual/Family Predictors</i>			
Childhood Abuse	-0.18** (0.06)	-0.18** (0.06)	-0.210
Gender Nonconformity	-0.03 (0.02)	-0.04† (0.02)	-0.112
Outness	-0.00 (0.03)	-0.01 (0.03)	-0.020
Parent Acceptance	-0.05 (0.04)	-0.06 (0.04)	-0.094
Sensation Seeking	0.01 (0.01)	0.01 (0.01)	0.096
Sexual Orientation	0.00 (0.02)	0.01 (0.02)	0.040
<i>Gay-Straight Alliance</i>			
GSA Status		0.17* (0.08)	0.130
Adjusted R^2	0.036	0.048	
F-value	2.565*	2.804**	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Results of Model 2 indicate that when GSA status is considered in the context of community-level variables, it is not a significant predictor of high school GPA. Community climate was a significant predictor of high school GPA at blocks one and two, while the overall model was significant.

Model 2 Hierarchical Regression Predicting High School GPA

Predictor Variables	Block 1	Block 2	β
	<i>b</i> (SE)	<i>b</i> (SE)	
<i>Community Predictors</i>			
Community Climate	-0.05** (0.02)	-0.05* (0.02)	-0.183
Community Resources	0.00 (0.02)	0.00 (0.02)	0.004
Population	0.04 [†] (0.03)	0.04 [†] (0.03)	0.113
<i>Gay-Straight Alliance</i>			
GSA Status		0.02 (0.09)	0.018
Adjusted R^2	0.045	0.041	
F-value	4.915**	3.692**	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Results of Model 3 are somewhat unexpected in that none of the school-level predictors (e.g., school climate, teacher support, peer support, and the presence of absence of an inclusive bullying policy) were significant predictors of high school GPA. Teacher support was the only predictor that approached statistical significance ($p < .10$). However, the overall model was significant.

Model 3 Hierarchical Regression Predicting High School Grade Point Average

Predictor Variables	Block 1	Block 2	β
	$b (SE)$	$b (SE)$	
<i>School Predictors</i>			
Bully Policy	0.05 (0.08)	0.05 (0.08)	0.037
School Climate	-0.02 (0.02)	-0.02 (0.02)	-0.080
Support - Peers	0.03 (0.02)	0.03 (0.02)	0.103
Support - Teachers	0.04 [†] (0.03)	0.04 [†] (0.03)	0.127
<i>Gay-Straight Alliance</i>			
GSA Status		0.02 (0.09)	0.013
Adjusted R^2	0.056	0.053	
F-value	4.731 ^{**}	3.777 ^{**}	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

For Model 4, demographic variables were entered at block one, childhood abuse and community climate at block two, and GSA status at block three. At block one, gender and school setting were both significant predictors of high school GPA. Once childhood abuse and community climate were entered at block two, the effects of gender and school setting diminished. Childhood abuse and community climate were both significant predictors of GPA at blocks two and three. GSA status was not a significant predictor of GPA.

Model 4 Hierarchical Regression Predicting High School Grade Point Average

Predictor Variables	Block 1 <i>b</i> (<i>SE</i>)	Block 2 <i>b</i> (<i>SE</i>)	Block 3 <i>b</i> (<i>SE</i>)	β
<i>Demographics</i>				
Age	0.03 (0.05)	0.03 (0.05)	0.04 (0.05)	0.051
Gender1	0.21 (0.14)	0.14 (0.13)	0.15 (0.13)	0.129
Gender2	0.27* (0.13)	0.20 (0.13)	0.19 (0.13)	0.173
Relationship1	0.05 (0.09)	0.05 (0.09)	0.06 (0.09)	0.049
Relationship2	-0.07 (0.13)	-0.05 (0.12)	-0.04 (0.13)	-0.023
School	0.22* (0.11)	0.19 [†] (0.11)	0.21 [†] (0.11)	0.121
<i>Retained Predictors</i>				
Childhood Abuse		-0.13* (0.05)	-0.13* (0.05)	-0.156
Community Climate		-0.05** (0.02)	-0.04* (0.02)	-0.147
<i>Gay-Straight Alliance</i>				
GSA Status			0.07 (0.09)	0.055
Adjusted R^2	0.020	0.072	0.070	
F-value	1.862 [†]	3.431**	3.113**	

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.