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Toward the Prevention of Substance Use in Lesbian, Gay, and Bisexual Youth

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Towards the Prevention of Substance Use in Lesbian, Gay, and Bisexual Youth

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Towards the Prevention of Substance Use in Lesbian, Gay and Bisexual Youth

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Lesbian, Gay, and Bisexual youth are at increased risk for the use of substances (Moon, Fornili & O'Briant, 2007; Remafedi, 1987), including cigarettes, alcohol, marijuana, cocaine, and ecstasy (Bontempo & D'Augelli, 2002; Corliss, Rosario, Wypij, Wylie, Frazier & Austin, 2010). Currently, no interventions exist designed to meet the needs of LGB adolescents (NREPP, 2011), and little theory exists to explain substance use by LG adolescents. To begin the process of developing tailored interventions, this three-study dissertation sought to: (1) explore the perspectives of LGB youth, and identify their perspectives on unique prevention development, (2) systematically review the empirical literature on culturally based risk factors in LGB youth and to identify most relevant salient themes for testing, and (3) explore the relationship between identified minority related stressors and substance use patterns in a large sample of LGB youth. Findings indicate that LGB adolescents have unique cultural experiences not captured in current prevention programming. Additionally, five constructs from minority stress are described, and their relationship to marijuana use is explained. Future research should focus on the development of better measurement instruments for minority stress in LGB adolescents and the exploration of its impact on behavioral health outcomes.

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Chapter 1: The Significance of Lesbian, Gay and Bisexual Youth Substance Use

Background: Population Description, Definitions, and Relevant Frameworks.

Most estimates suggest that Lesbian, Gay and Bisexual (LGB) persons represent approximately five percent of the general population in the United States (Marshal, et al., 2008). In school-aged youth under age 18, self-report rates are approximately three percent (Garofalo, Wolf, Kessel, Palfre & Durant, 1998). It is possible that fewer youth identify as LGB because of uncertainty in how they will identify later in life (Savin-Williams, 2001). When offered a range of reporting choices about sexuality, approximately 25% of 12 year olds report they are "unsure" of their sexual orientation. This rate decreases significantly by age 18, where only about five percent report uncertainty (Remafedi, Resnick, Blum & Harris, 1992; Robinson, 1994).

Adolescence is a critical period for youth development, characterized by "new social contexts, additional responsibilities and privileges, and opportunities for developmental change in self-definition" (Hurlok, 2009; Schulenberg, et al., 1996; p. 659). Lesbian, gay and bisexual youth face both the traditional challenges of adolescence along with increased stress of being LGB or questioning their sexuality. For example, fears about revealing their sexual identity appear warranted, as LGB youth report high rates of discrimination, verbal and physical abuse and negative social consequences for revealing their sexuality (Haas, et al., 2011; Remafedi, 1987). The stress of being LGB can also lead to extreme behavioral health outcomes, with studies suggesting suicide attempts as high as 42% (Anhalt & Morris, 1998; Haas, et al., 2011) contrasted with 7.1% of community sample youth (Lewinsohn, Rohde & Seeley, 1996).

Transgendered individuals are those who identify their gender as different from their biological sex (Gainor, 1998). There are distinct issues and challenges that are faced by transgendered individuals, and require special attention outside the scope of this research. For example, in 1973 the DSM declassified homosexuality as a mental disorder, however did not declassify gender identity as a disorder (transvestic fetishism; APA 1994) until 1997. Further, although many transgendered individuals do not identify as gay or lesbian (Isreal & Tarver, 1997), they experience the same environmental stress that other LGB individuals experience. However, transgendered persons also experience stress related to gender nonconforming life. As Brown & Rounsley (1996) state, "for some people, questioning gender is akin to contradicting indisputable facts, such as insisting that black is white". Although not the focus of this dissertation, it is important to note an additional group often seen as part of the same sexual minority community, and requires unique attention in future research.

Substance Use and LGB Youth.

A significant body of evidence indicates an empirical link between lesbian, gay, and bisexual (LGB) sexual orientation and substance use. For more than 20 years, research has found that LGB youth are at increased risk for substance use (Moon, Fornili & O'Briant, 2007; Remafedi, 1987), including commonly used substances such as cigarettes, alcohol and marijuana (Bontempo & D'Augelli, 2002; Russell, Driscoll, and Truong, 2002) and less commonly used substances of abuse in adolescence, such as cocaine and ecstasy (Corliss, Rosario, Wypij, Wylie, Frazier & Austin, 2010). There is also evidence to suggest LGB youth are more likely to use multiple substances at the

same time (Garofalo, et al., 1998) placing them at increased risk for additional adverse physical health outcomes.

In a recent exploration of three waves of Adolescent Health (*Add Health)* data, researchers found that LGB youth reported higher rates of initial substance use at Wave I and that their use increased over time more rapidly than their heterosexual peers (Marshal, Friedman, Stall & Thompson, 2009). This was further shown in a meta-analysis of eighteen studies on substance use and LGB youth, where LGB adolescents were found to be nearly three times more likely to use substances (odds ratio = 2.89) than community sample peers (Marshal, Friedman, Stall, King, Miles, Gold, et al., 2008). Russell and colleagues (2002) examined two waves of *Add Health* data, finding that youth with *both*-sex attractions (i.e., bisexual) appear to use substances at higher rates than their same-sex and opposite-sex attracted peers.

Early age of initial substance use increases the chances of addiction later in life (Griffin, Bang & Botvin, 2010; Jones & Battjes, 1985), impairs decision-making (Dom, Sabbe, Hulstijn & Brink, 2005), and is associated with other problem behaviors, such as poor school performance (Kandel, Johnson, Bird & Camino, 1997; Wu & Anthony, 1999), truancy and delinquency (Newcomb & Bentler, 1989). Research has connected the use of substances to sexual risk taking, including an increased rate of unprotected sex and HIV risk (Solorio, Swenderman & Rotheram-Borus, 2003) and sex while intoxicated (Herrick, Marshal, Smith, Sucato & Stall, 2011). Moreover, there are numerous health consequences of substance use, as "drinking, smoking, and illegal drug use are leading causes of morbidity and mortality, both during adolescence and later in life" (Monitoring the Future, 2008; p. 79).

There are also significant economic costs, with estimates from SAMHSA suggesting $151.4 billion annually on lost wages, work, damages, and treatment (Miller & Hendrie, 2009). Because of the heavy cost of substance abuse in the lives of individuals, their families, and society at large, leading health organizations such as the Centers for Disease Control and Prevention (CDC) and Substance Abuse and Mental Health Services Administration (SAMHSA) are particularly interested in the prevention of substance use, which emphasizes delaying the onset and reducing the progress of use during early adolescence.

*Culture and Prevention***.**

The word *culture* implies the established patterns of human behavior that include thoughts, communications, actions, customs, beliefs, values, and institutions of racial, ethnic, religious, or social groups (NASW, 2001). In the United States, culture has been primarily associated with race and ethnicity, but research has recently explored an expansive interpretation to include other socio-cultural experiences of people allowing for a broad interpretation of cultural groups that include interpersonal social settings, such alternative schools (Hopson, 2006; Holleran & Hopson, 2006), low income housing (MacLoed, 2004), centers for LGBTQ health promotion (Welle, 2003) and even as simple as groups of people that engage in substance use together (Wagner, 2008). Therefore, for the purpose of this dissertation, culture is defined as the shared experience of youth who identify as lesbian, gay or bisexual.

Lesbian, Gay and Bisexual (LGB) identifying adolescents have certain culturally unique experiences from heterosexual youth. Generally speaking, LGB youth share a

culturally unique minority status based on their sexual orientation, which results in unique stress and negative community health profiles that continue to manifest through health outcomes later in life. For example, as Stall (2005) argues for the unique experiences of men who have sex with men (MSM):

> There is an intersection between different epidemics among American gay men that has been documented for as long as 20 years, starting with the interconnection between substance use and HIV infection, but also including a sizeable set of papers on depression and HIV risk, childhood sexual abuse and HIV risk, and other interconnected epidemics…These [interacting epidemics] exist among gay men are largely socially produced [from] damages associated with early adolescent socialization such as concerns around *masculinity* and *victimization.* Stall, Friedman & Catania, 2008; pp. 251-253)

Some research has also explored the culture of LGB adolescents. For example, in a recent study by Goldbach & Holleran Steiker (2011) exploring the cultural insights of LGB youth who were asked to examine an evidence-based prevention curriculum. When compared to the findings of nine other non-LGB groups, LGB youth reported that they would like to see a) gender neutral names used more regularly in interventions; b) the use of third gender pronouns (e.g., hir, ze); c) the inclusion of same-sex relationships in skill-building exercises; d) the inclusion of sexual negotiation strategies; and e) the inclusion of older LGB adults in any prevention curriculum to represent their experience.

As noted, culture and cultural norms have an influence on the substance using behaviors of individuals (Birckmeyer, et al., 2005). Thus, experts in behavioral health and prevention science research have found that culturally based interventions specifically designed to meet a group's cultural challenges and needs are most effective (Castro, Barrera & Martinez, 2004). Examples of culturally relevant prevention programs include those for Hispanic youth, such as Familias Unidas (Prado, et al., 2006) and

Familia Adelante (Cervantes, Goldbach & Santos, 2011) and those designed with and for diverse youth, including Strengthening Families (Kumpfer, et al., 1996) and keepin' it REAL (Hecht, et al., 2003). Further, the adaptation of current evidence-based interventions to fit cultural backgrounds have shown some promising results in increasing effectiveness (Holleran Steiker, Goldbach, Hopson & Powell, 2011).

Despite higher rates of substance use among LGB adolescents, there are no prevention programs that have been tested with LGB youth. In addition, no programs exist that have been culturally tailored to meet their specific needs. For example, of the 171 interventions listed on SAMHSA's National Registry of Evidence Based Programs and Practices (NREPP), almost half (49%) are designed for adolescents; not a single intervention was designed with or for LGB youth specifically (NREPP, 2011).

*The Case for New Curriculum***.**

The failure of some prevention programs can be traced to their lack of cultural sensitivity (Hansen, Miller, & Leukefeld, 1995; Palinkas, et. al., 1996). In fact, Castro, et al., (2004) has said that prevention interventions that are "culturally blind will fail to prompt community participation" resulting in poorer outcomes. Other studies have also found that tailoring an intervention to a target population can increase its effectiveness (Hecht et al, 2002; Marsiglia et al, 2000). This approach has been used with various ethnic and racial minorities, and there has been a shift to ethnically sensitive programs (Botvin et al., 1995; Griswold-Ezekoye, 1986; Schinke et al., 1988), based on the argument that cultural sensitivity enhances prevention efforts and that ethnic matching maximizes program impact (Botvin et al. 1994; 1995). Additionally, new interventions to reduce substance use have targeted unique cultural stressors identified by communities.

For example, a recent study by Cervantes & Goldbach (2012) found that Latino youth who participated in an intervention to reduce acculturation stress, discrimination, and cultural conflict with parents also reported less substance use at post-test and 3-month follow-up.

As described in further detail below, LGB youth experience a multitude of risk factors for substance use that are specifically related to their sexuality, including parental disapproval, loss of friendship, victimization, and school problems (Remefadi, 1987; Russell, Franz & Driscoll, 2001). Given that culturally congruent interventions appear to be more effective (Castro, et al., 2004; Kumpfer, et al., 2002), unique interventions for LGB youth communities are most likely to be successful.

*A Framework for Developing New Interventions***.**

Researchers have found the use of the Risk and Protective Factor Model (Hawkins, Catalano, & Miller, 1992) useful for identifying factors that correlate with a myriad of behavioral health outcomes in youth (Hawkins, Catalano & Miller, 1992). These factors, organized into individual, familial, peer and social categories offer researchers and clinicians the ability to identify risk among adolescents. As an example, risk factors for substance use include childhood abuse and living in high crime neighborhoods while protective factors includes holding a strong sense of community, connectedness to school, and family bond (Institute of Medicine, 2011). Youth are exposed to many risk and protective factors in their home, school, and social environment. Youth exposed to more risk factors are at an increased risk for negative physical and behavioral health consequences (Bogenschneider, 1996; Newcomb,

Maddahain & Bentler, 1986). Despite significant advances to reduce risk factors through general population interventions and those for ethnic minorities, an understanding of LGB specific risk factors, described in detail in Chapter 2, remain sparsely discussed in the literature; only one review to date could be found (Thompson & Johnston, 2003).

In the development of novel interventions, a "theory" phase begins the process (Campbell, Murray, Darbyshire, Emery, Farmer, & Griffiths, 2007). During this phase, evidence is accumulated and an empirically driven theoretical basis for intervention is developed. This approach is particularly relevant as: a) interventions should target causal determinants of behavior change; and b) theory can only be tested if the intervention is theoretically derived (Michie, et al., 2008). This means that the theory should be an integrated summary of the "hypothesized causal processes involved in behavior change" (Michie, et al., p. 6) and thus be used as a way to explicitly operationalize the causal pathway of behavioral determinants (Michie & Abraham, 2004). Behavioral determinants (risks and protective factors) are described in many health behavior theories (*see* Chapter 3, below), and creating changes in these determinants is a core element of developing evidence-based prevention approaches (Michie, et al., 2008).

Upon identifying core determinants, intervention developers must then specify a range of techniques to address behavioral determinants and an empirically grounded approach to selecting intervention strategies relevant to the target population (Michie, et al., 2008). In research with other minority communities, this has been done through methods such as Participatory Action Research (PAR; Dickens & Watkins, 1999). PAR is common in health and social science research, emphasizing the inclusion of target communities in solving social problems (Dickens & Watkins, 1999; Stoecker, 1999).

PAR recommends that communities "participate in equal partnership with health professionals" (Robertson & Minkler, 1994; p. 305) and is useful when working with health disparities in commonly marginalized populations (Israel, et al., 1998). PAR has been widely used in drug prevention program development (Dryfoos, 1990; Hecht, et al., 1997; Moon et al., 1999), as it takes into account environmental factors of unique cultural communities and settings.

*Implications***.**

Adolescence is a significant time in human development. In addition to the common stressors experienced during this time, LGB adolescents have to cope with those related to their sexual minority status. As described in further detail in Chapter 2, being a part of the LGB adolescent community often means experiencing uniquely stressful experiences that youth who are not LGB do not share.

Potentially related to these unique stressor experiences, LGB adolescents report higher rates of substance use than their heterosexual peers. In other minority groups, prevention curricula have been designed to meet the specific needs of these culturally unique groups. However, there currently exist no interventions for LGB youth. Thus, to begin organizing toward the development of theoretically and empirically driven interventions, this dissertation seeks to make a contribution to the literature by a) identifying empirical correlates (core determinants) of substance use in this population; b) organizing our understanding of theories that may help explain substance use disparities in this population; c) identifying broadly the cultural experiences of LGB adolescents through their first-hand review of an existing, evidence-based, prevention

curriculum; and d) applying appropriate theoretical models to identified correlates to better understand the pathways to substance use and identify opportunities for intervention.

Chapter 2: A Review of the Literature

In the process of intervention development, researchers should first assess core determinants of behavior in an effort to identify points of behavior interruption (Campbell, et al., 2007). Stress in the environment has been long established as a predictor of substance use (NIDA, 2006). Thus, this chapter seeks to describe LGB specific stressor experiences that have been correlated with substance use behaviors in this population. Through the course of this dissertation, these factors will be revisited. For example, the systematic process of identifying these correlates is described in further detail in Chapter 5. Later, in Chapter 6, these concepts are applied to the analysis of a large national dataset.

Etiologies of LGB Youth Substance Use.

Adolescents in general use more substances than their younger peers and adults (NSDUH, 2010), and adolescents report a variety of motivators for use (NIDA, 2009). All teens may use because of peer pressure (Trucco, Colder, Bowker & Wieczorek, 2011), to separate from their parents (Garofalo, Wolf, Jessel, Palfrey & DuRant, 1998), to experiment with something new (Casey & Jones, 2010), or for pleasure (Creemers, et al., 2010). A review of literature by the Institute of Medicine (IOM, 2011) found a multitude of risk factors associated with substance use behaviors in adolescence. For example, antisocial behavior (Kaplan, Martin & Robbins, 1984), low self-esteem (Veselska, et al., 2009), discrimination (Cordova & Cervantes, 2011) and school failure (Li, et al., 2011) have all been connected to use patterns.

Substance use by LGB adolescents may be affected by factors that differ from those affecting their heterosexual peers (Rotheram-Borus, Rosario, Van Rossem, Reid, & Gillis, 1995). One common belief is that childhood sexual abuse predicts substance use in LGB persons (Simpson & Miller, 2002). However, existing research does not support this hypothesis and most experts in the area of LGB substance use and prevention dismiss it as incorrect (Hughes & Eliason, 2002; Rosario, Shrimshaw & Hunter, 2004; Stall, et al., 2001). A second hypothesis of substance use among LGB youth is that the "coming out" process specifically increases use patterns (Rosario, Hinter, Maguen, Gwadz & Smith, 2001). Research has not clearly established this association either and inconsistencies in the definition of "out" among youth (i.e., oscillations in the "outness" of individuals across time and circumstance) make the relationship difficult to measure (Rosario, et al., 2004).

A more commonly supported hypothesis is that stress specifically associated with being a part of a sexual minority community increases the likelihood of using and abusing substances. Literature to support a relationship between increased levels of stress and negative behavioral health outcomes has been clearly established (i.e., the "Stress-Illness Paradigm"; Lazarus & Folkman, 1984). When discussed in relation to LGB identifying persons, Hughes & Eliason (2002) describe "gay-related stress" as the experience of stigmatization from being LGB, along with its influence on negative behavioral health outcomes, such as substance use and mental health concerns.

Gay-related stress results from experiencing negative events, negative attitudes towards homosexuality, personal discomfort with sexuality, and emotional distress (such as anxiety, depression, and conduct problems). Each of these has been linked to

substance use outcomes through previous research (Rosario, Schrimshaw, Hunter & Gwadz, 2002; Rosario, Rotheram-Borus & Reid, 1996). Given that exposure to stress is a primary cause of substance use (NIDA, 2006), a better understanding of gay-related stressors may he helpful in identifying strategies to reduce substance use in this community.

Stressors Associated with Substance Use among LGB Youth

Coming Out.

During adolescence, sexuality becomes especially salient. Concurrently, this is also the most common time for questioning ones' sexual orientation (DiPlacido, 1998). Cass (1979) described the "coming out" process as two-fold for LGB youth: 1) to define, clarify and adapt to their self-identity; and 2) to establish a social network that is supportive of that identity. Primarily, LGB youth are concerned with coming out to two groups: their parents and their friends. The experience of navigating these networks can be particularly stressful for LGB youth, described in further detail below.

The impact of this stress, however, can begin even before adolescence. For example, for youth in elementary and grade school who are questioning their sexuality, lower educational attainment outcomes are reported at the end of the school year (Carver, Egan & Perry, 2004). Coming out to family and friends can be extremely troubling (Pilkington & D'Augelli, 1995), and problem behaviors may occur as a result of issues in coming out (Remafedi, 1987; Rotheram-Borus et al., 1992). Sometimes, LGB youth report the use of alcohol and drugs to "ameliorate social anxiety and boost self-confidence" (Hughes & Eliason, 2002; p. 3). In high school age youth, substantially higher rates of substance use are reported (Poteat, Aragon, Espelage, & Koenig, 2009).

Family Support.

The importance of family in youth development has long been the topic of research. Recent evidence indicates that the need for family support changes little during adolescence, perhaps becoming even more critical (Hair, Moore, Garrett, Ling & Cleveland, 2008). For LGB youth, the potential loss of these relationships can be particularly stressful (Bouris, et al., 2011; Pilkington & D'Augelli, 1995), as many who come out to their parents fear discipline, abuse and rejection. Coming out to family can be especially stressful, with one study suggesting that upwards of 67% of youth find the process somewhat or extremely troubling (Pilkington & D'Augelli, 1995). In the same study, 22% of participants stated they feared verbal abuse if they told their parents they were LGB, and 10% had experienced physical abuse as a result of disclosure. D'Augelli and colleagues (1998) also found that LGB youth who came out to their parents were more likely to experience verbal and physical abuse; most frequently from the mother. In a recent study of young men (18-22), Kipke and colleagues (2007) found that disclosure of sexuality to family was predictive of recent substance use and homelessness, and the use of substances were believed to be related to stress experienced by these youth within their families.

Although non-supportive parents increase stress and risk of both alcohol and substance use in LGB youth (Rosario, et al., 1997), family can be protective as well. The presence of a supportive family unit has also been correlated with reduced rates of substance use. For example, in a national cross-sectional study of 2,200 LG adolescents,

Padilla, Crisp and Rew (2010) found family support to be correlated with lower rates of substance use.

*Social Support***.**

In addition to the prospect of losing family support, LGB youth also fear the stress of lost social networks. Pilkington & D'Augelli (1995) examined the impact of social relationships on LGB youth outcomes. In this study, more than one third (36%) of young men and more than a quarter (27%) of young women had fears of losing their friends if they disclosed their sexuality. In the same study, 43% of young men and 54% of young women reported losing at least one friend after disclosure.

Among LGB youth, research has found mixed results in the impact of social networks on substance use behaviors. In a recent study of 1,906 youth, involvement in a "queer" supportive youth group had no significant effect on substance use outcomes (Padilla, Crisp & Rew, 2010). However, in a larger study examining Add Health and Adolescent Health and Academic Achievement data, Pearson, Muller & Wilkinson (2007) found that stress at school related to the lack of friendship due to LGB status was predictive of substance use in young same-sex attracted boys, but not girls. This is particularly relevant, as school is a primary milieu for social relationships with peers.

Other studies have found that having a large support network can increase substance use, potentially due to increased access, although those who had disclosed their sexual identity to more people and felt support were less likely to have used substances (Wright & Perry, 2006). In a more recent study by Poteat and colleagues (2009), lack of

a strong social support network was correlated with an increased risk of substance use by LGB adolescents.

*Housing Instability***.**

Due to increased turmoil in the home, lesbian, gay and bisexual adolescents are over-represented in homeless youth populations (Gattis, 2009). Several studies have found that LGB youth who are homeless are at increased risk for substance use when compared to heterosexual peers (Gattis, 2009; Walls, Potter & Leeuwan, 2009), with multiple periods of housing instability both common and predictive of even higher rates of use (Wright & Perry, 2006; Solomonsen-Sautel, et.al., 2008). Recently, in a cross-sectional study of 569 young men who have sex with men, the experience of stressors related to identifying as gay were associated with homelessness; and, although most participants reported high rates of substance use, few had used prior to the presence of housing instability (Clatts, Goldsamt, Yi & Gwadz, 2005).

Housing instability places youth at increased risk for other negative health outcomes as well. Walls, Potter and Leeuwan (2009) found an increased rate of suicidal ideation and attempts in homeless LGB youth as compared to heterosexual counterparts. Further, homelessness in LGB youth has been correlated with survival sex (i.e., sex for trade) (Walls, Potter & Leeuwan, 2009) with more than half of LGB homeless youth turning to prostitution within the first 3 days of leaving home, significantly higher than their heterosexual counterparts. In a recent study of 496 young men, youth who had been involved in sexual exchange for money due to homelessness were more likely to use club

drugs in late adolescence (Kipke, et al., 2007). Thus, homelessness and housing instability is a relevant stressor in exploring substance use by LGB adolescents.

*Violence & Victimization***.**

Victimization and experiences of violence because of sexual orientation are commonly reported by LGB adolescents (Williams, Connolly, Pepler & Craig, 2005). In one cross-sectional study of young gay men who use drugs, all participants had experienced bullying in school and half had experienced unwanted sex as minors (Finlinson, Colon, Robles & Soto, 2008). Thus, physical and sexual violence could be predictors of substance use in adolescence and into adulthood.

Victimization often leads to low self-esteem, anxiety, rage, social withdrawal and depression, as well as substance abusing patterns (Mallon, 1999b). In one qualitative study of LGB adolescents, participants indicated that the violence in their environment led to feelings of depression and subsequent alcohol and substance use (Wayes, 2004). Similarly, in a study of 81 youth, experiences of victimization were related to an internalization of negative feelings about their LGB identity and subsequent substance use (Willoughby, Doty & Malik, 2010).

*Homophobia***.**

Homophobia, or the experience of stigma towards ones' sexual orientation, impacts the mental health status of LGB people (Meyer, 1995; Savin-Williams, 1990), and LGB youth experience an increased rate of discrimination towards them when compared to their heterosexual counterparts (D'Augelli, 1998; Russell, et al., 2001).

Research indicates that the experience of homophobia may have a profound effect on the behavioral health outcomes of LGB youth. For example, in several studies of LGB youth, increased stress levels were reported as a direct result of negativity experienced in their social environment (D'Augelli, 1998; Russell, et al., 2001). In a sample of LGB adolescents, Rosario and colleagues (1997) found high rates of stress and feelings about "the homophobic environment" accounted for the majority of variation in alcohol and drug use. In this study, the homophobic environment included a lack of school policies to protect LGB students, a "no-promo-homo" approach to education about LGB people, and the dismissal of anti-gay victimization by teachers.

In addition to homophobia experienced in the environment, many LGB youth are further impacted by an internalized sense of homophobia. Internalized homophobia, often called internalized stigma, includes conscious or unconscious behaviors that an individual does to promote or conform to the expectations of heteronormativity or heterosexism (APA, 2009). This can include repression and denial of sexual orientation, and can impact youth's mental health status and subsequent behavioral health outcomes (French, Story, Remefadi, Resnick & Blum, 1996; Meyer & Dean, 1998; Rosario, Hunter, & Gwads, 1997). When internalized, stress can create negative societal attitudes, pressure to hide natural feelings of sexuality and in some cases strong discordant beliefs (i.e., religious convictions against homosexuality) (DiPlacido, 1998; Shidlo, 1994). Often, these include feelings of guilt, self-loathing, shame and fear (Grossman & Kerner, 1998). Multiple studies have found that the internalization of negative homophobic attitudes increases psychological distress in LGB youth and adults (Hetrick & Martin,

1987; Meyer, 1995). Internalized homophobia has been linked to risk behaviors, including risky sexual behavior and substance use (Remafedi, 1994).

*Race/Ethnicity***.**

Belonging to multiple minority status groups can also increase the risk of substance use in LGB youth. For example, in a study of Latino young men, Bruce, Ramirez-valles and Campbell (2008) found higher rates of substance use in participants who reported stigmatization from both sexual orientation and their ethnicity. This was also found in a study of both Hispanic and African American LGB adolescents (Rotheram-Borus, et al., 1994). In another qualitative study of 154 ethnically diverse LGB youth, most ethnic minority participants reported using multiple substances (Rosario, Hunter & Gwadz, 1997). In another study of LGB youth, substance use rates in ethnic minority youth were significantly higher than in White LGB youth, with 63% reporting alcohol use and 33% reporting marijuana use as compared to 51% and 22%, respectively (Rotheram-Borus, et al., 1994). Further, results indicated that 22% of the ethnic minority LGB youth who were homeless had bartered sex for money or drugs.

Few studies have explored other ethnic minority LGB youth. Barney (2003) found that gay Native American youth may not be at increased risk for substance use, but describe heightened risk for suicide and physical and sexual abuse. Lastly, one study of Asian American LGB identified youth has been conducted using waves II and III of Add Health data, finding that sexual orientation was significantly associated with tobacco use, binge drinking, marijuana and other drug use, and that these participants used more than their heterosexual peers (Hahm, Wong, Huang, Ozonoff & Lee, 2008).

Implications

As described, substantial research has found that LGB adolescents are at increased use for substance use. Environmental stressors, described in this chapter, highlight the unique cultural experience of these youth. For example, adolescents who do not identify as LGB do not have the added stress of coming out to friends and family, which impacts the natural advancement of sexual sense of self (DiPlacido, 1998). Added to other LGB-specific stressor experiences such as gay-related victimization (Williams, et al., 2005), these youth report particularly stressful experiences not found among heterosexual youth. The systematic process for identifying these stressors is also explained in further detail in Chapter 4, below.

Other stressors that are related to substance use by all youth are further exacerbated for LGB adolescents. For example, while family support is related to substance use for many adolescents (Lopez, et al., 2010), support may be denied to LGB adolescents specifically because of their sexual orientation (Bouris, et al., 2011; Pilkington & D'Augelli, 1995). As family support during adolescence is particularly important in healthy development (Hair, et al., 2008), these youth may find that this rejection comes at a particularly harmful time.

Upon the identification of core determinants, a theoretical understanding of the behavior pattern is also needed in order to develop interventions (Michie, et al., 2008). Thus, Chapter 3 highlights several theories that help us to both explain the disparity of heightened use for LGB adolescents, and also begin to identify methods in which we might intervene.

Chapter 3: Theories of Substance Use in LGB Youth

Research studies describing substance use behaviors in LGB adolescents have not generally incorporated theoretical models of behavior to help understand their substance use disparities. Further, clearly defined theoretical models are a necessary precursor to the development of prevention interventions (Michie, et al., 2008). The following chapter describes four theories of particular relevance to understanding and potentially intervening on LGB youth substance use.

The first theory to be discussed, Tafjel & Turner's social identity theory (SIT; 1979), is helpful in understanding how macro-level influences may impact youth risk behavior (such as substance use) and identifies the impact of group dynamics, culture, and environment on youth behavior. For LGB youth, these environmental factors may help us understand why there is a difference in their use patterns when compared to heterosexual peers. This chapter then includes discussion of two additional theories useful for their attention to psychosocial factors that influence risk taking and substance use behaviors (e.g., emotional distress, self-esteem, and parent-youth relationships). These include the multistage social learning model (Simons et al., 1988) and minority stress theory (Meyer, 2003). Minority stress theory is both used to understand substance use, and also to organize the approach taken in Chapter 6 during the development of a structural model. The chapter concludes with a discussion of Azjen & Fishbein's theory of reasoned action (TRA; 1975), selected for its importance as a leading approach to describing, explaining, and predicting substance use behaviors among diverse populations. Additionally, TRA provides the basis for future intervention, explaining that substance use patterns can be interrupted at multiple points in the process.

Social Identity Theory

Social identity theory (SIT; Tafjel & Turner, 1979) suggests that human behavior can be understood through an individual's interaction with the social environment. SIT posits that group affiliation has strong links to decision-making. While traditional developmental theories generally center on the individual's identity as related to society (Minton & McDonald, 1984), SIT focuses on the group behavior and how these interact both with the individual's perceptions and the larger society. Under the assumptions of SIT, interpretations can be made about the individual's behaviors and their view of personal identity through examining their interactions within the larger social construct. Ideologically, SIT attempts to explain individuals' feelings, cognitions, and behaviors as related to the broader groups with whom they identify. SIT suggests that people's identities are constructed by virtue of their environmental interactions.

Social identity theory seeks to understand how the individuals within a group identify with encouraging certain behaviors while discouraging others through both direct and subtle means. For LGB youth, these behaviors may be protective (i.e., helping to mitigate the effects of sexism and homophobia) or risky (i.e., encouraging unsafe sex behavior or substance use). The theory of social identity utilizes four main elements for interpreting and understanding the "identities" which individuals choose: categorization of others, identification of the self, comparison to others, and psychological distinctiveness (Taylor & Moghaddam, 1994).

Categorization of others includes those concepts related to being a part of a perceived in-group or out-group. Research conducted in categorization has shown that people are generally able to identify out-groups more quickly than their own membership

with in-groups (Taylor & Moghaddam, 1994). For gay youth, there is often an acute awareness of their "difference" from the broader community. The most demonstrable illustration of how LGB youth are excluded and marginalized, due to their out-group status, is the reported "victimization based on known or presumed lesbian or gay sexual orientation [resulting in] bias-related violence" (Pilkington & D'Augelli, 1995). Peer-perpetrated victimization and discrimination occur at higher rates among LGB youth than non-LGB youth (D'Augelli, 1998; Russell, et al., 2001), and LGB youth report losing friends and social support upon coming out about their sexual identity (Pilkington & D'Augelli, 1995). After repeated exposure to negative stressors, LGB youth may show signs of internalized homophobia, leading to self-compromising behaviors such as unsafe sex and substance use (Stronski & Remefadi, 1998). Thus, SIT could provide a lens through which to understand how being cast into the out-group and the subsequent stressors associated with being in the out-group may contribute to substance use among LGB youth (Cox & Gallois, 1996).

In addition to categorization, individuals quickly form self-assigned identities. These identities, based on the multiple influences from their social environment (e.g., family, friends, perceived success in school), give individuals ground rules for interacting with their environment. Comparing oneself to others, along with the criteria used for comparison, are critical to forming these social identities, and lead to the creation (both individually and collectively) of a distinctive community, comprised of others who, upon comparison, share those identities. It is here where SIT provides a theoretical understanding for how LGB youth would be drawn to other LGB peers and LGB support-groups and organizations, developing their identity around the LGB community and

culture and solidifying their identity through the coming out process. For example, in Cass' (1979) description of the coming out process for LGB youth, they first define, clarify, and adapt to their self-identity. Then, they establish a social network of others who are supportive of that identity. Thus, it is clear how SIT relates to the identity formation of LGB youth, specifically as they come out about their sexual orientation and create a community of support and acceptance.

When looking at how SIT applies to substance use for LGB youth, group belonging and social support could serve as a protective factor. Among one sample of LGB youth, those who had disclosed their sexual identity to more people and felt support were less likely to have distress associated with mental health and substance use problems (Wright & Perry, 2006). Simultaneously, however, this same study found a seemingly contradictory finding: LGB youth with a larger number of LGB individuals in their support network were more likely to engage in risky sexual behavior and more frequent drug, but not alcohol, use (Wright & Perry, 2006). This seems to indicate that LGB youth model the behaviors of other LGB peers and young adults who engage in substance use. Additional qualitative evidence indicates that LGB youth perceive their older, LGB peers as regular users of substances, and that substance use is socially desirable or at least acceptable (Goldbach & Holleran Steiker, 2011). Moreover, gay clubs and bars, where substance use is likely to occur, often become a primary location for socialization, even for under-age LGB youth (Finlinson, Colón, Robles, & Soto, 2008). While under-age admittance to gay clubs and bars is a whole different issue that ought to be addressed elsewhere, the cumulative evidence illustrates a problem of adolescent LGB youth modeling substance abuse behavior from older LGB peers and

role models. A description of this pattern by Kipke et al. (2007) further solidifies how it relates to social identity theory:

> In their effort to define themselves with respect to their sexuality, [young men who have sex with men] will often spend increasing amounts of time in gay identified venues such as bars, clubs, and other social settings, as they try to learn more about the gay culture and what it means to be gay (p. 1736).

As with all youth, relationships have significant impact in the decisions they make around substance use. What is unique for LGB youth, however, is that the social identity they create outside the home may rely more heavily on older peers than their family and peers of the same age (Goldbach & Holleran Steiker, 2011). For most children and adolescents, cultural norms are passed through their parents and family heritage. However, LGB youth are typically raised by parents who do not identify as LGB themselves. Thus, the peer groups with whom they identify may take on the role of passing cultural norms on, playing a substantial part in influencing their decision making and becoming the primary source of learned behavior. These roles and behaviors (i.e., drug use) may become normative, particularly when the social identity is discovered in places where drinking is common (Flores, Mansergh, Marks, Guzman & Colfax, 2009).

Social identity theory is particularly relevant to LGB youth, who may experience stressors that decrease positive perceptions of self, such as masculinity failure in young gay males (Stall, 2001). Using the SIT framework, this stress is understood as stemming from being a part of the out-group; in this example, as Stall (2001) describes, gay youth are ostracized due to the perception that they are not masculine enough. Both negative

perceptions of self and gay-related stress have been linked to substance use for LGB youth (Grossman & Kerner, 1998; Remafedi, 1994; Rosario, Schrimshaw, Hunter & Gwadz, 2002).

In SIT, the physical environment affects the nature of social interaction and may also predict the social network that an individual is interested in being surrounded by (Zinberg, 1984). For LGB youth, research indicates that substance use is sometimes motivated by a need to escape from the stress and oppression of everyday life (Hughes & Eliason, 2002; Reback, 1997). Research also suggests that the social settings where drug use is most prominent are those that encourage other escapist practices such as anonymous sexual activities. These practices may encourage LGB youth, especially males, towards other risky behaviors (Halkitis, et.al., 2003; Bochow. 1998; Frosch, et.al., 1996).

Although helpful as a framework for understanding and explaining substance use patterns and norms, SIT is not an action theory, meaning it is not directly used to develop interventions for behavioral health problems. Therefore, SIT helps us to understand how environmental factors may have an influence on the choices of LGB youth, and theoretically connects how the environmental stressors described in chapter 2 may manifest themselves into substance use outcomes. Thus, SIT provides the broad, environmental context in which LGB youth make the decisions to engage in or abstain from substance use, and by changing these environmental factors, we may see change in the behavior of these youth.

Multistage Social Learning Model

To explain a range of adolescents' substance use patterns, from initial experimentation to habitual patterns of more regular use and abuse, Simons and colleagues (1988) developed the multi-stage social learning model (MSLM), which integrates the combined influence of social learning processes and intrapersonal characteristics. According to MSLM, intrapersonal characteristics that contribute to experimental substance use include low self-esteem, excessive emotional distress, inadequate coping skills, and deficient social interaction skills. These individual factors, together with adolescents' social relationships with their peers and parents, shape their decision to use substances. Further, MSLM has a clear link to many of the stressor themes described in chapter 2, as described below.

The multi-stage social learning model identifies three different stages of substance use: 1) the initial experimentation with substance use; 2) a deeper involvement with delinquent and substance using peers; and 3) the escalation beyond experimental substance use to more regular use and/or abuse. In the first stage, adolescents are more likely to experiment with substances if they have observed experimental substance use among their parents, are raised in a family environment without support, warmth, discipline, or supervision, and place greater emphasis on immediate goals rather than long-term, conventional goals regarding family, education, and religion (Petraitis, Flay, & Miller, 1995).

In the second stage of the MSLM, adolescents are more likely to become involved with delinquent, substance using peers if they have previously experimented with substances and have poor social skills (Petraitis, 1995). The measures of poor social

skills in this model include: being shy, lacking in empathy, uncompromising, assertive, and impolite (Petraitis, 1995). As described in chapter 2, LGB youth may struggle with deficient social skills more than their heterosexual counterparts because of ostracism and discrimination experienced as they navigate living in a homophobic or heterosexist environment (D'Augelli, 1998; Russell, Franz & Driscoll, 2001). Moreover, LGB youth sometimes report the use of alcohol and drugs to "ameliorate social anxiety and boost self-confidence," (Hughes & Eliason, 2002; p. 3).

In the third stage, adolescents' substance use is more likely to escalate to more frequent use or abuse if they have witnessed experimental substance use among their parents and have peers who promote experimental substance use (Petraitis, 1995). Moreover, substance use behaviors are more likely to escalate when youth are emotionally distressed and have inadequate coping skills (Petraitis, 1995). For LGB youth, experiences of violence or victimization (distress) often lead to low self-esteem, anxiety, rage, social withdrawal and depression, as well as substance abusing patterns, especially when coupled with a belief that one's oppression is justified (Mallon, 1999b). For example, Wayes (2004) corroborated this concept, finding that LGB youth use substances to deal with depression and experiences of violence and victimization from identifying as LGB.

This model helps to explain substance use among LGB adolescents because of its focus on "relatively distal or background variables that are not direct or immediate causes of substance use," (Petraitis, Flay & Miller, 1995, p. 75). Thus, this model explains *how* stressors influence adolescents' behavioral health decisions. Through intrapersonal mechanisms of emotional distress, low self-esteem, and deficient social interaction,

adolescent substance use may escalate. Youth anticipate relief from the physiological effects of the substance, and continued substance use becomes a coping mechanism with which to manage life's problems (Triplett & Payne, 2004).

The multistage social learning model is particularly relevant when considering the role of family support in initial substance use. Specifically for LGB youth, family support has been correlated with protective factors and lower rates of substance use (Padilla, Crisp & Rew, 2010), while non-supportive parents and lack of a support network increases stress and risk of both alcohol and drug use (Rosario, et al., 1997). However, many LGB youth feel like they cannot come-out to their family or that their family will be unsupportive of their sexual orientation. MSLM provides a framework through which to understand this dynamic between family support and substance use among LGB youth, proposing that a lack of family support is a risk factor for initial substance use experimentation.

According to the MLSM, non-adherence to conventional goals is also seen as a risk factor for substance use. This component of the theory may be particularly relevant for LGB youth, as LGB youth expectations are 'different' from the community at large. For example, to an adolescent, the make-up of a traditional family may appear incongruent with his or her sexual orientation (i.e. marriage and children are not an option). Additionally, LGB youth may not feel accepted in traditional religious communities because of perceived or actual homophobia and discrimination. Reports show that stress at school is related to both lack of academic success and substance use in young same-sex attracted boys, but not girls (Pearson, Muller & Wilkinson, 2007). Although not an action theory, MLSM is a general substance use theory that is helpful in

explaining how the social and environmental factors described in chapter 2 may lead to substance use for LGB youth.

Minority Stress Theory

Stress theory, in general, states that as major life events and chronic circumstances accumulate, an individual becomes less equipped to adapt, adjust and tolerate continued life stress experiences (Brown & Harris, 1978). Like the experiences that increase stress, other experiences can work to buffer against negative outcomes, such as the perception of strong social support (Cohen & Wills, 1985). In practice, stress theory is often extended to individuals who are part of disadvantaged groups (i.e., women, minorities, the impoverished) and called minority stress theory (*for examples, see* Kessler, 1979; McLeod & Kessler, 1990). In general population studies, minority individuals repeatedly show increased psychological vulnerability when compared to their majority group peers (*for a review, see* Thoits, 1991). Minority stress theory supports the link between the person and the social environment, and describes how some experiences of that environment results in emotional and psychological distress. Minority stress theory is also the framework from which the structural model in chapter 6 is built.

The concept of minority stress is one of the only theories has been applied specifically to the LGB community. In Meyer's (1995) pivotal paper, he explains the association between an array of social and psychological stressors related to being LGB. These stressors include negative events, negative attitudes towards homosexuality, and discomfort with homosexuality (Rosario, et al., 2002). These experiences and beliefs have been linked with negative behavioral health outcomes (Rosario, Schrimshaw,

Hunter & Gwadz, 2002). For example, in a cross-sectional study of 569 YMSM, the presence of gay-related stressors (such as those described in chapter 2 and above) was correlated with higher rates of homelessness and substance use (Clatts, Goldsamt, Yi & Gwadz, 2005).

The experience of navigating the social environment also adds stress to LGB youth related specifically to being a part of this minority group. As discussed above, several studies have linked the stress of coming out (i.e., fear of parental disapproval, loss of close friendships) to negative mental health outcomes (D'Augelli, 1998; Russell, Franz & Driscoll, 2001). For LGB youth, the experience of coming out to family can be especially stressful, with one study suggesting that upwards of 67% of youth find the process *somewhat* or *extremely troubling* (Pilkington & D'Augelli, 1995).

It is important to note that general studies examining differences between gay and straight individuals do not necessarily find that those who are gay are more distressed. As Meyer (2003) finds, gay men report higher levels of distress when related to areas consistent with minority stress theory. Further, when internalized, minority stress can create negative societal attitudes in an individual, pressure to hide natural feelings of sexuality and sometimes strong discordant beliefs (i.e., religious convictions against homosexuality) (DiPlacido, 1998; Shidlo, 1994). Therefore, alleviating the stress associated with life experiences of LGB youth may help improve their behavioral health outcomes.

Minority stress theory has been tested with LGB adults, although primarily related to mental health outcomes. To this author's knowledge, minority stress theory has never been tested with LGB adolescents. In Chapter 6, the tenets of minority stress theory will

be applied to a large dataset of LGB identifying adolescents, to explore the applicability of the theory to LGB adolescent substance use behavior.

Theory of Reasoned Action and Planned Behavior

This dissertation is primarily focused on the mechanisms for substance use behavior, and does not begin the process of developing interventions. However, it is relevant to describe theories that may relate to both explaining use patterns and also provide a first step to identifying points of intervention. The theory of reasoned action (TRA; Fishbein & Ajzen, 1975; 1980), later referred to as the theory of planned behavior (TPB; Ajzen, 1985), takes into account the social/environmental influences on human behavior and helps predict how behavior will occur in the future (i.e., behavioral intention; Ajzen, 1985). According to TRA, if people believe that a behavior is positive (their attitude) and they think others want them to perform the behavior (subjective norm), then there is a higher motivation (behavioral intention) to engage in the behavior. For example, a gay youth socializing with older friends in bars and clubs may believe that "all gay people drink", and because of this social connectedness, develop a positive attitude towards substance use (Goldbach & Holleran Steiker, 2011). In this example, the positive association to alcohol complements the subjective norm, increasing risk for early use patterns to arise.

The theory of reasoned action posits that three major components (i.e., behavioral intention, attitude, and subjective norm) are formulaic: behavioral intention (BI) is the result of attitude (A) and subjective norm (SN); therefore, BI = A + SN (Hale, 2003). Attitude consists of two parts: (1) beliefs about the consequences of engaging in the behavior, multiplied by (2) the individuals valuation of these consequences (Azjen &

Fishbein, 1975). For example, if a younger gay man has seen no consequences of an unhealthy behavior (i.e., "all my friends smoke and they are fine"), then his expectation of experiencing negative health consequences as a result of participating in this behavior may be lower. This may lead to a greater likelihood of engaging in risky behaviors.

The construct of subjective norm also consists of two parts: (1) perceived expectations from relevant individuals and (2) intention to comply with those social expectations. It is here that a clear link to social identity theory becomes evident: an LGB youth would be more likely to see another individual as "relevant" if that individual were a member in his or her in-group. Thus, LGB youth are likely to look to other, perhaps older, LGB youth as role models and base their decisions on perception of those individuals' expectations. As LGB youth seem to perceive high rates of substance use in their older peers (Goldbach & Holleran Steiker, 2011), perhaps the presence of a younger age of tobacco use onset may be explained (Garofalo, et al., 1998).

If the desire for this approval were renegotiated, then the likelihood of engagement in the behavior would theoretically be shifted. According to the theory of reasoned action, if an individual cares little about the opinion of others, then "the subjective norms would carry little weight in predicting the behavior," (Miller, et al., 2005, p. 127). However, because of the social isolation that LGB youth experience in the broader community and the close social identity they develop with fellow LGB peers, it is more likely that they place a great deal of weight on the subjective norms of their peer group.

The theory of reasoned action allows for multiple interpretations to explain behaviors due to the role of attitude. According to TRA, attitude is a unique personal

experience for each individual. This suggests that personal experiences and beliefs, that shape the individual evaluation and perspective of the norm, work together to create a unique attitude for each individual. Thus, As Table 1 below indicates, the decision to engage in risky behaviors is influenced by individual beliefs and evaluative strategies, as well as the perceived beliefs of others around us. An individual's beliefs result in an attitude towards a behavior ultimately predicting the individual's engagement in risky (or protective) behaviors.

Table 1: Process of Decision-Making

<table>
<tr><td>Belief toward an outcome</td><td rowspan="2">Evaluation of the outcome</td><td rowspan="6">Attitude</td><td rowspan="6">Behavior</td></tr>
<tr><td>Evaluation of the outcome</td></tr>
<tr><td>Beliefs of what others think</td><td rowspan="3">Subjective norm</td></tr>
<tr><td>What experts think</td></tr>
<tr><td>Motivation to comply with others</td></tr>
</table>

(Source: Ajzen & Fishbein, 1980)

In applying the TRA to LGB adolescents, and linking it to the other theories, many LGB youth may have the attitude that substance use is an important part of socialization that facilitates bonding in their peer group. Additionally, they may use substances as a coping mechanism to deal with emotional distress, as conceptualized by the multistage social learning model. If youth see that the outcome of using substances is going to be beneficial (e.g., they can better relate to peers or cope with stress) rather than harmful (e.g., nothing 'bad' happens when they or their friends use smoke and drink), then they may evaluate the outcome of using substances as positive rather than negative.

In addition, if the group's subjective norm supports using substances, the end result will be an attitude in favor of engaging in substance use. Ultimately, then, substance use is more likely to occur with peer groups who use. Therefore, in the development of prevention programs for LGB youth, content should reflect all components of the TRA, namely, attitudes and the subjective beliefs about one's peer group. As reflected in further chapters, the perceived connection to older youth and the belief that the gay community is using substances regularly (Chapter 4) is coupled with increased use patterns in LGB adolescents when they identify as more connected to the LGB community (Chapter 6).

An Integrated Theoretical Approach to Prevention with LGB Youth

Together, all four theories have a clear underpinning for understanding substance use in LGB youth. Social workers are particularly concerned with the integration of multi-level systems into intervention development and implementation. Therefore, each of these theories provides evidence to support the ways in which macro, mezzo and micro systems operate to either buffer risk or, conversely, promote it. This dissertation focuses specifically on the identification of cultural factors, and culturally based risk factors, which will lead towards the development of substance abuse prevention interventions.

First, social identity theory offers insight into how the larger macro environment may influence youth's perceptions of themselves and those around them. It also explains how the peer group and social environment shape the overarching context for adolescents' lives and their relationship to their communities at large, relating to those constructs discussed in chapter two and chapter five. The multi-stage social learning model is specific for adolescents' path to substance use and accounts for the associations

identified in the literature, i.e. emotional distress, that lead them to engage in substance use and the escalation to heavier substance abuse, also building on empirical works described in chapters two and five. The minority stress model provides a framework to explore deeper why gay-related stress factors increase substance use based on their minority status. Finally, the theory of reasoned action and planned behavior provides a framework for understanding substance use at the point of decision making, describing how an individuals' mental process interact with their perception of the environment and their perceptions of health risk when making health-related decisions.

Three Papers Objectives: Toward the Development of Prevention Curricula

LGB youth are at disproportionate risk for substance use and experience a variety of LGB-specific stressor experiences, described in Chapter 2. Further, as multiple theories of risk behavior describe above, these empirically related factors might provide the basis for developing substance abuse prevention approaches for LGB youth. As interventions are best suited when they match the cultural background of participants (Cervantes, et al., 2011; Holleran, Reeves, Marsiglia & Dustman, 2002), a better understanding of how LGB youth identify their culture is necessary (Chapter 4). Then, a systematic approach to the current empirical knowledge on LGB-specific risk factors for substance use must be completed in order to organize our current understanding of the problem (Chapter 5). Finally, upon identification of these factors, this research will test their individual and combined influence on substance use behaviors through the use of a theoretically driven approach (Chapter 6). From these, an empirically driven model can be developed as a framework for beginning the process of prevention intervention development (Michie, et

al., 2008). Thus, to begin addressing the gap, this dissertation will complete the following:

- *Paper 1*: Explore the perspectives of LGB youth, and the LGB related cultural elements that they suggest should be taken into account in the development of culturally grounded prevention programming. To do this, chapter four describes a primary qualitative research project completed and published in the Journal of Gay and Lesbian Social Services. This study engaged several focus groups, as well as content analysis of a curriculum adaptation, to identify unique cultural perspectives of the LGB adolescent participants.
- *Paper 2*: To systematically review the empirical literature on culturally based risk factors for substance use in LGB youth and to identify salient themes for testing.
- *Paper 3*: To explore the impact that culturally based risk factors (such as violence, family/social support, and homophobia) identified in Objective 2 have on substance use patterns in a large sample of LGB youth.

Given the substantial evidence indicating that LGB youth are at increased risk for substance use, and the lack of evidence-based prevention approaches available for LGB youth, this dissertation research will fill an important gap in research by exploring the salient factors associated with LGB culture and risk. By understanding the culture of LGB youth, and also those culturally based risk factors that are correlated with substance use outcomes, researchers can begin the process of developing effective substance use prevention curricula for LGB youth.

Chapter 4: An examination of cultural adaptations performed by LGBT identified youth to a culturally grounded, evidence-based substance abuse intervention

Goldbach, J. & Holleran Steiker, L.* (2011). An examination of cultural adaptations performed by LGBT identified youth to a culturally grounded, evidence based substance abuse intervention. *Journal of Gay and Lesbian Social Services*, 23 (2), 188-200.

ABSTRACT

Historically, substance abuse prevention programs are created with samples that conform to the majority population. Research shows that substance use risk factors are higher for Lesbian, Gay, Bisexual and Transgender (LGBT) youth (Eisenberg & Wechsler, 2003a), and LGBT youth report higher use of substances than their heterosexual counterparts (Lampinen, McGhee & Martin, 2006; Marshal, et. al., 2008; Russell, Driscoll, & Truong 2002). However, when compared to LGBT adults, knowledge of youth substance use is limited. Unfortunately, few interventions exist which are tailored to LGBT youth. It is necessary to investigate the factors associated with substance use that are unique to this population in order to tailor interventions to their needs. A preliminary study was conducted which adapted an evidence-based prevention program with guidance from LGBT youth at a drop-in center. This paper explores the qualitative findings of the curriculum adaptation and a focus group through use of a grounded theory method. Findings suggest that this population of youth are easily engaged in the adaptation process and provide unique and relevant adaptations. Implications for practice and research are discussed.

*The content of this chapter was written by J. Goldbach, with the use of data obtained by L.K Holleran Steiker. The following chapter represents an original piece by J. Goldbach.

An examination of cultural adaptations performed by LGBT identified youth to a culturally grounded, evidence-based substance abuse intervention

Higher rates of substance abuse exist among samples of Lesbian, Gay, Bisexual and Transgender (LGBT) individuals when compared to the general population (Marshal, et. al., 2008). Youth who identify as LGBT have nearly three times the risk of using substances than their heterosexual peers (Russell, Truong & Driscoll, 2002). Unfortunately, few interventions have been developed to address substance use problems specifically among LGBT youth, likely due to methodological challenges associated with hidden-populations research.

LGBT substance prevention research is limited in general, especially with youth samples (Hughes & Eliason, 2002). Developing a culturally grounded substance prevention intervention for LGBT youth involves certain population specific challenges (Marsiglia, 1998). In addition to the basic concern of capturing real life and relevant experiences, other issues exist including convening a sample, both because of age/consent concerns (such as "outing" them when signing consent) and generalization to broader groups when confronted with limited sampling. Additionally, the socio-cultural differences that exist within the LGBT community lead to difficulty in generalization. Although often referred to as a broader "LGBT" group, the subgroups of this community (i.e., Lesbians, Gay men, etc.) find that their experiences and issues differ substantially from each other. For example, there is a social stigma ascribed to drinking among women in general (Ligancy, 1958). This stigma would compound use by lesbians as well, but would not apply to gay men's drinking behaviors. Such factors that contribute to differences in substance use and intervention needs among the LGBT community underpin the need for more research attention to this area.

As a first step toward intervention-based research for LGBT youth with substance use problems, the present study used a grounded theory approach (Charmaz, 2006) to qualitatively explore how LGBT-identifying youth interpret and tailor an evidence-based prevention curriculum, with the goal of making recommendations for making the curriculum more culturally relevant for their peers. The study yields noteworthy lessons and implications for the development of culturally relevant substance prevention specifically for LGBT youth.

Literature Review

In general, substance abuse prevention efforts have gone through a significant transition over the last century. Initially, little research was available on the effectiveness of interventions, and grassroots models of prevention were commonly used. Through the use of evidence-based practice processes, many programs that were widely used (such as D.A.R.E.) have been invalidated or thoroughly redesigned as a result of strong evaluation research (Clayton, Leukefeld, Harrington & Cattarello, 1996; Lynum, et. al, 1999; Ringwalt, Ennett & Holt, 1991). With evidence-based practices at the forefront, new prevention strategies have been developed which, through program evaluation, have been found effective (*for example, see* Eggert, Nicholas, Kempner, Molgaard & Spoth, 1996). Naturally, researchers who have developed evidence-based curricula have then attempted to generalize their findings to the general public, often without success. As these programs tend to have very specific protocols, timelines for application, and other barriers, they can be difficult to implement in settings other than the researched environment (Castro, 2004). In addition, this generalization is more difficult with sexual minority populations (Hughes & Eliason, 2002).

Subsequently, researchers have worked to identify cultural nuances and target marginalized populations through more effective, culturally competent programming (Marsiglia,

et. al., 2001). Unfortunately, even these programs may prove more effective, they cannot be easily generalized to populations that, while ethnically similar, maintain their cultural individuality (Holleran et al, 2005). Hecht and colleagues (2003) have suggested that interventions should be culturally relevant, in that they "reflect the culture of the individuals receiving the interventions" (Hecht, et al., 2003). The failure of prevention programs can (at least in part) be linked to cultural inappropriateness (Gosin, Marsiglia & Hecht, 2003; Hansen, Miller, & Leukefeld, 1995; Holleran, Taylor-Seehafer, Pomeroy & Neff, 2005; Holleran, Reeves, Marsiglia & Dustman, 2002; Palinkas, et. al., 1996).

Although adolescent use and abuse is not well examined (Marshal, et. al., 2008), high rates of substance use have been documented in LGBT populations (Cochran, et. al., 2004). Marshal and colleagues' (2008) meta-analysis of LGBT youth studies found that significant relationships existed between sexual orientation and cigarette use, injection drug use and polysubstance use. As substance use is clearly an issue of LGBT youth, appropriate prevention interventions must be developed.

Culture and Prevention Practices

Definitions of culture are abundant. For the purpose of this work, culture has been defined as "integrated patterns of human behavior that include the language, thoughts, communications, actions, customs, beliefs, values, and institutions of racial, ethnic, religious, or social groups" (DHHS, 2007). In addition to looking at culture with regard to ethnicity, this research more broadly purports that the culture of youth is unique depending on the community or social setting they are in (Rew, Taylor-Seehafen, & Fitzgerald, 2001). With regard to adolescents, in order to describe the relevant culture, it is much like laying transparencies on an overhead projector. As illustrated in Bronfenbrenner's ecodevelopmental model

(Bronfenbrenner, 1986), the adolescent's individual self is the first layer, name, ethnicity, intra-psychic, personality, intellectual capacity, and organic physical wellness or illnesses. The next layer would be familial, or whomever the adolescent relies on for sustenance and security, for environment. It is important to note that for LGBT youth, this security may not be found through their family relationships. Community culture, peer culture and school each represent further layers. "Pop" (popular) culture is a layer, including music, style and social codes. And if the adolescent winds up in or outside of institutions such as foster care, the justice system, or homelessness, those serve as layers as well. Neighborhoods, cities and regions each have a culture, and perhaps even countries, depending on how wide a lens one embraces.

Culturally grounded interventions, such as the one described in this study, initiate from the particular ethnic, social and organizational culture and move into theory, design, intervention and evaluation (Hecht, Marsiglia, Elek, Wagstaff, Kulis, Dustman, and Miller-Day, 2003). Programs that make superficial attempts to represent cultures or modify existing programs run the risk of "leaving intact the dominant cultural values that are embedded in the existing curriculum" (Hecht et al., 2003; p. 234). Such attempts can lead to omission of the real life experiences of sub-cultural groups and might even invalidate them (Frable, 1997). Programs serving adolescents "should reflect the learning styles and culture of the population in the design of the programs content and format" (Kulis et al, 2005: 134). Truly capturing the culture of youth, this study allowed for participants to define their own worlds, incorporating their language, styles, music, pace, and perspective into the project.

The use of cultural adaptations to prevention curriculum for LGBT youth has not been widely examined. Though authors recognize the importance of intervention with this population, most agree very little research exists on the topic (Hughes & Eliason, 2002; Marshal et. al.,

2008). Additionally, unique cultural factors may influence the effects that risk factors have on LGBT youth, and therefore must be addressed in the investigation of effective substance use prevention. For example, heterosexual youth justify unsafe sex practices considering their being "under the influence" as a post-hoc rationalization, while LGBT youth may start by justifying their substance use in order to alleviate same-sex attraction anxiety (Rotheram-Borus, et. al., 1995). Although, to some, this may appear a minor nuance, it captures important aspects of understanding, attitudes, and motivations around abusing substances. Thus, interventions should be inclusive of cultural characteristics in order to be most effective (Rosario, Schrimshaw & Hunter, 2006).

In order to begin addressing the unique needs of the LGBT community with regard to substance abuse prevention, the following study examined the responses of a group of LGBT youth on substance abuse prevention through qualitative focus group methods. It also examined the systematic adaptations made by the same LGBT youth to an evidence-based curriculum, *keepin' it R.E.A.L.* (Hecht, et. al., 2003).

Background

The *keepin' it R.E.A.L.* (KIR) program is an evidence-based intervention that was created in Phoenix, Arizona, (Hecht et al., 2003) and employs videos and skill-building exercises to teach adolescents about strategies for resisting drug use. *R.E.A.L.,* an acronym, stands for the four drug resistance strategies elicited from youth narratives: Refuse, Explain, Avoid and Leave. Initially developed under The Drug Resistance Strategies Project (DRS: R01 DA005629-08), the project involved 4,224 Hispanic, Caucasian and African-American youth in the creation of culturally grounded substance abuse prevention videos. The DRS was developed from previous research suggesting the utility of video-based approaches to engage and intervene with African-

American and Hispanic youth (Hecht, Corman, & Miller-Rassulo, 1993). The DRS study findings confirmed the benefit for involvement of minority adolescents in the development of substance abuse prevention projects (Holleran, Reeves, Marsiglia, & Dustman, 2002). The study used an experimental design incorporating videos as tools for depicting resistance strategies (Alberts, Miller-Rassulo, & Hecht, 1991; Hecht, Alberts, & Miller-Rassulo, 1992).

Keepin' it REAL was developed under the assumption that creating a culturally grounded curriculum begins with values, language, and symbolic representations. Stopping with this, though, risks "ethnic glossing" because it may be too simplistic (or even stereotypical). In an effort to incorporate a more holistic definition of culture, Keepin' it REAL was developed through narratives of youth discussing their actual experiences with substances and their resistance strategies. This helped to ensure that the curriculum did not superficially portray cultural values, and be reflective of the actual life experiences of local youth (Hecht et al., 2003).

The findings presented here were part of a larger study funded by the National Institute of Drug Abuse (NIDA), implemented in 10 community sites, including four alternative schools, a juvenile justice center, a Texas/Mexico border town, low-income housing site, and an LGBT drop-in center. This project was designed to take the DRS findings further, under the hypothesis that the narratives described above could be re-created at each study site, engaging adolescents in adapting the curriculum to make it culturally appropriate for each setting. At each site, youth completed two focus groups, and participated in several sessions where they were asked to make adaptations to the workbook that accompanies the KIR curriculum.

For the LGBT drop-in center, focus groups were conducted before and after adaptation process. The youth gathered to discuss the workbook and make changes they deemed necessary with the purpose of making it more culturally grounded. The group was asked to come to consensus on the changes they made to the workbook, adapting scenarios to be more "relevant to their peers". It was hypothesized that by integrating the collective narrative into the workbook scenarios (as described above) the curriculum would be seen as more relevant to the youth's community. When scenarios depicted throughout the workbook were added or changed, it was only required that at least ¾ of the group either witnessed or experienced the depicted events or situations in their real lives (Holleran, Hopson, & Gerlach, 2005). The core skills were not adapted (i.e., no changes were made to the instructor's workbook). After remaking the workbook, the youth were asked to create new videos. With very little input from the researcher (see guidelines in appendix), the youth produced, directed and acted each of the four KIR videos to fit their cultural setting.

Methods

In order to investigate the perceptions of LGBT youth towards substance abuse prevention and their recommendations for making curricula more culturally relevant, a purposive sample of LGBT identifying youth was recruited. A grounded theory approach (Charmaz, 2006) was used for this study. In this approach, theory is driven by the data, rather than a presupposed theory being investigated through questioning. Open-ended questions were developed for discussion in the initial focus group, and probes were used when appropriate to further understand participant responses. The second focus group further examined the experience of adapting the curriculum and elaborated upon the research questions.

Overarching research questions included:

- How do LGBT identifying youth interpret substance abuse prevention programs?
- How do prevention programs relate to their personal experience?
- What changes to curriculum do LGBT youth recommend in order to more closely represent their cultural experience?

The choice to use grounded methods was purposeful, and the research team believed that it would help reduce making assumptions by the team about the LGBT community and the statements that youth made about their needs. By further probing in focus groups to understand the "why?" of youth adaptations, the cultural implications of those changes would be identified.

Study Site

A community drop-in center in a mid-sized southern city for LGBT youth was invited to implement the KIR adaptation project. The organization was founded in 1990 to support sexual minority youth ages 12 to 19. The agency began as a support group led by two social work graduate students. Their research into gay and lesbian youth found gay youth were more likely to commit suicide than other adolescents but that there were no local resources for these at-risk youth. The study site is a member organization of the National Youth Advocacy Coalition (NYAC), an association of sexual minority youth groups across the nation.

The study site holds drop-in sessions three days weekly for youth to get together and engage in both therapeutic and recreational activities. Youth are not required to participate in any programming, and new projects (and employees) are decided upon by vote of the youth, volunteers and staff. In order to use this study site, the researchers were required to discuss the idea with youth and volunteers, and go through the volunteer training.

Recruitment.

After partnering with the agency's administration for the project and attending the agency volunteer training, the researchers were given the opportunity to meet with youth to discuss the project, its purpose and goals. The youth were given an overview of the project, and told that

their expertise was requested in the adaptation of the curricula. A background of the curriculum and project history was offered, and questions were answered through an interactive, group setting.

Youth were given consent forms if they were under age 18, and were asked to have their parent/guardian review and sign the form if they chose to participate in the program. The youth were also offered a maximum $30 incentive for their participation in the project [$15 for first focus group, and $15 at the post-workbook adaptation focus group]. Any youth who attended the agency were eligible to participate in the study if they:

1. Considered themselves a participant in the agency
2. Were between the ages of 12-18 years old
3. Obtained consent if under age 18
4. Signed assent as a desire to participate.

Sample

Of those youth who were given consent forms (N=14), eight youth returned with consent forms, and expressed interest in participating in the focus group and workbook adaptation process. As discussed previously, the study site is a youth drop-in center and attendance at the center is not required, so follow-up with the additional six participants was not possible. Of the eight youth, three self-identified as gay males, three as lesbian females, and two did not identify their gender or sexual orientation. Often, community centers that work with LGBT youth refrain from labeling individuals based on sexual orientation or gender identity, unless they self-identify. Therefore, the research team did not assume identification. For the focus group and workbook adaptation, the youth's ages ranged from 14-17, including 5 Caucasian (2 female, 2 male, 1 non-identifying) and 3 Hispanic individuals (1 female, 1 male, 1 non-identifying).

Procedures

All collection of data (focus group and workbook adaptation) was completed in person, with a member of the research team present. In order to ensure that a grounded approach was taken, only brief, overarching questions were developed to guide the initial focus group sessions, and loose (but systematic) guidelines were developed for adapting the curriculum workbook. The adaptations made by the youth to the workbook were also analyzed with grounded qualitative methods. Lastly, the second focus group further examined questions raised by the coding of previous data collection points. Each of these is discussed in detail below.

Focus Group

Focus groups offer the opportunity for sharing in a larger group the context of the experience of LGBT youth, especially as it relates to substance use. The focus group also allowed for personal reactions to participating in the adaptation program. As grounded theory was used to conduct this research, the researcher did not specifically ask in the initial focus group questions that would presuppose a theoretical implication for being gay. For example, rather than asking "What stresses you out about being gay?" the group was asked simply, "What stresses you out?" This approach helped to reduce the impact of the researcher's assumptions about the impact of being gay on both stress and substance use, while still getting at the themes which affect LGBT youth in the sample. A copy of the interview guide can be found in Appendix I.

Curriculum Adaptation

The participating youth were asked to systematically make adaptations to the KIR workbook by utilizing their peers in coming to consensus over changes made to scenarios utilized in the skills lessons taught throughout. Criteria for making changes required that they

maintain the "core theme" of the scenario while adapting it to meet their culture. Identification of core themes was established through extensive work with the curriculum developers. For example, youth were encouraged to change names, places, and language, but were asked to maintain the core concepts of each scenario. In addition, as noted earlier, the youth were instructed to agree that at least 75% of them had either a) personally experienced the situation or b) knew someone personally who had experienced it (Holleran, Hopson, & Gerlach, 2005). Changes were made directly into a template of the original workbook (with permission of the authors and publisher for research purposes), and then later transcribed and printed for agency use. Participants were informed that the products would be only utilized for research purposes and would essentially belong to the agency to use at their discretion once the project was complete.

In order to facilitate honest input from the youth, researchers acted simply as facilitators, reading each of the scenarios in the workbook, and asking if any changes might be necessary to reflect the personal culture of the group. No prompts were used with any specific scenario, and the researcher did not offer input on the changes that were made, outside the above requirements.

Ethical & Practical Concerns

Although unexpected, some ethical concerns needed to be addressed during the course of the project. First, the participants in the project were youth under the age of 18, and therefore a higher risk population for conducting research. A concern in working with LGBT youth can be in consent procedures. Some youth who were invited to participate may not be "out" to their parents, and therefore obtaining signed consent could have jeopardized their circumstance. In order to ensure that all possible risks were avoided, the researchers submitted detailed information about the project to the University of Texas at Austin IRB and gained approval to

continue. If the safety of the youth was in question by getting a consent form signed, an IRB waiver could have been obtained, however no youth at the LGBT study site requested this. As the study site was a community drop-in center, the six youth who did not return consents could not be contacted to determine if this was a concern. During the project orientation process, however, they were informed of this and none voiced a concern.

A second concern may have been in disclosing sexual orientation status during the focus group and adaptation sessions. OutYouth, the agency where the research was conducted, has clear guidelines around youth feeling comfortable with their sexuality, and not being required in any way to identify themselves within a certain sexual context. Although the researcher maintained this standard through the research, it would have been helpful to understand the differences between the youth, investigating common themes or divergences across groups (i.e., transgender youth or lesbians).

Analysis

The qualitative methods included template analysis and a constructivist grounded theory approach (Charmaz, 2006). The focus group sessions were audio recorded and transcribed verbatim, and adaptation sessions included diligent note taking. The basic procedure involves coding of the data in "tree structures" at more and more integrative levels (Marsiglia & Holleran, 1999). The transcripts were analyzed for themes related to substance use, attitudes toward substances, attitudes toward the curriculum, and helpful prevention strategies for participants. Two researchers analyzed transcriptions independently and manually assigned codes to pertinent statements. Each researcher's line-by-line coding generated a preliminary list of codes. These preliminary codes were then applied throughout the two focus group transcripts and the workbook adaptation to ensure they covered all major concepts of the data. The researchers met

after coding transcripts and workbook changes to achieve consensus on the preliminary codes. These codes were then sorted into categories that produced emergent core themes (Lofland & Lofland, 1995; Strauss, 1987) to reflect major findings in the data

Memo writing was also used for organizing and interpreting data findings (Charmaz, 2006). The researcher engaged in free-form writing, which helped in the generation of new ideas and the theorizing of interconnectedness of data findings. The memos were organized by coding theme, and the results of analysis are below.

Findings

Several interesting themes emerged from the focus group and curriculum adaptation. Generally, LGBT youth who participated focused heavily on the need for gender neutrality in adaptation. Youth also felt that their stress was much like other youth, although they did recognize that being gay could add additional stressors. Sexes, and the adult "gay lifestyle", were also referenced several times. Both male and female participants used the word "gay to describe their peers, and therefore findings are grouped using the exact terms that participants used. Although not a focus group, per say, the qualitative results from the curriculum adaptation were coded with the same method described above. As new data is built upon from that previously obtained in Grounded Theory (Charmaz, 2006), the findings from the three points were easily collapsed into themes. The themes that emerged from focus group and curriculum adaptation data collected are described below.

"Jessie sees someone that he or she likes…"

The youth who participated in the adaptation made a conscious effort to avoid gender specific language, and made scenarios fit the LGBT culture to avoid utilizing gender specific names (e.g. Justin, Daniel) and pronouns (e.g. him, her). Instead, they preferred to utilize gender

non-specific names (e.g. Pat, Jessie) and either used third gender pronouns (e.g. hir) or avoided the use of pronouns entirely. For example, a scenario which once read "A girl you like…" was changed to "A person you like…" in order to avoid the use of pronouns. The youth who participated felt strongly that it was important that all scenarios could be generalized to the spectrum of gender identity as well as sexual orientation.

"I'm sorry, that's just the way it is"

Youth who participated in the adaptation made several comments about slides that did not require adaptation or changes. When asked to expand during a focus group, one youth explained her stress: "school, parents, life in general…something about life in general: my dad is, like, insane. Like big stressful things going on right now." Often, the reason that was cited was, "This is the same for gay people as for straights" and adamantly noted "Why should this be any different for us?" This suggests that the youth were sensitive to differences between themselves and their heterosexual peers, or the perception that others believed they were significantly different. Youth did, however, acknowledge that being LGBT might add additional stress that could lead to drug use. For example, one gay male youth stated:

> "I don't agree with the blanket statement that gay people have more problems. But that is typically a big thing [that people say]. You have a lot of the problems that the straight community has, but you also have the problems that the straight community puts on you, like, what you are. It just creates more problems for you. I mean, you don't know what's going on with other people, they could have a lot more problems than you, but there's just a lot more frequent problems in the gay community. I mean, that's just why they would use more [drugs], they have continuous stress."

When asked to clarify why people in the gay community may take more drugs, another youth commented:

> …In the corporate workplace, if their boss finds out that they're gay, they might face some discrimination such as not having the same opportunity for advancement, they can't really work their way up the corporate ladder…I'm sorry but that's just how it is. And because of that stress, that oppression, I think gay people are more likely to turn to drugs as a way to cope.

These quotes show a recognition in LGBT youth that they may experience increased stresses, which can lead some to use alcohol or other drugs in order to cope.

"*Will you steal me those condoms?"*

Youth who participated in the adaptation made references to sexual acts in their scenarios, and discussed sex much more frequently than other groups who participated in the adaptation process. Likely, these youth consider sex and sexual identity a core component to their life experience. For example, a refusal skills scenario which initially read "Let's ditch math class" was changed to "Let's ditch math class and have sex." Though the scenario did not necessarily require a change, the youth felt it was important to infuse sexuality into many of the changes they made. It is important to note that these changes were not promoted by the researcher, and agency representatives and participants defined the acceptability of content based on personal culture. In other words, the acceptance of these types of adaptations into the curriculum shows an additional layer to the culture of the community site.

"Let's sneak into the gay bars tonight!"

Youth who participated in the adaptation also discussed their beliefs around substance use in the adult population readily. Though the project was related directly to use, adult substance use was often inserted into scenarios that focused on skills building somewhat unrelated to substances. For example, a scenario which originally read "Let's sneak out" was changed to "Let's sneak into the gay bars tonight". Two youth made extensive comments about "what happens in the bathrooms" at gay bars, as well as their perceptions of the amount of substance use that occurs in the adult LGBT population. As one youth commented, "I know what you're talking about and I've heard a lot about what goes on in those types of places [gay bars]. So, some people might be more influenced by that." The data from this study indicate that some LGBT youth believe that drug and alcohol use, and other high-risk behaviors happen in adult gay situations. Whether accurate or not, the youth focus on adult behaviors was a recurring theme throughout the group and adaptation sessions.

Discussion

This study was part of a larger investigation to understand the ways in which different groups view substance abuse prevention curriculum, elicit feedback and recommend adaptations, and understand unique differences across groups. The LGBT youth site results could not be aggregated with other results because of the unique nature of the setting, along with the size and composition of the participating group. Nevertheless, the findings from this study are valuable in gaining a preliminary understanding of the ways in which LGBT youth perceive prevention curriculum. The study also offered interesting themes about recommendations youth make for making prevention curriculum more culturally relevant.

For the practitioner, this study offers some insight into the ways in which LGBT youth want to be engaged. First, the youth in this study wanted to be treated with respect, and although

they identified as LGBT, they felt that many of their problems were the same as their heterosexual peers. In the practice setting, it is important that clinicians recognize the constellation of factors that influence a youth's decision to use substances. Additionally, there was a clear preoccupation with both sex, and the assumed "lifestyle" that adult gay and lesbian people lead. Practitioners should be acutely aware of the impact that sex and sexual decision-making may have on these youth's development, and be willing to talk with youth openly about their assumptions around sex and drug use. Lastly, although the results from the other nine study sites are not discussed here, it was clear that LGBT youth connect sex practices more commonly with substance use than other sites with predominantly heterosexual participants. In the practice setting, sex should be included in conversations with LGBT youth to reduce risky decision-making.

The findings presented begin to explore the unique needs of LGBT youth in preventing their use of substances. There are, however limitations to generalizing the findings of this to the LGBT youth population. Because only eight youth were involved in the workbook adaptation process, the researchers can only comment on the themes extrapolated from the experience of working with these youth. Finding appropriate samples of LGBT individuals is consistently difficult and working with youth who identify as LGBT is even more problematic (Morrow, 2004). A significant portion of LGBT youth do not participate in community drop-in centers. Many individuals who have not yet "come out" may hesitate to engage in these programs, or other groups and clubs on their high school campuses. Further there are subgroups of the LGBT population, such as transgendered individuals, who may have different responses to prevention activities (Lombardi, 2000).

It should be noted that it is rare to find a site where this population readily convenes. Often adult populations of gay and lesbian individuals are sampled using convenience methods, at nightclubs and bars. This injects clear limitations to research within this population, especially with regard to substance and alcohol use behaviors. In addition, while there is research on HIV/AIDS prevention and research on substance abuse among LGBT youth, there is little to no research on direct substance abuse prevention programming with these youth. This work can serve as a springboard to more widespread intervention research with this population.

Conclusion

This article illustrates the ways in which a group of LGBT youth recommended substance abuse prevention curriculum be adapted to their culture, and offers insight into how some youth perceive the impact of sexual orientation on effective programming. Despite limitations to generalization of this sample, the researchers propose that there are significant cultural differences in the LGBT youth population which should be further examined in order to create more culturally grounded interventions for substance use, such as a preoccupation with the "adult gay lifestyle", a heightened awareness of sex and substance use, and an increased awareness of gender differences and similarities.

Further research with this population is necessary in order to ensure that cultural nuances are included in the development of substance abuse prevention curriculum. Additionally, as the LGBT community is disproportionately affected by both sexual risk behaviors and substance use behaviors, it would also be valuable for further research to be conducted investigating the feasibility of multifaceted approaches that include safer sex interventions. As noted, there may also be important differences across sub-communities (i.e., transgender males, lesbian females) that would suggest a need for even more specified interventions to examine these differences as

well. This study is an important first step towards understanding differences, and creating culturally relevant interventions that will more effectively prevent LGBT youth from engaging in risky behaviors that may limit their opportunities for the future.

Chapter 5: A Systematic Review of Culturally Based Risk Factors for Substance Use in Lesbian, Gay and Bisexual Youth: Towards the development of prevention interventions.

Submitted to: Prevention Science

ABSTRACT

Lesbian, gay and bisexual (LGB) adolescents report disparate rates of substance use, using more cigarettes, alcohol, marijuana, cocaine, and ecstasy than community samples. To understand substance use in communities, researchers generally rely upon a risk and protective factor model (Hawkins, Catalano & Miller, 1992). Recent research has also explored the importance of culturally unique risk factors in reducing substance use patterns. In an effort to organize the current knowledge of culturally based substance use correlates for LGB adolescents, the current paper systematically reviews the empirical literature. Findings indicate that factors such as family and social acceptance of LGB status, housing instability, anti-queer violence and victimization, and gay-related psychological stress are important factors related to substance use. Relevant articles are synthesized by theme and implications for future research and practice are described.

A growing body of evidence identifies high rates of substance use among lesbian, gay, and bisexual (LGB) adolescents (Moon, Fornili & O'Briant, 2007; Remafedi, 1987), almost three times the rate of their heterosexual peers (Marshal, et al., 2008). LGB adolescents report higher use of a variety of substances, including cigarettes, alcohol, marijuana (Bontempo & D'Augelli, 2002; Russell, Driscoll, & Truong, 2002) and less commonly used substances such as cocaine and ecstasy (Corliss, Rosario, Wypij, Wylie, Frazier & Austin, 2010). Evidence also suggests LGB youth may be more likely to use multiple substances at the same time (Garofalo, Wolf, Kessel, Palfrey, & Durant, 1998) and more rapidly increase their use patterns as they age (Marshal, Friedman, Stall & Thompson, 2009).

Substance use by LGB youth is a public health concern. In general, early age of initial substance use increases the chances of addiction later in life (Jones & Battjes, 1985; Grant, Stinson & Harford, 2001), impairs decision-making (Dom, Sabbe, Hulstijn & Brink, 2005), and is associated with other problem behaviors such as poor school performance (Kandel, Johnson, Bird & Camino, 1997; Wu & Anthony, 1999). Research also indicates an association between the use of substances and risky sexual practices (Herrick, Matthews, & Garofalo, 2010), such as unprotected sex and HIV exposure (Solorio, Swenderman & Rotheram-Borus, 2003). Moreover, there are numerous physical health consequences of substance use, as "drinking, smoking, and illegal drug use are a leading causes of morbidity and mortality, both during adolescence and later in life," (Monitoring the Future, 2008; p. 79). There are also significant economic costs with estimates as high as $151.4 billion annually in lost productivity, physical and property damages (Miller & Hendrie, 2009).

Because of the significant public health impact of substance use, leading health organizations such as the Centers for Disease Control and Prevention (CDC) and The Substance Abuse and Mental Health Services Administration (SAMHSA) are particularly interested in the prevention of substance use by delaying the onset of and reducing the progression of use through the development of "culturally focused, universal, selective, and indicated prevention programs" (SAMHSA, 2011; p. 15). Furthermore, Healthy People 2020 includes the goal of "eliminating LGBT health disparities and enhancing efforts to improve LGBT health" (GMLA, 2010; p.1). Given this, it is notable that no evidence-based interventions currently exist to target use patterns among this population (NREPP, 2011).

Risk and Protective Factor Models

In understanding behavioral health concerns, researchers have found the use of a risk and protective model helpful (Hawkins, Catalano & Miller, 1992). In 2009, a synthesis of studies by the Institute of Medicine (IOM) explored the impact of a multitude of risk and protective factors on youth. For example, the presence of intensely stressful experiences in early childhood (such as exposure to unsafe neighborhoods and poor family bonding) is linked to clinical anxiety later in life, and supportive learning environments (including academic achievement) is linked to reduced substance use outcomes (IOM, 2009). In short, prevention interventions are most successful when they work to reduce risk factors and promote resilience and a number of interventions support this conceptualization (i.e., Kendall et al., 1997; Kumpfer & Alvarado, 2003).

More recently, research has begun to explore the unique effects of culturally based risk and protective factors on behavioral health outcomes. For example, research

has found that Hispanics may experience culturally based risks, such as stress around acculturation and immigration (Cervantes, et al., 2011; DHHS, 2001) that have been linked to mental health and substance abuse outcomes (Vega, et al., 1993; 1998). As Zayas, et al (2005) suggests, the acculturation process (i.e., adjusting to new cultural norms) happens more quickly for youth than their parents, which can lead to psychological maladjustment including substance use and suicide attempts. Other research with Hispanic youth and families has explored the impact of discrimination, family immigration, and lack of healthcare access on substance use (Cervantes, et al., 2011; Cordova & Cervantes, 2010).

An expanded interpretation of culture has now been applied beyond race and ethnicity, to include the socio-cultural experiences of people (*i.e.,* Castro, Barrera & Holleran Steiker, 2010). For example, unique cultures may be found in alternative schools (Hopson, 2006; Holleran & Hopson, 2006), low-income housing units (McLoed, 2004), and in detention facilities (Holleran Steiker, Goldbach, Hopson, & Powell, 2011). LGB adolescents also report a unique culture that many substance abuse prevention interventions do not address (Goldbach & Holleran Steiker, 2011; Welle, 2003). For example, LGB adolescents recommend the inclusion of gender neutral names, third gender pronouns (i.e. ze, hir), and an inclusion of older peer activities, such as attendance at bars and clubs (Goldbach & Holleran Steiker, 2011).

Despite significant advances in risk factor prevention programs for general population adolescents (i.e., NREPP, 2011), and racial/ethnic minority adolescents (i.e., Cervantes, et al., 2011; Zayas, et al., 2005), research on culturally based risks for LGB adolescents remain sparsely discussed in the literature. For example, only one review

could be found (Thompson & Johnston, 2003) and it speaks generally about risks facing LGB adolescents (i.e., suicide, HIV risk), but does not explore specific correlates of substance use behavior. A number of studies, described in further detail below, have begun to identify culturally based risk factors correlated with substance use in LGB youth specifically. While the literature on substance use in adult LGB communities (particularly young adult gay men) is growing rapidly, little exists to organize research on culturally based risk factors for LGB adolescents. The current paper responds to this gap through a systematic review of empirical literature focusing on correlates of substance use in this high-risk group.

Method

Literature Search

For the purposes of this systematic review, only peer-reviewed articles that examined correlates (independent variables) of substance use in LGB youth (dependent variable) were included. The author searched widely accessed computer-based journal databases, including PsychINFO, PubMED, and EBSCO. To include more relevant and timely articles, articles were limited to those published after 1990. Article titles, abstracts and subject lines were searched using the term "gay", "lesbian", "bisexual", and "sexual minority" paired with "youth" or "adolescent" and "substance use" or "substance abuse". Additionally, an ancestral approach (White, 1994) was used, where the citation lists of articles that met inclusion criteria were reviewed for additional research that may not have been identified through the electronic method. The search yielded a total of 64 articles for consideration.

Inclusion & Exclusion Criteria

Articles were included in the review if they reported on peer-reviewed research. Both qualitative and quantitative articles were included in the final analysis. The term "adolescent" and "youth" were operationalized as age 12-18, the general years of middle and high school, however, studies that had a wider age range (i.e., 12-25) were included for analysis as almost all possible studies included broader age ranges. This challenge to adolescent specific research is described elsewhere in the literature (Elze, 2011). Retrospective studies were also included if they reported on the participant's experience of adolescence. Studies with multiple time points (i.e., Pearson, Muller & Wilkinson, 2007) were included if the first time point occurred during adolescence. Studies that reported only on prevalence of substance use in LGB adolescents were not included, as this has been clearly established through previous research (i.e., Marshal, et al., 2008), and fell outside the scope of the current review. The final list (Table 1) included 26 articles for inclusion.

Analysis.

Empirical articles included in the systematic review were cross-sectional survey (11), single interview (6), multiple interviews (2), prospective (5), or relied upon a mixture of cross-sectional survey and interview data (2). Of the prospective studies, only three relied upon nationally representative data (*Adolescent Health*). The sampling characteristics and major study findings can be found in Table 1. Each article explored a correlation between an LGB-specific risk factor and substance use patterns by LGB adolescents.

After the final sample of articles was determined, the author and a master's level research assistant performed the analysis. Separately, the research team reviewed the included articles and the independent variables (risk factors) from each were placed into a table of findings. The dependent variable in all articles was the use of illicit drugs (e.g., marijuana, cocaine). Upon completion, the two met to achieve consensus of risk factor themes. Differences were discussed and themes reorganized. Only minor variations were discovered between the two reviewers, which influence the findings minimally. For example, one reviewer described "depression" and "psychological distress" as separate themes; these were combined in the final discussion as depression is an example of a psychologically distressed state.

Results

Organized by culturally based risk factor, three articles explored the impact of family support, two examined social support, six focused on housing instability and homelessness, six discussed violence and victimization, and 10 examined psychological stress such as depression and anxiety around coming out and their relation to substance use. Two additional articles were included that explored differences in LGB substance use across race/ethnicity. One article explored religiosity, but had no significant findings and is not included for discussion. Some articles explored more than one correlate and are organized accordingly. The major findings and patterns of results found across the 26 articles are described in Table 2 below.

Table 2: Final Sample of Key Findings

Independent Variable(s)	Author(s)	Sample Characteristics	Key Findings
1. Housing Status	*Clatts, Goldsamt, Yi, & Gwadz, (2005).*	Gay (63%); bisexual (24%); heterosexual (7%); (6%) declined to self-identify; Age: 17-28	"Both past and current homelessness are strongly associated with higher levels of lifetime exposure to drug and sexual risk as well as higher levels of current drug and sexual risk."
2. Housing Status	*Cochran, Stewart, Ginzler, & Cauce, (2002)*	N-375; Age: 13-21, M= 17.14	LGBT adolescents reported higher rates of cocaine and amphetamine use, and more likely to use more types of drugs than heterosexual youth.
3. Housing Status	*Noell, & Ochs, (2001).*	N=532; 216 female, 316 male Mean Age (females- 17.7 vs. males-18.8)	Homelessness was correlated with heightened rates of injection drug use
4. Housing Status	*Salomonsen-Sautel, Van Leeuwen, Gilroy, Boyle, Malberg, & Hopfer, (2008).*	N=760; Ages 14-17 (n=181) and 18-24 (n=503)	Substance use was correlated with homeless youth identifying as lesbian, gay or bisexual.
5. Housing Status	*Van Leeuwen, Boyle, Salomonsen-Sautel, Baker, Garcia, Hoffman, & Hopfer, (2006)*	N=692; age: 14-24	Substance use (binge drinking, injection drug use, cocaine, crack, ecstasy, marijuana, ketamine, mushrooms, GHB, PCP, heroin, methamphetamines, DXM, Valium, LSD, & Morphine) more common in LGB youth.
6. Parental Support/Social Support	*Padilla, Crisp, & Rew, (2010)*	N=1906; 12-17 years	Stress significantly increased the risk of drug use. A mother's positive reaction to the youth's coming out served as a significant protective factor. Involvement in a queer youth group had no effect.
7. Psychological Stress	*Hughes & Eliason, (2002).*	N=156; Age: 14-21, Mean age = 18.3 years	"Correlation between initial involvement in gay-related activities and increased substance use."
8. Psychological Stress	*Pearson, Muller, & Wilkinson, (2007).*	N= 11,288 ; Gender: 5,947 females; 5,341 males; Grades 7-12 @wave 1	Same-sex attracted students, particularly males, do suffer academically, in part due to school-related problems, emotional distress, and substance use
9. Psychological Distress	*Rosario, Hunter, & Gwadz, (1997).*	N=164; Age: 14-21, 75% in high school	Coping with psychological issues significantly explained symptoms of substance abuse and number of substances ever used.
10. Psychological Stress	*Rosario, Rotheram-Borus, & Reid, (1996).*	N=136; Age: 14-19	Increasing levels of gay-related stress correlated with substance use
11. Psychological Stress	*Rosario, Schrimshaw, & Hunter, (2008)*	N=76; ethnically diverse young lesbian and bisexual women; Age: 14-21	Butch women reported higher frequency of marijuana use than femme women; internalized homophobia and emotional distress were positively related to substance use
12. Psychological Stress	*Rosario, Schrimshaw, & Hunter, (2009).*	N=156; Age: 14-21	Number of rejecting reactions to disclosure correlated with marijuana use
13. Psychological Stress	*Rosario, Schrimshaw, & Hunter, (2004).*	N= 156; Age: 14-21	As involvement in gay-related activities increased, alcohol and marijuana use was found to initially increase, however substance use declined as involvement in gay-related activities continued to increase.
14. Psychological Stress	*Savin-Williams, Ritch, and Ream, (2003)*	Sample 1 (N=52), Sample 2 (N=681) males.	Suicide attempters experienced higher levels of both generic life stressors (low self-esteem, substance use, victimization) and gay-related stressors

Table 2, continued.

Independent Variable(s)	Author(s)	Sample Characteristics	Key Findings
15. Race/Ethnicity	*Hahm, Wong, Huang, Ozonoff, & Lee, (2008)*	N=1,108; Chinese, 24.1%; Filipinos, 40.9%; Japanese, 6.9%; Indians, 1.7%;Koreans, 6.0%; Vietnamese, 4.5%; and "other Asians," 15.9%; Age: 13-22; 18-27 wave 3	Significant increases re: incidence and prevalence of all four types of substance use (tobacco, binge drinking, marijuana, and other drugs) found among sexual minority AAPIs. Specifically being an AAPI sexual minority young woman was significantly associated with substance use
16. Religiosity	*Rostosky, Danner, & Riggle, (2007)*	n =764; Males 319 (42%), Females 445 (58%); Age: M=15.90, SD=1.65	Religiosity was not protective against substance use in sexual minority young adult
17. Victimization	*Bontempo & D'Augelli (2002)*	N=315; Age: 14-18	High levels of victimization were correlated with higher levels of substance use
18. Victimization	*Whitbeck, Chen, Hoyt, Tyler, & Johnson (2004)*	N=428; Age: 16-19	Non-significant findings for gay males; lesbian females significantly more likely to meet criteria for substance abuse disorder
19. Housing Status & Social Support	Wright, & Perry, (2006)	N=156; Age: 13-21 years, M=18.19, SD= 1.41	Youth who have left home ≥1 times are more likely to engage in poly substance use and do so more frequently than youth who have not. These youth also report higher levels of psychological distress and more risky sex acts over the past 6 months.
20. Parental Support & Victimization	Espelage, Aragon, Birkett, & Koenig, (2008)	N=13,921; Age: M=15.8	High levels of victimization (teasing) and low levels of parental support correlated wi high levels of marijuana use
21. Sexual Orientation & Racial/Ethnic Minority	Barney (2003)	N=5602; Indian and Alaska Native adolescent males; Bisexual students excluded from analysis; Age: 12-19 years	No differences between gay and heterosexual males re: substance use or attitudes abou school. Gay adolescents were twice as likely to have thought of or attempted suicide, were twice as likely to have been physically abused, and nearly six times more likely have been sexually abused (all three were statistically significant).
22. Victimization, Psychological Distress, & Race/Ethnicity	Poteat, Koeng, Steven, Dorothy, (2009).	N =14,439; Age: 14 –19, M=15.86, SD=1.22	Boys reported higher victimization than did girls among heterosexual and questioning students. Significant 3-way interactions between sexual orientation, race, and gender were identified for substance use and depressed/suicidal thoughts.
23. Victimization & Family Support	Willoughby, Doty, & Malik, (2010).	N=81; Age: 14-25	Victimization and family rejection were related to negative GLB identity internalization
24. Victimization & Self Esteem	Wyss (2004).	N=7; Age: n/a as stories gleaned from High School experiences	Violence related to low self-esteem and depression that led to coping mechanisms, including substance use.

Above articles represent a sample of key findings. Full citation included within reference section.

Family and Social Support

Several articles explored the influence of family support on substance use. Espelage and colleagues (2008) found that parent support moderates the interaction between homophobic teasing and alcohol and marijuana use among a large school-based sample of LGB teens. Students with the highest rates of homophobic teasing and the lowest support reported the highest rates of substance use and suicidal and depressed feelings. Similarly, Padilla, Crisp, and Rew (2010) found that a supportive mother through the 'coming out process' was a protective factor for LGB adolescents.

Articles also examined social support as offered through family, friends, peers, teachers, and, more broadly, the supportive school climate and its relationship to adolescent's substance use. Espelage et al. (2008) found that, similar to parental support, a supportive school environment buffers against substance use for LGB adolescents. However, having more social support of peers does not seem to be a protective factor. Wright and Perry (2008) found that having more LGB people in youth's support networks was associated with more frequent drug use, although the effect size of this relationship was small. This same study found no significant relationship between having the social support of LGB people on participants' patterns of alcohol use. Accordingly, findings from Padilla, et al. (2010) found that involvement in a queer, social support peer group had no effect on substance use for LGB youth.

Housing Instability

Housing instability and homelessness appear associated with LGB adolescent substance use in two ways. First, research among homeless adolescents indicates a

positive correlation between sexual minority status and substance use. Among a sample of homeless youth, those who identified as sexual minority (LGBT) reported a greater frequency of substance use compared to their heterosexual counterparts during the previous 6 months (Cochran et al., 2002). Likewise, a more recent study (Salomonsen, et al., 2008) found both lifetime and recent substance use among homeless youth was positively related to sexual minority status. In another sample, substance use was more common in LGB youth, including injection drug use, cocaine, crack, ecstasy, marijuana, ketamine, mushrooms, GHB, PCP, heroin, methamphetamines, DXM, Valium, LSD, and Morphine (Van Leeuwan et al., 2006). These findings are corroborated by a fourth study consisting of multiple interviews at four different time periods for a sample of homeless adolescents in which LGB identified youth showed heightened rates of injection drug use (Noell & Otts, 2001).

In other work, Write and Perry (2008) found that running away from home was the most significant variable associated with drug use in their sample of LGB adolescents. Further, in a comparison of young men who have sex with men (MSM) by housing status (never been homeless, previously homeless, and currently homeless), rates of lifetime substance use were highest among participants who were currently homeless, followed by prior homelessness (Clatts, Goldsamt, Yi, & Gawdz, 2005). Moreover, Clatts et al. (2005) found a temporal pattern in which "a constellation of negative life events," (i.e. foster care, running away from home, time spent in a group home, arrest, and incarceration) occurs prior to the onset of substance use across all three housing status groups.

Violence and Victimization

Rates of victimization are higher in LGB youth when compared to their heterosexual peers (Cochran, et al., 2002). Articles explored the relationship between violence and victimization on substance use behaviors in LGB youth. Bontempo & D'Augelli (2002) found that high levels of victimization were correlated with higher levels of substance use. This same study also found that LGB youth who reported lower levels of victimization had similar rates of substance use compared to the heterosexual group.

Victimization has also been explored in relation to other key variables. For example, Espelage et al. (2008) found that high levels of victimization (homophobic teasing) were correlated with high levels of marijuana use, particularly when combined with low levels of parental support. For homeless youth, drug use was associated with nearly twice the rate of experiencing violence and victimization (Whitbeck, et al., 2004). Victimization has also been associated with the development of a negative LGB identity, internalized problems and subsequent substance use behaviors (Willoghby, et al., 2010).

Psychological Distress

The most commonly discussed correlate in the literature was the experience of psychological stress related to being LGB. Gay-related stress includes the experience of negative events, attitudes towards homosexuality, discomfort and emotional stress (anxiety, depression) linked to substance use outcomes in LGB youth (Rosario, et al., 2002; Rosario, et al., 1996). Much psychological stress comes from the coming out

process (Pilkington & D'Augelli, 1995) and LGB youth report substance use to "ameliorate social anxiety and boost self-confidence" (Hughes & Eliason, 2002; p. 3).

Despite the suspected salience of this risk factor, the exact relationship between substance abuse and psychological stress is obscure and findings are mixed in the literature. Five studies (Rosario, 1996; Rosario, 1997; Rosario 2008; Rotheram-Borus & Rosario, 1995; Witbeck 2004) found a correlation between gay-related stress and substance use; one of the studies found the relationship was significant for females only (Rotheram-Borus & Rosario, 1995). Further, two other studies (Rosario 2009; Rosario, Schrimshaw, & Hunter, 2004) demonstrated a lack of relationship between substance use and higher levels of gay related stress. The same studies indicate a nonlinear relationship wherein substance use increases with the coming out process and youths' initial engagement in gay-related activities, but then decreases as engagement in these types of activities increases.

Discussion

The current paper identifies and explores the existing empirical literature on culturally based risk factors of substance use for LGB youth. It is clear that there are a number of distinct culturally related factors influencing LGB adolescents' risky substance use behaviors that would likely improve outcomes if addressed in relevant prevention strategies for LGB youth.

Not surprisingly, psychological stress, which included internalized feelings of homophobia and depressive symptoms, represented the largest portion of articles related to substance use behaviors. The relationship between increased levels of stress and

negative behavioral health outcomes has been well established in the literature (i.e., Stress-Illness Paradigm; Lazarus & Folkman, 1984), and stress is considered the primary cause of substance use (NIDA, 2006). Further, the concept of minority stress has been applied to gay men for more than 15 years (Meyer, 1995), though only sparsely to LGB adolescents (Hughes & Eliason, 2002). What remains in question is the nature of the complex relationship between stressors, victimization, and behavioral health outcomes, such as substance use.

Family support appears to be much more important than peer support in predicting substance use outcomes. From the available literature, it does not appear that the presence of peer support is a protective factor from substance use. For instance, in Padilla, et al. (2010), youth involvement in a school gay-straight alliance (GSA) was not correlated with lower substance use patterns. Thus, familial support youth cannot be substituted by peer relationships and friendships. Research supporting the role of a positive school environment as a protective factor might indicate that students need strong adults role models in their environment (whether at home or school) to offer that protective role of social support. Additionally, family support is not simply the absence of family rejection, and authors have recently begun to explore further the complex role of family support in health outcomes for LGB youth (Bouris, et al., 2011).

The relationship between victimization and substance use is not as clear as some of the other indicators. In the articles described, victimization often appears to be more indirectly related to substance use, with the experience leading to distress, and distress leading to substance use patterns. In other literature, victimization has been described as an outcome of substance use (particularly among homeless youth). Further research is

needed to clarify the causal relationship between victimization, emotional distress, and substance use patterns.

The findings also indicate a need for intervention development specifically tailored to LGB youth. Given the unique stressor experiences of LGB youth including parental disapproval, loss of friendship, victimization, and school problems (Remefadi, 1987; Russell, Franz & Driscoll, 2001), culturally unique prevention interventions for LGB youth communities are most likely to be successful. This is supported by evidence that tailoring an intervention to a target population can increase its effectiveness (Hecht et al, 2003; Marsiglia et al, 2000). This approach has been used with various ethnic and racial minorities. Recently there has been a shift to ethnically sensitive programs (Botvin et al., 1995; Cervantes, et al., 2011), based on the argument that cultural sensitivity enhances prevention efforts and that ethnic matching maximizes program impact (Botvin et al. 1994; 1995).

Some limitations do exist in the current review. Of particular concern is the lack of standardization concerning which ages constitute an "adolescent" or "youth", with studies ranging in populations of 13-25. Initially, the author wished to restrict this review to only those studies that described an adolescent population between 13-18 years of age. However, this limited scope would have drastically reduced the total available articles, making the current synthesis impossible. Other authors have also written about this concern (Elze, 2011*)* and future research should employ stricter guidelines. In short, the experience of a 25 year old participant should be cautiously combined with the experience of a 15 year old, as developmental and life stages differ drastically between these two. The majority of studies included in this systematic review were cross-

sectional and lack longitudinal findings that make it difficult to examine change over time, such as how victimization in childhood relates to substance use in adulthood. Additionally, all of the studies relied on self-report, and fear of stigmatization could have reduced honest reporting (Stronski & Remafedi, 1998). Given these limitations, there may be other salient risk factors contributing to substance use in LGB adolescents that remain currently unexplored.

Future research should explore the relationships among and between the themes highlighted in this review and examine their combined influence on substance use outcomes. These numerous, complicated constructs have predominantly been studied independently. What is needed is a better understanding of how they interact synergistically and relate to one another. Further research must evaluate how these established correlates impact each other and, in turn, effect substance use by LGB youth. To the authors' knowledge, there are no current research studies reporting the interaction of these multiple factors or their accumulation among LGB youth.

In short, interventions designed to meet a group's unique cultural challenges are effective in changing negative behavioral health patterns (i.e., Castro, Barrera & Martinez, 2004; Cervantes, Goldbach & Santos, 2011). Participants in these programs also tend to report higher satisfaction with their content (Holleran Steiker, Goldbach, Hopson & Powell, 2011). Examples of interventions that target culturally based risk factors include Familias Unidas (Prado, et al., 2006) and Familia Adelante (Cervantes, Goldbach & Santos, 2011) and those tested with African American youth, including Strengthening Families (Kumpfer, et al., 1996). For LGB adolescents, the unique cultural risk factors described in this review provide a basis for further inquiry and

intervention development. Future research is needed to understand how these risk factors simultaneously influence substance use patterns in LGB youth, and may help to inform the development of effective substance use prevention interventions for LGB youth and reduce this troublesome health disparity.

Chapter 6: Exploring culturally based risk factors for marijuana use in sexual minority adolescents: A Structural Model

To be submitted to: Psychology of Addictive Behaviors

ABSTRACT

Extant literature also indicates that LG adolescents are at increased risk for substance use (Moon, Fornili & O'Briant, 2007), including the use of cigarettes, alcohol, marijuana (Bontempo & D'Augelli, 2002; Russell, et al., 2002), cocaine, and ecstasy (Corliss, Rosario, Wypij, Wylie, Frazier & Austin, 2010). As it correlates to and generally precedes harder drug use (Kandel, 2002), marijuana is considered a gateway substance of choice. Minority Stress Theory suggests that LG individuals experience poorer health because difficult social situations related to being LG create a state of chronic stress (Meyer, 2003). However, this model has not been explored in LG adolescents. Using a national cross-sectional survey of 1,232 LG adolescents, the current study uses structural equation modeling (SEM) to explore the feasibility of applying a minority stress framework to our understanding of marijuana use in this population. The final structural model for marijuana use in the LG adolescent sample displayed excellent fit and modest explanatory power for marijuana use [χ^2 (114)=353.04; $p<0.001$; CFI = 0.972; TLI = 0.976; RMSEA = 0.041; R=0.10]. Two of the five factors, community connectedness and internalized homophobia, were associated with marijuana use. Other factors theoretically expected to be significantly associated with marijuana use were not, including psychological distress. Findings suggest that minority stress theory may be appropriate for use in this population, however better measurement of minority stress concepts for LG adolescents is needed.

Exploring culturally based risk factors for marijuana use in sexual minority adolescents: A Structural Model

Adolescence is a critical developmental period, characterized by "new social contexts, additional responsibilities, and opportunities for developmental change in self-definition" (Hurlok, 2009; Schulenberg, et al., 1996; p. 659). Lesbian and gay (LG) youth face both conventional challenges of adolescence along with increased stress of being LG or questioning their sexuality. For example, LG youth report high rates of discrimination, verbal and physical abuse and negative social consequences for revealing their sexuality (Haas, et al., 2011). The stress related to identifying as LG can also result in extreme behavioral health outcomes, with studies indicating suicide attempts as high as 42% (Anhalt & Morris, 1998; Haas, et al., 2011) contrasted with 7.1% of youth in general (Lewinsohn, Rohde & Seeley, 1996).

Extant literature also indicates that LG adolescents are at increased risk for substance use (Moon, Fornili & O'Briant, 2007), including the use of cigarettes, alcohol, marijuana (Bontempo & D'Augelli, 2002; Russell, et al., 2002), cocaine, and ecstasy (Corliss, Rosario, Wypij, Wylie, Frazier & Austin, 2010). Youth who identify as LG are more likely to use multiple substances simultaneously (Garofalo, et al., 1998), placing them at increased risk for additional adverse physical health outcomes (Marshall, 2006) and increased sexual risk behavior (Herrick, et al., 2010). Moreover, there are numerous health consequences of substance use, as "drinking, smoking, and illegal drug use are leading causes of morbidity and mortality, both during adolescence and later in life" (Monitoring the Future, 2008; p. 79).

Marijuana Use

Approximately 43 percent of 12th graders in the United States have used marijuana, with 25 percent reporting use in the last 30 days (Johnston, O'Malley, Bachman & Schulenberg, 2008). Lesbian and Gay adolescents report higher rates of use than their heterosexual peers, with more than 33 percent reporting use in the last 30 days (Russell, et al., 2002). Youth who use marijuana are more likely to also use tobacco (Ramo, Liu & Prochaska, 2011), and its use correlates to and generally precedes the use of harder drugs (Kandal, 2002). Marijuana is involved in nearly 18,000 emergency room visits per year by adolescents (SAMHSA, 2003), and nearly one-third of adolescents who are arrested test positive for marijuana (NIJ, 2002). Additionally, the primary diagnosis in treatment facilities across the United States for adolescents is marijuana dependence, more than for all other illicit drugs combined (NIDA, 2004).

There are numerous health and behavioral health consequences to adolescent use of marijuana. Studies indicate changes in learning, memory, attention, and mental processing (Jacobus, Bava, Cohen-Zion, Mahmood & Tapert, 2010; Solowij, et al., 2002). Further, onset of marijuana use before age 17 is predictive of impaired reaction time and lower verbal memory, IQ, and fluency later in life (Ehrenreich, et al., 1999; Pope, et al., 2003). The early use of marijuana by adolescents has been found to increase later behavioral health problems, including drug-related arrests, assault, and suicide (Brooks, Whiteman, Finch & Cohen, 1996; Swahn & Bossarte, 2007). Further, use of marijuana by adolescents is associated with tolerance of other risk behaviors, and changed perceptions about the harmfulness of illicit drug use (Brook, et al., 1989).

Although disparate rates of marijuana use by LG adolescents is documented, little research has explored the factors associated with its use in this population.

Theories of LG Substance Use

A dearth of theory exists to explain substance use in LG adolescents; however, long-standing research suggests a relationship between high levels of stress and substance misuse (NIDA, 1995). Generally, Stress Theory (Lazarus & Folkman, 1984) posits that as major stressful life events and chronic stressors accumulate, an individual becomes less equipped to adapt, adjust and tolerate continued stressful experiences (Brady & Sinha, 2005; Brown & Harris, 1978). Like those experiences that increase stress, other factors buffer against negative outcomes, such as the existence of strong social supports (Cohen & Wills, 1985). In practice, Stress Theory is often extended to individuals who are part of disadvantaged groups (i.e., women, racial/ethnic minorities, those living in poverty) and called minority stress theory (*for examples, see* Kessler, 1979; McLeod & Kessler, 1990). Minority individuals repeatedly show increased psychological vulnerability when compared to their majority group peers (Alamilla, Kim & Lam, 2010).

Minority stress theory has also been applied to the LG community. As Meyer (1995) explains, there is an association between an array of social and psychological stressors related to being part of a sexual minority group (See Figure 1, below). Hughes & Eliason (2002) describe this as the experience of stigmatization from being LG, along with its influence on negative behavioral health outcomes, such as substance use and mental health problems. These stressors include negative events (e.g., discrimination, bullying), negative attitudes towards homosexuality, internalization of discomfort with

sexuality, and emotional distress related to acceptance (Rosario, Schrimshaw, Hunter & Gwadz, 2002; Rosario, Rotheram-Borus & Reid, 1996).

Minority Stress Theory suggests that individuals experience poorer health because difficult social situations related to being a minority member create a state of chronic stress, which builds over time to result in negative outcomes (Meyer, 2003). Further, the theory distinguishes between distal stress processes (i.e., those outside the individual) and proximal stressors (i.e., those inside the person as a byproduct of distal stress).

To date, however, much of the literature on theory building among lesbian, gay, bisexual and transgender (LGBT) substance use remains focused on adults, particularly men who have sex with men (i.e., Traube, Holloway, Schrager & Kipke, 2011). This has resulted in research with LG adolescents that lack a clear theoretical orientation.

Understanding Stress and Substance Use in LG Adolescents

Risk factors for substance use exist at multiple levels: within the individual, family, peer, and community (Hawkins, Catalano, & Miller, 1992). Risk factor research has more recently been extended to explore cultural differences in the experience of stress and the use of substances, including marijuana. For example, Cervantes and colleagues (2011) examined the stress responses of 1,637 Latino adolescents. In this study, culturally specific stressors were identified, including cultural conflict, acculturation stress, family economic stress, and discrimination stress. Some emerging studies have also explored culturally focused risk factors for substance use in LG adolescents. For instance, a recent systematic review of culturally based risk factors

identified a total of 24 empirical studies that included large numbers of LG adolescents in their samples (Goldbach, under review). This paper identified five dominant stress domains associated with substance use by LG adolescents, including family and social support (Espelage, et al., 2008), homelessness (Salomonsen, et al., 2008), violence/victimization (Bontempo & D'Augelli, 2002), and psychological distress (Rosario, et al. 2002).

To date, however, literature to explore the inter-relationships between stressors and substance use in LG adolescents remains unexplored. Given this and the lack of well documented theoretically driven approaches to understanding substance use patterns in this group, the current study sought to apply the concepts of Minority Stress Theory (MST; Meyer, 2003) to a large national dataset of LGB adolescents. As documented in previous reviews of the literature (Goldbach, under review), factors such as lack of family and social support, experiences of violence/victimization, outness, lack of community connectedness, internalized homophobia, and psychological distress are all empirically related to use by this population.

Methods

To explore the minority stressors identified through previous research and their impact on a specified substance use outcome (marijuana use), a secondary analysis was conducted. Data from a large Internet survey of LGBT youth collected by OutProud: The National Coalition for Gay, Lesbian, Bisexual and Transgender was used (Kryzan, 2000). Data were collected by OutProud between September and October, 2000 through an online survey. Using the Internet, researchers have often obtained samples that are difficult to recruit through more traditional methods (i.e., Bowen, 2005; Meyer & Wilson,

2009). For example, Rosser, Oakes, Bockting, and Miner (2007) used online survey methods to recruit the largest sample of transgender persons in the U.S. to date, over 1,200 individuals.

The cross-sectional survey was developed collaboratively with experts in gay and lesbian studies, mental health, and substance abuse. Links to the survey were made available on various online and in-print outlets, including Oasis Magazine, Out in America, OutProud, and banners on websites that cater to young gay and lesbian persons (e.g., gay.com). Once the website for the survey was accessed by participants, an introductory letter explained the goals of the study and the OutProud privacy policy; no identifying information was collected from participants. Including more than 260 variables collected from 5,281 U.S. resident respondents, the OutProud survey represents one of very few large national datasets that has collected data from LG adolescents and ask specifically about their experiences with substance use. The only requirement for participation was identifying as 25 years of age or under and being willing to answer questions about sexual minority experiences.

Participants.

For the purposes of this study, data from LG identifying participants age 12 to 18 from the United States were used, for a total sample of 1,232 adolescents. Adolescents identifying as bisexual or transgender were not included, due to both the low number of participants and the lack of sufficient exploratory research on their stressor experiences. Of the remaining sample, 188 (15%) identified as lesbian females and 1,044 (85%) as gay males.

Measures

In total, the survey contained 266 variables that included demographic information, about being queer, internet usage, school policies, school groups, sexuality, sexual health, military, experiences of harassment, risk behaviors, and other related questions. The questions were developed by the executive director of a national LG serving youth organization (OutProud) in collaboration with clinical and research experts in the field of substance use and mental health. The majority of questions were not developed from previously validated instruments, although no current instruments exist to measure the constructs described below. Items were chosen on their face/content validity; two Ph.D. level researchers in the field of sexual minority adolescent and young adult substance use used a consensus model to determine the final factor items.

Violence and Victimization latent factor. Five binary items (1=yes, 0=no), treated as individual indicators, were used to assess the experience of victimization related to sexual minority identity. These included "Have you ever been beaten due to being queer?", "Have you experienced violence due to being queer?", "Have you had things thrown at you due to being queer?", "Have you had threats made against you due to being queer?", and "Have you been threatened with violence due to being queer?". These items comprised the Violence and Victimization latent factor.

Psychological Distress latent factor. Three binary items (1=yes, 0=no), treated as individual indicators, were used to assess psychological distress in participants related to identifying as lesbian or gay. These included "Have you ever tried to harm yourself due to being queer?", "Have you ever felt hopeless due to being queer?", and "Have you ever

attempted suicide due to being queer?". These factors have been shown as indicators of psychological distress in previous research with gay men (Traube, et al., 2011).

Outness latent factor. In order to assess the level of outness (i.e., the degree to which a participant had disclosed their sexual identity), four composite variables were created: Out to self, out to friends, out to family, and out to others. Out to self included a single measure ("Have you accepted your sexual orientation?"). Out to friends included having disclosed sexual identity to a best friend, friends outside of work/school, or friends at school. Out to family included being out to father, mother, and sibling. Finally, out to others included having disclosed sexual identity to teachers, people at work, or others. Each of these indicators were binary and represented whether participants were out to any of the individuals in that particular category. If they were, they were scored as yes (1). If not, they were scored as no (0).

Self Esteem. Respondents were asked about their self-esteem using four questions from the Rosenberg Self Esteem Scale (RSED; Rosenberg, 1989). These questions included "I feel that I do not have much to be proud of", "I take a positive attitude toward myself", "At times, I think I am no good at all", and "On the whole, I am satisfied with myself). Responses were combined to form a four-level index of self-esteem: 1=very low, 2=low, 3=high, and 4=very high. From the present studies four variables, a high level of internal consistency was found (α =.82).

Internalized Homophobia latent factor. In order to assess levels of internalized feelings of homophobia, three binary measures (1=yes, 0=no) were used and treated as individual indicators of the factor. These included: "Are you uncomfortable about being

queer?", "Would you change your sexual orientation if you could?", and "Do you feel negatively about your sexual orientation?".

Community Connectedness latent factor. Five binary measures (1=yes, 0=no) were used to assess the level of connectedness participants felt to the larger gay and lesbian community. These included: "Do you feel part of the gay community?", "Do you know others who are queer?", "Do you know peers who are queer?", "Do you feel part of a community group for being queer?", and "Have you been to a community center for queer youth?".

Covariates: Socio-demographic measures. Due to a low response of racial/ethnic minorities, race/ethnicity was represented by a dichotomous variable (Caucasian=0, Racial/Ethnic Minority=1). Residential status was dummy coded (living at home with family=1, other=0) and gender was coded (male=1, female=0). A single continuous variable represented subjects' age in years.

Marijuana Use. Respondents were asked about their past 30-day marijuana use using the Youth Risk Behavior Survey (2000) questions. Participants' response options included: No use (0), 1-2 times (1), 3-9 times (2), 10-19 times (3), 20-30 times (4) and 30 or more times (5). Due to low responses within categories, a dichotomous (1=yes, 0=no) measure of having used marijuana in the past 30-days was used in the final analysis.

Analysis

Structural equation modeling (SEM) with latent variables was used to testing the theoretical model.

First, descriptive statistics and correlations were conducted using the Statistical Package for Social Sciences (SPSS) version 18.0 (IBM, 2009). Table 2, below, presents the correlation table for all included variables

Next, in order to ensure that all indicators loaded as expected onto interpretable latent factors, a confirmatory factor analysis (CFA) using Mplus (Muthen & Muthen, 2008) was conducted. Measurement models were specified individually for each latent factor and then a full model was specified with all latent variables modeled simultaneously. First, all observed variables theoretically believed to be indicators of latent variables were entered into the measurement model. Model fit statistics (CFI, TLI, RMSEA) were used to assess model fit with standard criteria used (CFI/TLI > 0.90; RMSEA < .06; Ullman & Bentler, 2004). Second, R^2 values, which indicate the amount of variance in the observed variables explained by the latent variable, were assessed. R^2 values below 0.10 for any observed variable were eliminated from the measurement model and the model was re-specified accordingly. Finally, a measurement model incorporating all latent variables was specified in order to verify that no observed variable was explained by more than one latent construct and that the overall measurement model fit the data well.

The last step in the analysis involved the specification of a structural model to test the associations between each independent variable on the observed dependent variable, marijuana use. SEM allows for the testing of relationships of all observed variables and underlying constructs (i.e., latent variables) simultaneously, which reduces measurement error. Both t-tests associated with parameter estimates and goodness of fit indices (CFI, TLI, RMSEA) were used to determine the most appropriate model. Regression paths

were systematically added among the latent and observed variables to investigate their relationship to each other and participants' marijuana use. Nonsignificant paths were removed systematically to achieve the most parsimonious model. Modification indices generated by MPlus (Muthen & Muthen, 2008) that were consistent with the overarching theoretical framework and possessed a chi-square value greater than 3.84 were added to improve overall model fit. Lastly, R^2 values were assessed to examine the total variance in marijuana use that could be explained by the final model. All analyses were conducted using weighted least squares maximum likelihood due to the dichotomous outcome variable of interest (Muthen & Muthen, 2008).

Results

Demographics.

Table 3 outlines the demographic and descriptive statistics of the sample. Notably, the majority of the sample identified as Caucasian (81%). The average age for participants was 16 (SD=1.19) and the majority of the sample (84%) identified as gay males. The remaining sample (16%) identified as lesbian females.

Confirmatory Factor Analysis (CFA).

Table 3 below reports means, standard deviations, and ranges for measured variables. All indicator variables loaded significantly ($p < 0.001$) on the hypothesized latent factors. Residual covariances were added between (1) the indicators that represented being beaten and having violence against you for being queer within the violence/victimization factor (0.16; p=0.001), (2) the indicators for being threatened or

threatened with a weapon also within the violence/victimization factor (-0.28; p=0.006), (3) negative feelings about ones sexual orientation and their desire to change their sexual orientation within the internalized homophobia factor (0.23; p<0.001), (4) knowing others and knowing peers within the community connectedness factor (0.423; p<0.001), and (5) having been to a community group and attending a community center also in the community connectedness factor (0.367; p<0.001). The final model displayed excellent fit (CFI = 0.981, TLI = 0.984, RMSEA = 0.038).

Structural Model.

The final structural model (Figure 1) for marijuana use in the LG adolescent sample displayed excellent fit and modest explanatory power for marijuana use (CFI = 0.972; TLI = 0.976; RMSEA = 0.041; R^2=0.10). Violence and victimization were significantly positively associated with psychological distress (β=0.278 t=6.78, p<0.001), indicating that those participants who experienced victimization also reported increased levels of distress. Additionally, the extent to which an individual is "out" to friends and family was significantly positively associated with psychological distress (β=0.111, t=3.675, p<0.001), indicating that those who are out to more people also experienced greater levels of distress. Conversely, self-esteem was significant and negatively related to psychological distress (β=-0.831, t=-15.438, p<0.001), suggesting that higher levels of self-esteem were associated with lower levels of distress being reported. Psychological distress was not significantly associated with the outcome of interest, marijuana use.

Community connectedness was significant and positively related to marijuana use (β=0.589, t=5.004, p<0.001); but negatively associated with internalized homophobia

(β=0.190, t=2.538, p=0.001). This suggests that those who feel a stronger sense of connection to the LG community experience lower levels of internalized homophobia, although appear more likely to engage in the use of marijuana. School status was negatively related to marijuana use (β=-0.566, t=-3.011, p<0.01), indicating that those in school were less likely to use marijuana. Additionally, residential status was also negatively related to marijuana use (β=-0.472, t=-3.287, p<0.01) indicating that those living at home with their parents were less likely to be using marijuana. Gender and race/ethnicity were also tested for associations to marijuana risk; however, these variables were not significantly associated with marijuana use.

Discussion

The purpose of this study was to explore the utility of applying Minority Stress Theory (Meyer, 1993) to substance use among for lesbian and gay identified adolescents. Minority Stress Theory suggests that poor health outcomes are related to the stress of chronic difficult social situations, with both distal (outside) and proximal (from within) stress processes (Dohrenwend, 2000). Below follows a discussion of the structural model at both distal and proximal process levels, to understand these complex findings.

In the current study, school status and residential status were the only covariates associated with marijuana use. Consistent with other research (CDC, 2010), living at home and being in school were both associated with less use, while living outside the home or not being a student were indicative of use. Age of the participant was not significant in the model, and was removed. Additionally, being a part of a racial or

ethnic minority group was not statistically associated with marijuana use, although the sample included a very small number of minority participants.

In the current study, the experience of violence and victimization and outness were both associated with psychological distress (a proximal factor), but were not associated with marijuana use directly. Greater experiences of violence/victimization were related to increased psychological distress, indicating that greater sexual identity disclosure may lead to increased psychological distress. This is in line with other work suggesting that being more out relates to increased discrimination experiences in work and social environments (Degges-White & Shoffner, 2002), and may motivate individuals to keep from revealing their sexual identity to others. Additionally, youth who are more out also perceive they will be victimized more (Kim, 2008), lending to increased sensitivity and mental health problems (Newcomb & Mustanski, 2010).

In the current study, the only distal factor statistically associated with marijuana use was community connectedness. Being more connected to the larger gay/lesbian community was associated with greater marijuana use. In general risk and protective models of substance use (Hawkins, et al., 1992), feeling connected to the larger community is generally seen as a protective factor. As perception of peer use is related to changes in behavior (Kaplan, Martin, & Robbins, 1984), this may be related to the perception that the larger LG community is using drugs at an increased rate (Goldbach & Holleran Steiker, 2010).

Connectedness with the community was also negatively associated with Internalized Homophobia, suggesting that being connected to the community is related to lower feelings of Internalized Homophobia. Therefore, it appears that Community

Connectedness may be both a risk and protective experience for LG adolescents, and an important place for future intervention development. This finding is supported by other studies of substance use among older sexual minority youth (Holloway et al., 2011) and also by Stall and colleagues (2008) Theory of Syndemic Production and constructs of Minority Stress Theory. These theories posit that health problems such as substance abuse are prevalent within communities as a result of chronic stress in early childhood and adolescence, making it more common within the larger community and subsequently more accessible. As LG youth seem to identify acceptable behavior by their older adult peers (Goldbach & Holleran Steiker, 2011), it may be that they find both acceptance (decreased feelings of homophobia) and a social norm to use as they become more connected.

Somewhat surprisingly, Community Connectedness and Outness were not significantly associated with each other, suggesting that the number of people one is out to does not seem to be related to feelings of connectedness to the larger LG community. Some research has indicated that sexual minorities often do not identify as closely connected to each other in school (Ueno, 2005). As most participants in this sample were high school students, it may be that they are not out to their primary peer group, and view their school community as separate. It may further be accounted for by the age of the sample (i.e., fewer opportunities for participation in traditional gay/lesbian venues, such as bars due to age restrictions of lack of those venues in the geographical areas in which youth live) and that although many had come out to one or more individuals, some simply may not have had opportunities know peers, friends, and community members who also identified as LG.

In the current study, psychological distress was positively related to violence, and negatively associated with self-esteem and outness. Thus, those participants with higher self-esteem scores reported experiencing less psychological distress. However, it is possible that these participants did not experience fewer victimizing experiences, just that their interpretation of those experiences as stressful was not as strong as those who had lower self esteem. For example, previous studies of other minority communities have indicated that self-esteem may buffer against feelings of perceived discrimination, depression, and other negative outcomes (Wei, et al., 2008). Thus, individual level interventions to address self-esteem and coping may be effective in reducing substance use behavior.

Internalized homophobia, or negative feelings about oneself due to identification as lesbian or gay, was positively associated with marijuana use. This form of stress has been previously associated with substance use patterns in adult populations (Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008) and may be an important place for intervention development. Although identifying environmental changes to reduce stressors for LG adolescents is critical, individual level interventions to teach better coping skills may also impact their feelings of internalized homophobia, thus reducing their likelihood to engage in substance use behavior.

Unlike the theoretical assumption, psychological distress was not related to the outcome, marijuana use, in this sample. The relationship between chronic distress and substance use is well documented (NIDA, 1995). However, the indicators of psychological distress were somewhat extreme measures (i.e., self-harm behaviors and

suicide attempts), and their lack of sensitivity to lesser forms of distress (i.e., anxiety, depression) may contribute to the lack of relationship in the present model.

Strengths and Limitations.

Although other studies of adolescents (e.g., the National Survey of Adolescent Health) report on sexuality, these general population studies do not ask questions to assess the experience of minority stress in any one population. Thus, the present study provides initial steps toward understanding the unique experience of LG adolescents. Additionally, although Minority Stress Theory has been applied widely to LG adults, particularly gay men, little exists to support its application to LG adolescents. The current study suggests that the theory, at least in part, shows links between minority stress domains and substance use patterns.

The findings of this study also elucidate next steps for research with LG adolescents. First, better measurement instruments must be developed to accurately assess minority stressor experiences in this population. Similar instruments have been developed for racial/ethnic minority groups (Cervantes, et al., 2011) and have been shown useful in assessing behavioral health outcomes such as substance use and mental health problems. Once accurate measurement instruments have been developed, this study should be repeated with a larger, more representative sample of sexual minority adolescents. However, this study indicates that MST may be an appropriate lens with which to identify effective intervention approaches to substance use among LG youth.

The sampling method is a limitation of the present study. Despite fairly high Internet use in the United States, approximately 27% of Americans are still non-users

(Madden, 2006; PEW, 2008). Generally, Internet users are younger, indicating that the present study population (adolescents) is an appropriate target for this approach (Fox, 2005). However, Internet users also tend to have higher socioeconomic status, and are less likely to be racial/ethnic minorities than those without Internet access (Fox, 2005; Gosling, Vazire, Srivastava, & John, 2004; PEW, 2008). The lack of racial/ethic minority participants reflected in the current study, indicate that the results may be less reflective of non-Caucasian adolescents, and future studies should take care to include a larger sample of these youth as their stress experiences may differ considerably (e.g., Diaz, et al., 1998). Additionally, there may be differences in the type of LG person who accesses the Internet, with users engaging in higher risk behavior than non-users (Liau, Millett, & Marks, 2006), although these studies were conducted with gay adult men and are likely less related to adolescent internet use. Fewer females were found in this sample, which may be the product of recruitment methods. As online and in-print magazines that targeted gay males were primary sources of participant recruitment, this may have influenced participant demographics.

Related to this, an additional limitation remains around the generalization and representativeness of this sample. As others have described a lack of data exists on the numbers of LG identified youth in the population (Elze, 2007). However, due to the scope of the present survey, and the inclusion of all 50 states, it is likely that this sample is more broadly representative of the LG adolescent community. Further, approximately one-third of youth who began the survey did not complete, and their differences are not accounted for. Lastly, the sample was largely gay male identifying. Given the low number of lesbian identifying participants, it was not possible to run separate models to

identify differences between the two groups. However, as a covariate, gender was non-significant. Future studies should seek to elucidate possible differences in stress experiences and substance use by gender. Finally, no variables were able to identify the presence of family support for sexual orientation. Previous research indicates that family support is a critical component for substance use in both general population youth (Kumpfer, et al., 2002) and in sexual minority youth specifically (Bouris, et al., 2011; Goldbach, under review). Further, recent work by Bouris and colleagues (2011) has elucidated the important differences between lacking family support and incurring family rejection. Future research must effectively measure this construct in order to better understand its impact on marijuana use outcomes.

The current study represents the only research to explore minority stressors in a large sample of LG adolescents. Although many studies of substance use in adolescence exist, such as the National Survey on Drug Use and Health (NSDUH) and the Monitoring the Future (MTF) study, no other national study has explored specifically the impact of sexual minority specific stress has on these youth. Despite limitations in sample, the findings presented here are helpful in advancing our understanding of the mechanisms of substance use in this underserved population. This study points to a need for additional research with LG adolescents to better understand their unique needs.

Table 3: Descriptive statistics for observed and latent variables in the structural model

Variables		Mean (SD) *or* N (%)
Observed Variables		
Age in years (range: 12 – 18)		15.77 (1.19)
Self Esteem (1 – 16)		2.25 (2.63)
Sexual Orientation:	Gay male	1044 (84%)
	Lesbian female	188 (16%)
Residential status:	Live with family	1133 (92%)
Race/ethnicity:	Racial/Ethnic Minority	246 (20%)
	White	986 (80%)
Latent variables		
Violence/Victimization		
Been Beaten (binary)		123 (10.1%)
Experienced Violence (binary)		308 (25.1%)
Had things thrown at you (binary)		246 (20.1%)
Been threatened (binary)		731 (59.3%)
Had a weapon used against you (binary)		59 (4.8%)
Psychological Distress		
Attempted to harm yourself (binary)		275 (22.3%)
Felt Hopeless in last 30 days (binary)		652 (52.9%)
Attempted suicide (1-5)*		1.69 (0.96)
Outness		
Out to self (binary)		1007 (81.7%)
Out to Family (binary)		0.71 (1.06)
Out to Friends (binary)		1.60 (1.29)
Out to others (binary)		0.33 (0.63)
Community Connectedness		
Feel part of the queer community (binary)		3.00 (0.71)
Know others who are queer (binary)		3.51 (0.51)
Know peers who are queer (binary)		3.21 (1.14)
Been to a queer group in the community (binary)		227 (18.4%)
Been to a community center for queer (binary)		137 (11.1%)
Internalized Homophobia		
Discomfort with being queer (range: 1 – 5)*		2.50 (1.09)
Negative Feelings about being queer (range: 1 – 5)*		2.38 (1.07)
Would you change if you could (binary)		391 (31.7%)

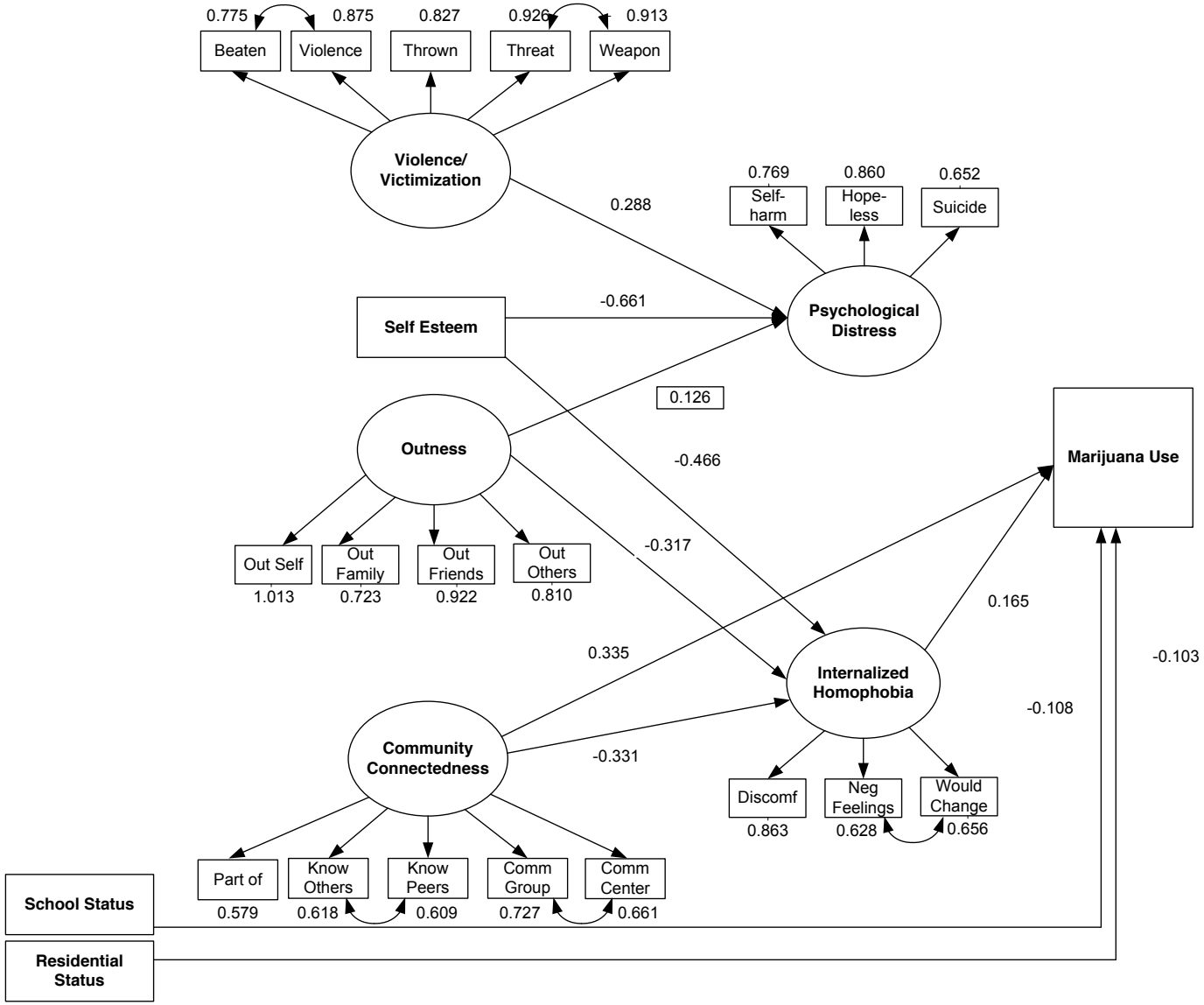
*Variables are coded so that lower values indicate more positive feelings

Table 4: Correlations among model variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Living with Family	–																				
2. In School	.173***	–																			
3. Comfort being Queer	.087**	.033*	–																		
4. Experienced Threats	-.015	-.008	-.167**	–																	
5. Violence	-.036*	-.047**	-.147**	.420**	–																
6. Things Thrown	.012	-.010	-.132**	.323**	.506**	–															
7. Been Beaten	-.020	-.051**	-.083**	.248**	.514**	.456**	–														
8. Weapons Against	.001	-.035*	-.065**	.144**	.323**	.306**	.414**	–													
9. Hurt Oneself	.090**	.036*	-.008	.127**	.134**	.127**	.104**	.110**	–												
10. Hopeless	.039**	.002	.010	.190**	.177**	.163**	.131**	.104**	.382**	–											
11. Att. Suicide	.024	-.044*	-.094**	.146**	.186**	.163**	.150**	.184**	.323**	.192**	–										
12. Feel about being Queer	.053**	.038**	.650**	-.120**	-.104**	-.095**	-.059**	-.056**	.007	.015	-.058**	–									
13. Would change sexual orientation	.031*	.042**	.517**	-.077**	-.070**	-.055**	-.033*	-.039**	-.010	.008	-.020	.585**	–								
14. feel part of community	-.089**	-.020	-.433**	.170**	.120**	.117**	.070**	.067**	.016	.004	.045**	-.374**	-.281**	–							
15. know someone gay	-.152**	-.025	-.251**	.128**	.108**	.073**	.057**	.061**	.016	.004	.066*	-.187**	-.132**	.268**	–						
16. Know peers	-.154**	-.007	-.257**	.105**	.083**	.060**	.039**	.024	.016	-.014	.057**	-.199**	-.144**	.242**	.605**	–					
17. attended comm.. group	-.212**	-.004	-.318**	.155**	.153**	.119**	.091**	.091**	.016	.046**	.051**	=.244**	-.191**	.314**	.236**	.230**	–				
18. attend comm.. center	-.151**	-.059**	-.255**	.131**	.144**	.106**	.115**	.114**	-.021	.004	.037*	-.202**	-.148**	.266**	.183**	.165**	.544**	–			
19. Self Esteem	-.072**	-.006	-.286**	-.060**	-.078**	-.071**	-.075**	-.059**	-.339**	-.413**	-.126**	-.269**	-.233**	.182**	.128**	.117**	.073**	.104**	–		
20. Marijuana Use	-.062**	-.034*	-.029*	.055*	.077*	.031*	.029	.021	.044**	.033*	.060*	=.022	-.029*	.052**	.096**	.079**	.063**	.052**	-.020	–	
21. Out to Family	-.157**	-.071**	-.467**	.244**	.198**	.148**	.121**	.120**	.038**	.021	.107**	-.353**	-.289**	.338**	.249**	.237**	.370**	.307**	.120**	.066**	–
22. Out to Friends	-.156**	-.004	-.487**	.246**	.192**	.160**	.077**	.061**	.103**	.144**	.119**	-.394**	-.305**	.245**	.347**	.359**	.350**	.242**	.070**	.082**	.523**
23. Out to Others	-.222**	-.087**	-.449**	.250**	.233**	.182**	.126**	.123**	.032*	.052**	.089**	-.339**	-.254**	.346**	.281**	.248**	.423**	.328**	.115**	.100**	.525**

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Figure 1: Structural Model for Marijuana Use



Chapter 7: Conclusions

It is known that lesbian, gay, and bisexual (LGB) adolescents report disparate rates of substance use when compared to community level samples (Hughes & Eliason, 2002). As described in Chapters above, stress theory suggests that chronic stress accumulates in individuals, resulting in a lack of adequate coping skills and increased rates of negative health outcomes (Cohen & Wills, 1985). Minority Stress Theory (Meyer, 2003; 2007) has applied the concepts of chronic stress directly to health outcomes in sexual minority communities. However, the literature to date has primarily explored the relevance of this theory with LG adults, primarily gay men (e.g., Traube, et al., 2011) leaving little theory to guide the development of preventative efforts for LGB identifying youth. Given this, the purpose of this dissertation was to explore three guiding questions: 1) what unique cultural elements distinguish LGB adolescents from their heterosexual peers, and what implications this may have for substance abuse prevention approaches; 2) what is our current state of knowledge about minority stressors for LGB adolescents, and what constructs of minority stress can be empirically identified in relation to their substance use; and 3) Is minority stress theory an appropriate theory to apply in our understanding of substance use outcomes.

The Culture of LGB Adolescents

In the first study, findings indicated that LGB youth do believe that there are distinct cultural elements that should be considered in the development of any prevention intervention. Focus group findings also suggested that participants believed current prevention interventions do not reflect their culture effectively, and therefore feel left out

of interventions designed to offer them strategies for avoiding substance use. This is problematic, as previous research has shown that participants who feel that their cultural experience is reflected in materials show better outcomes on substance use at post-test (Marsiglia et al., 2005).

In order to identify what elements of LGB culture might be incorporated as we conceptualize prevention with this group, this study also explored recommendations, from the participants' perspective, of elements that would help better reflect their personal experience. Several important recommendations came through, which are also described below as overarching thematic findings. First, LGB adolescents felt that curriculum should include more LGB specific material, but not necessarily be 100 percent LGB focused. This is consistent with previous research on racial/ethnic youth who reported an equal rate of behavioral change when given an ethnic specific curriculum vs. a "mixed" curriculum that represented multiple ethnic backgrounds (Marsiglia, et al., 2002). Thus, it appears that LGB adolescents are interested in their inclusion in their general peer group, rather than the development of general purpose interventions specific to LGB adolescents. As one youth participant stated, "*We don't need it to be only about gay stuff... we know that straight people have to exist too"*.

This finding is a critical one, as the long-term implications of this research lead toward the development of prevention interventions. Although the study sample was small, in an intervention development study of more youth one may indicate a similar finding, with significant implications for the effectiveness of interventions that are specific to LGB youth. Further, as the long-term goal is the acceptance and inclusion of LGB adolescents, it may be inappropriate to design interventions that do not also address

structural issues impacting these youth, such as broad education to reduce stigma, heterosexism, and violence.

An additional finding that reflects a larger study theme is the inclusion of older adults and a preoccupation with sex and sexual behaviors. Discussed in more detail below, the youth in this sample spoke often of the behaviors that are socially normed in the adult gay and lesbian community. Statements such as "*I know what happens in those bars!"* indicated a somewhat inaccurate view of the hedonistic lifestyle of adult gay and lesbian people. Consistent with other research on the important role that future expectations play on current behavioral patterns (Oyserman & Destin, 2010), the influence that social norms play in substance use patterns in this population is an understudied yet important component. Again, this may point to the need for larger structural interventions to address social norms, change perceptions of normative behavior, and ultimately impact the rates of use. The use of social norms to change substance use behavior has been long documented in general population studies, most famously in the efforts to reduce tobacco use (Karasek, Ahern & Galea, 2011).

Risk Factors associated with Minority Status

The second series of studies (Chapters 5 & 6) began the identification of minority stressors that are associated with substance use by LGB adolescents. As Meyer (1995) has described, there is an association between an array of social and psychological stressors related to being LGB, including gay-related stressors such as negative events, attitudes towards homosexuality, discomfort with sexuality, and emotional distress (such as anxiety, depression, and conduct problems). Further, several studies have indicated

that the experience of these stressors in adulthood can result in negative behavioral health outcomes such as substance use, homelessness, and mental health disorders (Clatts, et al., 2005; Rosario, et al., 2002). However, the constructs of minority stress have yet to be fully explored in LGB adolescents. Although we may theorize that these stressors result in similar health outcomes for adolescents, without proper empirical evidence to support this, the development of effective interventions remains unfeasible. Given this, these studies aimed to identify empirically grounded stressor domains, and apply a minority stress framework to a sample of LGB adolescents.

First, Chapter 5 described several domains of minority stress that have been shown to be individually associated with substance use outcomes. These included family and social acceptance, housing instability, anti-queer violence and victimization, outness, psychological distress, and race/ethnicity. Each of these had been correlated with substance use outcomes in LGB youth, although rarely in tandem with each other. Some significant barriers existed in the ability to complete this review, namely the general lack or research evidence, and concerns around age restrictions, described in further detail below.

In Chapter 6, a structural equation model was developed to build upon the findings of Chapter 5. This dataset was able to test some, but not all, of the relevant minority stress concepts. While some expected outcomes emerged from this model, some surprising relationships were also found. For example, in this sample, psychological distress was not directly correlated with marijuana use. As previous research has clearly indicated this connection (NIDA, 1995), it was a hypothesis that a significant relationship would emerge. However, this may be attributed to the extreme

indicators that were available of psychological distress (including suicide attempts and self-harm), which may not have been reflective of the more common and prevalent issues (depression, anxiety) facing many LGB adolescents.

Another important finding in this study was the relationship between community connectedness, internalized homophobia, and marijuana use. While community connectedness related to lower rates of internalized homophobia, it also was correlated with higher rates of marijuana use. This appears to indicate that having stronger ties to the LGB community may result in more use. There are two important points that can help to explain this relationship. First, minority stress theory does indicate social groups that experience high rates of stress are more likely to use substances (Meyer, 2005; Stall, 2001). Therefore, identifying more strongly as part of this group may result in this behavior as a socially oriented coping strategy for stress. Second, there may be a confounding explanation for this, where strongly gay community connected individuals are also *less* connected to the larger community, and in truth it is this disconnect that relates to substance use patterns. However, as connecting to this larger community also means increased rates of violence, marginalization, and homophobia, disconnection may be the better alternative for these youth. Unfortunately, this data could not ascertain general community connection, and therefore could not be explored.

One major barrier to this study was the lack of family connection. Previous research has indicated that the presence family acceptance or rejection is significantly related to health outcomes for LGB adolescents (Bouris, et al., 2011). Thus, the inability to explore this important construct leaves an important dynamic unexplored in the context of other minority stress outcomes.

Cross-cutting Findings

Across the studies within this dissertation, it does appear that there are some unique cultural experiences that LGB youth experience as they navigate their social environment and make decisions about using drugs and alcohol. For example, youth readily report that they do not see themselves in many currently used substance abuse prevention curriculum. Further, LGB youth who perform cultural adaptations to existing substance abuse prevention curriculum identify unique aspects that are not found across other studied cultural groups (Goldbach & Holleran Steiker, 2011; Holleran Steiker, Goldbach, Hopson, & Powell, 2011). Further, larger national samples of LGB adolescents report high rates of violence, victimization, internalized homophobia, and psychological distress. It is concerning that in addition to experiencing these unique minority stressors, current prevention efforts do not effectively address the needs of this group.

An additional finding from each sub-study is the importance of including the larger gay and lesbian community into intervention development in the future. In this series of studies, LGB youth reported qualitatively that they believed they knew of significant rates of drug and alcohol use, as well as instances of unsafe and unprotected sex, occurring in bars and clubs that adult lesbian and gay individuals attend. Through another component, community connectedness emerged as a strong correlate of marijuana use. Thus, two mechanisms may be operating within the context of these youth decision-making. First, youth may have inaccurate portrayals of adult use, calling for structural social norming interventions. Second, youth may perceive that bars and clubs (places that relate to high rates of drinking and drug use in all communities) are the

primary social outlet for them as they grow older. Therefore, it is perhaps equally necessary that prevention interventions address the need for pro-social outlets for youth. This work is currently being explored in LG identifying young adults, through interventions such as *Mpowerment* (Kegeles, et al., 2011).

A third finding that became apparent through the process of analyzing both sets of data is the clear lack of measurement available for understanding LGB adolescent culture, their struggles, and the way they perceive, interpret, and experience minority stress experiences. For example, only one instrument currently exists for measuring minority stress in LGB communities (Lewis, Derlega, Berndt, Morris & Rose, 2001). As we know family support is a dynamic construct for LGB youth specifically (Bouris, et al., 2011), it is not effectively covered in adult instruments. For example, family support and family rejection are not necessarily opposites on the same continuum, and may require separate measurement. Further, acceptance by a father may operate quite differently than a mother, and perhaps uniquely for a gay vs. lesbian child, depending on gender norms and parental beliefs/attitudes towards those norms. Thus, it is clear that measurement is a problem that should be addressed as these disparities are explored more empirically in the future.

General Limitations.

As described in numerous reports, measurement issues are a continuing concern for research with LGB people (Savin-Williams, 1994; Coker, Austin & Schuster, 2010), made further complicated for adolescents who cannot provide consent themselves. First, establishing the total proportion of adolescents who identify as LGB is difficult (Gay and Lesbian Medical Association, 2001; Sell & Becker, 2001), in part because few nationally

representative surveys even collect data on sexual orientation (Coker, et al., 2010). Additionally, no standard measures of sexual orientation exist, and dimensions of sexuality are considered abstract. For example, how one identifies (Gay, lesbian, bisexual, queer, etc.), who they are attracted to (men, women, both, transgendered only, etc.), and the behaviors they actually engage in (heterosexual acts, homosexual acts, no sexual acts, etc.) are all unique yet important factors that influence measurement and make comparison difficult (Friedman & Downey, 1994). Further, exploration of sexuality is a natural process of adolescence (Peterson, et al., 1995) and sexual orientation may change over time, suggesting that behavior is not necessarily congruent with identification (Saewyc, Bauer, Skay, Bearinger, Resnick, et al. 2004). For example, individuals who identify as bisexual at age twelve may later decide they are in fact gay or lesbian, or heterosexual. Finally, fear of stigmatization may reduce honest reporting of sexual orientation, thus resulting in an underestimation in the total population (Stronski & Remafedi, 1998). In a study by Remefadi and colleagues (1992), less than one third of youth with same-gender attraction were willing to identify themselves as LGB.

Similarly, there is a general lack of standardization concerning which ages constitute "adolescent" or "youth", and much of the currentl literature includes age ranges spanning across both adolescence and young adulthood (i.e., 13-25). Although authors have written about this concern (Elze, 2007), there appears to remain a lack of effort to identify and recruit adolescent specific samples in order to isolate their outcomes as unique from their older, college age peers. For example, while binge drinking is an ongoing concern for college-age young people, it is much more worrisome in a thirteen or fourteen year old adolescent. This is of particular concern in the study of substance

use, as younger age of onset is strongly correlated with later substance abuse and addiction (SAMHSA, 2009).

Many studies that do exist to explore substance use in LGB youth are cross-sectional, making it difficult to understand determinants or predictors of substance use behaviors. Currently, the majority of empirical works are cross-sectional or single interview, with the only large prospective studies interested in more general health behaviors and outcomes (i.e. NSDUH, YRBS) and not reflective of minority stress concepts specifically. Unfortunately, implementing sophisticated strategies for recruitment or prospective study remains difficult, namely due to a lack of funding. For example, although the National Institutes of Health (NIH) receive more than $31.2 billion annual for research, only about $187,830 was spent towards the study of LGB youth in 2011. There does appear to be some increased attention to LGB issues, as in 2012 a five-year Program Announcement was released by the NIH to study aspects of health and behavioral health in this population.

Implications for Direct Practice.

Other findings of this dissertation lead to more direct implications for social work practice. First, it is clear that LGB identifying youth want to be treated with respect, and do believe that many of their problems were similar to those of their heterosexual peers. Thus, the use of reflective language may be particularly important in working with this population. For example, assuming that all gay and lesbian youth are experiencing high rates of victimization may, in fact, further stigmatize these youth.

That said, there do appear to be significant and unique stressors that LGB identifying youth experience. The research presented within this dissertation suggests

that a myriad of factors contribute to disparate rates of use in LGB adolescents. Therefore, for practitioners to be unaware of these issues and not acknowledge their presence in the life of adolescent clients may leave those individuals without an outlet for expressing their fears, and to develop more effective coping strategies.

Practitioners, particularly those interested in preventing and treating substance use patterns in LGB adolescent clients, should be considerate of these stressor experiences in their clients, and work to mitigate their effects when possible. That said, our current understanding of effective coping strategies employed by LGB adolescents remains, to this authors knowledge, non-existent. Therefore, practitioners should likely rely on their clinical skills and training to assist individual clients in finding methods for coping effectively with stressful circumstances. Additionally, as the family relationship is an important one in adolescence, it may be important for practitioners to involve the family in any treatment that includes the youth. Recognizing that the family may be a source of stress for the client, helping them navigate and build this relationship may be an important point of intervention.

Implications for Community and Policy.

As direct service practitioners work to address the individual needs of LGB adolescents, those interested in structural barriers may work toward creating safer environments for LGB adolescents. Ultimately, the social environment should be one that allows these youth to be open about their sexuality without experiencing negativity, and subsequently, chronic stress. As this dissertation study (and others) have found that being more out to persons was positively associated with psychological distress, it is apparent that those who do disclose their identity to others are not always receiving a

positive response. Thus, there are important structural changes that can occur to improve the lives of LGB adolescents.

First, schools should adopt more protective policies for their LGB students, and the majority of states have not taken measures to do so (Russo, 2006). Five states (Alabama, Arizona, Mississippi, South Carolina and Utah) have even gone so far as to the development of "No-Promo-Homo" laws in which the discussion or promotion of LGB issues are completely banned from public schools. Many other states have policies allowing parents to select for their children to opt-out of sex education classes and classes that discuss sexuality and sexually transmitted diseases (National Gay and Lesbian Task Force, 2006). As *The Advocate* writes:

> At a town hall meeting about sex education in Maryland public schools last March, Scott Davenport told the crowd he felt scared when he stood up to speak. "It just felt like you were a Jew in Germany in the 1930s," recalls the gay father of an eighth-grader and a 10th-grader in the Montgomery County school district (*Advocate,* 2005).

As schools are responsible for the promotion of normative climates (Nichols, 1999) that often disregard sexual minority youth, school policies and practices are an important component of any systems intervention.

Additionally, structural (environmental) interventions may be an appropriate method for addressing substance use in LGB adolescents. As this dissertation found a preoccupation with older peers, a belief that use rates were extensive, and a relationship between community connectedness and drug use behaviors, community-level approaches should be an important component of any intervention approach. Some success at changing social norms and attitudes has been successful in LGB adult populations, primarily tested with gay men (i.e., *Mpowerment*; Kegeles, et al., 2011).

Implications for Research.

Prior to any intervention development, several important preliminary research studies should be completed. First valid and reliable measurement is a necessary antecedent in the development of both explanatory research and intervention efforts (Sandler et al., 1997). Given that we currently have no validated instrument for measuring stress in LGB adolescents, it remains unclear how each of these stress domains relate to individual behavioral health outcomes. Although this dissertation was specifically focused on substance use, there are a myriad of health outcomes associated with stress in early childhood (IOM, 2011). Thus, proper measurement development can guide both our understanding of how specific stress domains are associated with risk behaviors, and guide effective intervention.

Further, as the community appears to be an important point of intervention for LGB adolescents, it may be that briefer interventions are more appropriate. Thus, after validated instruments are developed, research should focus on identifying how specific stress experiences relate to specific health outcomes. For example, if violence and victimization accounts for 60% of the variance in substance use outcomes, then brief interventions for preventing drug use would likely want to focus on this stress domain over others that are less predictive. However, in the current literature, these relationships remain unknown. After more effective measurement instruments have been developed, longitudinal studies of a nationally representative sample of adolescents should be conducted. This approach will help to identify causal minority stress factors for substance use (and other behavioral health outcomes), a currently unexplored yet important component to understanding risk behavior in this group.

Finally, as research gets closer to the development of interventions to address these needs, further exploration should seek better understand the cultural nuances that might be included in the development of substance abuse prevention curriculum. Although the studies presented here offer some preliminary evidence of these components (i.e., gender neutral pronouns, inclusion of sexual behaviors, etc.) it was a small study, limited in its generalizability to other communities of LGB youth in different settings across the U.S. Additionally, as the LGB community is also disproportionately affected by sexual risk and substance use, it may also be valuable for future research to explore the feasibility of multifaceted approaches that address both substance use and safer sex approaches.

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