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Sexual Orientation Development, Acceptance, And Risk Behavior In Young Adult Gay Men

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SEXUAL ORIENTATION DEVELOPMENT, ACCEPTANCE, AND RISK BEHAVIOR IN YOUNG ADULT GAY MEN

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CHAPTER 1 INTRODUCTION

Sexual orientation is defined as an individual's physical or emotional attraction to the same or opposite gender (APA, 2012). Individuals who identify as any sexual orientation other than heterosexual (i.e., individuals who are attracted to the opposite sex) are considered sexual minorities, due to the smaller percentage of non-heterosexuals in the general population. The current research will focus on men who identify their sexual orientation as "gay," meaning they are primarily attracted to other men. According to the National Survey of Family Growth, approximately 1.8% of men in the U.S. between the ages of 18 - 44 identify as gay (Chandra, Copen, & Mosher, 2013).

Research indicates that sexual minorities, including gay men, are at an increased risk for a number of health problems. For example, a study of college counseling centers found that 1 in every 5 students seeking counseling services identifies as a sexual minority, with gay men scoring significantly higher than heterosexual men and women on scales of depression and family distress (McAleavey, Castonguay, & Locke, 2011). Similarly, a meta-analysis concluded that sexual minorities were at a greater lifetime risk for depression, anxiety, substance abuse, and suicide attempts (King et al., 2008). Gay more than heterosexual men also engage in higher rates of risky and unsafe sexual behaviors, contributing to a greater prevalence of HIV-AIDS in the gay community (Brewer, Golden, & Handsfield, 2006; Catania et al., 2001; Center for Disease Control and Prevention, 2005; Xia et al., 2006).

Although the elevated health risk for the sexual minority community is well established, little is known about how processes related to sexual orientation development are associated with risk behavior. Prior research on sexual orientation development points to individual differences in developmental milestones that could be differentially related to adjustment. Similarly,

differences in perceptions of acceptance from the self and important others during adolescence and early adulthood may be related to both sexual orientation development and health risk behaviors. One of the most prevalent hypotheses for explaining the more general array of increased health risks centers on lack of sexual orientation acceptance by others and the self. Relatively few studies have adopted a developmental approach to this question to examine how lack of acceptance during the crucial period of sexual orientation development may contribute to health risk behavior, including risky sexual behavior and substance use among sexual minorities. The goal of the current study is to advance our understanding of developmental processes among gay men by examining perceived acceptance of sexual orientation and its associations with individual differences in sexual orientation development, sexual behavior, and substance use. I propose that perceptions of acceptance from parents, friends, and the self will be associated with patterns of sexual orientation development as well as decreased sexual risk and substance use.

Sexual orientation development

For all individuals, the development of sexual orientation is jointly determined by biopsychosocial, cultural, and contextual factors and influenced by self-acceptance (D'Augelli, 2006). However, the process of sexual orientation development may look different for sexual minority and heterosexual youth. A number of models of sexual minority identity development have been proposed, all of which hypothesize a series of "milestones" that are typically met in a step-by-step order across adolescence and early adulthood (Cass, 1979, 1984, 1996; Dube & Savin-Williams, 1999; Troiden, 1989).

Older models of sexual orientation development are stage driven and posit emotional conflict as the impetus for progress through a set order and sequence of stages from adolescence and into young adulthood. For example, Cass (1979, 1984, 1996) and Troiden (1989) proposed similar

developmental models which stress the inevitability of confusion and internal conflict throughout sexual orientation development. Both models indicate that youth will experience some amount of confusion when first realizing their attraction to same-sex partners, not opposite-sex partners as would be the unspoken expectation. Both models also presume that youth will experience some type of internal conflict, such as anxiety, shame, or sadness, over the assumption of a sexual minority identity and the loss of their heterosexual future. It is not until youth work through these feelings, begin to experiment sexually, and ultimately disclose their attractions to others that they learn to tolerate or accept their sexual minority identity. In their models, both Cass and Troiden view the ultimate stage of sexual orientation development to be acceptance of and commitment to living as a sexual minority. It is assumed that the final stage cannot be reached without some level of internal and external struggle on the part of the individual.

Comparatively, current developmental models emphasize empirical models of behavioral milestones, including awareness of same-sex attraction, same-sex sexual behavior, identification as a sexual minority, and disclosure of sexual orientation to others. A focus on behavioral versus emotional milestones allows greater ease in assessing the occurrence and variability in youth's sexual orientation development without presuming the presence of emotional conflict. Most research suggests a stable linear progression through these milestones, with awareness occurring between ages 8 – 11 years, first same-sex sexual behavior occurring between ages 12 – 15 years, identification occurring between ages 15 – 18 years, and disclosure occurring between ages 17 – 19 years (Dube & Savin-Williams, 1999). However, other research has found that these milestones may be fluid and occur at different ages for subsets of individuals (Calzo, Antonucci, Mays, & Cochran, 2011; Floyd & Stein, 2002; Friedman, Marshal, Stall, Cheong, & Wright, 2008; Saewyc, 2011; Savin-Williams & Diamond, 2000; See Table 1 for average milestone

completion ages across select studies). For example, Calzo et al. (2011) identified three distinct trajectories of milestone timing in their sample of sexual minority adults: early, middle, and late, with men being most likely to fall in the early trajectory (i.e., milestone completion in childhood/adolescence). Friedman et al. (2008) found a similar pattern of trajectories in their sample of gay men. In their study, early completers reported attraction in third grade, sexual activity in ninth grade, self-identifying in tenth grade, and coming out in twelfth grade. Average milestone age for the middle group was sixth grade for sexual attraction, twelfth grade for sexual activity, self-identifying at age 19, and coming out at age 21. For the late group, participants reported average age for first attraction in eighth grade, sexual activity at age 22, self-identifying at age 26, and coming out at age 28. Finally, Floyd and Stein (2002) found that their overall sample data followed the sequence of milestones proposed by Dube and Savin-Williams (1999); however, they also noted a great deal of individual variability in timing. These authors identified five distinct groups within their sample of sexual minority men and women. Group 1 was consistently early across milestones. Group 2 also followed an early trajectory but was less likely to have had sexual interaction with a same-sex individual at an early age or at all. Group 3 had early awareness and early sexual behavior but late disclosure. Group 4 consisted of individuals who progressed through the stages later in life, but were highly immersed in LGBT social networks. Group 5 had individuals who completed milestones at later ages but were the least immersed in LGBT social networks. No gender differences were found between groups.

Less is known about variations in the order of behavioral milestones, but some research suggests that, in addition to variations in timing, the sequence of milestone completion can also be variable. For example, while most research on sexual orientation behavioral milestones has found that sexual behavior occurs before self-identification, Calzo et al. (2011) found that 50%

of their early milestone group and 38% of their middle milestone group self-identified as a sexual minority before engaging in same-sex sexual behavior. This indicates that for many youth, sexual orientation may be identity-centered, with youth claiming a sexual minority identity before engaging in any type of same-sex sexual behavior. While previous research has noted that youth may "test the waters" by engaging in sexual behavior before self-identifying, this does not seem to be the case for all youth. Taken together, the results of these studies show a great deal of variability in the timing and sequencing of sexual orientation developmental milestones.

The current study will focus on the period of emerging adulthood, a time when youth are making the transition to greater autonomy and more solidified identities (Arnett, 2000). This is a key prime time to examine sexual orientation development because recollections of milestones should be salient and there is likely to be a great deal of individual variability. In fact, prior studies suggest that a subset of emerging adulthood youth will have yet to complete all of the sexual orientation milestones (e.g., Calzo, 2011; Friedman et al., 2008). A number of studies have examined sexual orientation development during this time; however, none to my knowledge have examined variability in both the timing and sequence of milestone completion. With respect to timing, I expect to identify not only early and late completers, but also a "non-completer" group. I also expect to identify two sequencing groups – identity-centered (self-identification as a sexual minority before same-sex sexual behavior) and sex-centered (same-sex sexual behavior before self-identification).

Behaviorally anchored models of sexual orientation development are advantageous due to their ease of measurement, ability to examine individual differences, and emotional neutrality. Although contemporary models do not assume a similar emotional pathway for all sexual

minority youth, emotional and contextual factors may nonetheless impact the development of sexual orientation. Indeed, one of the strengths of the older models is the consideration of the impact that reactions from the self and important others can have on developmental stages. Cass and Troiden both stress that feelings of internalized homonegativity, as well as how others react to disclosure of sexual orientation, may accelerate or slow the progression of an individual through the stages. However, these models intertwined emotional conflict with development in a way that precluded examining acceptance of sexual orientation as a distinct construct. By separating acceptance from behavioral milestones, we are able to examine acceptance's unique contributions to individual differences in sexual orientation development. The current study will assess both the timing and sequencing of behavioral milestones, as examined in Dube and Savin-Williams (1999), as well as acceptance of sexual orientation from the self and significant others (i.e., parents and friends).

Acceptance from self and others

As previously noted, youths' internalized feelings about their sexual orientation, as well as feared and actual reactions from others, might influence youths' sexual orientation development and psychosocial adjustment. Broadly speaking, reactions of the self and others to one's sexual orientation can be conceived in terms of acceptance. Low self-acceptance is often discussed in terms of shame, internalized homophobia or homonegativity, and stigmatization of an individual's sexual identity; whereas low acceptance from others is often discussed in terms of negative reactions, prejudice, discrimination, and victimization. On the other hand, high self-acceptance may be expressed as positive self-labeling, pride in one's sexual identity, and belief that a sexual minority identity is valid; while high acceptance from others may take the form of support, positive reactions to youth disclosure, and favorable reception of youth's sexual

identity. Overall, high acceptance can be thought of as positive reactions from the self and others towards sexual identity or reactions which make the individual feel validated and supported.

Self-acceptance. Research has shown that gay youth are likely to experience increased feelings of stigma or shame (i.e., low self-acceptance) during sexual orientation development. According to Goffman (1963), deviations from societal expectations of heterosexuality create a gap between youths' personal and social identities which, in turn, leads to internalized stigmatization. Because sexual identity is not visible, youth may experience additional anxiety about being discovered and "discredited." Goffman further theorized that fear of negative reactions from others leads youth to hide their identity and perceive their identity as shameful. This reaction is often termed "internalized homophobia" or "homonegativity," defined as the internalization of heterosexist attitudes from society and their application to the self (Meyer, 2003). Goffman's concerns became key features of early sexual orientation developmental models, such as Cass's (1979, 1984, 1996) identity comparison stage and Troiden's (1989) identity confusion stage.

Low self-acceptance (e.g., shame, internalized homophobia, or homonegativity) underlies a number of mental health problems (Bybee, Sullivan, & Zielonka, 2009; Quiles & Bybee, 1997). In the general population, shame has been linked with suicide, substance use, and depression (Harder, 1995). Sexual minority individuals in particular may experience elevated daily stress due to discrimination (e.g., external hostility and non-acceptance from others) and feelings of stigmatization (e.g., internal hostility and non-acceptance of the self) related to their minority status (Lewis, Derlega, & Griffin, 2003; Mays & Cochran, 2001; Mays, Cochran, & Roeder, 2003; Meyer, 1995; Todosijevic, Rothblum, & Solomon, 2005; Totenhagen, Butler, & Ridley, 2012). A meta-analysis by Meyer (2003) found that gay men have a higher lifetime incidence of

anxiety disorders, mood disorders, and substance use disorders than heterosexual men. Meyer posited that concealment of sexual identity may be one of the reasons why gay men experience mental health problems, such that they may hide their identities out of shame, guilt, or fear of being stigmatized and rejected by others. In a study by Bybee, Sullivan, and Zielonka (2009), general feelings of shame were correlated with poorer mental health and related to concealment of gay identity. Additionally, a disproportionate number of completed youth suicides are the result of sexual orientation conflicts (Gibson, 1989) and sexual minority youth have a higher rate of suicide attempts than heterosexual youth (Gould, Greenberg, Velting, & Shaffer, 2003; McDaniels, Purcell, & D'Augelli, 2001; Russell, 2003).

Conversely, accepting oneself as a sexual minority is related to psychological wellbeing (Leserman, DiSantostefano, Perkins, & Evans, 1994; Miranda and Storms, 1989). Schmitt and Kurdek (1987), for example, found that greater comfort with a gay identity was related to more positive self-concept and less anxiety and depression. Similarly, Lesserman et al. (1994) reported that greater self-acceptance of a gay identity was related to less depression, anger, and hopelessness. Another study by Nicholson and Long (1990) found that gay men who expressed positive views of their sexual orientation reported greater self-esteem and better mood than men with more negative views of their sexual orientation.

Examination of the ways in which high acceptance of one's own sexual orientation impacts well-being have been largely neglected in the literature, which has mainly focused on individuals' negative views of their sexual orientations. Much of the existing literature on self-acceptance has measured feelings of internalized homonegativity, which can be conceived as low self-acceptance, or by asking only a single acceptance question (e.g., "How accepting are you of your sexual orientation?"). However, asking only about negative views of the self does not

capture the full range of self-acceptance. It is not necessarily true that low internalized homonegativity equates to high self-acceptance. Additionally, asking only one question does not provide a reliable assessment of self-acceptance. Therefore, the current study hopes to measure acceptance in a way that addresses both positive and negative feelings about one's sexual orientation in order to provide a more inclusive and reliable understanding of self-acceptance. Additionally, while it has been well established that negative views of one's sexual orientation are related to poorer well-being and psychological functioning, it is less clear as to whether self-acceptance as a whole is protective against these outcomes. This study will extend the literature by examining self-acceptance of sexual orientation and its relation to health outcomes.

Acceptance from important others. As shown above, sexual orientation formation and self-acceptance require considerable inner resources, which when strained may contribute to socioemotional difficulties. Adding to this equation are the actual or anticipated reactions from important others, such a parents and friends, which may increase or alleviate sexual minority youths' strivings for positive sexual orientation development. Unfortunately, sexual minority youth too frequently lack support from their peer groups and families and encounter homophobic attitudes in their social institutions (Baker & Fishbein, 1998; Ford, 2003; Hayes & Walters, 1998).

Self-disclosure of sexual orientation to parents is critical to stable identity formation and can impact self-esteem and healthy self-perception (Coenen, 1998). However, research indicates that over half of parents react negatively to their child's coming out, at least initially (D'Augelli, Grossman, Starks, & Sinclair, 2010; Heatherington & Lavner, 2008; Robinson, Walters, & Skeen, 1989; Savin-Williams, 1998, 2001). While most parents become more accepting over time (Beals & Peplau, 2006; Cramer & Roach, 1988; Samarova, Shilo, & Diamon, 2013; Savin-

Williams & Ream, 2003), some parents remain non-accepting (Samarova et al., 2013). Ongoing parental non-acceptance can lead to poor self-acceptance and negative outcome expectancies for future coming out experiences (Pachankis, Goldfried, & Ramrattan, 2008). Even when parents are accepting, disclosure of minority sexual orientation causes strain on the family system (Coenen, 1998). For example, Waldner and Magrader (1999) found that gay youth with strong family relationships find it costly to come out. This may be because of added fear of rejection or negative reactions from family. A study by Ryan and colleagues found that sexual minority youth who reported low parental acceptance were higher in depression, substance use, and suicidal ideation and attempts, even when controlling for background characteristics of the participant (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010). Additionally, Ryan, Huebner, Diaz, and Sanchez (2009) found associations between parental rejecting behaviors during adolescence and the use of drugs, depression, attempted suicide, and sexual health risk by sexual minority young adults.

Sexual minority youth also receive less peer support than heterosexual youth, and disclosure of same-sex attraction might create additional risks to peer support (Ford, 2003). Forty-six percent of gay youth report having lost a friend as a result of disclosing their sexual orientation (Marsiglio, 1993). Sexual minority youth are also more likely to experience peer victimization throughout development, which has been longitudinally associated with increased psychological and behavioral risk throughout adolescence and into adulthood, especially when victimization is targeted towards youth's sexual orientation (Russell, Ryan, Toomey, Diaz, & Sanchez, 2011). For example, young adult sexual minority youth who report experiencing sexual orientation-specific bullying experience more symptoms of depression and posttraumatic stress disorder (Rivers, 2001, 2004).

Conversely, acceptance of sexual orientation by important others has been associated with greater self-esteem, perceived social support, and less psychopathology (D'Augelli, 2002; Eisenberg & Resnick, 2006; Evans, Hawton, & Rodham, 2004; Floyd, Stein, Harter, Allison, & Nye, 1999; Hershberger & D'Augelli, 1995; Needham & Austin, 2010; Ryan et al., 2010; Savin-Williams, 1989). More accepting parent attitudes have been associated with less depression, reported discrimination, and rejection sensitivity (Feinstein, Wadsworth, Davila, & Goldfried, 2014). Shilo and Savaya (2011) found that family and friend support and acceptance was related to increased self-acceptance, increased well-being, and decreased mental distress in their sample of sexual minority youth. Additionally, Deluty and Jordon (1998) reported that coming-out was correlated with lowered anxiety, increased positive affectivity, and greater self-esteem. Being open about sexual orientation with friends was the best predictor of overall peer support and satisfaction; and self-disclosure to the family was the best predictor of family social support. These results suggest that isolation is reduced as a result of coming-out. Gay youth who receive supportive resources and express their sexual identity outside of the family are more likely to self-disclose to parents, likely because acceptance from other sources strengthens self-efficacy in coping with parental reactions (Waldner & Magrader, 1999).

Sexual orientation-specific acceptance may be particularly significant for youth. Feinstein et al. (2014) found that parental acceptance of sexual identity moderated the relationship between internalized homonegativity and depression, as well as between rejection sensitivity and depression. However, general family support did not moderate these relationships. Similar findings were reported by Doty and colleagues who found that higher levels of sexuality-specific but not general support from friends and family members, were related to lower levels of emotional distress (Doty, Willoughby, Lindahl, & Malik, 2010). These results underscore the

significance of sexual orientation-specific support and acceptance from parents and friends to youths' sexual identity and psychosocial adjustment.

Acceptance and sexual orientation development

While research has examined the relationships between acceptance and psychological well-being, less is known about how acceptance from self and others may impact the process of sexual orientation development. Today, more sexual minority youth are self-identifying and disclosing their sexual orientation in early adolescence than in previous decades, when sexual minority individuals were more likely to come out in early adulthood. Although the reasons for this trend are unclear, earlier self-identification and disclosure raises different potential challenges, such as school and home environments that may be non-accepting or hostile (D'Augelli, 2006). When sexual orientation development unfolds earlier in life, sexual minority youth are left to consider the potential reactions of others on whom they still rely on for both physical and emotional support. For example, disclosure at an early age in a non-accepting environment could lead to removal of resources by parents, and even violence from family and peers. Alternatively, sexual minority individuals whose sexual orientation development occurs later in life may be less dependent on parents and may have an easier time eliminating non-accepting peers from their social circles.

Given the risks of disclosing one's sexual orientation, anticipated acceptance (or non-acceptance) from important others may be associated with sexual minority youths' developmental processes. For example, Shilo and Savaya (2011) discovered that family and friend support and acceptance of sexual minority orientations was related to the extent to which sexual minorities disclose their sexual orientation to these important others. Acceptance of one's own sexual orientation may also be particularly salient to sexual orientation development. Some

research has found that identity-centered development (e.g., self-identification before same-sex sexual behavior) is associated with less internalized homophobia than sex-centered development (e.g., same-sex sexual behavior before self-identification; Dube, 2000; Schindhelm & Hospers, 2004).

The current study will extend our understanding of individual differences in sexual identity development among sexual minority youth by examining whether acceptance is related to the timing and sequencing of youths' sexual orientation development. Anticipation or perceptions of acceptance, both by the self and others, may negate feelings of stigmatization and shame, making youth feel more comfortable being their true selves around others. This may then ease the process of sexual identity development, leading to earlier milestone completion. Alternatively, if youth feel low self-acceptance or anticipate low acceptance from those around them, such as parents and friends, their development may occur later due to internal and external conflict (e.g., fears of reactions from others). For sexual minority youth who anticipate low acceptance from those around them, waiting until a later age to complete milestones may be a safer option. Therefore, I hypothesize that higher levels of self-acceptance and anticipated acceptance from important others will be related to earlier timing of milestones, as well as identity-centered development.

Sexual health risk in sexual minority youth

As early as adolescence, sexual minority individuals exhibit higher rates of risky sexual behavior (Brewer, Golden, & Handsfield, 2006; Catania et al., 2001; Center for Disease Control and Prevention, 2005; Xia et al., 2006), including greater number of sexual partners, poor contraceptive use, and higher rates of sexually transmitted infections (STIs), such as human immunodeficiency virus (HIV). For example, research has found that sexual minority youth are

less likely to report condom use at last intercourse (Gallart & Saewyc, 2004; Kann et al., 2011; Saewyc, Poon, Homma, & Skay, 2008), and report a higher number of lifetime and recent sexual partners (Marshal et al., 2008). Additionally, a multi-site study conducted by the Center for Disease Control found that sexual minority youth were significantly more likely than heterosexual youth to have had four or more sexual partners (Kann et al., 2011).

Risky sexual behavior co-occurs with substance use at high rates in the general population (Duncan, Stycker, & Duncan, 1999; Fortenberry, 1995; Leigh & Stall, 1993). Substance use has been shown to impact cognitive processes and lower behavioral disinhibition, influencing decision making and heightening the propensity to engage in sexual risk taking (Flora & Thoresen, 1988; Halpern-Felsher, Millstein, & Ellen, 1996; Leigh, 1990; Steele & Josephs, 1990). Among adult and adolescent samples, substance use, including alcohol, marijuana, and illicit drug use, is associated with greater number of sexual partners and lack of contraceptive use (Belcastro & Nicholson, 1982; Cooper, Skinner, & George, 1990; Hingson, Strunin, & Berlin,1990; Gou et al., 2002; Leigh & Stall, 1993; Lowry, Holtzman, & Truman, 1994; MacDonald et al., 1990; Shrier, Emans, & Woods, 1997; Temple, Leigh, & Schafer, 1993). A recent meta-analysis by Ritchwood, Ford, DeCoster, Sutton, and Lochman (2015) revealed small to moderate effect sizes for the relationship between substance use and risky sexual behavior in adolescents age 12-24, regardless of type of substance. Additionally, a national study of college students by Wechsler, Dowdall, Davenport, and Castillo (1995) found that heavy drinkers were three times more likely to have had multiple sexual partners in the last month than were non-heavy drinkers.

Research has indicated that sexual minority youth are at higher risk for substance abuse than heterosexual youth (Baiocco, D'Alessio, Laghi, 2010; Cochran, Ackerman, Mays, & Ross, 2004;

Tang et al., 2004; Woody et al., 2001). A meta-analysis by Marshal et al. (2008) found that sexual minority youth are three times more likely to report substance use than heterosexual youth. Longitudinal studies by Coker, Austin, and Schuster (2010) found that sexual minority youth began drinking earlier and were more likely to engage in risky drinking than heterosexuals. Substance use by sexual minority youth may increase their likelihood of engaging in risky sexual behavior. When under the influence, it is more difficult to make safe decisions about sexual behaviors, which may increase the likelihood of risky sexual behavior in the sexual minority population. For example, Stall et al. examined sexual risk behaviors associated with AIDS in a sample of adult gay men and found that the men who used alcohol or drugs during sexual encounters were 2 to 3.5 times more likely to be in the high sexual risk group than men who abstained from alcohol and drug use (Stall, McKusick, Wiley, Coates, & Ostrow, 1986). Additionally, a recent survey of young adult men who have sex with men found the use of inhalant nitrates and alcohol to be associated with increased odds of engaging in unprotected sexual activity (Moeller, Palamer, Halkitis, & Siconolfi, 2014).

Sexual Orientation Development, Acceptance, Risky Sexual Behavior, and Substance Use

The third primary aim of this study is to examine whether individual differences in sexual orientation development and acceptance of sexual orientation are related to sexual risk behavior among emerging adult gay men. Sexual minority youth face unique struggles in their sexual development that might contribute to increased sexual risk. Relatively little is known about how sexual minority youth come to understand their sexuality and engage in sexual experiences. As sexual minority youth progress through adolescence and into young adulthood, it may be challenging for them to learn about and experiment with their sexuality, as their sexual orientation may not always be accepted by their family, peers, or community. Most heterosexual

youth begin romantic and sexual experimentation relatively easily during adolescence; however, few opportunities exist for sexual minority youth to explore their developing identities and sexual urges without risk of negative reactions from others. While heterosexual sexual behavior is generally looked upon as normative and even encouraged, many sexual minority youth cannot engage in romantic and sexual behaviors with same-sex partners without some inherent risk of negative responses from those around them or being "outed" before they are ready to disclose. Supportive, close, and secure relationships with family and peers have been found to be protective factors during adolescence; however, many sexual minority youth may perceive support for sexual identity to be lacking.

As noted previously, sexual minority youth often experience discrimination, prejudice, and non-acceptance from those around them, even from those whom youth are closest to, such as family and friends. Non-acceptance from self, family, and friends throughout the developmental process of sexual orientation formation could contribute to poor sexual safety and increased substance use in sexual situations. In support of this idea, Ryan et al. (2009) found that family rejection was related to high rates of substance use and unprotected sex among sexual minority young adults. Baiocco et al. (2010) discovered that heavy drinkers had the highest number of negative reactions to self-disclosures of their sexual identity, while social drinkers had lower internalized sexual stigma and a higher level of self-disclosure within their social circle (family and peers). Additionally, gay youth who experience victimization are more likely to abuse substances and engage in risky sexual behavior (Bontempo and D'Augelli, 2002; Russell et al., 2011). For example, Russell et al. (2011) found that young adults who reported high levels of sexual identity specific victimization during their school years were twice as likely to report engaging in HIV-related risk behaviors and having an STI diagnosis, compared to youth who

reported low victimization. Sexual minority youth may also experience more internalized non-acceptance of their own sexualities than heterosexual youth. Internalized homophobia is positively related to alcohol severity, marijuana dependence, and cocaine dependence (Hequembourg & Dearling, 2013).

While research has shown that negative reactions from others are associated with increased risk behavior, little research has examined sexual orientation-specific acceptance from self, family, and friends as a protective factor. The current study addresses this void by examining how perceived acceptance of sexual orientation by the self, family, and friends is related to recent sexual risk behavior. Specially, it is hypothesized that higher acceptance of sexual orientation will be associated with lower levels of risky sexual behavior and substance use. Additionally, given the previous research showing that substance use exacerbates the likelihood for sexual contact to be risky, it is hypothesized that substance use will mediate the relationship between acceptance and risky sexual behavior in this sample. Specifically, the association between low acceptance and sexual risk is expected to be stronger among men with higher levels of substance use.

In addition to examining the relationships between acceptance and health risk, this study will examine the relationship between timing and sequencing of developmental milestones and risky sexual behavior. Little research has examined how developmental course may impact health behaviors; however, some research has indicated that identity-centered development may be associated with less risky sexual behavior than sex-centered development (Dube, 2000; Schindhelm and Hospers, 2004). Therefore, while it is not expected that age of milestone completion will be related to sexual risk, it is hypothesized that youth who report experiencing self-identification before sexual behavior will report less current sexual risk taking.

Current study

The current study examined the behavioral and emotional aspects of sexual orientation development among gay emerging adult men. The goals were to examine the relations between these two aspects of sexual orientation development and their associations with risk behavior.

The first aim of this study was to describe behavioral patterns of sexual orientation milestone completion. In accordance with previous research, I hypothesized that at least two patterns of milestone completion would be identified: early and late completers. Additionally, I hypothesized that a subset of the sample would not have completed all sexual orientation milestones and would be classified as non-completers. I also hypothesized two distinct milestone sequences: identity-centered and sex-centered.

The second aim of the study was to determine the relationship between these patterns of milestones and perceived levels of acceptance from parents, friends, and the self. It was hypothesized that early completers, milestone completers, and those in the identity-centered development group would report higher acceptance scores than late completers, non-completers, or those in the sex-centered identity group. I further hypothesized that family, friend, and self-acceptance would be related but distinct constructs (i.e., correlations between each will be moderate) and that the relationship between milestone completion, timing, sequencing, and acceptance may differ by type of acceptance. No a priori hypotheses were made about the unique associations between completion, timing, sequencing, and source of acceptance, as no research looking at the relation of different sources of acceptance to sexual identity development is known to the author.

The third aim was to examine the associations between milestone completion, sequencing, levels of perceived acceptance, and risk behavior over the past six months. I hypothesized that

sex-centered development and lower acceptance of sexual orientation would be related to greater sexual risk behavior and substance use. Sexual milestone completion (completer versus non-completers) would be unrelated to risky sexual behavior. Finally, I hypothesized that substance use would mediate the relationship between acceptance and risky sexual behavior. Although research has examined the links between acceptance and health risk behavior, I know of no studies which directly examine the contributions of each source of acceptance in relation to risk behavior. The current study tested the unique relations between each source of acceptance and sexual risk. No a priori hypotheses were rendered about the relative importance of particular source of perceived acceptance.

CHAPTER 2 METHODS

Procedure

All measures used in the study were approved by the institutional review board at Wayne State University. Participants for the current study included 210 cisgender men between the ages of 18-25 years who identify as gay.

Participants were recruited by two methods. First, a community sample was recruited by distributing study information electronically via Wayne State University Academica, as well as by placing flyers at Wayne State University Counseling and Psychological Services and Wayne State University Psychology Clinic. Participants recruited through the community were entered into a raffle to win a one of forty-$25 Target gift cards. The second venue for participant recruitment was Amazon's Mechanical Turk platform (MTurk). MTurk is an online marketplace that allows for the crowdsourcing of human intelligence tasks, including survey participation. Since its inception, MTurk has become widely used in the social sciences and has been found to be comparable to Survey Monkey and Qualtrics (Sheehan, Kim & Pittman, 2016), as well as to other sources for online data collection. For example, a 2015 study of political ideology compared MTurk users to two national samples (Clifford, Jewell, & Waggoner, 2015). Distributions of political ideology were not substantially different across samples. Additionally, a study of instruction attentiveness found that MTurk users were more attentive and better able to follow instructions than a comparable sample of college students (Hauser & Schwarz, 2015). Using MTurk's established compensation structure, I paid those who completed the survey $2.25, given the estimated completion time of 45 minutes. Eighty-three percent of the sample (N = 174) was recruited from MTurk; while 17% (N = 36) was recruited from community sources.

All participants accessed the study via a secure website. All data was collected online using Qualtrics software (Qualtrics, Provo, UT). Participants electronically signed an information form that explained the study purpose, methods, criteria, and confidentiality. Upon consenting to the study, participants were screened for study inclusion criteria (age between 18-25 years; gay sexual orientation identity; cisgender gender identity; United States citizen). A total of 4,137 men and women were screened for the study. Those who met study criteria (n = 221) were then directed to the study questionnaires.

Measures

Demographics. Participants reported their age, biological sex, gender identity, sexual orientation, sexual/romantic attraction, ethnicity, own and parents' socioeconomic status, education level, employment status, and current living situation (see Appendix B for demographic items). The following demographic variables were asked in an open-ended format to respect participants' identifying terminology: biological sex, gender identity, sexual orientation, ethnicity, highest level of education, and current profession. Age was screened to ensure that participants fell within the 18-25-year-old age range. Nine participants were excluded from analyses because their reported age fell outside the required age range. Biological sex and gender identity were screened to ensure that the sample was cisgender (i.e., biological sex and gender identity both male). Sexual orientation identity was screened to ensure that participants identified as gay. Participants were also asked to rate their sexual attraction on the following scale: Only men; Mostly men; Both men and women equally; Mostly women; Only Women. This question was also screened to determine gay vs. bisexual sexual orientation identity. For instance, two participants reported gay identities but then endorsed being attracted to both men

and women equally or mostly women. These participants were re-classified as bisexual and excluded from these analyses (n = 2).

Participants ranged in age from 18 – 25 years (*M* = 22.78, *SD* = 1.92). Table 2 reports the demographic characteristics of the study sample based on the close-ended questions and coded open-ended questions. Based on participants' responses, ethnicity was recoded into categories which included Caucasian, African American, Hispanic, Asian/Indian, biracial, and other. Highest level of education was also recoded based on participants' responses, and categories included four-year college degree or higher, some college, associate or vocational degree, and high school diploma. For own and parental income, participants were asked to provide a numerical value for their own and their parents income in the last year. Participant annual income for the past year ranged from $0 to $300,00 (*M* = $30,369.48, *SD* = $29,602.94). Reported parental income for the past year ranged from $0 to $500,000 (*M* = $82,326.34, *SD* = $6,790.59).

Participants were asked to report on their own and parents' religious affiliation. Participants reported on the main religious denomination they were raised with and their current religious affiliation. These responses were then recoded to reflect whether or not the participant was raised with any religious affiliation (yes/no raised with religious affiliation) and whether the participants currently identified with any religious affiliation (yes/no current religious affiliation). Categories were collapsed to yes/no because the majority of participants reported a Christian religious denomination (77.6%), with a very small percentage reporting a non-Christian affiliation (e.g., Jewish, Hindu, Muslim; 2.9%). The majority of participants (81%) reported being raised within a religious denomination (e.g., Christian, Jewish, Hindu, Muslim), and 19% reported being raised with no religious affiliation (e.g., atheist, agnostic, spiritual but

not religious). Participants also reported on current religious affiliation. The majority of participants reported currently being non-religious (62%). About half (53%) of participants who reported being raised with a religious affiliation also reported being non-religious at the time of assessment.

Closed response questions included whether the participant was currently a student (yes/no), whether they were currently employed (yes/no), and whether they receive any financial support from their parents (yes/no). Finally, participants were asked to identity their living situation (see Appendix B). As no participants reported living in a shelter or being homeless, categories were collapsed into 2 categories to identify participants who were 1) living with their parents or family or 2) living with friends, romantic partners, or alone.

A number of demographic differences emerged between participants recruited through MTurk versus community flyers. Table 2 shows the demographic characteristics by sub-sample. Participants from the community sample were more likely to be current students, $\chi^2(1, N = 210) = 33.19$, $p < .001$. Participants from the community group were also more likely to live with parents or relatives, $\chi^2(1, N = 210) = 7.02$, $p = .008$, and were more likely to receive financial support from their parents, $\chi^2(1, N = 210) = 17.48$, $p < .001$. Community participants reported a significantly lower personal income ($M = \$13,037.50$, $SD = \$15,149. 76$) than MTurk participants ($M = \$33,631.96$, $SD = \$30.538.17$), $t(200) = 3.72$, $p < .001$. Community participants were more likely to have been raised within a religious denomination, $\chi^2(1, N = 210) = 5.40$, $p = .02$, and more likely to endorse a current religious affiliation, $\chi^2(1, N = 210) = 7.55$, $p = .006$, than MTurk participants. There were no significant differences between sub-samples in age, race/ethnicity, education level, or current employment status (i.e., yes/no employed).

Sexual orientation development milestones. Sexual orientation development milestones were measured using Dube and Savin-Williams' (1999) model of behavioral milestones (see Appendix B for items). Participants noted whether and at what age they reached each of five sexual identity development milestones: realization of non-heterosexuality; self-identification as gay; first disclosure of gay identity to a friend; first disclosure of gay identity to a parent; and first same-sex sexual behavior. Milestone completion ages were used to determine milestone completion status (i.e., whether milestones were completed), timing of completion for each milestone, and sequencing of milestone completion. Based on milestone completion status, participants were classified as completers (i.e., having completed all milestones) or non-completers (i.e., milestones not completed at the time of assessment). Based on milestone sequencing, participants were classified as identity-centered (i.e., having completed the identification milestone before the same-sex sexual experience milestone) or sex-centered (i.e., having completed the same-sex sexual experience milestone before the identification milestone).

Acceptance. The Acceptance of One's Sexual Orientation Scale (Otis, 2002) was adapted to gather information on anticipated or perceived sexual orientation acceptance from self, parents, and friends at each sexual orientation development milestone. The original 10-item measure was created to assess self-acceptance of sexual orientation identity among sexual minority youth. Responses are scored using a Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). The original scale was developed with on a French-speaking sample and showed good internal consistency ($\alpha = .87$).

For the current study, the scale was translated from French to English and adapted to ask about acceptance from multiple sources (self, parents, and friends) at each completed sexual identity milestone. To reduce participant fatigue, four of the ten scale items were selected and

administered for each milestone. The resulting measure included twelve acceptance questions for each milestone completed: four for self-acceptance, four for parent acceptance, and four regarding friend acceptance (see Appendix B for items). For example, the following four items were administered to ask about self-acceptance at each milestone: 1. "I thought it was okay to be myself;" 2. "I felt negatively about myself;" 3. "I felt comfortable with this part of myself;" and 4. "I accepted myself as I was." These same questions were modified to inquire about acceptance from parents and friends at each milestone. An example of a friend acceptance item is "My friends would have thought it was okay for me to be myself." An example of a family acceptance item is "My parents would have thought it was okay to be myself." For each milestone, participants noted age at completion and then rated the degree to which each of the twelve acceptance items were true at that point in time. For milestones completed prior to coming out to parents/friends or without their knowledge, participants were asked to answer these questions in terms of anticipated acceptance at that point in time ("When answering about parents and friends, if you have not come out to these people, think about how they *would* feel if they knew your sexual orientation."). For example, if a participant had engaged in same-sex sexual behavior without the knowledge of their parents/friends, he was asked to imagine how his parents/friends *would* feel about the behavior *if* they knew about it. Internal consistency was good across individual milestone scales (scale reliability ranged from 0.87 – 0.96; mean $\alpha = 0.92$).

This measure was scored to create several different acceptance scores to address study hypotheses. *Milestone acceptance* scores were created by averaging scores for each source of acceptance at each milestone, yielding an average acceptance score for each milestone (i.e., realization acceptance, identification acceptance, disclosure to parent acceptance, disclosure to friend acceptance, and first same-sex sexual experience acceptance). *Source acceptance* scores

were created by averaging scores for each source of acceptance across all completed milestones, yielding an overall self-acceptance score, overall parent acceptance score, and overall friend acceptance score. See Table 3 for composite score descriptives for total sample, MTurk sample, and community sample.

Participants then answered the complete the full 10-item Acceptance of One's Sexual Orientation Scale for their current (i.e., past six months) perceptions of acceptance from their parents, friends, and self (see Appendix B). A mean *current source acceptance* score was created for each source of current acceptance (i.e., current self-acceptance, current parent acceptance, and current friend acceptance). Internal consistency for the current acceptance scales was good (scale reliability ranged from 0.88 – 0.95; mean $\alpha = 0.92$).

Substance use. Participants' alcohol, marijuana and drug use were assessed for the past six months. First, participants completed a Substance Use Checklist, created for this study, which assessed lifetime use (yes/no), use during the past six months (yes/no), age of first use, and age of last use for a variety of substances, including alcohol, marijuana, and other illicit drugs (e.g., cocaine, heroin, prescription drugs, etc.; see Appendix B for items).

Alcohol use. Participants who endorsed any alcohol use during the past six months also completed the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De Le Feunte, & Grant, 1993; Babor, Higgins-Biddle, Saunders, & Monterio, 2001) about their drinking behavior over the past six months (see Appendix B). The AUDIT is 10-item questionnaire created by the World Health Organization which screens for problematic alcohol use in adults. Participants are asked to respond to questions such as "How often do you have six or more drinks on one occasion?" and "How often during the past six months have you failed to do what was normally expected of you because of your drinking?". Responses from each item

are scored from zero to four, and items are summed to yield a total score that can range from 0 to 40, with higher scores indicating more problematic alcohol use. A summed score of 8 or more indicates the presence of harmful drinking behavior, with average sensitivity and specificity of 92% and 94%, respectively (Saunders, Aasland, Babor, De Le Feunte, & Grant, 1993). Internal consistency for this sample was acceptable ($\alpha = 0.79$).

Marijuana use. Participants who endorsed any marijuana use over the past six months also completed the Cannabis Use Disorder Identification Test, Revised (CUDIT-R; Adamson et al., 2010) about their marijuana use over past six months (see Appendix B). The CUDIT-R is an 8-item measure of marijuana use and abuse in adults. Participant are asked to respond to questions such as "How many hours were you 'stoned' on a typical day when you had been using cannabis?" and "How often during the past six months did you fail to do what was normally expected of you because of using cannabis?". Responses from each item are scored from zero to four and items are summed to yield a total score that can range from 0 to 32, with higher scores indicating more problematic marijuana use. Scores of 8 or more indicate hazardous marijuana use, and scores of 12 or more indicate the presence of a possible cannabis use disorder. The CUDIT-R has been shown to have a sensitivity and specificity of 91% and 90%, respectively, and excellent internal consistency ($\alpha = 0.91$; Adamson et al., 2010). Internal consistency for this sample was good ($\alpha = 0.80$).

Drug use. Participants who endorsed any other illicit drug use (excluding alcohol and marijuana) during the past six months completed the Drug Abuse Screening Test 10 (DAST-10; Skinner, 1982; Skinner, 2001) about their drug use over the past six months (see Appendix B). The DAST-10 is a 10-item questionnaire which assesses drug use and abuse in adults. Participants are asked to respond to questions such as "Do you abuse more than one drug at a

time?" and "Are you always able to stop using drugs when you want to?". Responses are scored from zero to one, and items are summed to yield a total score that can range from 0 to 10. Higher scores indicate more problematic drug use and scores of 3 or more indicate intermediate to severe levels of drug use. The DAST-10 has been shown to have excellent internal consistency in both general and drug-abusing samples (α = .92 and .74, respectively). Internal consistency for this sample was questionable (α = 0.65), likely due to a few participants reporting drug use in the past six months (e.g., 96.2% of participants endorsed no drug use).

In order to place these three continuous substance use scores on the same scale, POMP (percent of maximum possible) scores were calculated for the AUDIT, CUDIT, and DAST scores, resulting in scores for alcohol, marijuana, and other drugs that each ranged from 0-100. Rates of substance use were low in this sample, with 35.2% reporting no substance use in the past 6 months; 63.3% reporting any alcohol use; 18.6% reporting any cannabis use; and 3.8% reporting any other illicit drug use. In many cases (47.1%), participants had used one substance but not others (e.g., 45.7% used alcohol but not marijuana or other drugs). In order to best reflect levels of substance use in the sample, the highest POMP score was chosen to serve as the participant's substance use score. For example, if a participant's AUDIT POMP score was higher than those for the CUDIT or DAST, the AUDIT POMP score was used as the participant's substance use score. The substance use variable was significantly positively skewed and kurtotic (outside of the 1 to -1 range), as much of the sample reported no to low substance use. To correct for skew, the substance use variable was transformed using a logarithmic transformation.

Sexual behavior. Participants were asked to complete the HIV-Risk Assessment for Sexual Partnership (H-RASP; Mustanski, Starks, & Newcomb, 2013; See Appendix B). The H-RASP assesses sexual behavior on a partner-by-partner basis for the last three sexual partners during the

past six months. For each of the last three partners, participants were asked to identify partner characteristics (e.g., race, age, HIV status), relationship factors (e.g., mode of meeting, substance use in relationship, type of relationship), and number of unprotected sexual acts.

The H-RASP is a descriptive measure with no standard scoring system. Therefore, I selected variables of interest from the full measure to create a cumulative sexual risk score, including unprotected oral or penetrative sexual activity, knowledge of partners' STI/HIV status, exclusivity of sexual partner, partner familiarity (e.g., one-night stand, unknown partner), and sex under the influence of drugs or alcohol. These variables were chosen to create the cumulative sexual risk score based on research indicating that these factors are linked with increased health risk, such as contracting an STI/HIV, and safety risk, such as victimization. Unprotected sexual encounters are a commonly used indicator of sexual risk, but other relationship factors also play a role in both health and safety (Catania et al., 2001; Center for Disease Control and Prevention, 2005; Klien, 2012; Mustanski, Starks, & Newcomb, 2013; Xia et al., 2006). Knowledge of partner's STI/HIV status, exclusivity, and familiarity are associated with health risk and victimization (Rouwenhorst, Mallitt, & Prestange, 2012; Schindhelm & Hospers, 2004; Tomsich, Schaible, Rennison, & Gover, 2013). Additionally, sexual activity while under the influence of drugs/alcohol has been linked to increased risk of unprotected sex and risk of contracting an STI/HIV (Boone, Cook, & Wilson, 2013; Brewer, Golden, & Handsfield, 2006; Stall, McKusick, Wiley, Coates, & Ostrow, 1986).

For each risk variable of interest, I scored participants one point per behavior per relationship in order to capture both engagement in sexual risk behaviors and the magnification of these risk by engaging in these behaviors with multiple partners, with "0" equating to an absence of the behavior and "1" equating to the presence of the behavior. Participants received one point for

each sexual partner with whom they engaged in unprotected sexual activity; each sexual partner whose HIV/STI status was positive or unknown; each sexual partner who was unknown or a one-night stand; each non-exclusive sexual partner; and each sexual partner they engage in sexual activity with while under the influence of drugs/alcohol. For example, if the participant reported no unprotected sex with any of his last three partners, he received a score of 0 for this variable. Alternatively, if he reported unprotected sex with all of his last three partners, he received a score of 3 for this variable.

Points for each risk variable were summed into a cumulative risk score, which could range from 0-15. Internal consistency for this sample was good ($\alpha = 0.80$). One outlier was identified in the continuous sexual risk variable (score of 14) and was windsorized to a score of 11. Additionally, the cumulative sexual risk variable was significantly positively skewed and kurtotic (outside of the 1 to -1 range), as much of the sample reported no to low sexual risk behavior (83% of participants had scores of 3 or less; M = 1.77, SD = 2.13, Range = 10). The sexual risk variable was transformed using a logarithmic transformation. This measure also yielded a dichotomous yes/no variable for whether the participant had engaged in any sexual relationship in the past six months (yes = 69%, no = 31%).

CHAPTER 3 RESULTS

Missing Data

Missing data was not a significant problem in this study and was primarily observed at item-level. Percent missing for any one item ranged from 0.5 – 1.9%. Item level missingness on the acceptance scales was minimized by calculating mean scores as long as 75% of the data was observed. No missing data was observed on the substance use or sexual risk questionnaires.

Descriptive Statistics

Table 3 displays descriptive statistics for all key study variables. Descriptives are presented for the full sample, as well as for the recruitment sub-samples (MTurk/community). I conducted bivariate correlations to examine the relationships between the study variables (see Table 4). Correlations revealed that those in the community group were more likely to have been raised religious. Those in the community group also reported less acceptance at the realization milestone, less parental acceptance across milestones, and more current friend acceptance. Being raised with a religious affiliation was associated with being in the milestone completion group, as well as with less parental acceptance currently and across milestones. Being in the milestone completion versus non-completion group was related to more acceptance at the identification, disclosure to friend, and same-sex sexual behavior milestones, as well as more acceptance from self, parents, and friends both currently and across milestones. Being in the milestone completion group was also associated with higher sexual risk and substance use scores. Sequencing group was related to acceptance at first same-sex sexual experience, such that those in the identity versus sex-centered group reported more acceptance at this milestone. Being in the identity-centered group was also associated with lower sexual risk and substance use scores than being in the sex-centered group. Less acceptance at the realization milestone was related to more current

substance use; while less acceptance at the same-sex sexual experience milestone was associated with higher sexual risk. Higher sexual risk was also associated with more current self-acceptance. Higher substance use scores were related to more current friend acceptance and higher sexual risk. All milestone acceptance scores and source acceptance scores (both current and across milestones) were positively correlated ($r's$ = .147 - .819, all $p's$ < .05), with the exception of the realization milestone, which was unrelated to current self and friend acceptance.

I then conducted analysis of covariance tests (ANCOVAs) to examine differences in key study variable between the two recruitment source sub-samples, while controlling for raised religion, as those in the community group were more likely to have been raised religious. There were no significant differences between recruitment samples in terms of milestone completion (yes/no), sequencing group (identity-centered/sex-centered), ages for milestone completion, sexual risk behavior, or substance use. When examining acceptance scores, three differences emerged between the MTurk and community samples. The community sample reported less overall acceptance at the realization milestone (M = 2.31, SD = 0.79) than the MTurk sample (M = 2.72, SD = 0.87), $F(1,207)$ = 5.87, p = .016. The community sample also reported less parental acceptance across milestones (M = 2.29, SD = 1.24) than the MTurk sample (M = 2.90, SD = 1.12), $F(1,207)$ = 6.34, p = .013. Finally, those in the community sample reported more current friend acceptance (M = 4.34, SD = 0.86) than those in the MTurk sample (M = 3.95, SD = 0.82), $F(1,207)$ = 6.47, p = .012.

Aim 1: Patterns of Sexual Orientation Development

The first aim of the study was to examine patterns of sexual orientation development (e.g., completion, timing, sequencing). Table 3 shows the descriptive statistics for age at each milestone for the whole sample and by sub-sample (MTurk/community). As a requirement to

participate in the study, all participants had completed at least two milestones (realization of non-heterosexuality and self-identification as gay). Additionally, 53.3% of the sample reported completing *all* sexual orientation development milestones, with the average age of milestone completion being 18.61 years (SD = 2.15). Time to complete all milestones varied, with some participants reporting milestone completion in less than a year and others reporting 18 years to completion (M = 6.42, SD = 3.47). There was also a great deal of variation in age at first milestone (i.e., realization of non-heterosexuality), ranging from 2.00 to 25.00 years (M = 12.57, SD = 3.47). Close to half (46.7%) of participants had not completed all sexual orientation development milestones at the time of the study. When looking at specific milestones, 6.7% of participants had not disclosed their sexual orientation to a friend, 35.2% of participants had not disclosed their sexual orientation to a parent, and 23.3% of participants had never engaged in sexual activity with a same-sex partner. In terms of sequencing of milestones, 81.0% of the sample was classified as identity-centered developers (i.e., reached identification milestone before same-sex sexual behavior milestone); while 19.0% of the sample was classified as sex-centered developers (i.e., reached same-sex sexual behavior milestone before identification milestone).

Classifying individual differences in sexual identity development. Latent profile analysis (LPA) in MPlus (Muthen & Muthen, 1998-2012) was used to classify participants into latent groups based on reported ages of milestone completion. These analyses were conducted only for participants who had completed all milestones (i.e., completers, N = 112), as those who had not completed all milestones (i.e., non-completers, N = 98) would not have been able to be classified accurately due to missing milestone ages. For each model, age at realization of non-heterosexuality, age at identification as gay, age at disclosure to friend, age at disclosure to

parent, and age at first same-sex sexual experience were used to classify participants in latent groups.

Model fit was evaluated on the basis of 1) Akaike information criteria (AIC), 2) Bayesian information criteria (BIC), 3) bootstrap likelihood ratio test (BLRT), 4) entropy, and 5) profile sizes and 6) substantive meaning. AIC (Akaike, 1973, 1987) and BIC (Schwarz, 1978) statistics are commonly used markers of model fit and are based on maximum likelihood estimates of model parameters (Tein, Coxe, & Cham, 2013), with lower values indicating better fit. The BLRT (McCutcheon, 1987; McLachlan & Peel, 2000) uses bootstrapping to estimate the p-value of a likelihood ratio test comparing models that differ by a set of parameter restrictions (e.g., comparing a 1-group to 2-group model). A p-value of < .05 indicates superior fit for the model with more groups. Entropy is a measure of classification uncertainty (Celeux & Soromenho, 1996), with higher values indicating better group classifications (e.g., less uncertainty). Entropy values greater than 0.80 indicate that groups are highly discriminating.

Model fit was estimated for baseline (one), two, three, four, and five class solutions to determine the best model fit (see Table 5 for model fit statistics). While the four-group model was statistically superior to the three-group model in terms of AIC, BIC, and entropy, the fourth profile group was very small in size (N = 4) and therefore did not add substantive meaning to the classifications. Therefore, the three-group model was determined to be the best fit to the data based on good fit statistics, group sizes, and substantive meaning (see Table 5 for class probabilities).

See Table 5 for average age at each milestone by group. Class 1, "early completers," was composed of 12.7% of the sample. These early completers typically began sexual orientation development in late childhood (M age = 10.06), identified as gay and disclosed their sexual

orientation to friends and then parents in early adolescence (M ages = 12.61, 12.65, and13.49, respectively), and had their first same-sex sexual experience around age 14 years (M age = 14.81). These participants completed all milestones in about four years on average. Class 2, "middle completers," was composed of 63.5% of the sample. Middle completers also began sexual orientation development in early adolescence (M age = 11.80) but then did not identify as gay or disclose their sexual orientation to a friend until around age 16 years (M ages = 16.39 and 16.54, respectively). These middle completers also waited until about age 17 years to disclose their sexual orientation to a parent and to engage in a same-sex sexual relationship (M ages = 17.22 and 17.51, respectively). Class three, "late completers," made up 23.8% of the sample. These participants did not report realization of non-heterosexuality until adolescence (M age = 14.82). Additionally, late completers tended to not identify as gay or complete other sexual identity milestones (disclosure to friend, disclosure to parent, same-sex sexual experience) until adulthood (M ages = 19.65, 20.24, 20.34, and 19.38, respectively). Late completers were the only group in which the first same-sex sexual experience milestone was on average completed earlier than identification or disclosure to parents and friends. Middle and late completers both reported completing all milestones in approximately six years. Figure 1 displays average age at each milestone for the early, middle, and late classes.

Aim 2: Associations between Sexual Orientation Development Patterns and Acceptance

The second aim of this study was to examine associations between sexual orientation development and acceptance across milestones and sources. I hypothesized that participants who completed milestones at earlier ages would report more acceptance than participants who completed milestones at later ages. Additionally, I hypothesized that participants in the identity-centered sequencing group would report more acceptance than participants in the sex-centered

sequencing group. Since little research has examined the relationship between acceptance and sexual orientation development, I conducted four sets of analyses to examine these associations: 1) associations between acceptance and LPA classes (early, middle, late); 2) associations between acceptance and milestone completion group (yes/no completed all milestones); 3) associations between acceptance and number of milestones completed; and 4) associations between acceptance and sequencing group (identity centered/sex-centered). Within each set of analyses, separate analyses examined milestone acceptance (acceptance at each individual milestones) and source acceptance (self, parent, and friend acceptance across milestones).

Associations between LPA classes and acceptance. The first set of analyses examined whether LPA classes (early, middle, late, N=111) were associated with milestone and source acceptance. I hypothesized that higher levels of acceptance would be associated with being in the early completion group.

Milestone acceptance. I first performed an analysis of covariance (ANCOVA) to examine mean differences in acceptance at the realization milestone while controlling for recruitment source, as community participants recruited less acceptance at realization than MTurk participants. I also conducted analysis of variance (ANOVA) tests to examine mean differences in milestone acceptance between the three trajectory groups at each following milestone (identification, disclosure to parent, disclosure to friend, and sexual experience). Model results are detailed in Table 6. No significant group differences emerged in milestone acceptance scores.

I then performed a multinomial logistic regression to ascertain the effects of milestone acceptance scores on the likelihood that participants would be classified as early, middle, or late completers. For this regression, raised religion was entered into the analyses as a covariate, as it is related to LPA completion group. Acceptance scores at each milestone were then entered into

the factor block. The early completer group was used as the reference group for this analysis. See Table 7 for parameter estimates. The overall regression model was not statistically significant, $\chi2(12) = 15.67$, *p*= .207. The model explained 15.9% (Nagelkerke R2) of the variance in classification groups and correctly classified 65.8% of cases. Realization acceptance was the only significant milestone predictor. The Exp(B) values indicated that when realization acceptance increased by one unit the odds of being in the middle group decrease by 0.319 units. Additionally, as realization acceptance increased by one unit, the odds of being in the late group decreased by 0.244 units.

Source acceptance. Next, I performed a set of ANOVAs to test for differences in self and friend acceptance across milestones for the three sexual identity trajectory groups. I also conducted an ANCOVA to test for differences in parent acceptance, controlling for recruitment source and raised religion, as these variables were related to less parental acceptance. Results of these analyses are presented in Table 6. Analyses revealed no differences in reported source acceptance between trajectory groups.

I then conducted a multinomial logistic regression to ascertain the effects of source of acceptance (self, parent, and friend) across milestones on the likelihood that participants would be classified as early, middle, or late completers. For this regression, raised religion was entered into the analyses as a covariate, as it is related to LPA trajectory group. Source acceptance scores for self, parent, and friend were then entered into the factor block. The early completer group was used as the reference group for this analysis. See Table 7 for parameter estimates. The logistic regression model was not statistically significant, $\chi2(8) = 9.53$, $p = .300$. The model explained 9.9% (Nagelkerke R2) of the variance in classification groups and correctly classified

64.9% of cases. Examination of parameter estimates revealed no significant pathways from source acceptance to trajectory group.

Associations between completion group and acceptance. I next examined whether sexual identity development milestone completion (yes/no having completed all milestones; N=210) was associated with milestone and source acceptance. I hypothesized that higher levels of acceptance would be associated with being in the milestone completion group.

Milestone acceptance. I first performed an ANCOVA to examine mean differences in acceptance at the realization milestone while controlling for recruitment source, as community participants recruited less acceptance at realization than MTurk participants. I also conducted ANOVA tests to examine mean differences in milestone acceptance between the completion groups at each following milestone (identification, disclosure to parent, disclosure to friend, and sexual experience). Model results are detailed in Table 8. Analyses revealed significant differences in reported acceptance at the identification milestone, with completers reporting more acceptance at identification ($M = 3.59$, $SD = 0.86$) than non-completers ($M = 3.19$, $SD = 0.88$). Milestone completers also reported more acceptance at the disclosure to friend milestone ($M = 3.71$, $SD = 0.79$) compared to non-completers ($M = 3.41$, $SD = 0.76$). Finally, completers reported more acceptance at the first same-sex sexual behavior milestone ($M = 3.57$, $SD = 0.91$) than non-completers ($M = 3.11$, $SD = 0.80$).

I next conducted a logistic regression to test the extent to which acceptance at the first two milestones (realization and identification, which all participants had completed) increased or decreased the likelihood of being a milestone completer. For this regression, raised religion was entered into the first block of the analysis as a control variable, as it is related to completion group. Scores for acceptance at realization and acceptance at identification were then entered

into the second block of the analyses. Acceptance scores at the other milestones were excluded from the analyses in order to include all participants. See Table 9 for parameter estimates. The final logistic regression model was statistically significant, $\chi2(3) = 20.07$, $p < .001$, and explained 12.2% (Nagelkerke R²) of the variance in classification groups, correctly classifying 63.2% of cases. Identification acceptance was the only significant predictor in the model. The Exp(B) value indicated that when identification acceptance increases by one unit the odds of being in the milestone completion group increased by 2.02 units.

Source acceptance. I then performed a set of ANOVAs to test for differences in self and friend acceptance between milestone completion groups. I also conducted an ANCOVA to test for differences in parent acceptance between completion groups, controlling for recruitment source and raised religion, as these variables were related to less parental acceptance. Model results are detailed in Table 8. Men in the completion group reported more self-acceptance ($M = 3.71$, $SD = 0.66$) than men in the non-completion group ($M = 3.33$, $SD = 0.85$); as well as more friend acceptance ($M = 3.69$, $SD = 0.82$) than non-completers ($M = 3.35$, $SD = 0.84$). Completers also reported more parent acceptance ($M = 3.00$, $SD = 1.16$) than non-completers ($M = 2.56$, $SD = 1.13$);

Finally, I conducted a logistic regression to test the extent to which source acceptance (self, parent, friend) increased or decreased the odds of being in the completer group. For this regression, raised religion was entered into the first block of the analysis as a control variable, as it is related to completion group. Scores for self, parent, and friend acceptance were then entered into the second block of the analyses. See Table 9 for parameter estimates. The overall model was significant, $\chi2(4) = 25.27$, $p < .001$, and explained 15.1% (Nagelkerke R²) of the variance in classification groups, correctly classifying 63.8% of cases. Self and parent acceptance were both

significant predictors in the model. Exp(B) values indicated that when self-acceptance increased by one unit the odds of being in the milestone completion group increased by 1.69 units. Additionally, as parent acceptance increased by one unit, the odds of having completed all milestone increased by 1.33 units.

Associations between number of milestones completed and acceptance. I next examined the associations between acceptance and the number of milestones completed at the time of the study. I hypothesized that higher acceptance would be related to more completed milestones.

Milestone acceptance. I conducted a hierarchical regression to test the relationship between acceptance at the realization and identification milestones and number of milestones completed to date. For this regression, raised religion was entered into the first block of the analysis as a control variable, as it is related to number of milestones completed. Scores for acceptance at realization and acceptance at identification were then entered into the second block of the analyses. Acceptance scores at the other milestones were excluded from the analyses in order to include all participants. See Table 10 for parameter coefficients. The final regression model was significant, $F(3, 205) = 6.27$, $p < .001$, $R^2 = .084$. Participants who reported more acceptance at the identification milestone reported completing more milestones.

Source acceptance. I also conducted a hierarchical multiple regression to examine whether source acceptance (self, parent, friend) was associated with the number of completed milestones. For this regression, raised religion was entered into the first block of the analysis as a control variable, as it is related to number of milestones completed. Scores for self, parent, and friend acceptance were then entered into the second block of the analyses. See Table 10 for parameter coefficients. The overall regression model was significant, $F(4, 205) = 6.49$, $p < .001$, $R^2 = .112$. Higher levels of self-acceptance were associated with completing more milestones.

Associations between sequencing group and acceptance. The second hypothesis of Aim 2 was that greater sexual identity acceptance would be more strongly associated with a pattern of sexual identity development that was identity-centered (i.e., reached the identification milestone before the sexual behavior milestone) versus sex-centered (i.e., reached the sexual behavioral milestone before the identification milestone). Sequencing was not significantly related to age, race, religion, or milestone completion (yes/no). However, chi-square analyses revealed that participants who completed the sexual behavior milestone before the identity milestone were more likely to be in the LPA late development trajectory, $\chi2(3) = 16.32$, $p = .001$.

Milestone acceptance. I first performed an ANCOVA to examine mean differences in acceptance at the realization milestone while controlling for recruitment source, as community participants recruited less acceptance at realization than MTurk participants. I also conducted ANOVA tests to examine mean differences in milestone acceptance between the sequencing groups at each following milestone (identification, disclosure to parent, disclosure to friend, and sexual experience). Model results are detailed in Table 11. Analyses revealed significant differences between sequencing group at the same-sex sexual experience milestone, with the identity-centered group reporting more acceptance at first same-sex sexual experience (M = 3.61, SD = 0.97) than the sex-centered group (M = 2.90, SD = 0.81).

I then conducted a logistic regression which examined whether greater milestone acceptance impacted the likelihood that participants would be classified as identity or sex-centered developers. For this regression, realization acceptance, identification acceptance, disclosure to friend, disclosure to parent and sexual experience were entered into the first block. This analysis was conducted only with participants who had scores for each milestone (N = 111). See Table 9 for parameter estimates. The final logistic regression model was statistically significant, $\chi2(5) =$

35.47, $p < .001$. The model explained 42.2% (Nagelkerke R^2) of the variance in classification groups and correctly classified 87.4% of cases. Acceptance at first same-sex sexual experience was the only significant predictor. The Exp(B) value indicated that when sexual experience acceptance increases by one unit the odds of being in the identity-centered sequencing group increases by 1.29 units.

Source acceptance. I next performed an ANCOVA to examine mean differences in parent acceptance while controlling for recruitment source and raised religion, as both were found to be related to less parental acceptance. I also conducted ANOVA tests to examine mean differences in self and friend acceptance between sequencing groups. Model results are detailed in Table 11. Analyses revealed no significant differences in source acceptance between sequencing groups.

Finally, I conducted a logistic regression which assessed whether source acceptance (self, parent, friend) was related to the likelihood of being identity versus sex-centered developers. For this regression, self-acceptance, parent acceptance, and friend acceptance were entered into the first block. See Table 9 for parameter estimates. The final logistic regression model was not statistically significant, $\chi2(3) = 1.92$, $p = .589$. The model explained 1.5% (Nagelkerke R^2) of the variance in classification groups and correctly classified 80.9% of cases.

Aim 3: Associations between Sexual Orientation Development Patterns, Current Acceptance, and Risk Behavior

The third aim of this study was to examine the relationships between sexual orientation development, current acceptance, risky sexual behavior, and substance use. Specifically, I hypothesized that higher source acceptance and would be associated with lower levels of risky sexual behavior, even after controlling for milestone completion and sequencing group. I additionally predicted that substance use would mediate the relationships between source

acceptance and risky sexual behavior, such that participants who reported low acceptance would also report more substance use, which would be associated with increased risky sexual behavior.

To examine these relationships, separate structural equation models (SEM) were conducted for each source of acceptance (self, parent, friend). Direct and indirect paths between sexual identity developmental indicators (i.e, completion group, sequencing group), current acceptance (i.e., self, parent, friend), and behavioral outcomes (i.e., substance use, sexual risk) were estimated using SEM (Kline, 1998) in Mplus Version 7 (Muthe´n & Muthe´n, 1998–2006); Figure 2 illustrates the conceptual model for these analyses controlling for model-specific covariates (e.g., religious background). SEM analyses were only completed with participants who had completed the same-sex sexual behavior milestone (N = 160) in order to best capture sexual risk taking in a sexually active sample.

Predicting risk behaviors from current self-acceptance. The first model examined current self-acceptance. To examine the direct pathways from completion group, sequencing group, and current self-acceptance to substance use (i.e., highest substance use POMP score) and risky sexual behavior, the following pathways were estimated: a) raised religion to completion group; b) completion group to current self-acceptance, substance use, and risky sexual behavior; c) sequencing group to current self-acceptance, substance use, and risky sexual behavior; d) current self-acceptance to substance use and risky sexual behavior; and e) substance use to risky sexual behavior. To assess for substance use effects in the model, I tested for the following specific indirect effect in the model: current self-acceptance to risky sexual behavior through substance use. Figure 2 illustrates all direct and indirect pathways tested within the model.

The overall model showed good fit to the data, $\chi 2(4) = 4.68$, $p = .321$; CFI = 0.98; RMSEA = 0.03. Table 12 shows the path coefficients for the direct relations between each variable,

regardless of significance. Figure 3 illustrates significant pathways within the model. Within the model, milestone completion was associated with higher levels of reported self-acceptance and lower levels of sexual risk behavior. Additionally, more substance use was associated with increased risky sexual behavior. All other pathways were non-significant, including hypothesized pathways completion group to substance use; sequencing group to current self-acceptance, substance use, and risky sexual behavior; and current self-acceptance to substance use and risky sexual behavior. I was also interested in whether substance use would mediate the association between current self-acceptance and sexual risk behavior. Table 15 shows the path coefficients for the indirect effects. This indirect path was non-significant and did not support mediation in the model.

Predicting risk behaviors from current parent acceptance. The second model examined current parent acceptance. To examine the direct pathways from completion group, sequencing group, and current parent acceptance to substance use and risky sexual behavior, the following pathways were estimated: a) raised religion to completion group and current parent acceptance; b) completion group to current parent acceptance, substance use, and risky sexual behavior; c) sequencing group to current parent acceptance, substance use, and risky sexual behavior; d) current parent acceptance to substance use and risky sexual behavior; and e) substance use to risky sexual behavior. To assess for substance use effects in the model, I tested for the following specific indirect effect in the model: current parent acceptance to risky sexual behavior through substance use. Figure 2 illustrates all direct and indirect pathways tested within the model.

The overall model showed good fit to the data, $\chi 2(3) = 4.24$, $p = .236$; CFI = 0.97; RMSEA = 0.05. Table 13 shows the path coefficients for the direct relations between each variable, regardless of significance. Figure 4 illustrates significant pathways within the model. Within the

model, milestone completion was associated with higher levels of reported parent acceptance, while being raised with a religious denomination was associated with lower parental acceptance. More substance use was associated with increased risky sexual behavior. All other pathways were non-significant, including the hypothesized pathways for completion group to substance use and sexual risk; sequencing group to current parent acceptance, substance use, and risky sexual behavior; and current parent acceptance to substance use and risky sexual behavior. I was also interested in whether substance use would mediate the association between current parent acceptance and sexual risk behavior. Table 15 shows the path coefficients for the indirect effects. This indirect path was non-significant and did not support mediation in the model.

Predicting risk behaviors from current friend acceptance. The third model examined current friend acceptance. To examine the direct pathways from completion group, sequencing group, and current friend acceptance to substance use and risky sexual behavior, the following pathways were estimated: a) raised religion to completion group; b) recruitment source to current friend acceptance; c) completion group to current friend acceptance, substance use, and risky sexual behavior; d) sequencing group to current friend acceptance, substance use, and risky sexual behavior; e) current friend acceptance to substance use and risky sexual behavior; and f) substance use to risky sexual behavior. To assess for substance use effects in the model, I tested for the following specific indirect effect in the model: current friend acceptance to risky sexual behavior through substance use. Figure 2 illustrates all direct and indirect pathways tested within the model.

The overall model showed good fit to the data, $\chi2(7) = 6.34$, $p = .501$; CFI = 1.00; RMSEA = 0.00. Table 14 shows the path coefficients for the direct relations between each variable, regardless of significance. Figure 5 illustrates significant pathways within the model. Within the

model, being in the community recruitment group and having completed all milestones were associated with more friend acceptance. Men who reported more current friend acceptance also reported higher levels of substance use. Increased substance use was associated with riskier sexual behavior. All other pathways were non-significant, including hypothesized pathways for completion group to substance use and risky sexual behavior; sequencing group to current friend acceptance, substance use, and risky sexual behavior; and current friend acceptance to risky sexual behavior. I was also interested in whether substance use would mediate the association between current friend acceptance and sexual risk behavior. Table 15 shows the path coefficients for the indirect effects. This path was significant and supported mediation in the model. Substance use mediated the relationship between friend acceptance and risky sexual behavior, such that men who reported more acceptance from friends were also more likely to use substances, which was then associated with riskier sexual behavior.

CHAPTER 4 DISCUSSION

The goal of the current study was to advance our understanding of developmental processes among gay men by examining perceived acceptance of sexual orientation and its associations with individual differences in sexual orientation development, sexual behavior, and substance use. The literatures on sexual orientation development and behavioral outcomes for gay men have been largely separate, with little consideration of how developmental correlates may impact both developmental course and risk behavior. The current study aimed to describe sexual orientation development in a sample of emerging adult, gay men, as well as understand how perceived acceptance from the self and important others (parents, friends) may impact the timing and completion of developmental milestones. Additionally, this study aimed to understand how current developmental status and sexual orientation acceptance may be related to behavioral difficulties often seen in the sexual minority population, namely sexual risk and substance use. Results of this study are consistent with existing literature on sexual orientation development and show that gay men report considerable variability in timing and completion of developmental milestones. This research adds to the literature by examining not only milestone completers but also milestone non-completers. The findings highlight the possible importance of perceived acceptance for milestone completion, with men who completed all milestones reporting more acceptance from all sources and across key milestones. Finally, results point to potential relationships between current friend acceptance, substance use, and sexual risk.

Patterns of Sexual Orientation Development

Consistent with prior work, the current sample showed considerable variability in the completion, timing, and sequencing of sexual orientation development, as measured by five behavioral milestones associated with establishing a personal and relational identity as "gay."

When looking at timing of sexual orientation development, variability was noted in the age of first milestone (realization of non-heterosexuality), length of time to completing milestones, and age of completion. The modal age of realization was 12 years old; however, one participant reported realization as early as two years old and another reported not reaching realization until age 25 (the upper age limit of the study). For those who had completed all milestones, the length of time to reach completion also varied substantially. Although the modal time to completion was 4 years, some participants (0.05%) reported milestone completion within one year, with others taking more than 15 years (0.04%). The modal age of completion was 18, but participants varied on completion age, with some participants reporting completion in adolescence and others reporting completion in young adulthood. Reported ages of milestone development in this study are comparable to those reported in other studies of LGB emerging adults (Dube & Savin-Williams, 1999; Floyd & Stein, 2002) and underscore that there is considerable heterogeneity in the onset and duration of sexual orientation development.

Given the variability in reported ages of milestone completion, I conducted analyses to identify discernible patterns of sexual identity development. Latent profile analyses identified three classes of sexual orientation development for those who had completed all five milestones. The three classes were distinguished by the timing of milestone completion. "Early" completers (12.7% of completers) typically completed milestones by 14 years of age. The middle completer class (63.5% of completers) continued to attain milestones through adolescence, usually completing all milestones before age 18. Those in the late completion group (23.8% of completers) often began their sexual identity development with realization in early adolescence and reached most milestones in late adolescence and adulthood. The late group was also the only group in which the average age of first same-sex sexual experience occurred earlier than

identification and coming out to parents and friends. The results from the latent profile analyses are in accordance with past trajectory analyses conducted within the emerging adult sexual minority population (Friedman et al., 2008).

Unlike previously published trajectory analyses, the current study also set out to describe the development of emerging adult gay men who had yet to complete the five milestones. Although latent profile analyses do not allow for the classification of these individuals, they are a large group of emerging adults whose development warrants a closer examination. Almost half (47%) of participants in this study had not completed all sexual orientation development milestones, which is consistent with prior research on sexual orientation development. While most sexual development takes place during adolescence, there are some sexual minorities who do not begin or complete sexual orientation development until later in life. For example, Calzo et al. (2011) performed trajectory analyses for sexual orientation development in adults ages 18-84. While their early group reflects the overall ages of milestone completion reports in this sample, their middle and late groups include average ages of milestone completion that are outside the range of this study. Their late group, for example, completed milestones in their 30's and 40's. The results from the current study and past research show the importance of assessing differences in milestone completion across the lifespan. Future research may want to extend the ages of those included in studies examining sexual orientation development in order to include men who do not begin or complete milestones until later in life.

Looking at the completion rates of specific milestones among "non-completers" sheds further light on the sexual orientation development of this group. Among those who had not completed all milestones, the average number of completed milestones was just above four of five assessed milestones. Coming out as gay to a parent was the milestone that was least likely to have been

completed (35%), followed by engagement in same-sex sexual behavior (23%), and coming out to a friend (7%). Taken together, these findings underscore the importance of continued developmental supports for adult gay men, whose sexual identity development may continue well into adulthood. This may be especially needed in establishing an authentic public identity as a gay man, especially with one's parents.

A final element of variability in sexual identity development considered in this study was milestone sequencing. Contrary to previous research (Dube & Savin-Williams, 1999; Floyd & Stein, 2002; Friedman et al., 2008), more participants in the current study reported identifying as gay prior to engaging in same-sex sexual behavior (i.e., identity centered developers) than engaging in same-sex sexual behavior prior to identifying as gay (i.e., sex-centered developers). These findings are especially important in light of research linking identity-centered development with less internalized homophobia and less sexual risk behavior (Dube, 2000; Schindhelm & Hospers, 2004). Cohort effects may be important in understanding the difference between results of this study and past research. It may be that with increasing societal awareness and visibility of LGBT people in the media and daily life over the past 10-15 years, men are able feel more confident in identifying as gay without prior same-sex sexual experimentation. The most recent Gallup polls show that 72% of Americans believe same-sex relationships should be legal, and 64% believe that same-sex marriage should be recognized by law (McCarthy, 2017). Exposure to sexual minority individuals in the media has also increased and may play a part in the well-being of sexual minority young adults. For example, Bond (2015) surveyed LGB adolescents (ages 13-16) and found that youth who reported more exposure to LGB characters in the media also reported less sadness and dejection, as well as a stronger commitment to their

sexual minority identity. Future research may want to directly assess cohort differences in milestone sequencing, as well as the correlates of sequencing.

Overall, these results point to a great deal of variation in sexual orientation development. There does not seem to be a clear course through development, with milestone ages, sequencing, and time frames differing across participants. Additional research should be done to examine the developmental trajectories of gay men who reach sexual orientation milestones later in life. Understanding individual differences in gay men's sexual orientation identity development is important due to unique consequences for different developmental trajectories. Such research has found that earlier development may yield more lifetime victimization and discrimination at school and at home, which are linked to poorer mental health outcomes (D'Augelli, Pilkington, & Hershberger, 2002; Kosciw, Greytak, Diaz, & Bartkiewicz, 2010; Toomey, Ryan, Diaz, Card, & Russell, 2010). For example, Friedman et al. (2008) found that earlier sexual identity developmental trajectories were associated with increased rates of victimization, depression, suicidality, and HIV. Alternatively, research by Floyd and Stein (2002) found that earlier developers were more comfortable with their sexual orientation identity; therefore, later development could be associated with more internal struggle with accepting the self as a sexual minority. Earlier resolution of this internal conflict might ease the progression of sexual identity development. Additionally, completing milestones helps youth to lead authentic lives (Cass, 1979, 1984, 1996; Troiden, 1989). While the consequences of developmental paths have been explored in the literature, less attention has been paid to correlates of developmental pathways. It is important to understand the contexts under which youth progress through sexual orientation development. When and how youth complete sexual orientation identity milestones may in part be related to their own psychological resources, as well as their interpersonal relationships.

Associations between Sexual Orientation Development Patterns and Acceptance

Acceptance of sexual identity was hypothesized as a salient factor for understanding individual differences in the timing and sequencing of sexual identity development. The current findings suggest that both perceived milestone and source acceptance may be important to the completion of milestones by emerging adulthood but less important to the specific trajectory of completion (i.e., early, middle, late). As participants included in the trajectory analyses had completed all milestones, it may be that youth who have completed all milestones perceived a similar level of acceptance, especially as compared to youth who are still undergoing sexual identity development. This may account for the lack of differences in perceived acceptance between trajectories, but the presence of differences in acceptance between milestones completers and non-completers.

Acceptance at the identification milestone appeared to be of particular importance within sexual orientation development, as analyses revealed that men who had completed all milestones reported more acceptance at identification. Additionally, higher acceptance at the identification milestone predicted membership in the milestone completion group, as well as the number of milestones completed, even when accounting for realization milestone acceptance. As the identification milestone was typically reached earlier in the developmental process than other milestones, these results point to the potential significance of acceptance at identification milestone for the progression of sexual orientation development. Specifically, feelings of sexual identity acceptance earlier in the developmental process may facilitate progress and completion of milestones. Alternatively, if gay men are uncomfortable with their gay identity or believe others will be unaccepting, they may be less likely to disclose that identity to others or to engage in same-sex sexual relationships. For example, Grafsky (2017) interviewed 22 non-heterosexual

youth ages 14-21 about their decisions to disclose their sexual orientation identity to others. One of the stated reasons for non-disclosure was their own personal comfort with and confidence in their sexual orientation. In other words, participants felt the need to be accepting and certain of their sexual orientation before sharing this with others.

Indeed, when examining source acceptance, men in this study who reported more self-acceptance were also more likely to have completed all milestones or more milestones, even when accounting for other sources of acceptance. Additionally, milestone completers reported more self-acceptance than non-completers. Relations between milestone completion and self-acceptance may point to the importance of positive identity development for men who may be coming to understand their sexual orientation identity. Men who are more self-accepting may be better able to progress through the milestones of sexual identity development, thus being able to live more genuine lives. Men who are less accepting of their own sexual orientations may struggle more throughout this process, delaying completion of milestones. The relationship between self-acceptance and milestone completion is especially important as acceptance of one's sexual identity has been associated with increased well-being and mental health (Leserman et al., 1994; Miranda & Storms, 1989; Nicholson & Long, 1990; Schmitt & Kurdek, 1987); while negative feelings about one's sexual orientation have been associated with increased anxiety, depression, and substance use (Bybee, Sullivan, & Zielonka, 2009; Meyer, 2003; Quiles & Bybee, 1997). In the future, researchers may want to assess the mental health correlates of sexual orientation development. For example, it may be possible that individuals who have not completed sexual orientation development may feel less acceptance, and thus more anxiety and depression than their accepting, completer peers.

Acceptance from friends play an important role in sexual orientation development as well. Men who had completed all milestones reported more acceptance at the disclosure to friend milestone, as well as more source acceptance from friends. Developmental models have found that peer relationships become increasing important and can serve as a protective factor in the lives of adolescents (Blum, McNeely, & Nonnemaker, 2002; Marcia, 1966); however, gay youth report longer time to develop trusting friendships than heterosexual youth (Eccles, Sayegh, Fortenberry, & Zimet, 2004). Variations in gay men's ability to engage in accepting friendships across development may influence their ability to progress through sexual orientation milestones. For example, if men have friends who are openly accepting of sexual minority identities, this may increase their comfort in identifying as gay and disclosing that identity to friends. These findings point to the need to facilitate accepting friendship environments during development. Inclusion of gay-straight alliance or pride clubs in schools and colleges may allow questioning youth to more easily find needed support and acceptance. For example, a qualitative study by Roe (2015) found that LGB youth felt more supported and affirmed if their schools had a gay-straight alliance club, even if they were not personally members. Men who are able to develop supportive and trusting friendships may feel safer in disclosing their sexual identity to parents as well. Research has found that perceiving support outside the home makes men more likely to come out to parents (Waldner & Magrader, 1999). Gay men may put also extra value on their friendships due to expectations or experiences of parental rejection and disapproval (Savin-Williams, 1998; Needham and Austin, 2010). More research must be conducted on how youth weigh the cost and benefits of disclosing to those in their friendship circle, and how youth describe accepting responses.

Findings linking overall parental source acceptance to milestone completion underscore the importance of parental acceptance to sexual identity development. Milestone completers reported more parent acceptance, and higher parental acceptance was associated with a greater likelihood of being in the milestone completion group. Additionally, the significant relationship between self and parent acceptance may point to the importance of parental acceptance in assisting youth in feeling comfortable with themselves as sexual minorities throughout sexual identity development. Perceiving low parental acceptance could interfere with identification as gay, disclosure of sexual orientation, and engagement in same-sex romantic relationships. As noted, the most common non-completed milestone was disclosure of sexual orientation to parents. The decision to disclose sexual identity to parents is clearly a complicated process which weighs the pros and cons of disclosure. Some youth may disclose in order to foster closeness and seek support in their parental relationships. For example. Grafsky (2017) found that the youth in her study who reported increased closeness to their parents were more likely to have disclosed their sexual orientation. Alternatively, disclosure may be viewed as risky due to the potential for damage to their parent-child relationships (Potoczniak, Crosbie-Burnett, & Saltzburg, 2009; Savin-Williams & Ream, 2003). A study by Magruder and Waldner (1999) found that LGB youth who perceived close family relationships were less likely to be out to their family because the cost of losing their family's support was more extreme than for youth with weaker family bonds. In other words, youth who value their family relationship but worry about negative responses to coming out may be more likely to keep their sexual orientation hidden, while youth who are not close to their families have less to lose by disclosing. Additionally, youth may be physically dependent on parents. Coming out to parents may be difficult for young adults who remain reliant on parents for tangible support for education, housing, or other living expenses

(Grafsky, 2017). Within this study, many participants reported living with or receiving financial support from parents, and there was a marginal association between living with parents and being in the non-completion group. For men who anticipate negative reactions from parents, sexual orientation development may be put on hold until more autonomy is gained. Parental acceptance is a complex construct with various meanings for youth depending on their current contextual factors (e.g., religion, family dynamic, living situation, etc.). Future work should be done in understanding how gay men understand and interpret parental acceptance. For example, it may be important to better understand how youth interpret parental acceptance and the information they use to determine whether to come out to parents. Additionally, research should be done on understanding how youth determine what an accepting vs non-accepting response is when disclosures are made.

Feelings of acceptance at the milestone of first same-sex sexual behavior also seem to be relevant to development. Men who had completed all milestones reported more acceptance at the same-sex sexual experience milestones than non-completers. Additionally, increased acceptance at first same-sex sexual experienced was associated with a greater likelihood of being in the identity- versus sex-centered development group. Sequencing groups did not vary in their likelihood of having completed all milestones; however, sex-centered completers were more likely to be in the late development trajectory of LPA. The relationships between milestone completion, sequencing group, and acceptance at same-sex sexual experience could point to important developmental differences between these groups. First, men who have already identified as gay may feel more overall acceptance when they have their first same-sex sexual experience. For these men, same-sex sexual behavior may be seen as congruent with their sexual identity and perhaps be met with more enjoyment and acceptance. Conversely, men who have

not identified as gay when they have their first same-sex experience might feel less acceptance overall. These men may find their sexual experiences to be more confusing and therefore perceive them with less acceptance. This could help to explain the association between late completion and sex-centered development. If individuals are confused by or unaccepting of their initial same-sex sexual encounters, they may struggle more with making sense of their experiences and come into their identity later than those who are identity-centered.

Intersection of religion, acceptance, and milestone completion. The majority of participants reported being raised within a Christian religion, with a small number of participants reporting being raised Jewish, Islamic, or Buddhist. As many religions discourage or condemn same-sex relationships, being raised within a religion might be expected to discourage or slow sexual orientation development. However, the current results indicate that participants who were raised with a religious identity were more likely to have completed all sexual orientation milestones. The intersection of religious identity and sexual identity is not well understood, with research pointing to religion as both a risk and protective factor for LGB individuals (Dahl & Galliher, 2012; Page, Lindahl, & Malik, 2013). Some research has found that integration of religious and sexual identities is related to positive wellbeing (Dahl & Galliher, 2012; Lauricella, Phillips, & Dubow, 2017; Reams & Savin-Williams, 2005). Perhaps LGB youth raised within a religion find comfort and support from within their religious community or in their religious practices, helping them to complete developmental milestones. For example, research by Berthold and Ruch (2014) found that adults who actively practiced their religion receive benefits, including increased life satisfaction and hope. However, evaluating the meaning of the relationship between being raised with a religion and milestone completion is limited in that we have no information about the impact of religion on participants across their lifespan. It is

possible that the context (e.g., negative versus positive influence) and extent (e.g., amount of practice) to which religion was a part of the participant's life may have a telling impact on sexual orientation development.

Additionally, it is important to note that about half of participants (53%) who reported being raised within a religion also reported being non-religious at the time of assessment, while about half remained affiliated with a religious denomination (47%). Disengagement from religion is a trend that is being commonly reported by both sexual minorities and millennials (Masci, 2016; Schuck & Liddle, 2001; Waters & Bortree, 2012). Unfortunately, we do not have information on how or why some participants in this study made the decision to leave their religion. Additionally, we do not know whether this decision was made before, during, or after sexual orientation development, making the impacts of religion on development less clear.

More research is needed to understand the intersection and fluidity of sexual and religious identities across the lifespan. For example, the concurrent development of religious and sexual identities over time could be examined to better understand the fluidity of these identities. Future research could focus on understanding the ways in which LGB individuals make decisions about religion and how they choose to integrate their religious and sexual identities. Qualitative research on the intersection of religion and LGB identities may yield fruitful insights for understanding this complex process. Additionally, correlates of religious/sexual identity integration should be examined, such as the mental health and social outcomes. For example, future research could attempt to identity the extent to which religious identity impacts mental health in LGB youth, as well as how being raised within a religion may impact the choice to disclose sexual identity to friends/family.

Current Acceptance and its Relation to Substance Use and Sexual Risk Behavior

Past research shows higher rates of substance use and risky sexual behavior in the LGBT population. Therefore, I examined the associations between milestone completion, sequencing, current source acceptance, and risk behaviors (substance use and risky sexual behavior). Consistent with previous literature linking substance use and risky sexual behavior, (Duncan, Stycker, & Duncan, 1999; Fortenberry, 1995; Leigh & Stall, 1993; Ritchwood et al., 2015), higher levels of substance use were associated with greater sexual risk behavior across all models. Contrary to hypotheses, current acceptance from friends, but not from parents or self, was associated with more substance use. Tests of indirect effects revealed a significant indirect effect for the pathway from friend acceptance to sexual risk through substance use. Participants who reported more friend acceptance reported more substance use, which contributed to increased sexual risk.

Given past research linking low acceptance to increased substance use, one would expect that acceptance from friends would be associated with less substance use. However, findings from this study link current friend acceptance to increased substance use. When interpreting this finding it is first important to note that rates of substance use reported in this sample were low. Mean scores on all substance use measures fell within the normative range and of the 160 participants used in the structural equation model, only 24% met the criteria for problematic substance use on any of the measures. Therefore, the measure may have been tapping into more normative than problematic substance use, per se.

Perceived acceptance from friends may be especially important in regards to substance use, as substance use is typically done in a social setting for most emerging adults. Gay men who perceive more friend acceptance may be engaging in more social encounters that include substance use. On the other hand, men who perceive less acceptance may be associating with

fewer people and attending fewer social engagements in which substance use is occurring. Additionally, as substance use lowers behavioral inhibitions, men who perceive low acceptance from friends may be worried about the consequences of using substances in their social circles (e.g., "accidentally" disclosing one's sexual orientation). Alternatively, men who perceive more acceptance may experience less anxiety about the potential impacts of engaging in substance use in the presence of friends. For example, Baiocco et al. (2010) discovered that social drinkers had lower internalized sexual stigma and a higher level of self-disclosure within their social circle.

Limitations

This study was not without limitations. Given the nonexperimental nature of the study, causality for the relationships between completion, sequencing, acceptance, and risk behavior cannot be claimed. As all data was collected at a single time point, it is difficult to map the relationships temporally. I have interpreted the results in a way that assumes acceptance predicts milestone completion and sequencing; however, it could be that those who have completed development remember and report more positive experiences than those who are still working towards milestone completion. Additionally, the measures used in this study were all self-report and much of the self-report was retrospective. Therefore, it is possible that participants misremembered or poorly reported on past perceived acceptance and behaviors. Future research may benefit from taking a prospective, longitudinal approach to understanding the intersection of sexual orientation development and feelings of acceptance. This could be accomplished by including questions on sexual orientation development and related factors in larger national studies that follow children from birth until adulthood. By taking a prospective, longitudinal approach, researchers could examine the correlates of sexual orientation development as they occur across time.

While the self-acceptance scores were consistent in meaning across milestones, the meaning of the parent and friend acceptance scores varied. For some, reported scores were based on actual knowledge of other's responses; whereas, for other participants, scores reflected anticipated responses from others who were purportedly unaware of the participants' sexual identity. As some participants did not know how parents or friends would react to their sexual orientation development, scores were based on participant's own imagined perceptions. In some cases, perceptions were likely influenced by the participant's own feelings of self-acceptance and fears about how others could react, making the ratings of anticipated parent and friend acceptance inaccurate. However, it is also possible that some of these participants had a reliable understanding of anticipated acceptance from parents and peers based on contextual factors in the participant's life (e.g., parents/peers had expressed at some point that they would be unaccepting; anticipated acceptance based on others' religious backgrounds). The difference in meaning between actual and anticipated reactions could have impacted the accuracy of acceptance ratings in the sample. Future research could address this issues by focusing only on acceptance from individuals who are aware of the participant's sexual orientation. Other work may want to examine the differences between anticipated and actual acceptance to see how accurate youth are at predicting reactions from parents and peers.

This study examined reports from gay men only. The same information should be assessed in samples of lesbian and bisexual women, as well as bisexual men. It may be that developmental patterns, acceptance, and risk behavior vary by gender or sexual orientation. Additional research is needed to examine these processes (i.e., development, acceptance, risk) in other samples of sexual orientation minorities.

Finally, reported risk behavior in this sample was low and other correlates of acceptance and risk behavior were not explored. For example, depression or anxiety may play a role in both current and past perceived acceptance, as well as in sexual risk and substance use. Future research should explore mental health correlates of acceptance, as well as how acceptance may impact behavior in high risk samples (e.g., homeless LGB youth).

Clinical Implications

Results from this and other studies have shown that a great deal of variability exists in the timing and sequencing of sexual orientation development. Clinicians working with sexual minority clients may do well to consider that sexual orientation does not follow a strict or linear path. Clinicians will likely encounter and assess clients in different stages of sexual orientation development at any age. For clients presenting to therapy with sexual orientation concerns, this is especially important. Clinicians may wish to ask clients about their developmental journey, and not make assumptions about the timing or sequencing of milestones. Unfortunately, research on training has shown that clinicians receive little education in LGB issues or working with LGB clients (Allison, Crawford, Echemendia, Robinson, & Knepp, 1994; APA, 2012; Mathews, Selvidge, & Fisher, 2005; Phillips & Fischer, 1998; Pilkington & Cantor, 1996). Graduate programs may consider including training in working with diverse clients, especially LGB individuals. Additionally, it may behoove clinicians to educate themselves in areas where they have less knowledge through applicable readings, attending continuing education, or seeking consultation from more experienced peers (APA, 2012; Hillman & Hinrichsen, 2014).

This study also underscores the important of acceptance from self, parents, and friends throughout sexual orientation development. Findings from this study suggest that a man's acceptance of his gay identity is associated with milestone completion. Therefore, developing

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self-acceptance may be a prominent aspect of clinical work with LGB clients. Sexual orientation affirming counseling is the standard for ethical practice (APA, 2012). While clients may want to explore their own internal feelings of stigma and non-acceptance, clinicians may wish to be wary of conveying the message that being a sexual orientation minority is wrong or lesser than a heterosexual identity, as messages of non-acceptance from others could impair client's ability build self-acceptance, progress through sexual orientation development, and lead authentic lives. Unfortunately, there is still a great deal of work to be done in this area. A study by Shidlo and Schroeder (2002) found that almost two-thirds of their sample of LGB therapy clients had received messages from their therapists that LGB individuals could not participate in healthy relationships or be productive members of society. Additionally, therapies that encourage clients to change their sexual orientation, such as conversion therapy, continue to exist, despite evidence that these therapies are harmful to clients (Haldeman, 2002).

When addressing parent-child relationships in clinical practice, it is important to consider findings from this study pointing to the complexity of parental acceptance. While acceptance from parents was related to milestone completion, disclosure to parents was also the milestone least likely to be completed. Disclosure to parents it an important milestone in sexual orientation development; however, clients may be at different stages of readiness for this disclosure based on worries about parents' anticipated reactions. This consideration is especially important when concerns about emotion and physical safety are presented by the youth. For example, if there is a risk of emotional/physical abuse or of losing substantial financial security from the parents, this milestone may be best put on hold until youth are able to secure their safety. Clinicians may wish to consider these factors before encouraging youth to disclose their sexual orientation to parents or include parents in therapy. If clients are ready and interested in including their parents in the

therapy process, models of family therapy may include providing psychoeducation on sexual orientation, helping parents grieve the loss of their child's heterosexual future, facilitating appropriate communication between parent and child, and assisting in creating a safe environment where parents and children can address their emotions during the coming-out period (Bowen, 1985; LaSala, 2000; Stone Fish & Harvey, 2005).

The current study also revealed an associated between acceptance from friends and milestone completion, making acceptance from peers another critical area for intervention. Youth spend a large portion of time and make the majority of their friends in the school setting. Unfortunately, schools have traditionally also been a source of emotional and physical victimization for LGB students (Kosciw et al., 2010, O'Shaughnessy, Russell, Heck, Calhoun, & Laub, 2004; Russell & McGuire, 2008). Therefore, it is especially important for schools to take a proactive approach to encouraging acceptance for sexual minority students and discouraging bullying. Creating an environment of acceptance in schools sends the message to all students that sexual minority identities are normative and welcomed. This can be accomplished by forming gay-straight alliance groups (GSA), as the inclusion of such groups indicates to students that they should be accepting of their LGB peers. Research has shown that the presence of these types of group in schools is associated with less victimization, greater feelings of safety, and increased well-being for LGB students (Goodenow, Szalacha, & Westheimer, 2006; Lee, 2002; Kosciw et al., 2010; O'Shaughnessy et al., 2004; Walls, Freedenthal, & Wisneski, 2008; Walls, Kane, & Wisneski, 2010). Additionally, Toomey and colleagues (2010) found that the presences of high school GSAs was associated with benefits for LGB students into young adulthood (i.e., increased well-being and college education attainment, lower levels of depression and substance use). Given

these research findings, administrations might benefit from being supportive of the formation of GSAs.

Finally, while self and parent acceptance were unrelated to risk behavior, findings from this study point to important relationships between friend acceptance, substance use, and sexual risk. Adolescence and young adulthood often mark initiation of substance use for many youth (Lipari, Williams, Copello, & Pemberton, 2016). As substances are frequently used in social settings, individual substance use is influenced by peer acceptance and norms (Miller & Prentis, 2016; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). Clinicians working with gay men may want to assess frequency and severity of substance use, as well as explore how clients may be influenced by substance use in their social circles. Additionally, clinicians may consider providing clients with psychoeducation on the impacts of substance use, particularly its association with sexual risk taking.

This study has provided insight into sexual orientation development in emerging adult gay men. Additionally, this research illuminates the importance of acceptance from the self and important others in the developmental process. While the relationship between friend acceptance and substance use was unexpected, this finding may help us better understand substance use patterns in the sexual minority population. Continued research with sexual minority youth is highly recommended, especially in light of the current sociopolitical environment and generational changes in acceptance of sexual minority identities.

APPENDIX A TABLES AND FIGURES

Table 1

Average Timing of Milestones across Multiple Studies of Sexual Orientation Development

	Age Range of Participants	Awareness	Same-Sex Sexual Behavior	Self-identification	Disclosure
Calzo et al. (2011)	18-84				
Early		12.52	17.78	16.63	20.44
Middle		18.38	26.40	25.69	31.20
Late		32.74	37.65	40.14	43.18
Dube & Savin-Williams (1999)	18-25	10.00	15.40	15.80	17.00
Floyd & Stein (2002)	16-27				
Cluster 1		9.53	14.29	13.89	15.21
Cluster 2		9.63	15.25	15.25	16.38
Cluster 3		8.70	14.33	17.50	17.60
Cluster 4		11.76	17.08	17.59	20.00
Cluster 5		12.60	16.63	18.00	18.30
Friedman et al. (2008)	18-40				
Early		3rd grade	9th grade	10th grade	12th grade
Middle		6th grade	12th grade	19.3	20.9
Late		8th grade	22.1	25.8	28.2

Table 2

Sample Demographics

	Total	Mturk	Community
Race/Ethnicity			
Caucasian	64%	64%	67%
African American	11%	12%	8%
Asian/Indian	5%	5%	3%
Hispanic	15%	14%	17%
Biracial	3%	3%	3%
Other	2%	2%	3%
Education			
HS Diploma	17%	17%	17%
Associates/Vocational	12%	12%	11%
Some College	22%	22%	22%
BA/BS	43%	43%	39%
Graduate Degree	6%	5%	11%
Currently Student			
Yes	43%	34%	86%
No	57%	66%	14%
Living Situation			
With Roommates, Romantic Partners, or Alone	73%	77%	56%
With Parents	27%	23%	44%
Currently Employed			
Yes	81%	82%	75%
No	19%	18%	25%
Financial Support from Parents			
Yes	39%	32%	70%
No	61%	68%	30%
Raised Religious			
Yes	80%	78%	94%
No	20%	22%	6%
Currently Religious			
Yes	38%	34%	58%
No	62%	66%	41%
Completed Milestones			
Yes	53%	53%	56%
No	47%	47%	44%
Sequencing			
Identity	81%	82%	75%
Sex	19%	18%	25%

Table 3

Descriptive Statistics for Study Variables

		Full Sample					Mturk Sample					Community Sample			
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
Sexual Orientation Development Variables															
Current Age	210	22.78	1.92	18.00	25.00	174	22.89	1.81	18.00	25.00	36	22.22	2.31	18.00	25.00
Age of Milestone Completion	112	18.61	2.15	13.00	24.00	92	18.57	2.01	14.00	24.00	20	18.80	2.76	13.00	24.00
Timespan of Milestone Completion (in years)	111	6.42	3.47	0.00	18.00	91	6.29	3.40	0.00	18.00	20	7.05	3.80	0.00	15.00
Age of Awareness of Non-Heterosexuality	206	12.58	3.47	2.00	25.00	171	12.81	3.49	2.00	25.00	35	11.46	3.19	5.00	20.00
Age of Identification as Gay	208	16.73	2.78	10.00	25.00	173	16.75	2.65	10.00	25.00	35	16.63	3.39	11.00	23.00
Age of Coming Out to Friend	196	17.20	2.53	10.00	25.00	164	17.15	2.51	10.00	25.00	32	17.47	2.64	13.00	22.00
Age of Coming Out to Parent	136	17.47	2.82	7.00	24.00	113	17.35	2.82	7.00	24.00	23	18.09	2.80	13.00	24.00
Age of First Same-Sex Sexual Experience	160	17.63	2.50	9.00	25.00	130	17.62	2.38	9.00	25.00	30	17.67	3.00	10.00	23.00
Individual Milestone Acceptance Scores															
Awareness															
Self	210	2.64	1.04	1.00	5.00	174	2.73	0.97	1.00	5.00	36	2.22	1.25	1.00	5.00
Parent	210	2.45	1.18	1.00	5.00	174	2.58	1.17	1.00	5.00	36	1.97	1.11	1.00	5.00
Friend	210	2.82	1.12	1.00	5.00	174	2.84	1.10	1.00	5.00	36	2.73	1.27	1.00	5.00
Identification															
Self	209	3.70	1.04	1.00	5.00	174	3.75	0.97	1.25	5.00	35	3.44	1.35	1.00	5.00
Parent	209	2.88	1.28	1.00	5.00	174	3.02	1.22	1.00	5.00	35	2.21	1.37	1.00	5.00
Friend	209	3.63	1.06	1.00	5.00	174	3.58	1.02	1.00	5.00	35	3.85	1.22	1.00	5.00
Come Out Friend															
Self	196	3.91	0.90	1.00	5.00	164	3.94	0.85	1.25	5.00	32	3.74	1.13	1.00	5.00
Parent	196	2.95	1.24	1.00	5.00	164	3.05	1.21	1.00	5.00	32	2.42	1.31	1.00	5.00
Friend	196	3.90	0.95	1.00	5.00	164	3.88	0.93	1.00	5.00	32	4.02	1.05	1.00	5.00
Come Out Parent															
Self	136	3.89	1.06	1.00	5.00	113	3.85	1.00	1.25	5.00	23	4.05	1.36	1.00	5.00
Parent	136	3.33	1.29	1.00	5.00	113	3.34	1.27	1.00	5.00	23	3.29	1.39	1.00	5.00
Friend	136	4.03	0.95	1.00	5.00	113	3.92	0.98	1.00	5.00	23	4.53	0.61	3.00	5.00
Same-Sex Sexual Experience															
Self	160	3.97	1.08	1.00	5.00	130	3.96	1.02	1.00	5.00	30	4.03	1.32	1.00	5.00
Parent	160	2.65	1.37	1.00	5.00	130	2.67	1.35	1.00	5.00	30	2.58	1.48	1.00	5.00
Friend	160	3.67	1.10	1.00	5.00	130	3.62	1.05	1.00	5.00	30	3.91	1.27	1.00	5.00
Milestone Acceptance Composite Scores															
Average Source Acceptance															
Self	210	3.53	0.78	1.00	5.00	174	3.58	0.70	1.75	5.00	36	3.31	1.05	1.00	5.00
Parent	210	2.79	1.16	1.00	5.00	174	2.90	1.12	1.00	5.00	36	2.29	1.24	1.00	4.80
Friend	210	3.53	0.85	1.00	5.00	174	3.51	0.80	1.05	5.00	36	3.64	1.06	1.00	5.00
Average Milestone Acceptance															
Realization	210	2.65	0.87	1.00	5.00	174	2.72	0.87	1.00	5.00	36	2.31	0.79	1.00	4.17
Identification	209	3.40	0.89	1.00	5.00	174	3.45	0.85	1.17	5.00	35	3.16	1.05	1.00	5.00
Come out Friend	196	3.59	0.79	1.00	5.00	164	3.62	0.76	1.08	5.00	32	3.40	0.92	1.00	5.00
Come out Parent	136	3.75	0.90	1.42	5.00	113	3.71	0.90	1.42	5.00	23	3.96	0.86	2.08	5.00
Same-Sex Sexual Experience	160	3.43	0.90	1.00	5.00	130	3.42	0.85	1.00	5.00	30	3.51	1.11	1.00	5.00
Current Acceptance Scores															
Self	209	4.04	0.80	1.00	5.00	174	4.04	0.76	2.10	5.00	35	4.03	1.01	1.00	5.00
Parent	209	3.09	1.18	1.00	5.00	174	3.12	1.15	1.00	5.00	35	2.94	1.33	1.00	5.00
Friend	209	4.01	0.84	1.00	5.00	174	3.95	0.82	2.10	5.00	35	4.34	0.86	1.00	5.00
Substance Use															
Alcohol Use	210	3.19	3.85	0.00	19.00	174	3.17	4.06	0.00	19.00	36	3.25	2.60	0.00	9.00
Majiuana Use	210	1.65	4.31	0.00	25.00	174	1.66	4.52	0.00	25.00	36	1.61	3.21	0.00	12.00
Drug Use	210	0.25	1.30	0.00	9.00	174	0.13	0.89	0.00	8.00	36	0.83	2.42	0.00	9.00
Overall Substance Use POMP Score	210	12.29	17.58	0.00	90.00	174	11.49	16.33	0.00	80.00	36	16.16	22.56	0.00	90.00
Sexual Risk Behavior	210	1.77	2.13	0.00	10.00	174	1.72	2.13	0.00	10.00	36	2.00	2.17	0.00	8.00

Note: these statistics are pre-transformation

Table 4

Correlations for Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Source																
2. Raised Religion	.16*															
3. Milestone Completion Group	.02	.17*														
4. Sequencing Group	.07	.06	.07													
5. Realization Acceptance	-.18**	-.10	.07	-.09												
6. Identification Acceptance	-.12	-.11	.23**	.03	.53*											
7. Disclosure to Friend Acceptance	-.11	-.11	.19**	-.01	.46**	.82**										
8. Disclosure to Parent Acceptance	.11	-.09	.01	.01	.38**	.65**	.67**									
9. Same-Sex Sexual Behavior Acceptance	.04	-.13	.24**	-.34**	.41**	.61**	.54**	.52**								
10. Milestone Self Acceptance	-.13	-.07	.24**	-.08	.44**	.67**	.61**	.55**	.62**							
11. Milestone Parent Acceptance	-.20**	-.18**	.19**	-.04	.65**	.74**	.70**	.68**	.56**	.33**						
12. Milestone Friend Acceptance	.06	.01	.20**	-.09	.56**	.70**	.67**	.67**	.67**	.51**	.44**					
13. Current Self Acceptance	-.004	-.03	.30**	.06	.08	.46**	.41**	.35**	.36**	.61**	.17*	.34**				
14. Current Parent Acceptance	-.06	-.14*	.23**	-.05	.48**	.60**	.61**	.63**	.50**	.27**	.79**	.44**	.34**			
15. Current Friend Acceptance	.18*	.01	.26**	-.06	.08	.46**	.45**	.41**	.45**	.46**	.15*	.55**	.71**	.32**		
16. Sexual Risk	.045	.04	.24**	.25**	-.12	-.03	-.07	-.02	-.17*	.05	-.12	-.002	.17*	-.13	.12	
17. Substance Abuse	.14	.13	.22**	.19**	-.15*	-.01	-.04	.16	-.03	.01	-.10	.07	.11	-.04	.24**	.42**

Source: 1=Mturk, 2=Community; Raised Religion: 0=Non-religious, 1=Religious; Milestone Completion Group: 0=Non-completer, 1=Completer; Sequencing Group: 1=Identity-centered, 2=Sex-centered

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

Table 5

LPA Model Fit Statistics for all Models

No of classes	AIC	Adj BIC	BLRT	Entropy
1	2693.759	2689.25	-	-
2	2580.441	2573.23	< 0.001	0.75
3	2476.668	2466.75	< 0.001	0.92
4	2466.444	2453.83	0.01	0.94
5	2449.986	2434.66	< 0.001	0.89

LPA Class Probabilities

	Class 1 (Early = 14)	Class 2 (Middle = 72)	Class 3 (Late = 25)
Middle	0.01	0.96	0.03
Early	0.95	0.05	0
Late	0	0.02	0.98

Descriptive Statistics for LPA Classes

	Mean	Standard Error
Early Class (N = 14)		
Realization	10.057	0.663
Identification	12.613	0.438
Coming out Friend	12.649	0.556
Coming out Parent	13.494	0.801
Same-Sex Sexual Experience	14.809	0.618
Middle Class (N = 72)		
Realization	11.798	0.361
Identification	16.394	0.258
Coming out Friend	16.544	0.208
Coming out Parent	17.218	0.232
Same-Sex Sexual Experience	17.513	0.231
Late Class (N = 25)		
Realization	14.824	0.857
Identification	19.562	0.396
Coming out Friend	20.242	0.319
Coming out Parent	20.338	0.522
Same-Sex Sexual Experience	19.379	0.395

Table 6

ANCOVA and ANOVA Analyses for Trajectory Group (Early, Middle, Late)

Realization Milestone Acceptance

Source	SS	df	MS	F	p
Recruitment Source	0.17	1	0.17	0.23	0.63
Trajectory Group	3.28	2	1.64	2.30	0.11
Within Groups	76.47	107	0.72		
Total	80.03	110			

Acceptance at Identification as Gay

Source	SS	df	MS	F	p
Between Groups	0.40	2	0.20	0.26	0.77
Within Groups	81.25	108	0.75		
Total	81.65	110			

Acceptance at Disclosure to Friend

Source	SS	df	MS	F	p
Between Groups	0.38	2	0.19	0.31	0.74
Within Groups	66.89	108	0.62		
Total	67.27	110			

Acceptance at Disclosure to Parent

Source	SS	df	MS	F	p
Between Groups	0.18	2	0.09	0.11	0.90
Within Groups	89.46	108	0.83		
Total	89.64	110			

Acceptance at First Same-Sex Sexual Experience

Source	SS	df	MS	F	p
Between Groups	0.19	2	0.09	0.12	0.89
Within Groups	88.00	108	0.82		
Total	88.18	110			

Parent Acceptance

Source	SS	df	MS	F	p
Recruitment Source	0.02	1	0.02	0.02	0.90
Raised Religion	6.75	1	6.75	5.24	0.02
Trajectory Group	0.89	2	0.45	0.35	0.71
Within Groups	136.57	106	1.29		
Total	145.45	110			

Self Acceptance

Source	SS	df	MS	F	p
Between Groups	0.31	2	0.15	0.36	0.70
Within Groups	46.41	108	0.43		
Total	46.72	110			

Friend Acceptance

Source	SS	df	MS	F	p
Between Groups	0.47	2	0.24	0.34	0.71
Within Groups	73.86	108	0.68		
Total	74.33	110			

Table 7

Multinomial Regressions Predicting Trajectory Group (Early, Middle, Late)

Multinomial Regression for Milestone Acceptance Scores Predicting Trajectory Group (Early, Middle, Late)

Effect	Likelihood Ratio Tests				
	Chi-Square	*df*	*p*		
Raised Religious	6.51	2	0.04		
Realization Acceptance	8.06	2	0.02		
Identification Acceptance	0.46	2	0.80		
Disclosure to Friend Acceptance	0.96	2	0.62		
Disclosure to Parent Acceptance	0.95	2	0.62		
Same-Sex Sexual Behavior Acceptance	0.32	2	0.85		
Parameter Estimates					
Trajectory Group		*B*	*SE*	*df*	*p*
Middle	Raised Religious	1.93	0.76	1	0.01
	Realization Acceptance	-1.14	0.50	1	0.02
	Identification Acceptance	0.39	0.97	1	0.69
	Disclosure to Friend Acceptance	0.77	0.97	1	0.43
	Disclosure to Parent Acceptance	-0.55	0.66	1	0.41
	Same-Sex Sexual Behavior Acceptance	0.12	0.47	1	0.79
Late	Raised Religious	1.85	0.94	1	0.05
	Realization Acceptance	-1.41	0.56	1	0.01
	Identification Acceptance	0.68	1.06	1	0.52
	Disclosure to Friend Acceptance	1.05	1.09	1	0.34
	Disclosure to Parent Acceptance	-0.68	0.72	1	0.35
	Same-Sex Sexual Behavior Acceptance	-0.04	0.52	1	0.93

The reference category is: Early.

Multinomial Regression for Source Acceptance Scores Predicting Trajectory Group (Early, Middle, Late)

Effect	Likelihood Ratio Tests				
	Chi-Square	*df*	*p*		
Raised Religious	5.60	2	0.06		
Self Acceptance	2.35	2	0.31		
Parent Acceptance	1.00	2	0.61		
Friend Acceptance	1.58	2	0.46		
Parameter Estimates					
Trajectory Group		*B*	*SE*	*df*	*p*
Middle	Raised Religious	1.79	0.76	1	0.02
	Self Acceptance	0.73	0.58	1	0.21
	Parent Acceptance	-0.06	0.32	1	0.85
	Friend Acceptance	-0.58	0.48	1	0.23
Late	Raised Religious	1.63	0.90	1	0.07
	Self Acceptance	0.29	0.64	1	0.65
	Parent Acceptance	0.19	0.37	1	0.61
	Friend Acceptance	-0.56	0.55	1	0.31

The reference category is: Early.

Table 8

ANCOVA and ANOVA Analyses for Completer Groups (Yes/No)

Acceptance at Realization of Non-heterosexuality

Source	SS	df	MS	F	p
Recruitment Source	5.15	1	5.15	6.95	0.01
Completer Group	0.78	1	0.78	1.06	0.31
Within Groups	153.33	207	0.74		
Total	159.18	209			

Acceptance at Identification as Gay

Source	SS	df	MS	F	p
Between Groups	8.38	1	8.38	11.07	0.001
Within Groups	156.64	207	0.76		
Total	165.02	208			

Acceptance at Disclosure to Friend

Source	SS	df	MS	F	p
Between Groups	4.56	1	4.56	7.60	0.01
Within Groups	116.51	194	0.60		
Total	121.07	195			

Acceptance at Disclosure to Parent

Source	SS	df	MS	F	p
Between Groups	0.01	1	0.01	0.01	0.94
Within Groups	108.69	134	0.81		
Total	108.69	135			

Acceptance at First Same-Sex Sexual Experience

Source	SS	df	MS	F	p
Between Groups	7.13	1	7.13	9.24	0.003
Within Groups	121.98	158	0.77		
Total	129.11	159			

Parent Acceptance

Source	SS	df	MS	F	p
Recruitment Source	8.00	1	8.00	6.54	0.01
Raised Religion	9.95	1	9.95	8.14	0.01
Completion Group	13.71	1	13.71	11.21	0.001
Within Groups	252.06	206	1.22		
Total	283.39	209			

Self Acceptance

Source	SS	df	MS	F	p
Between Groups	7.27	1	7.27	12.66	<.001
Within Groups	119.37	208	0.57		
Total	126.63	209			

Friend Acceptance

Source	SS	df	MS	F	p
Between Groups	6.27	1	6.27	9.05	0.003
Within Groups	144.13	208	0.69		
Total	150.40	209			

Table 9

Logistic Regressions Predicting Milestone Completion and Sequencing Group

Logisitic Regression predicting Milestone Completion from Milestone Acceptance				
Variable	*B*	*SE*	*df*	*p*
Raised Religion	-1.05	0.38	1	0.01
Realization Acceptance	-0.19	0.20	1	0.36
Identification Acceptance	0.70	0.20	1	0.001

Note: for milestone completion, 0 = No and 1 = Yes

Logisitic Regression predicting Milestone Completion from Source Acceptance				
Variable	*B*	*SE*	*df*	*p*
Raised Religion	-1.14	0.39	1	0.003
Self Acceptance	0.53	0.23	1	0.02
Parent Acceptance	0.29	0.15	1	0.05
Friend Acceptance	0.12	0.22	1	0.58

Note: for milestone completion, 0 = No and 1 = Yes

Logisitic Regression predicting Sequencing Group from Milestone Acceptance				
Variable	*B*	*SE*	*df*	*p*
Realization Acceptance	-0.52	0.40	1	0.19
Identification Acceptance	0.89	0.75	1	0.24
Disclosure to Friend Acceptance	0.93	0.81	1	0.25
Disclosure to Parent Acceptance	0.01	0.47	1	0.99
Same-Sex Sexual Experience Acceptance	-2.04	0.49	1	<.001

Note: for sequencing groups, 0 = identity-centered and 1 = sex-centered

Logisitic Regression predicting Sequencing Group from Source Acceptance				
Variable	*B*	*SE*	*df*	*p*
Self Acceptance	-0.16	0.26	1	0.54
Parent Acceptance	0.02	0.18	1	0.91
Friend Acceptance	-0.19	0.26	1	0.45

Note: for sequencing groups, 0 = identity-centered and 1 = sex-centered

Table 10

Hierarchical Regressions Predicting Number of Milestones Completed

Hierarchical Regression Predicting Number of Milestones Completed from Milestone Acceptance					
	$\underline{B}$	$\underline{SE}$	$\underline{\beta}$	$\underline{t}$	$\underline{p}$
Raised Religion	0.33	0.14	0.16	2.38	0.02
Realization Acceptance	-0.10	0.07	-0.11	-1.33	0.18
Identification Acceptance	0.27	0.07	0.30	3.74	<.001

Hierarchical Regression Predicting Number of Milestones Completed from Source Acceptance					
	B	SE	β	t	p
Raised Religion	0.34	0.14	0.17	2.47	0.01
Self Acceptance	0.25	0.08	0.23	3.01	0.003
Parent Acceptance	0.06	0.05	0.08	1.11	0.27
Friend Acceptance	0.05	0.08	0.06	0.69	0.49

Table 11

ANCOVA and ANOVA Analyses for Sequencing Groups (Identity/Sex-Centered)

Acceptance at Realization of Non-heterosexuality

Source	SS	df	MS	F	p
Recruitment Source	4.76	1	4.76	6.39	0.01
Sequencing Group	0.88	1	0.88	1.18	0.28
Within Groups	153.24	206	0.74		
Total	159.17	208			

Acceptance at Identification as Gay

Source	SS	df	MS	F	p
Between Groups	0.16	1	0.16	0.20	0.66
Within Groups	164.76	206	0.80		
Total	164.92	207			

Acceptance at Disclosure to Friend

Source	SS	df	MS	F	p
Between Groups	0.01	1	0.01	0.02	0.88
Within Groups	120.49	193	0.62		
Total	120.50	194			

Acceptance at Disclosure to Parent

Source	SS	df	MS	F	p
Between Groups	0.02	1	0.02	0.02	0.89
Within Groups	107.10	133	0.81		
Total	107.12	134			

Acceptance at First Same-Sex Sexual Experience

Source	SS	df	MS	F	p
Between Groups	15.06	1	15.06	20.84	<.001
Within Groups	113.46	157	0.72		
Total	128.52	158			

Parent Acceptance

Source	SS	df	MS	F	p
Recruitment Source	8.01	1	8.00	6.18	0.01
Raised Religion	6.56	1	6.56	5.06	0.03
Sequencing Group	0.08	1	0.08	0.06	0.80
Within Groups	265.70	205	1.30		
Total	283.39	208			

Self Acceptance

Source	SS	df	MS	F	p
Between Groups	0.81	1	0.81	1.34	0.25
Within Groups	125.42	207	0.61		
Total	126.23	208			

Friend Acceptance

Source	SS	df	MS	F	p
Between Groups	1.12	1	1.12	1.56	0.21
Within Groups	148.50	207	0.72		
Total	149.62	208			

Table 12

Structural Equation Model Results for Pathways to Sexual Risk Through Self-Acceptance and Substance Use

	Estimate	SE	p	95%CIL	95%CIU
Milestone Completion ON					
Raised Religion	0.19	0.10	0.06	0.02	0.35
Self-Acceptance ON					
Milestone Completion	0.49	0.14	0.001	0.25	0.72
Sequencing Group	0.06	0.13	0.62	-0.15	0.26
Substance Use ON					
Milestone Completion	0	0.11	1.00	-0.18	0.17
Sequencing Group	0.15	0.11	0.16	-0.03	0.33
Self-Acceptance	0.03	0.06	0.67	-0.08	0.14
Risky Sexual Behavior ON					
Milestone Completion	-0.09	0.05	0.05	-0.17	-0.02
Sequencing Group	0.05	0.05	0.27	-0.02	0.13
Self-Acceptance	0.05	0.03	0.12	-0.01	0.10
Substance Use	0.13	0.04	<.001	0.08	0.19

Table 13

Structural Equation Model Results for Pathways to Sexual Risk Through Parent Acceptance and Substance Use

	Estimate	SE	p	95% CIL	95% CIU
Milestone Completion ON					
Raised Religion	0.19	0.10	0.06	0.02	0.35
Parent Acceptance ON					
Rasied Religion	-0.54	0.20	0.01	-0.86	-0.22
Milestone Completion	1.07	0.18	<.001	0.77	1.35
Sequencing Group	0.03	0.21	0.88	-0.31	0.37
Substance Use ON					
Milestone Completion	0.04	0.12	0.72	-0.16	0.23
Sequencing Group	0.16	0.11	0.15	-0.03	0.33
Parent Acceptance	-0.03	0.04	0.48	-0.09	0.04
Risky Sexual Behavior ON					
Milestone Completion	-0.05	0.05	0.26	-0.13	0.03
Sequencing Group	0.06	0.05	0.24	-0.02	0.13
Parent Acceptance	-0.01	0.02	0.44	-0.04	0.01
Substance Use	0.13	0.04	<.001	0.08	0.19

Table 14

Structural Equation Model Results for Pathways to Sexual Risk Through Friend Acceptance and Substance Use

	Estimate	SE	p	95%CIL	95%CIU
Milestone Completion ON					
Raised Religion	0.19	0.10	0.06	0.02	0.35
Friend Acceptance ON					
Source	0.45	0.15	0.003	0.19	0.68
Milestone Completion	0.43	0.15	0.003	0.19	0.67
Sequencing Group	-0.19	0.16	0.22	-0.45	0.07
Substance Use ON					
Milestone Completion	-0.06	0.11	0.59	-0.23	0.12
Sequencing Group	0.19	0.11	0.09	0.003	0.36
Friend Acceptance	0.17	0.06	0.01	0.07	0.28
Risky Sexual Behavior ON					
Milestone Completion	-0.07	0.05	0.14	-0.15	0.01
Sequencing Group	0.06	0.05	0.23	-0.02	0.14
Friend Acceptance	0.01	0.03	0.88	-0.05	0.05
Substance Use	0.13	0.04	<.001	0.08	0.19

Table 15

Specific Indirect Effects for Structural Equation Models Predicting Sexual Risk Behavior

	Estimate	SE	p	95%CIL	95%CIU
Structural Equation Model Results Current Self-Acceptance Model					
	0.004	0.01	0.68	-0.01	0.02
Structural Equation Model Results Current Parent Acceptance Model					
	-0.004	0.01	0.50	-0.01	0.01
Structural Equation Model Results Current Friend Acceptance Model					
	0.023	0.011	0.036	0.008	0.04
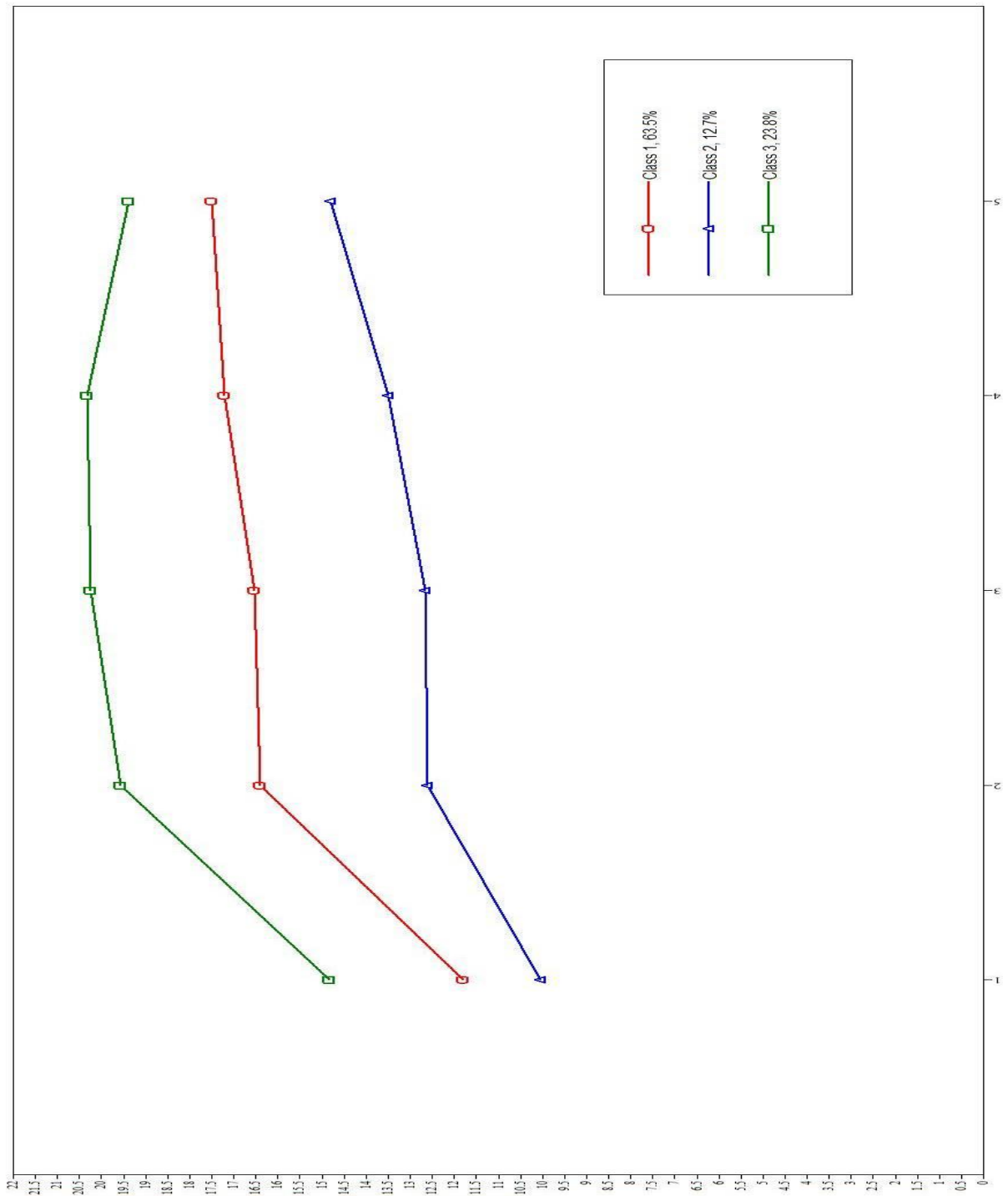
Figure 1. Latent profile analysis trajectories displaying early (class 2), middle (class 1), and late (class 3) classes. *Note*: Y-Axis displays age. Along X-axis, 1=Realization; 2=Identification; 3= Disclosure to Friend; 4=Disclosure to Parent; 5=First Same-Sex Sexual Experience.
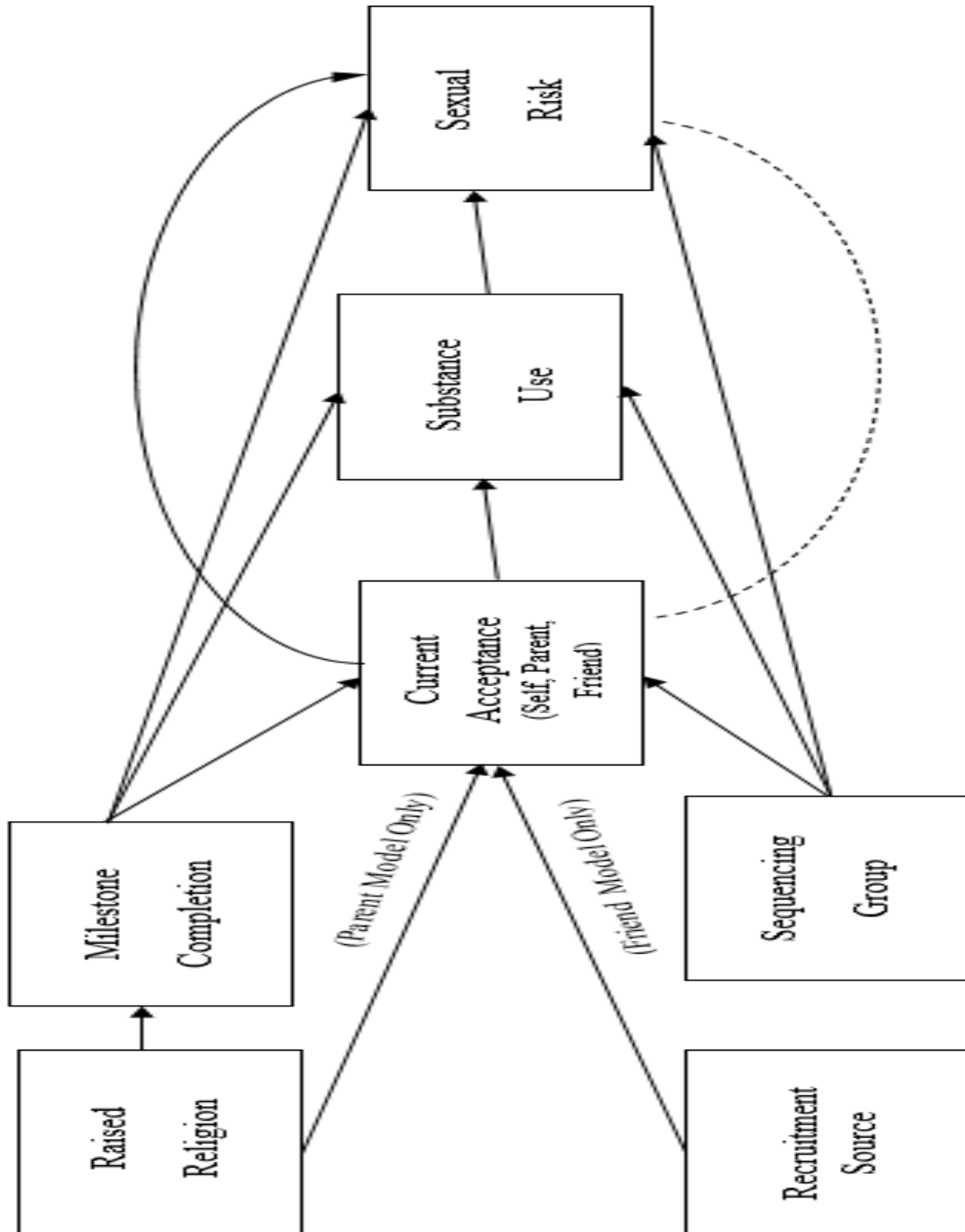
Figure 2. Conceptual model for path analysis predicting current sexual risk behavior from completion and sequencing of sexual orientation milestones and current acceptance, as mediated by substance use. *Note*: the figure shows all pathways tested (solid lines signify direct pathways; dotted line signifies indirect pathway).
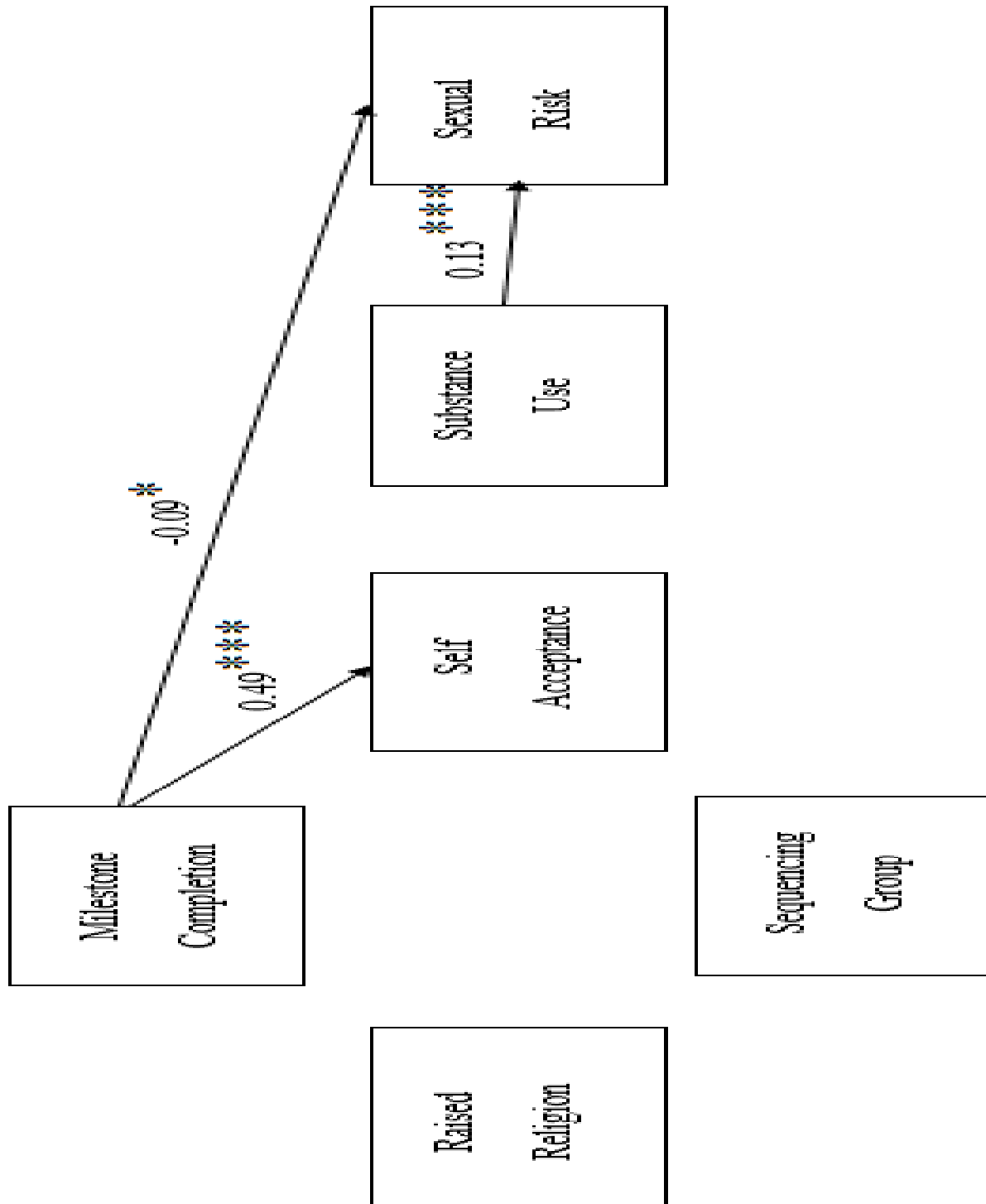
Figure 3. Significant pathways predicting current sexual risk behavior from completion and sequencing of sexual orientation milestones and current self-acceptance, as mediated by substance use. *Note*: the figure shows significant pathways only (*p≤.05; **p≤01; ***p≤001).
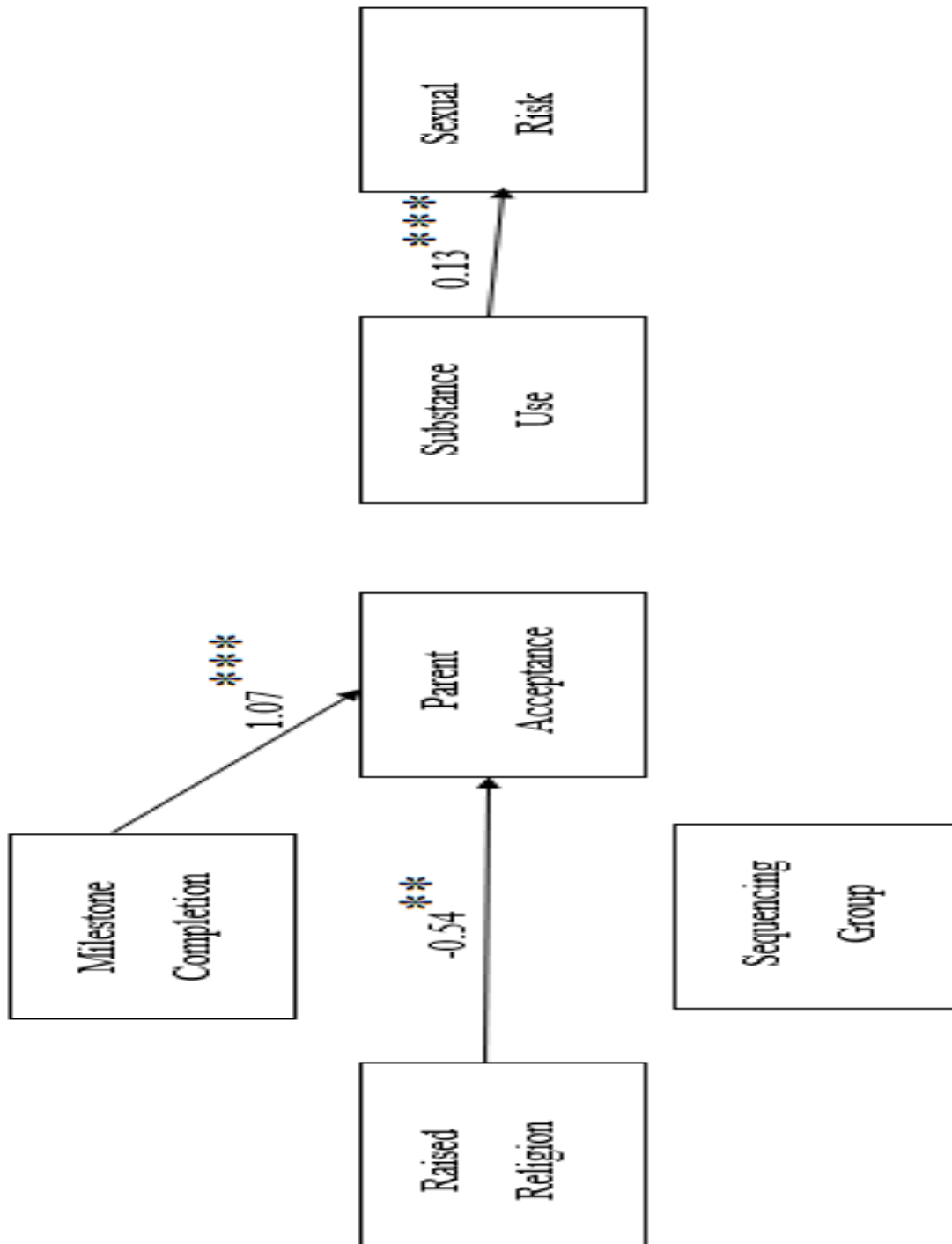
Figure 4. Significant pathways predicting current sexual risk behavior from completion and sequencing of sexual orientation milestones and current parent acceptance, as mediated by substance use. *Note*: the figure shows significant pathways only (*p≤.05; **p≤01; ***p≤001).
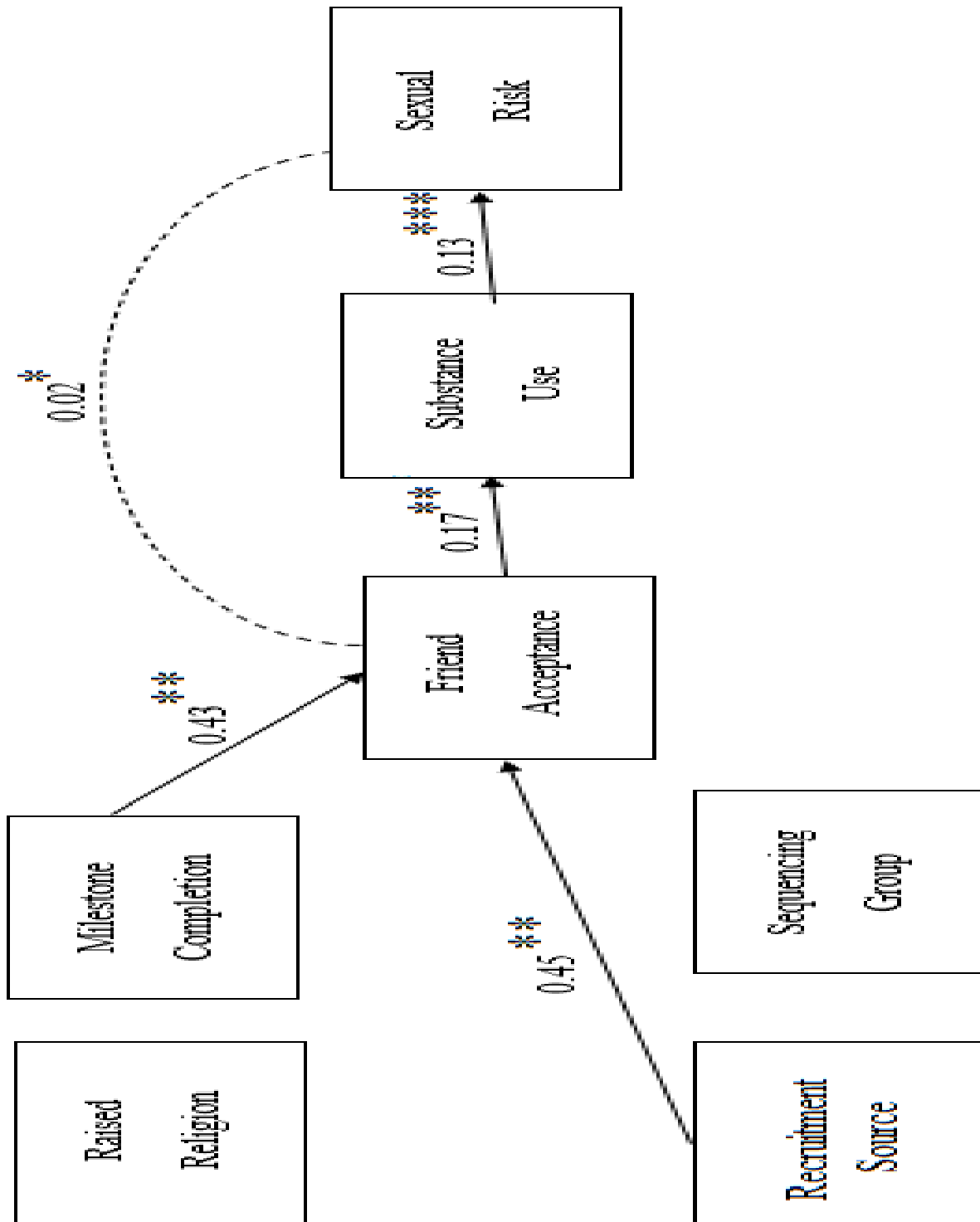
Figure 5. Significant pathways predicting current sexual risk behavior from completion and sequencing of sexual orientation milestones and current friend acceptance, as mediated by substance use. *Note*: the figure shows significant pathways only (*p≤.05; **p≤01; ***p≤001).

APPENDIX B MEASURES

How old are you?

What is your biological sex?

How would you describe your gender identity?

When you think about whom you are attracted to sexually and romantically, would you say you are attracted to:
Only men   Mostly men   Both men and women equally   Mostly women   Only Women

How would you describe your sexual orientation?

How would you describe your race or ethnicity?

 What was the main religious denomination that you were raised with?

What religious denomination do you MOST identify with now?

How important is religion to you now?
    Very Important
    Somewhat Important
    Not too important
    Not important at all

How often do you attend religious services now?
    More than once per week
    Once per week
    Once every other week
    Once per month
    Very rarely
    Never

What is your highest level of education obtained?
    Are you currently a student?
        Yes
        No

Are you currently employed?
    Yes
    No
If yes, what is your profession?

What was your personal income last year (i.e. how much did you make from any jobs, not including parents' income)?

How would you describe your current living situation?
In a house/apartment with my parent(s)
In a house/apartment with relatives
In a house/apartment with roommates
In a house/apartment with a romantic partner
In a house/apartment alone
In a school dorm with roommates
In a school form alone
In a shelter
Homeless

What was your parents' household income last year?
Do you receive any financial support from your parents (e.g. they pay for some of your bills or living expenses)?
Yes
No

What is your parents' religious affiliation?
    Are they currently practicing?
        Yes
        No

Sexual Orientation Development Milestone Questionnaire

Awareness:

At what age did you first become aware that you were attracted to same-sex partners, or aware that you were not heterosexual?

Describe what this time in your life was like for you.

The following questions concern your reactions when you first became aware that you were attracted to same-sex partners, or aware that you were not heterosexual. Please indicate how much you agreed with each of the following statements at that time in your life.

I thought it was okay for me to be myself.
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

My parents would have thought it was okay for me to be myself.
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

My friends would have thought it was okay for me to be myself.
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

I felt negatively about myself
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

My parents would have felt negatively about me.
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

My friends would have felt negatively about me.
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

I felt comfortable with this part of myself.
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree

1	2	3	4	5

My parents would have been comfortable with this part of me.

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

My friends would have been comfortable with this part of me.

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

I accepted myself as I was.

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

My parents would have accepted me as I was.

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

My friends would have accepted me as I was.

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

Self-identification:

At what age did you first identify as gay (e.g. begin using the word gay to describe your sexual orientation)?

Describe what this time of your life was like for you.

The following questions concern your reactions when you first identified as gay. Please indicate how much you agreed with each of the following statements at that time in your life.

I thought it was okay for me to be myself.

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

My parents would have thought it was okay for me to be myself.

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

My friends would have thought it was okay for me to be myself.

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

I felt negatively about myself

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

My parents would have felt negatively about me.

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

My friends would have felt negatively about me.

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

I felt comfortable with this part of myself.

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

My parents would have been comfortable with this part of me.

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

My friends would have been comfortable with this part of me.

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

I accepted myself as I was.

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

My parents would have accepted me as I was.

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

My friends would have accepted me as I was.

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

Disclosure:

Have you disclosed your sexual orientation, or come-out, to a friend?

At what age did you first disclose your sexual orientation, or come-out, to a friend?

Describe what this time in your life was like for you.

The following questions concern your reactions when you first disclosed your sexual orientation, or came-out to a friend. Please indicate how much you agreed with each of the following statements at that time in your life.

I thought it was okay for me to be myself.

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

My parents would have thought it was okay for me to be myself.

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

My friends would have thought it was okay for me to be myself.

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

I felt negatively about myself

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

My parents would have felt negatively about me.

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

My friends would have felt negatively about me.

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

I felt comfortable with this part of myself.

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

My parents would have been comfortable with this part of me.

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

My friends would have been comfortable with this part of me.

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

I accepted myself as I was.

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

My parents would have accepted me as I was.

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

My friends would have accepted me as I was.

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

Have you disclosed your sexual orientation, or come-out, to a parent?

At what age did you first disclose your sexual orientation, or come-out, to a parent?

Describe what this time in your life was like for you.

The following questions concern your reactions when you first disclosed your sexual orientation, or came-out, to a parent. Please indicate how much you agreed with each of the following statements at that time in your life.

 I thought it was okay for me to be myself.

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

My parents would have thought it was okay for me to be myself.

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

My friends would have thought it was okay for me to be myself.

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

I felt negatively about myself

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

My parents would have felt negatively about me.

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

My friends would have felt negatively about me.

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

I felt comfortable with this part of myself.

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

My parents would have been comfortable with this part of me.

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

My friends would have been comfortable with this part of me.

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

I accepted myself as I was.

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

My parents would have accepted me as I was.

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

My friends would have accepted me as I was.

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

Same-Sex Sexual Behavior:

Have you engaged in any type of sexual behavior with a same-sex partner? (By sexual behavior, we mean kissing, making out, touching each other in a sexual way, manual stimulation, oral sex, or anal sex).

At what age did you first engage in some type of sexual behavior with a same-sex partner? (By sexual behavior, we mean kissing, making out, touching each other in a sexual way, manual stimulation, oral sex, or anal sex).

Describe what this time in your life was like for you.

The following questions concern your reactions when you first engaged in any type of sexual behavior with a same-sex partner. Please indicate how much you agreed with each of the following statements at that time in your life.

I thought it was okay for me to be myself.

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

My parents would have thought it was okay for me to be myself.

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

My friends would have thought it was okay for me to be myself.

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

I felt negatively about myself

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

My parents would have felt negatively about me.

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

My friends would have felt negatively about me.

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

I felt comfortable with this part of myself.

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

My parents would have been comfortable with this part of me.

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

My friends would have been comfortable with this part of me.

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

I accepted myself as I was.

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

My parents would have accepted me as I was.

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

My friends would have accepted me as I was.

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

Current Acceptance of Sexual Orientation Identity

The following questions concern your reactions towards your sexual orientation over the past six months. Please indicate how much you agree with each of the following statements when thinking about the past six months of your life.

When answering about parents and friends, if you have not come out to these people, think about how they would feel if they knew your sexual orientation.

I have mixed feelings about my sexual orientation.

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

My parents have mixed feelings about my sexual orientation.

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

My friends have mixed feelings about my sexual orientation.

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

I think it is okay to be gay.

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

My parents think it is okay to be gay.

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

My friends think it is okay to be gay.

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

I feel negatively about my sexual orientation.

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

My parents feel negatively about my sexual orientation.

Strongly	Somewhat	Neither Agree	Somewhat	Strongly

Disagree	Disagree	nor Disagree	Agree	Agree
1	2	3	4	5

My friends feel negatively about my sexual orientation.

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

I find it hard to admit my sexual orientation.

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

My parents find it hard to admit my sexual orientation.

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

My friends find it hard to admit my sexual orientation.

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

I think that even if I could change my sexual orientation, I would keep it the same.

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

I think that even if my parents could change my sexual orientation, they would keep it the same.

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

I think that even if my friends could change my sexual orientation, they would keep it the same.

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

I think I'm abnormal.

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

My parents think I'm abnormal.

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

My friends think I'm abnormal.

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

I accept myself as I am.

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

My parents accept me as I am.

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

My friends accept me as I am.

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

I think it would be easier if I was heterosexual.

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

My parents think it would be easier if I was heterosexual.

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

My friends think it would be easier if I was heterosexual.

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

I feel ashamed for being gay.

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

My parents feel ashamed that I am gay.

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

My friends feel ashamed that I am gay.

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

I feel comfortable with being gay.

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

My parents feel comfortable with me being gay.

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

My friends feel comfortable with my being gay.

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

Substance Use Checklist

Substance	Ever used?	Age of First Use	Age of Last Use	Used During Past 6 Months?
Alcohol				
Marijuana				
Other drugs including non-prescribed medication, cocaine or crack, heroin, inhalants, hallucinogens, ecstacy/MDMA, or other illegal drugs				

Alcohol Use Disorder Identification Test

Please think about your alcohol use during the past six-months when answering the following questions.

How often do you have a drink containing alcohol?
Never
Monthly or less
2 to 4 times a month
2 to 3 times a week
4 or more times a week

How many drinks containing alcohol do you have on a typical day when you are drinking?
1 or 2
3 or 4
5 or 6
7, 8, or 9
10 or more

How often do you have six or more drinks on one occasion?
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

How often during the last six months have you found that you were not able to stop drinking once you had started?
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

How often during the last six months have you failed to do what was normally expected from you because of drinking?
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

How often during the last six months have you been unable to remember what happened the night before because you had been drinking.
Never
Less than monthly

Monthly
Weekly
Daily or almost daily

How often during the last six months have you needed an alcoholic drink first thing in the morning to get yourself going after a night of heavy drinking?
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

How often during the last six months have you had a feeling of guilt or remorse after drinking?
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

Have you or someone else been injured as a result of your drinking?
No
Yes, but not during the last six months
Yes, during the last six months

Has a relative, friend, doctor, or another health professional expressed concern about your drinking or suggested you cut down?
No
Yes, but not during the last six months
Yes, during the last six months

Cannabis Use Disorder Identification Test

Please think about your marijuana use during the past six-months when answering the following questions.

How often do you use marijuana?
   Never
   Monthly or less
   2 to 4 times a month
   2 to 3 times a week
   4 or more times a week

How many hours were you "stoned" on a typical day when you had been using marijuana?
   Less than 1
   1 or 2
   3 or 4
   5 or 6
   7 or more

How often during the last six months did you find that you were not able to stop using marijuana once you had started?
   Never
   Less than monthly
   Monthly
   Weekly
   Daily or almost daily

How often during the last six months did you fail to do what was normally expected from you because of marijuana use?
   Never
   Less than monthly
   Monthly
   Weekly
   Daily or almost daily

How often in the last six months have you devoted a great deal of your time to getting, using, or recovering from marijuana?
   Never
   Less than monthly
   Monthly
   Weekly
   Daily or almost daily

How often in the last six months have you had a problem with your memory or concentration after using marijuana?
   Never

Less than monthly
Monthly
Weekly
Daily or almost daily

How often do you use marijuana in situations that could be physically hazardous, such as driving, operating machinery, or caring for children?
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

Have you ever thought about cutting down or stopping your use of marijuana?
No
Yes, but not during the last six months
Yes, during the last six months

Drug Abuse Screening Test-10

Please think about your drug use during the past six-months when answering the following questions. These questions do not refer to alcohol, tobacco, or marijuana use.

When the words "drug use" are used, they mean the use of prescribed or over-the-counter medications/drugs in excess of the directions and any non-medical use of drugs. The various classes of drugs may include: solvents, tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin), or any other illegal drugs.

Have you used drugs other than those required for medical reasons?
 Yes
 No

Do you use more than one drug at a time?
 Yes
 No

Are you always able to stop using drugs when you want to?
 Yes
 No

Have you had "blackouts" or "flashback" as a result of drug use.
 Yes
 No

Do you ever feel bad or guilty about your drug use?
 Yes
 No

Do your parents, friends, or romantic partners ever complain about your involvement with drugs?
 Yes
 No

Have you neglected your family or friends because of your drug use?
 Yes
 No

Have you engaged in illegal activities in order to obtain drugs?
 Yes
 No

Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?

Yes

No

Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, bleeding, etc)?

Yes

No

HIV-Risk Assessment for Sexual Partnership

These next questions will be about vaginal, anal, or oral sex.
Vaginal sex refers to penis in vagina.
Anal sex refers to penis in the anus or butt.
Oral sex refers to penis in mouth, or mouth on vagina, or mouth in or around the butt.
Unprotected sex refers to sex without using a condom or dental dam.

Remember your answers to these questions will be private. Please try your best to answer each question.

In your entire life, how many females have you had oral, vaginal, or anal sex with?
In your entire life, how many males have you had oral or anal sex with?
In the past six months, how many females have you had oral, vaginal, or anal sex with?
In the past six months, how many males have you had oral or anal sex with?

When answering the next question think about the PAST 6 MONTHS.

Have you had a sexual partner in the past six months?
Yes
No

Please think of the MOST recent sexual partner you had in the PAST 6 MONTHS. We will call this person PARTNER 1.

Is PARTNER 1 male, female, or transgender?
Male
Female
Male to Female Transgender
Female to Male Transgender

How did you meet PARTNER 1?
We went to the same school/college/university
We met through a phone app
We lived in the same neighborhood
This person was a friend of another friend of mine
We met at a party
We met at a bar
We met on the internet
We met in a park
We met in a bathhouse
We met in some other way

What was the HIV status of PARTNER 1?
He/she was HIV positive
He/she was HIV negative

I don't know his/her HIV status

How did you find out about PARTNER 1's HIV status?
He/she told me
I found out through another person
I assumed his/her HIV status
Other

How confident are you about PARTNER 1's HIV status?
    Extremely
Somewhat
Not really
Not at all

How would you describe PARTNER 1's race or ethnic background?
White (non-Hispanic or Latino/a)
Black/African American (not Hispanic or Latino/a)
Hispanic or Latino/a
Asian or Pacific Islander
Native American
Other
Multi-racial

What was your relationship with PARTNER 1?
Serious relationship (boyfriend/girlfriend), someone you dated for awhile and feel very close to
Casually dating but not serious
Sleeping with this person (fuck buddy or booty call) but not dating
One night stand
Stranger or anonymous person
Other

How long have you been with PARTNER 1?
Less than a month
1 to 3 months
4 to 6 months
7 months to 11 months
1 to 3 years
Over 3 years

I really wanted my relationship with PARTNER 1 to last.
Strongly agree
Agree
Disagree
Strongly disagree

PARTNER 1 was having sex with someone else.

Yes
No

I was having sex with someone else.
Yes
No

How old was PARTNER 1 when you first started having sex with him/her?
He/she was more than 2 years younger than you
He/she was about 1 year younger than you
You were the same age
1 to 2 years older than you
3 to 4 years older than you
5 or more years older than you
I don't know how old he/she is

Has PARTNER 1 ever hit, slapped, punched, or hurt you?
Yes
No

Did PARTNER 1 ever force you to have sex when you didn't want to? (''Force'' includes physical and nonphysical pressure, such as pushing you, arguing with you or threatening you in order to have sex).
Yes
No

Did PARTNER 1 ever force you to have unprotected sex when you didn't want to?
Yes
No

Have you ever hit, slapped, punched, or hurt PARTNER 1 in a physical way?
Yes
No

Did you ever force PARTNER 1 to have sex when he/she didn't want to? (''Force'' includes physical and nonphysical pressure, such as pushing, arguing or threatening your partner in order to have sex).
Yes
No

Did you ever force PARTNER 1 to have unprotected sex when he/she didn't want to?
Yes
No

How frequently did you drink alcohol within two hours of having sex with PARTNER 1?
Never

Less than half the time
About half the time
More than half the time
Always

How frequently did you use drugs within two hours before having sex with PARTNER 1?
Never
Less than half the time
About half the time
More than half the time
Always

How many times did you have vaginal sex with PARTNER 1 during the PAST 6 MONTHS?

How many times did you have unprotected vaginal sex with PATNER 1?

How many times did you have anal sex with PARTNER 1 during the PAST 6MONTHS?

How many times did you have unprotected anal sex with PARTNER 1?

How many times did you have oral sex with PARTNER 1 during the PAST 6MONTHS?

How many times did you have unprotected oral sex with PARTNER 1?

During the past 6 months, have you had another sexual partner besides PARTNER 1?
Yes
No

Please think of the sexual partner you had before PARNTER 1 within the PAST 6 MONTHS. We will call this person PARTNER 2.

Is this PARTNER 2 male, female, or transgender?
Male
Female
Male to Female Transgender
Female to Male Transgender

How did you meet PARTNER 2?
We went to the same school/college/university
We met through a phone app
We lived in the same neighborhood
This person was a friend of another friend of mine
We met at a party
We met at a bar
We met on the internet
We met in a park

We met in a bathhouse
We met in some other way

What was the HIV status of PARTNER 2?
He/she was HIV positive
He/she was HIV negative
I don't know his/her HIV status

How did you find out about PARTNER 2's HIV status?
He/she told me
I found out through another person
I assumed his/her HIV status
Other

How confident are you about PARTNER 2's HIV status?
    Extremely
Somewhat
Not really
Not at all

How would you describe PARTNER 2's race or ethnic background?
White (non-Hispanic or Latino/a)
Black/African American (not Hispanic or Latino/a)
Hispanic or Latino/a
Asian or Pacific Islander
Native American
Other
Multi-racial

What was your relationship with PARTNER 2?
Serious relationship (boyfriend/girlfriend), someone you dated for awhile and feel very close to
Casually dating but not serious
Sleeping with this person (fuck buddy or booty call) but not dating
One night stand
Stranger or anonymous person
Other

How long have you been with PARTNER 2?
Less than a month
1 to 3 months
4 to 6 months
7 months to 11 months
1 to 3 years
Over 3 years

I really wanted my relationship with PARTNER 2 to last.

Strongly agree
Agree
Disagree
Strongly disagree

PARTNER 2 was having sex with someone else.
    Yes
 No

I was having sex with someone else.
    Yes
    No

How old was PARTNER 2 when you first started having sex with him/her?
He/she was more than 2 years younger than you
He/she was about 1 year younger than you
You were the same age
1 to 2 years older than you
3 to 4 years older than you
5 or more years older than you
I don't know how old he/she is

Has PARTNER 2 ever hit, slapped, punched, or hurt you?
    Yes
No

Did PARTNER 2 ever force you to have sex when you didn't want to? (''Force'' includes physical and nonphysical pressure, such as pushing you, arguing with you or threatening you in order to have sex).
    Yes
No

Did PARTNER 2 ever force you to have unprotected sex when you didn't want to?
Yes
 No

Have you ever hit, slapped, punched, or hurt PARTNER 2 in a physical way?
    Yes
No

Did you ever force PARTNER 2 to have sex when he/she didn't want to? (''Force'' includes physical and nonphysical pressure, such as pushing, arguing or threatening your partner in order to have sex).
    Yes
No

Did you ever force PARTNER 2 to have unprotected sex when he/she didn't want to?
Yes
No

How frequently did you drink alcohol within two hours of having sex with PARTNER 2?
Never
Less than half the time
About half the time
More than half the time
Always

How frequently did you use drugs within two hours before having sex with PARTNER 2?
Never
Less than half the time
About half the time
More than half the time
Always

How many times did you have vaginal sex with PARTNER 2 during the PAST 6 MONTHS?

How many times did you have unprotected vaginal sex with PATNER 2?

How many times did you have anal sex with PARTNER 2 during the PAST 6 MONTHS?

How many times did you have unprotected anal sex with PARTNER 2?

How many times did you have oral sex with PARTNER 2 during the PAST 6 MONTHS?

How many times did you have unprotected oral sex with PARTNER 2?

During the past 6 months, have you had another sexual partner besides PARTNER 1 and PARTNER 2?
Yes
No

Please think of the sexual partner you had before PARTNER 2 within the PAST 6 MONTHS. We will call this person PARTNER 3.

Is this PARTNER 3 male, female, or transgender?
Male
Female
Male to Female Transgender
Female to Male Transgender

How did you meet PARTNER 3?
We went to the same school/college/university

We met through a phone app
We lived in the same neighborhood
This person was a friend of another friend of mine
We met at a party
We met at a bar
We met on the internet
We met in a park
We met in a bathhouse
We met in some other way

What was the HIV status of PARTNER 3?
He/she was HIV positive
He/she was HIV negative
I don't know his/her HIV status

How did you find out about PARTNER 3's HIV status?
He/she told me
I found out through another person
I assumed his/her HIV status
Other

How confident are you about PARTNER 3's HIV status?
    Extremely
Somewhat
Not really
Not at all

How would you describe PARTNER 3's race or ethnic background?
White (non-Hispanic or Latino/a)
Black/African American (not Hispanic or Latino/a)
Hispanic or Latino/a
Asian or Pacific Islander
Native American
Other
Multi-racial

What was your relationship with PARTNER 3?
Serious relationship (boyfriend/girlfriend), someone you dated for awhile and feel very close to
Casually dating but not serious
Sleeping with this person (fuck buddy or booty call) but not dating
One night stand
Stranger or anonymous person
Other

How long have you been with PARTNER 3?
Less than a month

1 to 3 months
4 to 6 months
7 months to 11 months
1 to 3 years
Over 3 years

I really wanted my relationship with PARTNER 3 to last.
Strongly agree
Agree
Disagree
Strongly disagree

PARTNER 3 was having sex with someone else.
   Yes
 No

I was having sex with someone else.
   Yes
   No

How old was PARTNER 3 when you first started having sex with him/her?
He/she was more than 2 years younger than you
He/she was about 1 year younger than you
You were the same age
1 to 2 years older than you
3 to 4 years older than you
5 or more years older than you
I don't know how old he/she is

Has PARTNER 3 ever hit, slapped, punched, or hurt you?
   Yes
No

Did PARTNER 3 ever force you to have sex when you didn't want to? (''Force'' includes physical and nonphysical pressure, such as pushing you, arguing with you or threatening you in order to have sex).
   Yes
No

Did PARTNER 3 ever force you to have unprotected sex when you didn't want to?
Yes
 No

Have you ever hit, slapped, punched, or hurt PARTNER 3 in a physical way?
   Yes
No

Did you ever force PARTNER 3 to have sex when he/she didn't want to? (''Force'' includes physical and nonphysical pressure, such as pushing, arguing or threatening your partner in order to have sex).
    Yes
No

Did you ever force PARTNER 3 to have unprotected sex when he/she didn't want to?
Yes
No

How frequently did you drink alcohol within two hours of having sex with PARTNER 3?
Never
Less than half the time
About half the time
More than half the time
Always

How frequently did you use drugs within two hours before having sex with PARTNER 3?
Never
Less than half the time
About half the time
More than half the time
Always

How many times did you have vaginal sex with PARTNER 3 during the PAST 6 MONTHS?

How many times did you have unprotected vaginal sex with PATNER 3?

How many times did you have anal sex with PARTNER 3 during the PAST 6 MONTHS?

How many times did you have unprotected anal sex with PARTNER 3?

How many times did you have oral sex with PARTNER 3 during the PAST 6 MONTHS?

How many times did you have unprotected oral sex with PARTNER 3?

Have you EVER been diagnosed with a sexually transmitted infection (for example, herpes, chlamydia, or gonorrhea)?
    Yes
    No

Do you currently have a sexually transmitted infection?
    Yes
    No
If yes, please indicate which ones.

What is your current HIV/AIDS status?
I am HIV positive
I am HIV negative
I don't know my HIV status

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ABSTRACT

SEXUAL ORIENTATION DEVELOPMENT, ACCEPTANCE, AND RISK BEHAVIOR IN YOUNG ADULT GAY MEN

by

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Research on sexual orientation development points to individual differences in developmental milestones (i.e., realization, identification, disclosure to friend, disclosure to parent, same-sex sexual behavior) that could be differentially related to adjustment. Additionally, differences in perceptions of acceptance from the self and important others, such as parents and friends, during adolescence and early adulthood may be related to both sexual orientation development and health risk behaviors (i.e., substance use, sexual risk). The goal of the current study was to advance our understanding of developmental processes among gay men by examining perceived acceptance of sexual orientation and its associations with individual differences in sexual orientation development, substance use, and sexual behavior. I proposed that perceptions of acceptance from parents, friends, and the self would be associated with patterns of sexual orientation development as well as decreased sexual risk and substance use. Findings highlight variations in the timing and sequencing of sexual orientation developmental milestone. About half of youth had completed all developmental milestones, while about half had not. The majority of youth endorsed an identity-centered pattern of development. Youth who completed all milestones were able to be classified into early, middle, and late developmental

trajectories, but these trajectories showed little association with perceived acceptance. Acceptance from the self, parents, and friends were each associated with completing all milestones. Additionally, perceived acceptance at the self-identification milestone, disclosure to friend milestone, and same-sex sexual experience milestone were related to milestone completion. Identity-centered development was related to increased acceptance at the same-sex sexual behavior milestone. Contrary to hypotheses, there was evidence of a relationship between friend acceptance and increased substance use, with substance use mediating the relationship between friend acceptance and sexual risk. This study contributes to the extant literature by providing further evidence of the variation in sexual orientation development, as well as showcasing the importance of acceptance to milestone completion.

AUTOBIOGRAPHICAL STATEMENT

The author was born in Worcester, Massachusetts, August 18, 1988. She graduated from Gabriel Richard High School, Riverview, Michigan in June 2006. She graduated with her Bachelor of Science in Psychology from Wayne State University, Detroit, Michigan in May 2011. She graduated with her Master of Arts in Clinical Psychology from Wayne State University, Detroit, Michigan, in August 2013. She will be completing her doctoral internship at Florida State University Counseling Center. She will graduate with her Doctor of Philosophy in Clinical Psychology from Wayne State University, Detroit, Michigan, in August 2018.