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Longitudinal Disparities of Hazardous Drinking between Sexual Minority and Heterosexual Individuals from Adolescence to Young Adulthood

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Abstract

Sexual minority (lesbian and gay, bisexual, mostly heterosexual) individuals are at an increased risk for hazardous drinking than heterosexual individuals, but little is known about the nature of the disparities as adolescents reach adulthood. We used four waves of a nationally representative data set, the National Longitudinal Study of Adolescent Health (Add Health), to examine disparities of hazardous drinking outcomes between sexual minority and heterosexual men and women from adolescence to young adulthood. Participants were 14 to 18 years old at the first assessment (N = 12,379; 53% female) and 27 to 31 years old at the fourth assessment. At the fourth assessment, 13% self-identified as sexual minority individuals, 16% were Hispanic, and 36% were of minority race, including primarily African Americans (60%) and Asian Americans (18%). There were clear hazardous drinking disparities between sexual minority individuals and heterosexual individuals over time. During adolescence, sexual minority individuals, particularly females, reported higher levels of hazardous drinking. As study participants reached adulthood, the magnitude of the hazardous drinking disparities increased among sexual minorities, sexual minority men in particular. Additional research is needed to better understand the developmental

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mechanisms that underlie the emerging sexual orientation related disparities of hazardous drinking in young adulthood.

Keywords

bisexual; gay; lesbian; longitudinal; hazardous drinking; alcohol

Introduction

Experimentation with alcohol and hazardous drinking are widespread during adolescence (Grant et al. 2004). Hazardous drinking has widespread effects on health and social well-being (Bondy et al. 1999; Sloan and Grossman 2011; Mokdad et al. 2004). A recent research priority of the U.S. Department of Health and Human Services (DHHS) includes identifying youth at-risk for hazardous drinking to inform prevention and intervention efforts, such as lesbian, gay and bisexual individuals (DHHS, Healthy People 2020). In particular, a recent comprehensive review of sexual minority health research highlights the need for continued research describing the mental health disparities among sexual minority individuals, with careful attention to the life course of the disparities (Institute of Medicine [ION], 2011). To address this need, the current study examined hazardous drinking disparities between sexual minority and heterosexual individuals from adolescence into young adulthood.

While adolescence is a vulnerable period of hazardous drinking (Brown et al. 2008), sexual minority youth (SMY) appear to be at an increased risk of engaging in hazardous drinking. “Sexual minority” is a label used to describe an overarching group that includes lesbian, gay, bisexual, and “mostly heterosexual” individuals. Typically, gay and lesbian individuals are exclusively attracted to same-sex individuals, bisexual individuals are attracted to men and women equally, and mostly heterosexual individuals report attraction primarily to the opposite sex while being “somewhat attracted to the same sex.” The heightened risk for SMY has been demonstrated by several seminal studies (e.g., Caldwell et al. 1998; Faulkner and Cranston 1998; Robin et al. 2002; Smith et al. 1999; Whitbeck et al. 2004), and confirmed in a meta-analysis of cross-sectional research indicating that SMY are 2 to 5 times more likely to use alcohol and other drugs than heterosexual youth (Marshal et al. 2008). Moreover, SMY report younger ages of drinking onset (Corliss et al. 2008) and faster growth of alcohol use and hazardous drinking during adolescence (Marshal et al. 2009) than heterosexual youth. The disparities are particularly robust among subgroups of SMY, such as female SMY and bisexual and mostly heterosexual youth (Corliss et al. 2008; Marshal et al. 2009; Marshal et al. 2012). Thus, SMY may start drinking at an earlier age and demonstrate greater escalations of drinking during adolescence than heterosexual youth.

Little is known about the continuity of hazardous drinking disparities as SMY transition into adulthood. Epidemiological studies of hazardous drinking, including binge drinking and becoming drunk from alcohol, suggest that *on average* hazardous drinking increases steadily during adolescence and reaches a peak in the early 20's and then declines (Johnston et al. 2003; Naimi et al. 2003). Several factors could influence the extent to which SMY's alcohol involvement change as they transition into adulthood. According to minority stress theory,

disparities between sexual minority and heterosexual individuals result from stress following discrimination and victimization relating to their minority status (Meyer 2003). Alcohol use may be a means to self-medicate negative affective states (Bandura 1977; Cooper et al. 1998) associated with discrimination and victimization or subsequent mental health symptoms, such as depression and anxiety. As SMY transition into young adulthood, they may become integrated into the sexual minority community and “come out” to friends and family, which could help sexual minority individuals establish important social support networks that may reduce the effects of stress and victimization that can influence heavy drinking and, thus, reduce disparities in young adulthood. At the same time, however, sexual minority individuals may become integrated into social networks or communities that are more tolerant of drug and alcohol use than heterosexual individuals (Carpiano et al. 2011). Substance use may play an important role in these communities as social outings may commonly occur in clubs and bars (Valentine and Skelton 2003; Trocki et al. 2005; Cochran et al. 2012), which have historically provided safety and protection from the homophobic discrimination and violence. As a result, involvement in these communities may increase acceptance and reduce minority-related stress while increasing sexual minority individuals' risk of hazardous drinking.

The research literature provides preliminary support of the continuity of hazardous drinking risk among SMY as they transition into legally drinking adults. Sexual minority adults (SMAs) exhibit higher rates of drug and alcohol use than heterosexual adults (Cochran et al. 2004; King et al. 2008). Furthermore, hazardous drinking disparities between SMY and heterosexual youth have been supported from adolescence (ages 10-13) to young adulthood (ages 20-23), when the average disparities across the entire time period were examined and SMY status was assessed concurrently with the drinking outcomes (Corliss et al., 2008). Further research has examined hazardous drinking outcomes over time and demonstrated that sexual minority girls engaged in more hazaardous drinking in adolescence than heterosexual girls and the disparities continued into their late 20's (Marshal et al. 2012). Moreover, women who consistently reported lesbian/bisexual attraction and men who transitioned from gay/bisexual attraction to heterosexual attraction assessed nearly 13 years apart (during adolescence and adulthood) demonstrated hazardous drinking disparities that continued into adulthood (Needham 2011). Overall, these studies suggest that hazardous drinking disparities among SMY continue into adulthood and are supported using different operationalizations of sexual orientation.

An important next step in the SMY substance use disparities literature is to describe differences in risk for hazardous drinking longitudinally, from adolescence to young adulthood, while taking into account different levels of risk among SMY. As previously described, hazardous drinking disparities may be quite robust in specific sexual minority subgroups, such as females and bisexual and mostly heterosexual youth. However, longitudinal studies have not examined if the gender effect continues into adulthood. Of the studies that examined heavy drinking disparities into adulthood, one study examined women only (Marshal et al. 2012) and a second study did not directly compare the magnitude of sexual minority drinking disparities between men and women (Needham 2011). While Corliss et al. (2008) examined gender by sexual orientation interactions on hazardous drinking into the early 20's, the present study extends those study findings by exploring if

the sexual orientation effects on hazardous drinking in adolescence continue into adulthood. Furthermore, the presence of gender differences of drinking disparities, previously supported during adolescence, were examined into adulthood. The current study also extends the findings of Marshal et al. (2012) by examining the trajectories of hazardous drinking among sexual minority males from adolescence into adulthood and directly comparing the trajectories to heterosexual males and females, and sexual minority females.

Study Objectives and Hypotheses

In light of the extant literature, this study examined if initial hazardous drinking levels during adolescence and growth of drinking vary between sexual orientation subgroups (i.e., gay/lesbian, bisexual, mostly heterosexual) and heterosexual individuals from adolescence into young adulthood. Gender differences of the observed disparities between sexual minority and heterosexual individuals in adolescence and young adulthood were described. Based on reviewed research of patterns of hazardous drinking across development, it was expected that both SMY and heterosexual youth would show an increase in hazardous drinking during adolescence, followed by a decrease during adulthood. Furthermore, SMY would demonstrate higher initial levels of hazardous drinking compared to heterosexual youth, particularly bisexual and mostly heterosexual youth. Hazardous drinking disparities were hypothesized to grow over time given faster hazardous drinking growth rates among SMY. These effects would be largest between female sexual minority and heterosexual youth relative to male sexual minority and heterosexual youth.

Methods

Study Design

The study was a secondary data analysis of Add Health, a school-based, longitudinal study of health behaviors and attitudes (Chantala 2003; Harris 2009). Data collection at Wave 1 began between September 1994 and April 1995. In the current study, data from the four available waves were examined, which were collected approximately 1 (Wave 2), 6 (Wave 3), and 13 years (Wave 4) after Wave 1. Participants who were 14 to 18 years old at the first assessment (N = 12,379) were examined. Individuals with missing data on the Wave 4 sexual orientation variable (n = 98; 0.8%) were not included in the analyses because they refused to answer (n = 51), or were not sexually attracted to males or females (n = 47). Descriptive statistics of the sample are provided in Table 1. The sexual orientation groups differed on age, gender and race, but not ethnicity. Specifically, heterosexual participants were significantly older than mostly heterosexual participants, there were significantly higher proportions of women in the mostly heterosexual and bisexual groups than the other groups, and the mostly heterosexual group had fewer racial minorities than the other groups.

Measures

Demographic characteristics—At Wave 1, participants reported their age (in years), gender (1 = male; 2 = female), ethnicity (0 = Hispanic; 1 = non-Hispanic) and race (0 = Black/African American, American Indian/Native American, Asian/Pacific Islander, “other”; 1 = White).

Sexual orientation—Wave 4 sexual orientation was used as a stratifying variable for the analyses. Participants responded to the item: "Please choose the description that best fits how you think about yourself." Response options included "100% heterosexual (straight)", "mostly heterosexual (straight) but somewhat attracted to people of your own sex", "bisexual—that is, attracted to men and women equally", "mostly homosexual (gay), but somewhat attracted to people of the opposite sex" and "100% homosexual (gay)". Participants were categorized as either 1) heterosexual, 2) mostly heterosexual, 3) bisexual, or 4) mostly gay or completely gay. Mostly heterosexual individuals were well-represented (n = 1,186) and were examined separately from heterosexual individuals because a growing literature suggests that mostly heterosexual youth are at higher risk for substance use (Marshal et al. 2009; Marshal et al. 2012) and other negative outcomes than heterosexual individuals. The mostly gay group, however, was combined with the completely gay group as has been done in previous research (Marshal et al. 2009; Marshal et al. 2012) because there is a dearth of research to suggest that mostly gay individuals demonstrate different outcomes than gay individuals and the group was too small in our sample to produce reliable trajectory estimates (n = 99).

Hazardous drinking—The hazardous drinking outcome was the frequency of drunkenness, measured by a single item: "Over the past 12 months, on how many days have you gotten drunk or "very, very high" on alcohol?" In order to improve confidence of study findings, models were replicated using a second hazardous drinking item that assessed the frequency of binge drinking: "Over the past 12 months, on how many days did you drink five or more drinks in a row?" The response scale of the two items ranged from 0 (never) to 7 (every day to almost every day). The outcomes were examined separately despite their high correlations, ranging from .78-.87, because the binge drinking item did not differentiate the criteria for women, i.e., four or more drinks as is typically done in the research literature (Wechsler et al. 1995). This could affect observed gender differences. However, as similar results were obtained for both of the items, only the drunkenness outcome is presented in depth. Any differences between the outcomes are described in a corresponding footnote.

Data Analytic Strategy

Analyses were completed in the structural equation modeling (SEM) framework using Mplus 6 (Muthén and Muthén, 1998-2010). The analysis type "complex" implemented in Mplus 6 and individual weight variables were used to account for the sampling methods used to collect the Add Health Data set (Stapleton, 2006). The skewness of the outcome variables and missing data were accounted for by using a robust estimation method, MLR, implemented in the Mplus software program. In order to describe the trajectory shapes of hazardous drinking over time, latent growth curve models were estimated across the four waves of data separately for frequency of binge drinking and drunkenness outcomes. Assessment wave, rather than participant's age, was used as the time variable due to insufficient data coverage of intermediate ages resulting from the 5-year and 7-year lapses between Waves 2 and 3 and Waves 3 and 4, respectively. As a result, the age range of the sample in the first wave was restricted to reduce heterogeneity and approximate key developmental stages among participants: ages 14 to 18 and 15 to 19 at Waves 1 and 2 (adolescence), ages 20 to 24 at Wave 3 (emerging adulthood), and ages 27 to 31 at Wave 4

(adulthood). The intercept factor loadings were fixed to 1 and the slope factor loadings were fixed to 0, 1, 6, and 13, for linear trajectory analyses to reflect the intervals between the collection waves and to estimate the intercept at Wave 1. Non-linear trajectories were also tested by freely estimating the factor loading of the final wave on the slope factor to allow estimation of the level of hazardous drinking at Wave 4 that may slow down during adulthood and, thus, depart from linear growth. The Satorra-Bentler chi-square difference test for nested models (Satorra and Bentler, 2001) was used to evaluate model fit between linear and non-linear models.

All trajectories were modeled in a multiple group framework, in order to estimate the hazardous drinking trajectories for each subgroup of interest and to compare the initial level and growth rate of hazardous drinking across subgroups. First, to compare trajectories across sexual orientation groups, the intercept and slope of hazardous drinking trajectories were compared between (1) heterosexual (2) mostly heterosexual (3) bisexual, and (4) mostly/completely gay youth. In other words, sexual orientation was examined as a moderator of the hazardous drinking trajectories. Covariates included age at Wave 1, gender, ethnicity, and race. Second, to examine gender differences in the disparities of hazardous drinking, the initial level and growth rate of hazardous drinking were compared across: (1) male heterosexual youth, (2) female heterosexual youth, (3) male SMY, and (4) female SMY. The same covariates, except for gender, were utilized. The Satorra-Bentler chi-square difference test (Satorra and Bentler, 2001) was used to test for mean differences of the intercept and slope factors between the groups. Model fit statistics are reported, including chi-square, CFI, and RMSEA. Good model fit is supported if RMSEA is less than .05 and CFI is greater than .95 (Hu and Bentler, 1999).

Results

Growth Trajectories of Drunkenness

Comparisons between sexual orientation subgroups—The best fitting trajectory model for the drunkenness outcome was non-linear. The Wave 4 factor loading showed a significant departure from linear growth and did not differ across groups (5.575). The final trajectory had good fit, χ^2 =109.70, $p < .001$, CFI=95, RMSEA=.04 (95% CI: .03-.05) (Figure 1). Frequency of past year drunkenness differed across groups at Wave 1 (Table 2). Mostly heterosexual youth reported significantly higher levels of drunkenness ($\mu_\alpha = 0.872$, SE = 0.051, $p < .001$) than all of the other groups. Bisexual ($\mu_\alpha = 0.704$, SE = 0.1*12*, $p < .001$) and heterosexual youth ($\mu_\alpha = 0.744$, SE = 0.031, $p < .001$) reported similar levels of drunkenness, but gay/mostly gay youth reported marginally lower ($p = .08$) levels of drunkenness ($\mu_\alpha = 0.577$, SE = 0.095, $p < .001$).[1] Frequency of drunkenness increased significantly for all groups across time. The gay/mostly gay group demonstrated faster growth rates ($\mu_\beta = 0.174$, SE = 0.025, $p < .001$) than heterosexual ($\mu_\beta = 0.058$, SE = 0.007, $p < .001$), mostly heterosexual ($\mu_\beta = 0.069$, SE = 0.011, $p < .001$), and bisexual individuals ($\mu_\beta = 0.108$, SE = 0.031, $p < .001$). The slopes were not significantly different across the other

[1]For the binge drinking outcome (Table 2), the initial level of binge drinking among gay/mostly gay youth was significantly lower than the other groups. Mostly heterosexual individuals did not demonstrated significantly greater initial binge drinking levels than the bisexual or heterosexual youth. All other findings were replicated between the drunkenness and binge drinking outcomes.

groups. At Wave 4, frequencies of drunkenness were significantly different between the groups. The highest levels were seen among gay/mostly gay adults (μ_α = 1.614, SE = 0.156, p < .001). Bisexual (μ_α = 1.352, SE = 0.149, p < .001) and mostly heterosexual (μ_α = 1.284, SE = 0.057, p < .001) adults had similar levels of drunkenness that were significantly higher than the levels observed among heterosexual adults (μ_α = 1.069, SE = 0.036, p < .001).

The significant intercept and slope variances suggests that there was significant individual variation of trajectories within each sexual orientation group. Demographic variables significantly predicted the trajectory estimates. Among heterosexual individuals, older age (b = 0.19, SE = 0.01, p < .001), Caucasian race (b = 0.33, SE = 0.05, p < .001), and male gender (b = -0.21, SE = 0.04, p < .001) predicted higher initial drunkenness levels. Furthermore, among heterosexual individuals, younger age (b = -0.05, SE = 0.003, p < .001), Caucasian race (b = 0.02, SE = 0.01, p = .049), and male gender (b = -0.07, SE = 0.01, p < .001) predicted faster growth rates of drunkenness levels. Hispanic ethnicity was unrelated to initial drinking levels (b = 0.04, SE = 0.08, p = .63) but marginally related to faster growth rates (b = -0.02, SE = 0.01, p = .05). Similar, but less robust relations between the covariates and trajectories were detected in the other sexual orientation groups.

Gender effects on sexual orientation disparities—Frequency of drunkenness demonstrated nonlinear growth with Wave 4 factor loadings that differed between males (5.220) and females (6.882). The final trajectory fit the data well, χ^2 = 121.25 p < .001, CFI = .94, RMSEA = .04 (95% CI: .04-.05) (Figure 2). The initial drunkenness levels were significantly lower among heterosexual females (μ_α = 0.642, SE = 0.039, p < .001) than in the other groups (Table 2). Sexual minority females (μ_α = 0.847, SE = 0.050, p < .001) and heterosexual males (μ_α = 0.837, SE = 0.040, p < .001) had similar initial drunkenness levels and sexual minority males (μ_α = 0.682, SE = 0.101, p < .001) reported marginally lower (p = .09) levels. The growth rates differed significantly between all groups.[2] Sexual minority males had faster growth (μ_β = 0.160, SE = 0.020, p < .001) than heterosexual males (μ_β = 0.096, SE = 0.009, p < .001), which were also faster than the SMY females (μ_β = 0.060, SE = 0.011, p < .001). Frequency of drunkenness did not significantly change over time for heterosexual females (μ_β = 0.010, SE = 0.007, p = .124). At Wave 4, drunkenness frequencies were significantly different across most groups. Sexual minority men reported the highest levels (μ_α = 1.628, SE = 0.106, p <.001) and heterosexual men and sexual minority women reported similar levels (heterosexual men: μ_α = 1.363, SE = 0.045, p < .001; sexual minority women: μ_α = 1.214, SE= 0.057, p < .001). The lowest levels were observed among heterosexual women (μ_α = 0.733, SE = 0.031, p < .001).

Demographic variables were significantly associated with the trajectories. In general, older age and Caucasian race were associated with higher initial levels of drunkenness. Younger participants and Caucasian participants also tended to have fastest growth rates across all groups compared to older participants and minority participants, respectively. Hispanic

[2]For the binge drinking outcome (Table 2), heterosexual males exhibited a similar growth rate to sexual minority males. Furthermore, binge drinking among heterosexual females increased significantly, but modestly, over time. All other findings were replicated between the drunkenness and binge drinking outcomes.

ethnicity predicted faster growth of drunkenness only among heterosexual men (b = -0.03, SE = 0.02, p = .045) and sexual minority females (b = -0.08, SE = 0.03, p = .007).

Discussion

The primary purpose of the study was to examine how hazardous drinking disparities between sexual orientation subgroups relative to heterosexual individuals progress from adolescence into young adulthood in a nationally representative dataset, Add Health. A growing research literature has established that sexual minority youth are at higher risk of substance use and hazardous drinking (e.g., Caldwell et al. 1998; Faulkner and Cranston 1988; Robin et al. 2002; Smith et al. 1999; Whitbeck et al. 2004); we explored the nature of these disparities as SMY transition into young adulthood. Importantly, we also examined sexual minority subgroup differences (i.e., mostly heterosexual, bisexual, and gay/mostly gay individuals) and gender differences of the sexual orientation disparities of hazardous drinking.

Consistent with the existing literature (Marshal et al. 2008), the results suggest that SMY are at a heightened risk for hazardous drinking, such as binge drinking and drunkenness, than heterosexual youth, particularly mostly heterosexual youth and sexual minority females. The observed disparities are consistent with the “minority stress hypothesis” that predicts higher substance use among sexual minority individuals due to discrimination and victimization due to their sexual minority status (Meyer 2003). Research suggests that discrimination experienced by sexual minority young adults may promote drinking to cope motives and alcohol-related problems (Hatzenbuehler et al. 2011). The present study, however, suggests that a subset of sexual minority subgroups may be at added risk for hazardous drinking, which needs to be taken to account when testing these mechanisms by evaluating individual differences of experiencing discrimination or the propensity to self-medicate with alcohol.

As expected, on average, hazardous drinking increased across adolescence and then began to level-off and decrease during young adulthood. However, gay and lesbian youth exhibited the fastest growth over time, which led them to transition from having normative levels of hazardous drinking during adolescence to reporting the highest levels of binge drinking and drunkenness among the groups during young adulthood. A similar trend was observed among bisexual individuals, despite the non-significantly faster growth of hazardous drinking compared to heterosexual individuals. The observed widening of disparities during the transition to young adulthood is consistent with the putative impact of lesbian and gay social venues. Young adulthood is often characterized by leaving one's childhood home and making decisions about one's future (Arnett and Taber, 1994). Among SMY, this may include a natural transition into gay-friendly social venues that may be protective because they are more accepting than mainstream, homophobic social venues; however, the venues may also be characterized by higher levels of substance use that may impact substance use norms and expectancies and raise risk for hazardous drinking. Sexual minority individuals appear to spend more time in bars, consume more alcohol in bars, and are at an increased risk for drinking to fit in compared to heterosexual adults (Talley et al. 2012; Trocki et al. 2005). Additional research is needed to examine how each of these processes impacts the development of hazardous drinking among sexual minorities, particularly as they transition

into young adulthood. Furthermore, the possible interplay of multiple processes (e.g., discrimination and victimization promoting socialization in bars and drinking to fit in) should be considered.

An additional contribution of this study is the examination of gender differences of hazardous drinking disparities between SMY and heterosexual youth into adulthood. SMY disparities were the most robust among females. The levels of hazardous drinking among female SMY escalated into adulthood and neared or equaled levels among heterosexual males, for binge drinking and drunkenness, respectively. In contrast, disparities among men were delayed and did not emerge until young adulthood. Larger hazardous drinking disparities due to sexual orientation among females than among males during adolescence have been supported in previous research (Corliss et al. 2008; Marshal et al. 2008; Marshal et al. 2009), but the underlying mechanism remains unclear. The gender differences may reflect different susceptibilities to mechanisms underlying hazardous drinking between men and women among sexual minority youth. For instance, sexual minority women report higher rates of victimization than sexual minority men (Halpern et al. 2004; Waldner-Haugrud et al. 1997), which could contribute to greater levels of self-medication using alcohol among women. Furthermore, sexual minority women appear to be more susceptible to positive alcohol expectancies and are more likely to drink to fit in than sexual minority men (Talley et al. 2012; Trocki et al. 2005). Additional research is needed to directly test gender differences of the mechanisms contributing to hazardous drinking among sexual minority women.

Several limitations of the present study should be noted. The 5-year or greater lag between the last three waves of Add Health data prevented the use of participants' age as the unit of time with a “cohort sequential” design, which facilitates inferences about individual change and development over time (Bollen and Curran 2006). Coupled with the relatively small sample size of the SMY subgroups, the data were too sparse for intermediate ages, which required us to use wave as the time variable as opposed to age. We partly addressed the limitation by controlling for age in the analyses and restricting the age range of the sample at Wave 1 to ages 14 to 18, which approximated broad developmental stages across the four waves. Waves 1 and 2 represented late adolescence, Wave 3 participants were college-aged, and by Wave 4 the participants reached adulthood. The large gaps between the final data waves also prevented us from describing detailed trajectories of heavy drinking during emerging adulthood when alcohol use and associated problems are expected to peak (Brown et al. 2008; Grant et al. 2004; Read et al. 2005; Wechsler and Isaac 1992). However, we were able to observe the expected escalation of hazardous drinking during the first three waves and decreased drinking into adulthood.

A second limitation is that sexual orientation (using an identity item) was only assessed at Waves 3 and 4 in the Add Health dataset. We used the self-identification item taken from the final Wave of the study, an approach used in previous disparities research (Corliss et al. 2012; Marshal et al. 2009; Marshal et al. 2012) but prevented us from examining the *prospective* association between sexual orientation and trajectories of hazardous drinking. Our strategy was ideal for accomplishing the study goals, because many young teenagers may endorse heterosexual identity by default (i.e., report same-sex attraction at Wave 1 of

Add Health) if they have not disclosed their sexual orientation to others or are still questioning their sexual orientation. For example, retrospective studies show that sexual minority adults often report experiencing same-sex attraction years prior to deciding that they were gay or lesbian or telling someone (see Friedman et al., 2008). Indeed, in the current study, only 12% of sexual minority adults (measured using the Wave 4 identity item) endorsed same-sex attraction as teenagers in Wave 1 of the study, which means that 88% would have been categorized as heterosexual had the Wave 1 attraction variable been used as a stratifying variable. Future studies that compare and contrast these different methodologies would help illuminate their differences.

Finally, we combined the sexual minority subgroups in order to examine gender differences of sexual orientation disparities. The approach was necessary due to the small representation of sexual minority men within each subgroup (e.g., 40 bisexual men, 188 mostly heterosexual men, and 154 gay/mostly gay men) and the complexity of trying to stratify a multiple group latent growth curve model by eight gender and sexual orientation groups. It is possible that this approach mitigated some of the observed disparities.

The present study, however, adds to our understanding of hazardous drinking among sexual minority individuals in several ways. Moderate drinking disparities between SMY and heterosexual youth were detected during adolescence and the disparities were limited to females. These findings suggest that early prevention efforts are needed among sexual minority females to address heavy drinking disparities. To facilitate these early prevention efforts, it is imperative to provide mechanisms for young teens to discuss sexual orientation safely with health care providers (Coker et al. 2010). Furthermore, hazardous drinking disparities increased as SMY reached young adulthood. This included larger disparities between sexual minority women and heterosexual women and the emergence of disparities between sexual minority men and heterosexual men. Emerging adulthood and young adulthood may be risky times for hazardous drinking among sexual minorities, particularly lesbian and gay youth. The developmental mechanisms underlying the strengthening of disparities in adulthood needs to be explored in future research, such as integration into the lesbian and gay community. Understanding these mechanisms would lend itself to developing empirically-supported interventions to reduce hazardous drinking among sexual minority individuals as they transition into adulthood.

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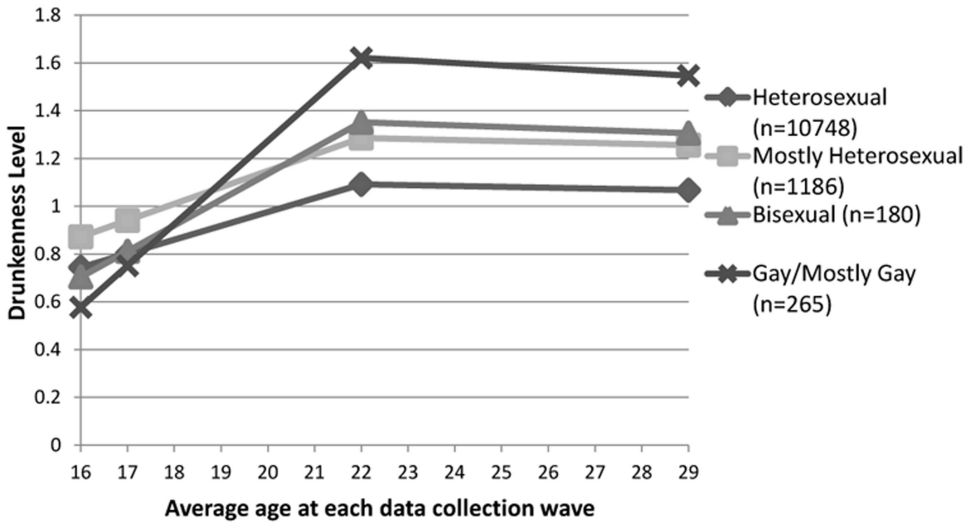

Figure 1.

The average disparities of the frequency of drunkenness between sexual minority and heterosexual young adults from adolescence into young adulthood.

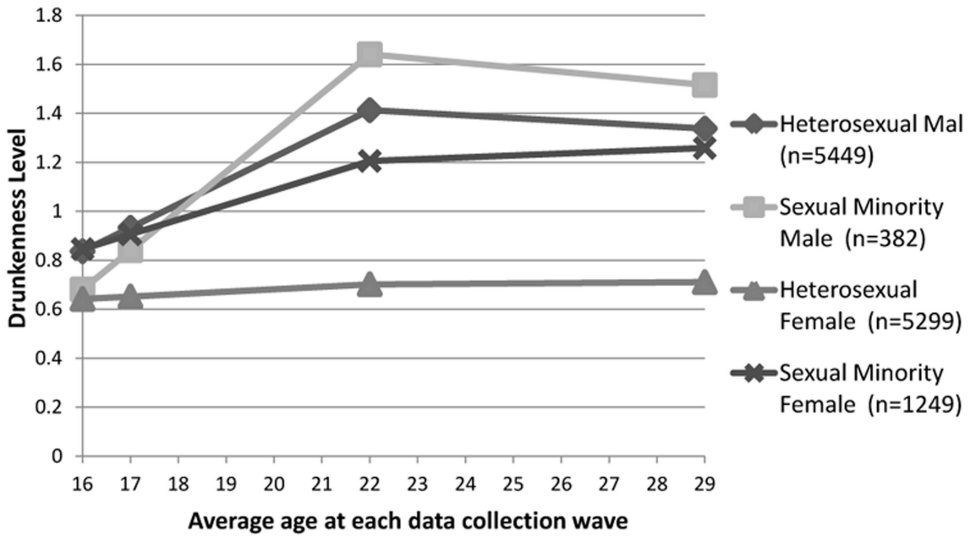

Figure 2.

The gender differences of the average disparities of the frequency of drunkenness between sexual minority and heterosexual young adults from adolescence to young adulthood.

Table 1

Descriptive statistics for demographic and sexual orientation variables

Self-identified sexual orientation (Wave IV)	Heterosexual (n=10,748)	Mostly heterosexual (n=1186)	Bisexual (n=180)	Mostly gay or completely gay (n=265)	Total (n = 12,379)
Wave I age (SD)	16.05(1.33)	15.82(1.32)	15.77(1.29)	15.97(1.30)	16.02(1.33)
Gender (% female)	49.3(*n*=5299)	84.1(*n* = 998)	77.8(n=140)	41.9(*n*=lll)	52.9(*n*=6548)
Race (% non-white)	37.0	30.0	36.7	40.8	36.4
Ethnicity (% Hispanic)	16.3	14.5	14.4	21.1	16.2

Note. Non-white race categories included “Black or African American”, “American Indian or Native American”, “Asian or Pacific Islander” and “Other.” SD: Standard deviation.

Table 2

Parameter estimates and standard errors for growth models of binge drinking and drunkenness for sexual minority (SM) and heterosexual young adults.

		Intercept factor		Slope factor	
Outcome	**Groups**	**Estimate**	**Variance**	**Estimate**	**Variance**
Drunken-ness	Heterosexual	.744(.031)^{***a}	1.036(.062)***	.058(.007)^{***a}	.037(.003)***
	Mostly Heterosexual	.872(.051)^{***b}	.128(.049)***	.069(.011)^{***a}	.038(.006)***
	Bisexual	.704(.112)^{***a}	.499(.266)†	.108(.031)^{***a}	.032(.016)*
	Gay/Mostly Gay	.577(.095)^{***a}	1.071(.263)***	.174(.025)^{***b}	.055(.010)***
	Heterosexual Male	.837(.040)^{***a}	1.202(.087)***	.096(.009)^{***b}	.048(.005)***
	SM Male	.682(.101)^{***a,b}	.865(.169)***	.160(.020)^{***a}	.034(.010)***
	Heterosexual Female	.642(.039)^{***b}	.812(.020)***	.010(.007)^{d}	.020(.002)***
	SM Female	.847(.050)^{***a}	.935(.107)***	.060(.011)^{***c}	.032(.005)***
Binge drinking	Heterosexual	.770(.022)^{***a}	1.156(.070)***	.079(.007)^{***a}	.041(.003)***
	Mostly Hetero.	.840(.049)^{***a}	.951(.125)***	.075(.011)^{***a}	.075(.011)***
	Bisexual	.771(.140)^{***a,b}	.652(.310)*	.088(.032)^{***a}	.020(.018)
	Gay/Mostly gay	.577(.113)^{***b}	1.213(.292)***	.174(.028)^{***b}	.057(.011)***
	Heterosexual Male	.906(.047)^{***a}	1.383(.097)***	.120(.010)^{***a}	.055(.005)***
	SM Male	.727(.108)^{***a}	.908(.221)***	.157(.021)^{***a}	.039(.012)**
	Heterosexual Female	.606(.031)^{***b}	.820(.079)***	.036(.006)^{***b}	.024(.002)***
	SM Female	.814(.049)^{***a}	.979(.108)***	.069(.011)^{***c}	.033(.005)***

Note.

$^{\dagger}p < .10$

$^{*}p < .05$

$^{**}p < .01$

$^{***}p < .001$

^{a,b,c,d}different letters within a column for each outcome represent significant differences between groups on each factor.