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Peer Harassment and Risky Behavior among Sexual Minority Girls and Boys

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Abstract

The role of peer harassment in the association between sexual minority status and adolescent risky behavior was examined for 15 year olds in the NICHD Study of Early Child Care and Youth Development ($n = 957$). The findings, although exploratory, suggest the importance of gender. For girls, peer harassment was best viewed as a moderator of the link between sexual minority status and increased risky behavior. It intensified an existing association, reflecting the gendered nature of the impact of sexual minority status on the adolescent social context. For boys, peer harassment was primarily a mediator, such that sexual minority status was associated with more risky behavior via elevated harassment, although sexual minority status itself was associated with lower risky behavior overall.

The impact of actual or perceived harassment on sexual minority youth (i.e. gay, lesbian, or bisexual) is the focus of increasing media attention, driven by some well-documented suicides of sexual minority youth trying to escape bullying or rejection from peers (McKinley, 2010; Savage & Miller, 2011). Experiences of harassment related to real or perceived sexuality are common for sexual minority youth (Almeida, Johnson, Corliss, Molnar, & Azreal, 2009; D'Augelli, 2002; Berlan, Corliss, Field, & Goodman, 2010; Kosciw, Greytak, Diaz, & Barthiewicz, 2010), and, although suicide may be the most severe consequence, harassment is also associated with many other negative outcomes, including risky behavior (Birkett, Espelage & Koenig, 2009; Bontempo & D'Augelli, 2002; Busseri, Willoughby, Chalmers, & Boegart, 2008). Indeed, sexual minority youth have higher rates of drinking, drug use, smoking, risky sexual behavior, and delinquency than heterosexual adolescents (Bontempo & D'Augelli, 2002; Busseri et al., 2008; Coker, Austin, & Schuster, 2010; Marshal et al., 2008; Marshal, Friedman, Stall, & Thompson, 2009; Ortiz-Hernandez, Tello, & Valdes, 2009; Russell, Driscoll & Truong, 2002; Russell & Joyner, 2001; Wright & Perry, 2006). These trends align with the minority stress perspective (Meyer, 2003), which suggests that experiences driven by the stigma of sexual minority status (e.g., being harassed by peers) are a critical component of mental health and behavioral disparities between sexual minority and non-sexual minority populations.

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Following the minority stress perspective, this study draws on the NICHD Study of Early Child Care and Youth Development (SECCYD)—a multi-state sample of 15 year olds— to examine the role of harassment due to sexual minority status in the risky behavior of girls and boys. Boys have more negative attitudes toward sexual minorities in general, especially toward gay males (Mata, Ghavami, & Wittig, 2010; Poteat, Espelage, & Koenig, 2009; Poteat, & DiGiovanni, 2010), and they are more likely than girls to be harassed because of their sexuality (Kosciw et al., 2010). Regardless of sexual orientation, boys are also more likely to engage in risky behaviors (Mears, Ploeger & Warr, 1998; Miller, Malone, & Dodge, 2010). Gender differences in the frequency, nature, and perception of peer harassment and the experience of being a sexual minority more generally, then, could be reflected in gender differences in the linkages among sexual minority status, peer harassment, and risky behavior.

Although sexual minority youth experience higher levels of peer harassment (Almeida et al., 2009; Berlan et al., 2010; D'Augelli, 2002; Hanlon, 2003), most research on this link has been based on samples that range in age across adolescence (Bontempo, & D'Augelli, 2002; Busseri et al., 2008; Looiser, & Dittus, 2010; Wright, & Perry, 2006). An argument can be made, however, that middle adolescence is a crucial developmental period in which to examine the association between sexual minority variables and risky behavior. By middle adolescence, or by the time youth reach age 15, greater independence, stronger peer orientation, and neurological developments increase youths' propensities and abilities to engage in risky behavior (Steinberg, 2008; Reyna & Farley, 2006), and sufficient pubertal development facilitates the exploration of sexual identity (Anhalt & Morris, 1998). Furthermore, youth in middle adolescence report the highest rates of negative attitudes towards sexual minority individuals (Horn, 2006; Poteat et al., 2009). For example, Poteat and DiGiovanni (2010) reported that students in grades 9 and 10 were more likely to report using homophobic language compared to younger and older students, suggesting that this period may be particularly pertinent in understanding the developmental significance of the stigmatization of sexual minorities. This study provides a unique exploratory opportunity, using a rich multi-method multi-informant dataset, to explore how harassment links sexual minority status to risky behavior during a critical developmental period.

Sexual Minority Status and Risky Behavior

Risky behavior encompasses a wide range of behaviors that reflect the prioritizing of short-term gains over long-term consequences, including substance use, dangerous driving, and risky sexual activity (Reyna & Farley, 2006). Although risky behaviors can be examined independently of each other, existing research strongly suggests the existence of a general deviance factor, as exemplified by Problem Behavior Theory (LeBlanc & Bouthillier, 2003; Jessor, & Jessor, 1977; Jessor, 1987). Thus, risky behavior can be examined in general, not just in terms of specific behaviors. Manifestations of risky behavior vary somewhat across development, as is exemplified by early sexual behavior. Behaviors such as consensual sexual intercourse or oral sex are associated with a number of other risky behaviors early in adolescence (i.e. at ages 15 and below), but they are not associated with risky behaviors later on into adolescence (Boislard & Poulin, 2011; Zimmer-Gembeck & Helfand, 2008).

Sexual minority youth tend to be more likely to engage in risky behavior in both the short- and long-term than their peers. This pattern encompasses many behaviors, but it seems to be particularly well-documented for substance use. Previous research has consistently reported higher rates and accelerated trajectories of substance use among sexual minority youth from adolescence into young adulthood (Loosier & Dittus, 2010; Marshal et al., 2008; Russell, Driscoll, & Truong, 2002; Russell & Joyner, 2001; Ziyadeh et al., 2007; Hatzenbuehler, Corbin, & Fromme, 2008; Marshal et al., 2009; Talley, Sher, & Littlefield, 2010). This research also suggests that sexual minority girls may be more vulnerable than sexual minority boys (Corliss et al., 2010; Ortiz-Hernandez et al., 2009; Russell et al., 2002). Sexual minority status is also associated with risky sexual behaviors, including higher rates of sex before age 13, as well as higher likelihood of outcomes associated with risky sexual behavior, such as pregnancy (for girls) and sexually transmitted infections (Goodenow, Netherland, & Szalacha, 2002; Goodenow, Szalacha, Robin, & Westheimer, 2008; Parkes et al., 2011; Saewyc, Poon, Homma, & Skay, 2008). Although sexual behavior and substance use are different outcomes, the similarity of findings across the two supports the examination of risky behaviors in general, rather than as separate and un-related, among sexual minority youth.

Harassment and Risky Behavior

In line with the minority stress perspective, several considerations point to harassment as playing a key role in the association between sexual minority status and risky behavior. As discussed extensively above, sexual minority status is associated with significant increases in victimization, and victimization in general is associated with higher rates of risky behavior, such as substance use and delinquency (Cullen, Unnever, Hartman, Turner, & Agnew, 2008; Luk, Wang, & Simons-Morton, 2010; Topper, Castellanos-Ryan, Mackie, & Conrod, 2011). Furthermore, harassment and victimization are profoundly stressful experiences (Bakker, Ormel, Verhulst, & Oldehinkel, 2010; Espelage & Holt, 2001), and elevated stress levels in adolescence are associated with increased rates of risky behavior (Brady, Dolcini, Harper, & Pollack, 2009; He, Kramer, Houser, Chomitz, & Hacker, 2004). These patterns may reflect the role of substance use in particular as a coping mechanism for negative emotionality (e.g., self-medication) as well as a form of resistance to or rebellion against a setting or context perceived as rejecting (Crosnoe, 2011; Kauer, Reid, Sanci, & Patton, 2009; Kuntsche & Stewart, 2009; Novacek, Raskin, & Hogan, 1991). In this model, then, sexual minority status is associated with risky behavior because it increases the likelihood of harassment.

The stress resulting from harassment may be an important element linking sexual minority status to risky behavior, but it calls for more attention to the social context in which all of this occurs. The importance of the peer group in adolescent risk-taking provides additional perspective on why peer harassment may be particularly powerful in linking sexual minority status to risky behavior during this period. Engaging in risky behavior may reflect an instrumental attempt for marginalized youth to integrate into their social environment. Reinforcement of social bonds and social acceptance are common motivators for engaging in risky behavior during adolescence (Kuntsche & Stewart, 2010; Shapiro, Siegel, Scovill, & Hays, 1998). For example, Crosnoe (2011) found that some socially isolated youth in an ethnographic sample reported using drinking as a way of meeting others, forming

connections, and gaining entrée to parties and other social activities. Furthermore, peer rejection from more normative peer groups can increase the likelihood of interacting with peers more supportive of risky behaviors (Prinstein & La Greca, 2004; Dishion, Capaldi, Spracklen, & Li, 1995), such that the stigma experienced by sexual minority youth may decrease their interactions with more normative peer groups (Horn, 2006; Poteat, Espelage, & Koenig, 2009). In this way, sexual minority youth, particularly those who have been or are being harassed, may engage in risky behavior in a bid to improve their social status, or because such behavior is common in their peer group. Sexual minority youths' engagement in risky behavior as a response to a variety of stressors may be exacerbated by harassment, in that it increases the pressure for social acceptance, or pushes them towards peer groups that engage in higher levels of risky behavior.

This discussion of the multi-faceted role of peers in risky behavior suggests the need to explore the different social ways that harassment factors into the risky behavior of sexual minority youth. Following the minority stress perspective as well as the extant literature relevant to the basic ideas of this perspective, we put forward two non-mutually exclusive roles of harassment that can be explored.

The first role is mediational (see Figure 1), such that sexual minority status is associated with risky behavior via the associated increase in harassment. This mediational pathway seems to be the most obvious reading of the minority stress perspective and the one organizing the majority of research in this area, with sexual minority status increasing the likelihood of risky behavior via an association with elevated levels of harassment. Supporting a mediational hypothesis, previous work has identified numerous individual, family, and school level stressors that mediate or partially mediate the association between sexual minority status and risky behavior outcomes (Almeida et al., 2009; Busseri et al., 2008; Friedman et al., 2006; Hershberger & D'Augelli, 1995).

The second role is moderational (see Figure 2), in that harassment amplifies the link between sexual minority status and risky behavior. This moderational pathway, although studied less often, is actually more in line with the basic thrust of the minority stress perspective. A moderational pathway would suggest that although a variety of factors, including disrupted family relations and challenges posed by identity development may increase the likelihood of risky behavior in sexual minority youth, experiencing harassment would serve to exacerbate this risk. Sexual minority youth who do not experience peer problems, although still at risk for reporting higher levels of risky behavior, will be at much lower levels of risk and be more comparable to heterosexual youth. Indeed, previous work supports several plausible explanations as to why harassment due to sexual minority status may be particularly difficult for sexual minority adolescents as (a) sexual minority youth report less support from their families and schools, leaving them more vulnerable to stressors (Needham & Austin, 2010; Pearson, Muller, & Wilkinson, 2007; Saewyc et al., 2009); (b) sexual minority youth experience harassment more often and with greater intensity than other youth (Espelage, Aragon, Birkett, & Koenig, 2008); and (c) harassment due to sexual minority status in particular may have a greater impact on sense of self and subsequent well-being among sexual minority youth (Meyers, 2003). In sum, a moderational model would suggest that although sexual minority youth may be generally more likely to

engage in risky behavior, harassment would intensify this engagement to a greater extent than would be the case for heterosexual youth.

Both pathways provide plausible explanations for the role of harassment in the outcomes of sexual minority youth but have not been compared in previous research. The main objective of this study is to make such a comparison. Doing so is important because the specific role played by harassment has implications regarding the structure and targets of interventions for sexual minority adolescent's risky behaviors. Although ultimately the elimination of harassment due to sexual minority status may best reduce rates of risky behavior in sexual minority populations, determining the point of impact for this type of harassment can inform how to address risky behavior in sexual minority youth in light of limited resource availability.

Gender Differences

Both the mediational and moderational pathways are likely to differ between girls and boys. After all, gender differentiates the level of risky behavior, experiences of stigma due to sexual minority status and the subsequent peer contexts resulting from these experiences of stigma. Boys have significantly higher rates of risky behavior than girls (Mears et al., 1998; Miller et al., 2010) and peer context potentially plays a more active role in promoting boys' risky behavior (Crosnoe, Erickson, & Dornbusch, 2002; Fagan, van Horn, Hawkins, & Arthur, 2007; Mears et al., 1998). At the same time, boys experience higher rates of victimization due to sexual minority status, as male sexual minority status is more strongly stigmatized in American society than female sexual minority status (Almeida et al., 2009; D'Augelli, 2006) and boys report higher levels of homophobic attitudes (Morrison, McLeod, Morrison, Anderson, & O'Connor, 1997; Poteat & Anderson, 2012). Due to social exclusion, sexual minority boys may be less likely to engage in risky behavior because of lowered contact with peers, particularly in mid adolescence. Previous work by Russell and colleagues (2001) suggested that same-sex attracted boys were only minimally different from heterosexual boys in substance use. The presence of harassment, however, may reflect both a serious stressor and the presence of sufficient social contact to increase the opportunities for sexual minority boys to take risks. As such, boys likely follow a mediational pathway.

Conversely, as sexual minority status is less stigmatized for women, sexual minority girls may have greater access to peer groups and, therefore, more opportunities to engage in risky behavior than sexual minority boys. Indeed, although boys with larger friend networks report higher levels of homophobic attitudes, girls with larger social networks report lower levels of homophobic attitudes (Hooghe, 2011). Regardless of harassment, sexual minority girls may have more opportunities to engage in risky behavior and may be more motivated to engage in these behaviors due to the pressures posed by sexual minority identity development. Harassment, however, would likely strengthen this already existing association between sexual minority status and risky behavior, as these behaviors provide a means of improving social integration as well as for coping with stress.

The secondary objective of this study is to explore gender differences in the mediational and moderational pathways linking sexual minority status, peer harassment, and risky behavior in mid adolescence in a sample including both sexual minority and sexual majority adolescents. For boys, the expectation is that, although sexual minority status will be protective for risky behavior, harassment due to sexual minority status will increase the likelihood of risky behavior. Thus, sexual minority status will be indirectly associated with risky behavior through harassment. For girls, harassment due to sexual minority status is anticipated to moderate the association between sexual minority status and risky behavior. Girls reporting both sexual minority status and harassment due to sexual minority status are expected to show the highest rates of risky behavior, compared to sexual minority girls not reporting harassment or heterosexual girls who report harassment.

Method

Data

The Study of Early Child Care and Youth Development (SECCYD) began in 1991 by recruiting 1,364 families with newborns from hospitals in ten locations across the U.S. Selected participants reflected their catchment areas in terms of race/ethnicity and family structure (for additional details see NICHD Early Child Care Research Network, 2005, and <http://www.nichd.nih.gov/research/supported/seccyd.cfm>). Families were not eligible to participate if the mother was under the age of 18, did not speak English, had a substance abuse problem, or planned to move, or if the child was hospitalized for more than seven days post birth, had obvious disabilities, or had a twin. Families participated in data collections across childhood, with the data from the current study being drawn from a data collection when the target youth were 15 years old. The subsample of adolescents in the current study ($n = 957$, of whom 479 were girls) included those adolescents who had completed the outcome measure detailing their involvement with risky behavior. The adolescents were assessed in multiple settings, including the lab, the home, and the school. Although the mean income of the families in the SECCYD was higher than the national average, the sample contained significant variation, with 22% of participants reporting income-to-needs ratios of two or below, and 35% of the sample not living with their biological father. Although not statistically representative of the nation or the study communities, the sample is diverse in terms of socioeconomic status, family structure, and to a lesser extent, race/ethnicity.

Measures

Sexual minority variables—Sexual minority status was assessed by asking youth if their preferred romantic partners were girls, boys, or both girls and boys. This question was part of a larger questionnaire assessing relationship quality. Four boys and six girls reported exclusive same sex attraction, and seven boys and 25 girls reported both same and other sex attraction. For the purposes of analyses, all youth reporting any same sex attraction were combined ($n = 42$). This subsample, therefore, is quite small, a definite limitation of using the SECCYD for the aims of this study. The other benefits of the SECCYD, however, somewhat mitigate this limitation, including the geographic and socioeconomic diversity of the subsample and its connection to rich multi-reporter data. Certainly, we were mindful of the potential for sparse cell coverage in conducting analyses and then in interpreting results.

An item from the risky behavior questionnaire asked participants if they had experienced harassment based on their sexual minority status. Out of the total sample, thirty-four youth reported being harassed once or twice, and 8 reported being harassed more than twice. This item was then dichotomized according to whether youth had experienced this kind of harassment or not. In total, 16 boys and 26 girls reported harassment. By gender, 36 % ($n = 4$) of boys reporting same sex attraction, 2 % ($n = 12$) of boys not reporting same sex attraction, 23 % ($n = 7$) of girls reporting same sex attraction, and 4 % ($n = 19$) of girls not reporting same sex attraction reported experiencing harassment due to sexual minority status. This kind of harassment, then, was more common in, but not limited to, youth who reported same-sex attraction.

Risky behavior—The current measure of risky behavior was based on 26 items selected from the 55 items drawn from the Things I Do questionnaire, which was used in the New Hope Study (Duncan, Huston, & Weisner, 2007) and is based on a questionnaire initially designed by Conger and Elder (1994). These 26 items had a Cronbach's alpha of .83 in SECCYD sample. They reflected youths' involvement in behaviors traditionally indicative risky behavior such as substance use (e.g. smoking cigarettes, using marijuana, drinking liquor), gang involvement, risky driving (e.g. riding in a car with no seatbelt or riding a bike with no helmet), outcomes suggestive of risky sexual behavior (e.g. being told by a nurse or doctor that they had a sexual transmitted disease, being pregnant or getting someone pregnant), and vandalism (e.g. purposely setting a fire, purposely damaging a building). Several indicators of sexual behavior (e.g. having sexual intercourse, having oral sex) were also included, as these behaviors are associated with an overall constellation of risky behavior for this age group (Madkour et al., 2010). In each case, youth were asked if they had participated in these behaviors never, once or twice, or more than twice. Each response was dichotomized and summed, such that possible scores ranged from 0 to 26. Descriptive statistics for this and other variables are presented in Table 1, with mean scores being relatively low for both boys and girls.

A number of questions in the scale were excluded from the risky behavior score due to their overlap with harassment variables. Those excluded are items assessing harassment due to race, gender, and disability status as well as items that were anticipated to overlap with harassment in that they reflected experiences of victimization (e.g. being beaten up or mugged, being injured with a weapon), institutional conflict (e.g. school suspensions, being on probation, being in juvenile detention), and legal risk (e.g. being on probation, being in juvenile detention). Items assessing violent behaviors (e.g. taking part in a gang fight, threatening to beat someone up) were also excluded based on research suggesting a high degree of difficulty in the interpretation of aggressive behavior in light of persistent victimization (Russell, Franz, & Driscoll, 2001).

In light of the limited number of youth reporting sexual minority attraction, exploratory analyses examined the associations among sexual minority status, harassment for this status and risky behavior. All girls reporting both sexual minority status and harassment due to sexual minority status reported risky behavior scores above the mean for heterosexual girls. All boys reporting sexual minority status, but not harassment, had risky behaviors below the

mean for heterosexual boys, suggesting consistent differences among these groups by harassment as well as sexual minority status.

Depression—To account for the connection of depression to both risky behavior and sexual minority variables, this study drew on the short form of the Child Depression Inventory (Kovacs, 1992). This commonly used inventory asks youth ten questions concerning their feelings of depression and negative affect in the past two weeks. These items had an internal consistency of .80, and a strong correlation between the short and long form of the questionnaire ($r = .89$) is reported in the manual.

Peer victimization—The University of Illinois Aggression Scale assessed self-reported experiences of victimization (Espelage, & Holt, 2001). Peer victimization was included here so that the association between harassment due to sexual minority status and risky behavior could be examined after controlling for general victimization. This scale had four items (Cronbach's $\alpha = .85$) that asked the child to rate on a scale of 0 (never) to 4 (7 or more times) the number of times they were picked on, made fun of, called names, and hit or pushed. These items were summed for the current analyses.

Positive peer group—Mothers or primary care givers completed the Kids with My Kids Survey, designed for the SECCYD, which asked mothers to assess if the children their child frequently socialized with were a positive influence on their child, with higher scores suggesting that mothers had positive opinions of their child's peer group. This measure was created to control for a commonly identified correlate of risky behavior. The scale comprised of 7 items including "some of these kids are a bad influence on my child" (reversed) and "these kids are hard workers." These items were summed with a Cronbach's alpha of .85.

Parenting—As a means of accounting for the parenting context in which youth are developing, this study also controlled for two parenting variables. First, youth described the warmth of their primary caregivers with 9 items from the Getting Along with my Parents Scale. This scale is based on an assessment of adolescent-reported parental warmth used in the Family and Community Health Survey (Conger et al., 2002) and had good reliability (Cronbach's $\alpha = .92$). This scale assessed the youth's perceptions of their primary caregiver's caring and attentive behavior with questions such as "how often does your mother let you know she really cares about you" and "how often does your mother listen carefully to your point of view?" Second, the youth's mother or primary care taker completed the adult version of the Keeping Tabs Questionnaire, a 11-item questionnaire (Cronbach's $\alpha = .77$) assessing parent's knowledge of their child's whereabouts and activities, designed for the SECCYD. Parents (primarily mothers) were asked questions such as "If you aren't home and your child leaves the house, does your child leave a note or call to say where he/she will be going?" and "how much do you know about how your child spends his/her free time?"

Sociodemographic factors—To account for social and demographic variability in the sample, a number of covariates were also measured. They included current family income to needs ratio, maternal education from the initial assessment period, family structure (65% of children lived in families with both biological parents, with the remainder in other family

forms), and race/ethnicity (82% white, 12% African American, 5% other, 1% Asian/Pacific Islander, less than 1% Native American). Because of sample size, these race/ethnic categories were dichotomized (white vs. non-white).

Plan of Analyses

A total of four multivariate models were tested with structural equation modeling (SEM) in Mplus 6.1 (Muthén & Muthén, 2010). A basic model predicted the risky behavior outcome by sexual minority status, both before and after including the control variables as predictors of risky behavior outcomes. Subsequently, this base model was extended to include the measure of peer harassment to test mediation. Finally, an interaction between sexual minority status and peer harassment was added to the model as a means of testing moderation. Following the main goals of this study, all models were estimated by gender.

SEM establishes the fit between a proposed model and the actual data, using, among other fit indices, a χ^2 significance test, the root mean square error of approximation (RMSEA), which is considered good at .05 or below, and a comparative fit index (CFI), which is considered good at .93 or above (Byrne, 1994; Stieger, 1990). Mplus employs full information maximum likelihood (FIML), which uses existing correlations to estimate missing data, thereby avoiding the biases associated with listwise deletion (Allison, 2001). For group modeling techniques in Mplus, the difference in the significance of the model and model parameters for two groups (in this case, boys and girls) can be established by constraining pathways and then comparing the fit indices for the constrained and unconstrained models (Bollen, 1989). Should the models be significantly different, separate estimates can be provided for each group within the same model. SEM allows for the assessment of direct paths as well as indirect paths linking three or more constructs, providing the standardized and unstandardized coefficients, standard errors, and significance of these effects. Indirect effects in Mplus are calculated using the Delta method, reflecting the products of the coefficients approach (Preacher & Hayes, 2008), making Mplus an ideal statistical package with which to test the associations among multiple variables.

Results

Tests by Gender

The models tested were just identified and had perfect fit and, as such, could not be constrained to examine significant group differences—no possible differences in model fit could be detected across groups. Due to the gendered nature of the current hypotheses, however, merely comparing model coefficients across group was insufficient. Consequently, the models were re-estimated without the associations between the control variables and the sexual minority-related variables. By doing so, the models were no longer just identified, and the relevant pathways (i.e. those among sexual minority status, harassment due to sexual minority status, and risky behavior) could be constrained and, therefore, statistically compared by gender.

The basic model with controls differed significantly in the association between sexual minority status and risky behavior (χ^2 difference = 10.50, $df = 1$, $p < .001$). The mediation

model showed significant gender differences in the association between sexual minority status and harassment and in the association between sexual minority status and risky behavior (χ^2 difference = 26.20, $df = 4$, $p < .001$). The moderation model showed significant differences by gender in the interaction term (χ^2 difference = 39.39, $df = 4$, $p < .001$). These significant differences justify generating separate estimates by gender.

Mediation for Girls

The first model tested the association between sexual minority status and risky behavior (see Table 2 for fit indices and standardized coefficients). Without including any controls, sexual minority status was significantly associated with increased rates of risky behavior for girls. To gauge the effect size, we divided the coefficient for the independent variable (in this case sexual minority status) by the standard deviation of the dependent variable (in this case risky behavior), as doing so indicates the change in the outcome (in standard deviation terms) related to a one unit increase in the independent variables. Going from 0 to 1 on the independent variable (i.e. from being non-sexual minority to sexual minority) was associated with a 3.07 point increase on the risky behavior scale, equal to 97% of a standard deviation. Put another way, the difference between sexual minority and sexual majority participants equals 97% of a standard deviation in the sample distribution of reported risky behavior.

The second model examined this same association while controlling for common predictors of risky behavior, including race, family SES, externalizing behavior problems, impulse control, victimization, depression, parental monitoring, and parental warmth. The controls reduced the association between sexual minority status and risky behavior from a 3.07 to a 1.51 point difference. In terms of effect size then, sexual minority status now accounted for 48% of a standard deviation in risky behavior.

Model 3 included harassment as a predictor of risky behavior alongside sexual minority status and the controls, allowing for the opportunity to assess the mediating role of harassment. For girls, the model failed to support mediation, as sexual minority status, but not harassment due to sexual minority status, was associated with risky behavior. Sexual minority status was associated with a significant increase in harassment due to sexual minority status.

Mediation for Boys

The same three models were also tested for boys. In reviewing the results of these models, recall the small number of boys in the SECCYD who reported being a sexual minority or being harassed due to sexual minority status. Sparse cell coverage could have been an issue. The small number of sexual minority youth who reported being harassed had substantially higher mean levels of risky behavior than same-sex attracted youth who were not harassed ($F(1, 40) = 20.25$, $p < .01$, $\eta^2 = .34$) or all opposite-sex attracted youth ($F(1, 946) = 27.40$, $p < .01$, $\eta^2 = .03$). Further, none of the youth who were both sexual minorities and reported harassment had risky behavior scores below the sample mean or below the mean for sexual minority youth more generally. In line with expectations, the male sexual minority youth who had experienced some peer harassment all had increased levels of risky behavior relative to other youth, suggesting that the results described below were not simply a result

of one or two outliers but instead represented a general trend among the small number of youth studied.

In the first model, no significant association was found between sexual minority status and risky behavior among boys. In the second model that included control variables, sexual minority status appeared to be protective for risk outcomes, such that sexual minority status was associated with 81% of a standard deviation decrease in risky behavior (the second model).

In the third model, harassment was significantly associated with risky behavior, such that harassment was associated with 92% of a standard deviation increase in risky behavior. Moreover, sexual minority status was associated with 188% of a standard deviation increase in the likelihood of harassment, and a significant indirect association between sexual minority status and risky behavior ($\beta = 0.05$, $p < .001$) through harassment was observed. As was the case in the previous model, a significant direct effect was also found between sexual minority status and risky behavior such that sexual minority status was associated with 110% of a standard deviation decrease in this outcome. This pattern suggests that, although sexual minority status itself was directly associated with reduced levels of risky behavior, it was indirectly associated with elevated rates of risky behavior via increased rates of harassment.

Moderation

The fourth model tested the moderating role of harassment due to sexual minority status in the association between sexual minority status and risky behavior. Fit indices and standardized coefficients for boys and girls are presented in Table 3. Among girls, this interaction was statistically significant. The interaction is graphed in Figure 3, with sexual minority girls who reported harassment having significantly higher rates of risky behavior compared to sexual minority girls not experiencing harassment. Harassment due to sexual minority status was associated with a more limited increase in risky behavior for non-sexual minority girls. For boys, the interaction term was not statistically significant.

In sum, all models revealed notable gender differences. In line with the hypotheses, sexual minority status was protective for boys' risky behavior but was indirectly associated with higher rates of their risky behavior via increased rates of harassment. For girls, harassment magnified the association between sexual minority status and risky behavior.

Discussion

Working from a minority stress framework, the focus of the current study was on peer harassment and, in particular, gender differences in the experience of such harassment (D'Augelli, 2006; Almeida et al., 2009; Meyer, 2003). Ultimately, the purpose of this exploratory project was to move the discussion beyond merely establishing higher rates of risky behavior among sexual minority youth towards identifying potential mechanisms that promote these problematic patterns of behavior in a segment of society that was recently identified for the first time by the National Institutes of Health as an at-risk population (Healthy People, 2010). Should these findings be replicated in other studies, featuring larger

numbers of sexual minority youth, the identification of these two pathways can improve the efficacy of intervention efforts.

The two proposed pathways, a mediational pathway and a moderational pathway, were supported for boys, and girls, respectively. To start, findings suggested differences by gender regarding the likelihood of engaging in risky behavior for girls compared with boys. Sexual minority status alone was associated with higher rates of risky behavior for girls and lower rates of risky behavior for boys. Conversely, harassment due to sexual minority status was directly associated with elevated rates of risky behavior among boys but not girls. For boys, sexual minority status was indirectly associated with elevated levels of risky behavior, as sexual minority status increased the likelihood of harassment. Finally, sexual minority girls who reported harassment showed the highest levels of risky behavior. The current findings are in line with previous research suggesting higher rates of risky behavior among sexual minority youth (e.g. Busseri et al., 2008; Loosier & Dittus, 2010), and in particular work suggesting that this finding may be stronger among girls than boys (e.g. Corliss et al., 2010; Ortiz-Hernandez et al., 2009; Marshal et al., 2008; Russell et al., 2002).

A key finding to both of these pathways is the role played by harassment due to sexual minority status in elevated rates of risky behavior among both boys and girls, even when many of the factors commonly associated with risky behavior were controlled. This finding supports previous research suggesting that harassment plays a unique role in mediating (e.g. Almeida et al., 2009; Busseri et al., 2008) or moderating (e.g. Birkett et al., 2009; Bontempo & D'Augelli, 2002; Espelage et al., 2008) outcomes of sexual minority youth and speaks to the broader need for comprehensive psychoeducational programs addressing this particular kind of harassment in the school environment (Crosnoe, 2011). Furthermore, they provide preliminary evidence that these processes vary by gender. The reasons for gender differences in patterns of risky behavior among sexual minority youth may reflect the differential impact of sexual minority status on social context, as exemplified here by peer relations (i.e., peer harassment), and suggest different points of intervention.

Some previous work on risky behavior also hints to the different underlying social contexts created by sexual minority status for girls compared with boys. Previous work on alcohol use among sexual minority boys or sexual minority subtypes primarily composed of boys show initially similar levels of substance use to heterosexual boys (Russell et al., 2002), although some divergence occurs as boys age (Hatzenbuehler et al., 2008; Marshal et al., 2008). Individual-level factors limiting involvement with the peer group, such as social withdrawal, reduce risky behaviors like substance use among boys to a greater extent than among girls (Crum, Juon, Green, Robertson, Fothergill, & Ensminger, 2006; Fothergill & Ensminger, 2006; Martin-Storey, Serbin, Stack, Ledingham, & Schwartzman, 2011). As sexual minority status among boys is associated with higher levels of peer rejection, sexual minority boys may not have a sufficient social network to engage in risky behavior. The current study may have found a protective effect of sexual minority status for boys via controlling for common correlates of risky behavior, encouraging future research examining sexual minority boys' risk behavior within their social context during this particular developmental period.

The association between sexual minority status and risky behavior became more complex among boys once harassment due to sexual minority status was included in the analyses. A significant indirect effect occurred via harassment due to sexual minority status, supporting traditional interpretations of the minority stress model, where sexual minority status is associated with negative outcomes via interpersonal stressors (Almeida et al., 2009; Busseri et al., 2008; Friedman et al., 2006; Hershberger & D'Augelli, 1995). Indeed, this finding may be particularly the case for boys (Almeida et al., 2009). The indirect effect occurring via harassment due to sexual minority status supports the singular importance of this kind of harassment among sexual minority boys, and may suggest that harassment indicates engagement in a social milieu that permits boys' engagement in risky behavior as a response to social stressors.

Conversely, sexual minority status was associated with higher rates of risky behavior among girls in line with some previous research (Hatzenbuehler et al., 2008; Marshal et al., 2008; Russell et al., 2002). This finding may reflect the lower levels of stigma experienced by sexual minority girls (Almeida et al., 2009; D'Augelli, 2006), such that they have greater access to risky behaviors within a peer context following stressful experiences such as harassment. Harassment due to sexual minority status did not play a mediating role for girls, as harassment was not directly associated with risky behavior.

Findings did support, however, a moderating pathway such that harassment exacerbated an already elevated level of risky behavior in sexual minority girls. The moderation effect for girls may reflect that harassment due to sexual minority status is more likely to occur in contexts that enable engagement in risky behavior. Higher rates of homophobic bullying are associated with higher levels of aggressive and bullying behavior in general (Poteat et al., 2008; Poteat & DiGiovanni, 2010; Poteat & Rivers, 2010), and aggression in general is associated with higher rates of risky behavior (Guan, Fu, Bender, et al., 2010; Gulliver & Begg, 2007; Timmermans, van Lier, & Koot, 2008). Thus, youth involved in peer groups that engage in higher rates of risky behavior may also be exposed to higher rates of homophobic bullying. The current exploratory findings, therefore, call for future longitudinal research to untangle the association between harassment and risky behavior.

Finally, this discussion can only be viewed as preliminary and speculative, given several limitations of the study, including those with its otherwise strong and valuable data source. In line with previous youth-reported rates of sexual minority status (Savin-Williams, 2009), a limited number of youth reported sexual minority status in the SECCYD, preventing the comparison of different types of sexual minority youth (e.g. comparing same-sex only attracted adolescents to same and other sex attracted adolescents). Indeed, sexual minority status and risky behavior may vary by subtype of behavior, community type, and ethnicity (Busseri et al., 2008; Loosier & Dittus, 2010; Marshal et al., 2008; Moon, Fornili, & O'Brian, 2007; Poteat et al., 2009; Saewyc et al., 2008; Ziyadeh et al., 2007), suggesting caution in grouping sexual minority as well as racial/ethnic minority subtypes. Although cell size is a limitation here, this problem is expected in light of developmental factors associated with the identification and disclosure of sexual minority status, and it is somewhat justified in light of the strong effect sizes, the availability of data from both adolescents and their primary care givers, and the nationally derived nature of the current sample.

The number of youth reporting sexual minority-status related harassment was low in the SECCYD compared to previous studies on sexual minority populations (Berlan, et al., 2010; d'Augelli, Pilkington, & Hershberger, 2002; Kosciw et al., 2010; Kryzen, & Walsh, 1998), likely reflecting two methodological differences between previous research and the current sample. First, previous studies on harassment due to sexual minority status have frequently recruited online or from organizations that provide services for sexual minority youth (D'Augelli et al., 2002; Kosciw et al., 2010; Kryzen & Walsh, 1998), and youth who seek out these resources may be different than youth who do not in ways that may influence findings. Second, studies that specifically examine harassment among sexual minority youth generally ask multiple questions concerning experiences and observations of harassment (D'Augelli et al., 2002; Berlan et al., 2010; Kosciw et al., 2010; Kryzen & Walsh, 1998), potentially prompting youth to better remember their harassment experiences compared with the single question used in the current study. The strong effect of harassment due to sexual minority status on risky behavior may suggest the inclusion of more detailed assessments of this kind of harassment in future large-scale studies of risky behavior, as both the frequency and intensity of this harassment may be anticipated to influence the association between harassment and risky behavior. Similarly, although both child and parent reports were included in the analyses, the focal variables were generally derived from a single reporter. Finally, the study was limited in the assessment of sexual minority variables. At age 15, many youth are only beginning to explore their sexual identities, and previous work suggests that youth who identify early as sexual minorities may be both more resilient and more vulnerable than their later developing peers (Floyd & Stein, 2002; D'Augelli, Hershberger, & Pilkington, 1998). Information pertaining to the disclosure of sexual minority status was not available on participants in the current study, and may have important ramifications on the prevalence and impact of harassment.

Clearly, the findings reported here in this preliminary study need to be confirmed with newer data sets that address many of these limitations. If the results and associated conclusions hold up to more rigorous scrutiny with such data, then they speak to efforts to reduce risky behavior among sexual minority youth. First, harassment based on sexual minority status is associated with elevated rates of risky behaviors for boys and girls, supporting greater efforts at the school and community level to reduce this kind of harassment. Programs targeting homophobia-based harassment, as well as factors associated with the reduction of this kind of harassment such as the creation of Gay Straight Alliances, staff development and school-based policy on bullying may reduce risky behaviors (Espelage et al., 2008; Hansen, 2007). Second, the direct association between sexual minority status and risky outcomes among girls, regardless of harassment, suggests that adapting interventions addressing risky behaviors for sexual minority girls, in addition to more global programs targeting peer's attitudes, may be important for reducing negative health outcomes for this vulnerable population (e.g. Spoth, Gyll, & Day, 2002; Tait & Hulse, 2003).

Harassment played a different role in promoting risky behavior in sexual minority boys and girls, suggesting greater investigation into the impact of social integration in promoting risky behaviors within this population. As adolescents age, sexual minority youth in general, and boys in particular, may be better able to select an accepting peer group. Although this social inclusion may be beneficial to other psychosocial outcomes, it may also increase

opportunities for risky behavior, as indicated by research associating sexual minority status with increased rates of substance use across adolescence and early adulthood (Hatzenbuehler, et al., 2008; Marshal et al., 2009; Talley, et al., 2010). Ultimately, these findings support the inclusion of assessments of sexual minority status and harassment due to sexual minority status in large-scale, longitudinal studies of risky adolescent behavior and wellbeing.

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Figure 1.
Mediation model

Figure 2.
Moderation model

Figure 3.
Predicted levels of risky behavior among girls, by sexual minority status and harassment

Table 1

Descriptive statistics by gender (N = 957)

	Mean		Standard deviation		Minimum		Maximum	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Risky behavior	4.54	3.65	3.59	3.16	.00	.00	26.00	23.00
<i>Demographic Factors</i>								
Family income to needs ratio	5.15	5.32	6.04	5.44	.07	.08	64.55	42.92
Maternal education	14.35	14.56	2.46	2.43	7.00	7.00	21.00	21.00
<i>Socioemotional Factors</i>								
Victimization	.56	.43	.68	.57	.00	.00	4.00	4.00
Depression	1.49	2.52	2.11	2.99	.00	.00	12.00	18.00
Positive peer group	34.27	34.73	4.56	4.62	16.00	10	40.00	40.00
<i>Family Environment Factors</i>								
Parental monitoring	3.51	3.59	.32	.30	2.09	2.45	4.00	4.00
Parental warmth	28.63	29.19	5.25	5.58	9.00	11.00	36.00	36.00

Table 2
Standardized coefficients for mediational structural equation models of risky behavior, by gender (N = 957)

	Model 1		Model 2		Model 3	
	Boys	Girls	Boys	Girls	Boys	Girls
Sexual Minority Factors						
Sexual minority status	-.06	.24**	-.12**	.12**	-.17**	.11**
Harassment due to sexual minority status					.17**	.04
Demographic Factors						
Family income to needs ratio			.01	.02	.01	-.02
Maternal education			-.05	-.03	-.06	-.04
Race (not white)			-.15**	.02	-.14**	.02
Intact family (father at home)			-.09	-.13**	-.08	-.13**
Socioemotional Factors						
Victimization			.03	.02	.02	.01
Depression			.03	.12**	.01	.11**
Positive peer group			-.22**	-.27**	-.23**	-.27**
Family Environment Factors						
Parental monitoring			-.14**	-.16**	-.14**	-.16**
Parental warmth			-.07	-.18**	-.06	-.18**

* = $p < .05$,

** = $p < .01$.

Model 1: $\chi^2 = .00$, $df = 0$, $p < .00$, χ^2 male = .00, χ^2 female = .00, RMSEA = .00, CFI = 1.00. R^2 female = .06, R^2 male = .00.

Model 2: $\chi^2 = .00$, $df = 0$, $p < .00$, χ^2 male = .00, χ^2 female = .00, RMSEA = .00, CFI = 1.00. R^2 female = .31, R^2 male = .17.

Model 3: $\chi^2 = .00$, $df = 0$, $p < .00$, χ^2 male = .00, χ^2 female = .00, RMSEA = .05, CFI = 1.00. R^2 female = .31, R^2 male = .20.

Table 3

Standardized coefficients for moderational structural equation models of risky behavior, by gender (N = 957)

	Harassment due to Sexual Minority status		Risky behavior	
	Boys	Girls	Boys	Girls
Sexual Minority Factors				
Sexual minority status			-.21**	.04
Harassment due to sexual minority status			.13**	-.04
Harassment × sexual minority status			.09	.19**
Demographic Factors				
Family income to needs ratio	-.01	-.11**	.01	.03
Maternal education	.00	-.08	-.06	-.04
Race (not white)	-.06	.02	-.15**	.00
Intact family (father at home)	-.13**	-.09*	-.08	-.11*
Socioemotional Factors				
Victimization	.13**	.20**	.02	.00
Depression	.18**	.15**	.02	.11**
Positive peer group	.00	-.16**	-.24**	-.26**
Family Environment Factors				
Parent monitoring	-.07	-.07	-.14**	-.16**
Parental warmth	-.07	-.14**	-.06	-.18**

* = $p < .05$,** = $p < .01$.Model fit indices: $\chi^2 = .00$, $df = 0$, $p < .00$, $\chi^2_{\text{male}} = .00$, $\chi^2_{\text{female}} = .00$, RMSEA = .00, CFI = 1.00, SRMR = .00. $R^2_{\text{female}} = .33$, $R^2_{\text{male}} = .20$.