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Men's sexual orientation and suicide: Evidence for U.S. adolescent-specific risk

Stephen T. Russell*, Russell B. Toomey

University of Arizona, Norton School of Family & Consumer Sciences, 650 N Park Ave, PO Box 210078, Tucson, AZ 85721-0078, United States

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ABSTRACT

There is strong consensus in the research literature that adolescent and adult men who report same-sex sexual orientations, identities, and behaviors are at higher risk for suicide. Recent studies of general adolescent suicide risk have identified developmental trajectories that peak during the teenage years. Because the adolescent years are characterized by the development and heightened awareness of gender roles and sexual scripts closely tied to dominant cultural ideals of masculinity and heterosexuality, an adolescent-focused developmental trajectory for suicide risk might be particularly relevant for males with adolescent same-sex sexual orientations. We provide the first prospective examination of adolescent-specific risk for suicidality based on adolescent same-sex sexual orientation using data from the United States, the *National Longitudinal Study of Adolescent Health*. Tracing suicide ideation and attempts across four assessments from adolescence (Wave 1 average age 15.3 years) to young adulthood (Wave 4 average age 28.2), we documented that the risk for suicidal thoughts and attempts for adolescent same-sex attracted males is developmental in nature. Specifically, the risk for suicidal thoughts and attempts for males with same-sex attractions is largely limited to the adolescent years. These results offer new insights for suicide prevention and intervention for male adolescents and adults with same-sex sexual orientations.

Introduction

In research on men and suicide there is strong evidence that the risk for suicide (including ideation, plans, and behavior) is higher among gay and bisexual males (Legleye, Beck, Peretti-Watel, Chau, & Firdion, 2010; McDaniel, Purcell, & D'Augelli, 2001; Plöderl, Kralovec, & Fartacek, 2010; Russell, 2003). Consistent results have been found in studies of men based on measures of same-sex sexual identities (identifying as gay or bisexual), behaviors (engaging in same-sex sexual behavior), and orientations (reporting attraction to or desire for the same-sex). In this paper we refer to multiple dimensions of same-sex sexuality as same-sex sexual orientation (SSSO). Further, this suicide risk has been documented in multiple countries using population-based studies of SSSO adult males (Fergusson, Horwood, & Beautrais, 1999; Fergusson, Horwood, Ridder, & Beautrais, 2005; Paul et al., 2002; Silenzio, Pena, Duberstein, Cerel, & Knox, 2007; Skegg, Nada-Raja, Dickson, Paul, & Williams, 2003) and adolescent males (Garofalo, Wolf, Wissow, Woods, & Goodman, 1999; Remafedi, French, Story, Resnick, & Blum, 1998; Russell & Joyner, 2001; Wichstrøm & Hegna, 2003). The risk for suicide has been documented at multiple ages for SSSO men. Based on those findings, it generally has been presumed that same-sex sexuality is a marker for suicide risk for males beginning in adolescence and continuing through adulthood.

Drawing from recent research on general adolescent suicide and from the literature on SSSO adolescents, we hypothesize a developmental course of suicide risk for SSSO men. In particular, we hypothesize that the SSSO male risk for suicide is adolescent-specific. Recent research indicates that in the general population, adolescence is the period of the lifespan with the highest reported suicide risk (Kerr, Owen, & Capaldi, 2008; Kerr, Owen, Pears, & Capaldi, 2008; Kessler, Borges, & Walters, 1999; Rueter & Kwon, 2005). According to the Centers for Disease Control and Prevention (2009), adolescent suicide is the third leading cause of death: nearly 15% of adolescents (ages 10–24) seriously consider suicide and nearly 7% report suicidal behavior in the past year. This adolescent-specific suicide risk has not been reported for SSSO males, but may be particularly relevant for them for several reasons. Recent cohorts of gay adolescents appear to be developing same-sex awareness and "coming out" (that is, disclosing their same-sex identities to others) at younger ages compared to prior cohorts (Floyd & Bakeman, 2006; Ryan & Futterman, 1998). This earlier age at same-sex awareness and identification coincides with

* Corresponding author. Tel.: +1 520 621 1231; fax: +1 520 621 9445.
E-mail address: strussell@arizona.edu (S.T. Russell).

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developmentally typical heightened awareness of gender roles and expectations of masculinity and heterosexuality among adolescents (Galambos, Almeida, & Petersen, 1990; Pascoe, 2007). Consequently, SSSO males may be identifying and self-labeling their same-sex sexuality at the same time that such personal awareness is most likely to conflict with peer social pressures regarding gender and sexuality (Poteat, Espelage, & Koenig, 2009). Based on these areas of research, we hypothesize that the heightened risk for suicide in the general adolescent population may be accentuated for contemporary SSSO males due to an earlier developmental awareness of same-sex sexuality coupled with the intensification of gender roles and expectations of masculinity and heterosexuality during this developmental period.

In the review that follows we briefly review evidence for suicide risk among SSSO adolescent males and examine the developmental trend in suicidality that is evident in studies of general populations of adolescents. We then discuss the distinctiveness of SSSO for suicide risk among adolescent and adult males. Finally, we examine the possibility of adolescent-specific risk for suicide among SSSO males using data from four waves of the United States' *National Longitudinal Study of Adolescent Health* (Add Health).

Same-sex sexual orientation, adolescents, and male suicide risk

Multiple studies have documented the elevated risk for suicide among SSSO adolescents (Faulkner & Cranston, 1998; Garofalo et al., 1999; Remafedi, 2002; Russell & Joyner, 2001). A recent meta-analysis found that the prevalence of suicidal behavior across the lifespan in SSSO males was more than four times that of heterosexual males (King et al., 2008). In addition, there is some evidence from studies of adult gay and bisexual men that lifetime reports of suicidal ideation and behavior may be largely due to suicide risk during the adolescent years. A cross-sectional study of men who have sex with men (MSM) in the United states found a high rate of self-reported lifetime suicidal behavior and that most suicidal behavior occurred before age 25 (Paul et al., 2002). Analyses of a general population survey in the Netherlands showed that, compared to heterosexual men, younger homosexual men were at greater risk of suicidality than older homosexual men (there were no similar results for females; de Graaf, Sandfort, & ten Have, 2006). The results of these studies provide further evidence that in studies of SSSO adult males, reports of lifetime suicidality may in fact refer to heightened risk for suicide during the adolescent years.

Considering the general adolescent population, recent research suggests that adolescence is the period in the lifespan of highest suicide risk; specifically, several studies have identified a developmental trajectory of suicide risk that peaks during the teenage years and levels off in adulthood (Kerr, Owen, Capaldi, et al., 2008; Kerr, Owen, Pears, et al., 2008; Rueter & Kwon, 2005). As a developmental period characterized by intense physical, emotional, and social change, it is perhaps not surprising that suicidality peaks in adolescence. In anticipation of the transition to young adulthood, adolescents begin to form increasingly autonomous identities, beliefs, and values, and experience a growing responsibility for these dimensions of self. Adolescents are expected to navigate multiple sociocultural milestones ranging from achievement in education, development of skills and plans for workforce participation, and citizenship, all the while developing individuation from parents and maintaining extra-family intimate relationships (including friendships and romantic intimacy). Failure or mistiming of these developmentally-specific tasks in adolescence may explain the unique heightening of suicidality in this period (Connor & Goldston, 2005). That is, adolescents risk personal sense of failure along with possible alienation and rejection from peers, family members, and community members if they do not fulfill such expectations. Such failed expectations or negative attributions about the self, and perceptions that others hold these views, are understood as a key mechanism in depression and suicide risk (Harter, 1990).

We suggest that these general adolescent processes may be particularly relevant for SSSO adolescent males. The adolescent years are characterized by intensified expectations regarding gender and masculinity (Galambos et al., 1990) that are defined by imperatives for heterosexuality (Oswald, Blume, & Marks, 2005; Pascoe, 2007). The personal sense of failure or negative self-attributions that have been identified as crucial in adolescent mental health (Harter, 1990) may be distinctive for SSSO boys as they encounter adolescent social pressures regarding masculinity, which is explicitly defined for contemporary males in terms of heterosexuality (Pascoe, 2007; Plummer, 1999; Swain, 2000). That is, socialization in adolescence emphasizes strict adherence to the maintenance of hegemonic masculinity. Studies of general adolescent populations have documented that males who do not conform to stereotypical gender norms experience negative reactions from peers and family members (e.g., Carver, Yunger, & Perry, 2003). These findings are consistent in studies of gay male youth (e.g., D'Augelli, Grossman, & Starks, 2006). Further, prior research has demonstrated that compared to women, both heterosexual and SSSO men are more to likely to follow masculinity norms and to adhere to heteronormative expectations; thus, constructions of masculinity have been identified as an explanation for disproportionately higher negative health outcomes for men (Courtenay, 2000). Our point is that same-sex sexuality in males is by definition an affront to heterosexuality and therefore, particularly in adolescence, an affront to masculinity. Although female same-sexuality is counter-normative, female adolescents (both heterosexual and those with SSSO) generally experience less rigid expectations and pressures regarding gender and sexuality (D'Augelli, Grossman, & Starks, 2008; Galambos et al., 1990; Oswald et al., 2005; Pascoe, 2007).

In addition to gender and sexuality norms, there are several trends that shape the context for potential vulnerability for SSSO males. Only recently have there been gay and bisexual male *adolescents*: contemporary gay and bisexual male teens are the first cohorts to develop self-awareness and to come out to themselves and others during the adolescent years in large numbers (Floyd & Bakeman, 2006; Ryan & Futterman, 1998). Further, a number of studies have identified the development of same-sex sexual identities and the coming out process as psychologically stressful. One study showed that among gay male youth, gay-related suicidal behavior were closely timed with the age of coming out to parents (D'Augelli et al., 2005). In addition, in two other studies, suicidal behavior among LGB-identified youth was more closely linked to age of "coming out" than to chronological age (Paul et al., 2002; Remafedi, Farrow, & Deisher, 1991). The trend in earlier ages at same-sex awareness and coming out coupled with research that points to the psychological difficulties of the coming out process suggest that same-sex awareness and identity development may make adolescence a particularly vulnerable period for SSSO males.

In summary, empirical evidence points to the adolescent years as a period for potentially highest risk for suicide in the general population and among SSSO males. In the context of multidimensional developmental changes of the adolescent years that include the intensified awareness and participation in cultures of masculinity and heteronormativity, youth who perceive that they fail to meet personal and social expectations may be vulnerable for compromised mental health and suicide. For SSSO males, the earlier age of coming out coincides with psychological stressors associated with sexual orientation identity development and disclosure; these stresses are compounded by heightened

awareness of and conformity to imperatives for heterosexuality. Given our developmental contextualization of adolescent SSSO, we hypothesize that males with adolescent SSSO will have heightened risk for suicide that is specific to adolescence and that this risk does not continue into adulthood. There have been no prospective studies of adolescent SSSO males that trace risk for suicide across adolescence and into adulthood; we examine this possibility using a nationally representative prospective study of males from the United States.

Data and methods

We use data from four waves of the *National Longitudinal Study of Adolescent Health* (Add Health; Harris et al., 2009). Add Health is the first nationally representative survey in the United States that incorporated measures about adolescent sexual orientation. To collect a nationally representative sample, Add Health utilized a random sample of high schools in the United States stratified by region (i.e., Northeast, Midwest, South, and West). Over 90,000 adolescents in grades 7 through 12 (ages 12–18) completed an in-school survey in 1994 and 1995 in the original sample. Of those youth, more than 20,000 adolescents were included in the sample that completed the in-home interview at Wave 1; 85% of those adolescents had a parent, typically a mother or mother figure who completed a parent survey at Wave 1. Approximately one year later, in 1996, participants were re-interviewed at Wave 2 for the study. Adolescents who were in 12th grade at Wave 1 data collection and an initial oversample of disabled population were not included in Wave 2, which limited the sample size to 14,738 adolescents. Over 15,000 youth were re-interviewed in 2001 and 2002 for Wave 3, which occurred when the participants were 18–26 years old; participants were interviewed again at Wave 4 between 2007 and 2009 when the participants were 24–33 years old. Additional extensive information about the dataset is available at the Add Health website (http://www.cpc.unc.edu/projects/addhealth).

We included participants from all four in-home interviews who did not have missing data for key study variables (i.e., indicators of suicidality and sexual orientation, and socio-demographic covariates). The resulting sample included 7569 participants; however, our main focus is on the 3415 (45.12%) male participants. Of the male adolescents in our sample, the mean age at Wave 1 was 15.31 years (range 12–19 years) and at Wave 4 was 28.18 years (range 24–33 years). Nearly 61% of the male participants were White, 17% were Black, 15% were Latino, 5% were Asian, and less than 1% were Native American. The majority of male participants (61.5%) were in intact families at Wave 1 (i.e., they lived with both biological parents and/or two adoptive parents). According to parent reports, 7% of the male participants were in families that were receiving public assistance at Wave 1. The average number of years of parental education for the male sample was 14 years (range: less than 8th grade (8) to a graduate degree or professional degree (19)). Comparisons of confidence intervals and means for the socio-demographic characteristics for the female sample indicated no differences between the two groups. To account for the sampling design and sampling weights in Add Health, we utilize PROC SURVEY commands available in SAS 9.2 (Chantala, 2006; Harris et al., 2009). This project was approved by the University of Arizona Human Subjects Research and Institutional Review Board.

Measurement

Adolescent sexual orientation

We categorize sexual orientation based on reports of same-sex romantic attraction at Waves 1 and 2 (see Russell, 2006; Russell & Joyner, 2001). In Wave 1 participants were asked: "Have you ever had a romantic attraction to a female?" and "Have you ever had a romantic attraction to a male?" (0 = no, 1 = yes). In Wave 2, participants were asked separately about romantic attractions to males and females since the time of the last interview. In the analytic sample 8.32% (males: 9.55%) reported attraction to the same-sex (or to both sexes), 86.66% (males: 84.63%) reported exclusively heterosexual attractions, and 5.02% (males: 5.83%) reported no romantic attractions.

Suicide ideation and behavior

Suicidal ideation was measured at Waves 1 and 2 with the following question: "During the past 12 months, did you ever seriously think about committing suicide?" (no/yes). At Waves 3 and 4 participants were asked: "During the past 12 months, have you ever seriously thought about committing suicide?" (no/yes). If participants indicated that they had been suicidal, *suicidal behavior* was measured with the following question in Waves 1 and 2: "During the past 12 months, how many times did you actually attempt suicide?" (0 = 0 times, 1 = 1 time, 2 = 2 or 3 times, 3 = 4 or 5 times, 4 = 6 or more times). In Waves 3 and 4 participants were asked: "During the past 12 months, how many times have you actually attempted suicide?" (0 = 0 times, 1 = once, 2 = twice, 3 = 3 or 4 times, 4 = 5 or more times). For each wave we created a dichotomous measure of suicidal behavior (0 = never, 1 = 1 or more times).

To capture developmental trends we developed four categories based on reports of suicide in adolescence (Waves 1 and 2) compared to young adulthood (Waves 3 and 4). For suicide ideation and suicidal behavior separately, categories include:

1. *Adolescent limited*: suicidal ideation/suicidal behavior only during adolescence (Wave 1 or 2)
2. *Young adult limited*: suicidal ideation/suicidal behavior only during young adulthood (Wave 3 or 4)
3. *High risk*: suicidal ideation/suicidal behavior during both adolescence (Wave 1 or 2) and young adulthood (Wave 3 or 4), and
4. *No risk*: no report of suicidal ideation or behavior at any Wave of the study.

Analytic strategy

We first present frequencies of the developmental categories for suicidal ideation and suicidal behavior for males by sexual orientation. Based on previous reviews of covariates of adolescent

Table 1
Weighted frequencies (adjusted for study sampling design) of suicidal ideation by sexual orientation for males.

Suicidal ideation	Weighted sample size	Adolescent limited		Young adult limited		High risk		No risk	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
Same-sex sexual orientation	773,572	18.09[a]	(12.66, 23.51)	10.97	(6.99, 14.96)	5.02	(1.80, 8.23)	65.93[b]	(59.72, 72.13)
Heterosexual	6,309,903	10.24[a]	(9.01, 11.47)	7.39	(6.26, 8.51)	4.08	(2.92, 5.23)	78.30[b]	(76.48, 80.11)

Note. CI = confidence interval. Shared letters in columns represent significant differences between groups.

Table 2
Survey-adjusted multinomial logistic regression odds ratios predicting suicidal ideation risk categories for males.

Suicidal ideation			
	Adolescent limited	Young adult limited	High risk
Same-sex sexual orientation	**1.73 (1.13, 2.64)**	**1.85 (1.14, 3.01)**[a]	1.24 (0.66, 2.35)
Age	1.08 (0.98, 1.19)	**0.86 (0.78, 0.95)**	1.10 (0.90, 1.35)
Latino	0.93 (0.61, 1.41)	0.97 (0.63, 1.49)	0.52 (0.20, 1.35)
Black	0.68 (0.43, 1.09)	0.77 (0.45, 1.34)	0.62 (0.30, 1.28)
Asian	1.20 (0.53, 2.71)	0.79 (0.31, 1.99)	0.83 (0.32, 2.18)
Native American	1.57 (0.36, 6,80)	0.27 (0.04, 1.81)	0.48 (0.06, 4.27)
Parental education	1.03 (0.97, 1.10)	0.96 (0.90, 1.02)	1.02 (0.95, 1.11)
Received public assistance	1.50 (0.95, 2.36)	1.00 (0.51, 1.97)	1.81 (0.75, 4.40)
Intact family status	0.85 (0.59, 1.22)	0.81 (0.57, 1.14)	1.14 (0.71, 1.83)

Note. Significant odds ratios are indicated by bold font. All models control for no romantic attractions. Other-sex attractions are the reference group in the models.
[a] A post-hoc analysis revealed a statistically significant interaction ($b = -0.26$, $p < 0.05$): among young adult limited suicide ideators, adolescent SSSO males were younger on average than heterosexual males.

suicidality (e.g., Bridge, Goldstein, & Brent, 2006; Grosz, Zimmerman, & Asnis, 1995), we control for age, race/ethnicity (dichotomous variables for Black, Asian, Native American, and Latino, with White as the reference category), parental education (number of years of education of the parent with the highest education), intact family status (living at Wave 1 with married biological parents or with two adopted parents), and poverty status during adolescence (parent's report of receiving public assistance at Wave 1) in the multinomial logistic models. We used the survey frequency procedure in SAS to account for the stratified, random design of the study (i.e., school and region; Chantala, 2006). We then present multinomial logistic regression analyses (modeled with the PROC SURVEYLOGISTIC command) to predict the odds of being in one of the three developmental categories for suicidal ideation and behavior separately (no risk as the reference group).

Results

Frequencies of suicidal ideation are presented in Table 1. The risk for adolescent limited suicide ideation is greater for men with adolescent SSSO compared to their heterosexual counterparts. There are no significant sexual orientation group differences in the frequency of young adult limited or high risk suicide ideation. Due to their over-representation in the adolescent limited suicide ideation category, men with adolescent SSSO were less likely than heterosexual males to be in the no risk category. For suicidal behavior we are unable to present the frequencies in tabular format due to the small cell size for several suicide/SSSO subgroups (agreements for use of the full Add Health dataset include this provision in order to protect against deductive disclosure of participant identities). For both men with adolescent SSSO and heterosexual men, very few participants had engaged in suicidal behavior in both adolescence and adulthood. Additionally, the number of adolescent SSSO males who engaged in suicidal behavior in adulthood was minimal. Although we cannot represent these findings in quantitative form, we are able to discuss the trends that were present in the analyses: men with adolescent SSSO were not different than heterosexual males in adolescent limited, young adult limited, or high risk categories. However, men with adolescent SSSO were less likely than heterosexual males to report no risk for suicide attempts.

Table 2 displays the odds ratios and 95% confidence intervals in multinomial logistic models predicting the three risk categories (compared to no risk) adjusting for socio-demographic characteristics and the complex sample design. All models controlled for the no romantic attraction comparison group, age, race, years of parental education, whether or not parents received public assistance, and intact family status. For adolescent SSSO status, the reference group is heterosexual males.

Results show that after controlling for socio-demographic characteristics, men with adolescent SSSO are at greater risk for both adolescent limited and young adult limited suicidal ideation compared to their heterosexual counterparts (but were no more likely to be at high risk). Specifically, compared to heterosexual males, men with adolescent SSSO are more likely to report suicidal ideation limited to the adolescent years, and more likely than heterosexual males to report suicidal ideation limited to the young adult years. The one statistically significant covariate in addition to adolescent SSSO status was age; younger males were somewhat more likely to be included in the young adult limited suicidal ideation group. Because the introduction of these socio-demographic adjustments yielded a significant difference between adolescent SSSO and heterosexual men in young adult limited suicidal ideation, the sexual orientation group difference in young adult limited suicide ideation might be attributable to younger adolescent SSSO males. To explore this possibility we tested an interaction between age and sexual orientation. This post-hoc analysis revealed a statistically significant interaction ($b = -0.26$, $p < 0.05$); put simply, among young adult limited suicide ideators, adolescent SSSO males were younger on average than heterosexual males.

We do not present actual odds ratios for suicidal behavior because of small cell sizes in the young adult and high risk categories; however, results were consistent with those reported for suicidal ideation. That is, adolescent SSSO status predicted adolescent limited suicidal behavior; SSSO males are nearly three times more likely than their heterosexual counterparts to engage in suicidal behavior only during adolescence. Notably, there were no differences by sexual orientation in predicting young adult limited and high risk suicidal behavior.

A comparative assessment: adolescent-specific risk for females

We conducted survey-adjusted multinomial logistic regression results for female participants in the Add Health study as a comparison to the results for males (results available from authors on request). The findings show that, controlling for socio-demographic characteristics, adolescent SSSO females are at greater risk than heterosexual females for adolescent limited (*odds ratio* = 2.18) and high risk suicidal ideation (*OR* = 3.70), and for adolescent limited suicidal behavior (*OR* = 2.80).

Discussion and conclusion

We provide the first prospective examination of suicidality risk based on same-sex sexual orientation using data from the National *Longitudinal Study of Adolescent Health*. Tracing suicide ideation and

behavior across four assessments from adolescence (average age 15.2 years) to young adulthood (average age 26.2), we document that the risk for suicidal thoughts and behavior for adolescent same-sex attracted males is adolescent-specific and does not continue into adulthood. Specifically, the risk for suicidal thoughts and behavior is significantly higher during the adolescent years; further, men with adolescent SSSO are no more likely than heterosexual males to report suicidality in both adolescence and young adulthood.

An important nuance in our results is that after controlling for age, men with adolescent SSSO are more likely to report young adult limited suicide ideation. However, post-hoc analyses show that this effect is driven by younger men with adolescent SSSO. Given that the ages for the young adult period ranged from the youngest age of 18 at Wave 2 to the oldest of 33 at Wave 4, this finding bolsters our hypothesis that it is the adolescent period during which men with adolescent SSSO are at greatest risk for suicidality. In comparison, females who reported adolescent SSSO showed similar adolescent limited suicidal behavior compared to males; however, they were more likely to report suicide ideation in adolescence as well as young adulthood (they were more likely to be in both the adolescent limited as well as the high risk suicide ideation groups). Future research on SSSO female suicidal trajectories from adolescence to young adulthood is needed, especially in light of work that documents the fluidity of women's sexual orientation (Diamond, 2007).

Our hypothesis regarding adolescent-specific risk was framed by an understanding of the developmental concerns of adolescence, in particular the pressures of contemporary masculinity and heteronormativity for adolescent boys. We argue that these pressures are compounded for gay and bisexual boys as they develop same-sex awareness and come out at younger ages. Yet our study is only a first step in this area. We have the advantage of a large, nationally representative prospective study; however, because we do not have data about specific ages for periods of suicide ideation or behavior our indicators are a crude comparison of adolescence with young adulthood. Other studies have shown that trajectories of suicide risk across adolescence (increasing, decreasing, or no ideation) are predictive of suicidality in young adulthood (Rueter, Holm, McGeorge, & Conger, 2008); our points of measurement do not allow us to carefully capture this level of detail. Additionally, when we created our age-based dichotomous categories we truncated the variance associated with those outcomes and reduced statistical power (see Cohen, 1983). However, to test our hypothesis of an adolescent-specific suicide risk for SSSO males this reduction in statistical power was necessary.

Our measures of suicidal ideation and behavior were based on single item indicators at each wave and the wording of the items changes slightly from wave 2 to wave 3. Single item indicators do not provide enough information to assess reliability of measurement and have been shown to be a limitation in research on adolescent suicide (Gutierrez & Osman, 2008, 2009). Future research that examines same-sex sexual orientation and suicide risk should utilize multi-item scales to assess the suicidality of their participants. Another limitation is that no information was collected about the cause of death of participants during the study; therefore, actual suicide rates are unknown. This information would be valuable to understand the potential same-sex sexual orientation risk for suicide completion compared to heterosexuals. Recent studies have attempted to examine suicide mortality and the association with sexual orientation (Mathy, Cochran, Olsen, & Mays, 2009; Renaud, Berlim, Begolli,Mc Girr, & Turecki, 2010); however, these studies have used measures of "presumed" same-sex sexual orientation, such as key informant presumptions or marital and domestic partnership registries, and have not been able to use past self-reports of sexual orientation.

We are also limited in our measure of same-sex sexual orientation. In the introduction we note the multiple dimensions of same-sex sexuality; our measure is limited to self-reports of same-sex romantic attraction. However, as noted by others (Pearson, Muller, & Wilkinson, 2007; Russell, Seif, & Truong, 2001), romantic attractions may be a particularly appropriate indicator of sexual orientation during the adolescent years. In addition we are unable to examine group differences of those who report only same-sex attractions compared to those who report same- and other-sex attractions. Previous research has not identified differential suicide risk based on exclusive same-sex orientations compared to those with bisexual orientations (e.g., Russell & Joyner, 2001); however, the sample sizes in our study when divided into those categories are too small to retain the statistical power present in the analyses and to arrive at meaningful results (e.g., Cohen, 1969). Because Add Health did not examine sexual identity during the adolescent years, we were only able to examine sexual orientation as indicated by attractions. Although other studies have shown differences among adolescent who self-identify as gay or lesbian compared to those with SSSO (Zhao, Montoro, Igartua, & Thombs, 2010), assessment of attraction status may be a more developmentally appropriate indicator of sexual orientation, as noted by others (e.g., Pearson et al., 2007; Russell et al., 2001).

Multiple studies have been devoted to predicting the causes of suicide for gay men and boys (e.g., D'Augelli et al., 2005; Fergusson, Woodward, & Horwood, 2000; Paul et al., 2002; Remafedi et al., 1991; Silenzio et al., 2007; Wichstrøm & Hegna, 2003). Some have examined risk factors for suicide in the general population that are particularly salient based on sexual orientation (e.g., elevated depression, substance use or abuse, or suicide history), while others have sought to explain disproportionate risk based on factors that are unique to gay and bisexual youth (e.g., gender nonconformity, coming out, or gay-related stress; see Russell, 2003 for a review). In our study we cannot directly assess key mechanisms that may be at play: we do not have measures related to same-sex sexual awareness or coming out, or perceptions regarding peer and social pressures regarding masculinity and heterosexuality. Prospective studies that trace developmental risk for suicide along with normative and unique risk factors would contribute a great deal of information about the health and well-being of gay and bisexual boys and men.

The results of our study must be understood in historical context as well. The SSSO adolescents of the Add Health study came of age in the mid- and late 1990s; they were among the first cohorts of youth for whom same-sex sexual identities were possible. It is likely that some of them "came out" as adolescents; however, now over a decade later, youth come out as gay or bisexual at younger ages and in larger numbers (Floyd & Bakeman, 2006). On one hand the visibility and possibilities of gay and bisexual lives make coming out possible for young men; on the other hand, our review of current research shows that there remain notable mental health disparities for contemporary gay and bisexual young men. In the context of persistent gender and sexuality norms for today's adolescents, it appears unlikely that the social changes of the last decades would markedly change the results of our study were it replicated with a younger cohort. However, only future prospective studies will provide those answers.

Finally, our results have important implications for suicide prevention and intervention for gay and bisexual males. Aside from best practices in suicide prevention for adolescent males in the general population, there is very little empirical evidence from which to design prevention and intervention for suicide with gay and bisexual males (Russell, 2003). Although we caution that our results should be replicated before strong conclusions are made for guiding prevention and intervention, several observations may be productive. Most generally our results caution that "gay male

suicide" should not be viewed as a singular risk state across the lifespan. We point to specific factors – intensified adolescent developmental imperatives surrounding masculinity and heteronormativity, and trends in young ages at self-awareness and coming out – that may be particularly relevant for interrupting the dynamics of negative self-appraisal that may lead to suicidality among adolescent boys (Connor & Goldston, 2005). Equally important, the results suggest that suicidality among adult gay and bisexual men should not be assumed to be indicative of a lifetime of persistent gay-related stress that may have had its origins earlier in life, but rather should be understood in the context of concurrent life events and stressors. Given the persistent evidence of disproportionate risk for suicide among gay and bisexual males, directions for prevention and intervention are urgently needed.

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