



## School outcomes of sexual minority youth in the United States: evidence from a national study

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Using data from the Add Health Study, the first nationally representative study of adolescents in the U.S. to include information on same-sex romantic attraction, we examine school outcomes (school troubles, attitudes, and performance) of same-sex attracted youth within the context of four relational domains: family, teacher, social, and peer. Results indicate that each domain plays a role in the negative attitudes about school held by these sexual minority youth. However, sexual minority youths' feelings about their teachers play an important role in explaining school troubles.

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### Introduction

The experience of sexual minority adolescents in schools is attracting the attention of increasing numbers of counselors, parents, and public policy makers. The well-being and safety of these youth has been debated in the United States. Educational and policy changes reflecting this new awareness in the U.S. is evidenced by a Massachusetts Governor Commission's report *Making Schools Safe for Lesbian and Gay Youth* (1993). In 1999, the state of California enacted legislation that "protects students in California's public schools... from harassment and discrimination on the basis of actual or perceived sexual orientation" (Keuhl, 1999).

Yet there are limited empirical data available to assist concerned counselors, parents, educators and policy makers in assessing the magnitude of school-related problems for sexual minority youth, particularly the complex factors from multiple domains of adolescents' lives that may contribute to their marginalization—or resilience—within the educational system. Most of the writings on sexual minority adolescents in the context of schools consist of studies from small, convenience samples (e.g. D'Augelli and Hershberger, 1993; Herdt and Boxer, 1993; Savin-Williams, 1989), case examples (e.g. MA Governor's Commission on Gay and Lesbian Youth, 1993), or non-empirical information, including journalistic contributions (e.g. Woog, 1995; Bennett, 1997), advocacy (e.g. Rofes, 1989; Elia, 1994), policy recommendations (e.g. Harbeck, 1994; Swan, 1997), or assistance for teachers and counselors (e.g. Dombrowski *et al.*, 1996; Black and Underwood, 1998; Cooley, 1998; Fontaine, 1998; Walters and Hayes, 1998).

Although the quality and amount of empirical data related to this population has blossomed over the past decade, the majority of these studies have utilized non-generalizable samples of self-identified gay and lesbian youth. These teenagers usually are recruited for study because of their participation in targeted organizations (e.g. gay and lesbian community centers, support groups). Further, less prior research has focused on bisexual sexual orientation. This may be due in part to limitations of the samples used (that is, youth who

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identify as “gay” or “lesbian”). However, it may also be due, in part, to the bias on the part of researchers who assume that an adolescent report of bisexuality is a precursor to gay or lesbian identity (Herdt and Boxer, 1995). Multiple past studies group lesbian, gay, and bisexual (LGB) youth together for study without examining potential within-group differences (Lock and Steiner, 1999).

This study seeks to address these limitations of past research through an analysis of the school outcomes of youth who participated in the 1995 National Longitudinal Study of Adolescent Health (Add Health) and indicated that they are romantically attracted to the same sex. Add Health is the first nationally representative study of U.S. adolescents that incorporates questions relevant to adolescent sexual orientation. We use the term “sexual minority” because we do not know the *sexual identity* of the participants in the Add Health study, but their same-sex romantic attraction sets them apart from their peers both theoretically, and, as our study indicates, through their differential experiences at school. The study includes detailed information from adolescents and a responding parent that provides researchers with the possibility to examine school outcomes within the broader context of adolescents’ lives. This is the first large-scale study of which we are aware that includes information relevant for measuring same-sex romantic attraction along with adolescents’ perceptions of their relationships with family, teachers, other adults, and peers (four “relational domains”). Thus, we are able to examine the degree to which these relational domains shape the school troubles, school attitudes, and academic performance of sexual minority adolescents in the U.S.

## **Past research on adolescent sexual orientation**

### *Sexual orientation and school outcomes*

Much research on sexual minority youth within school environments has been written by and for school counselors with the goal of creating supportive school environments (Dombrowski *et al.*, 1996; Black and Underwood, 1998; Cooley, 1998). A recent study documents that gay and lesbian students come to school counselors for assistance with depression, poor self-esteem, social isolation, and elevated suicide risk (Fontaine, 1998). In interviews of 50 self-identified homosexual students, school-based homophobia was found to be associated with lower self-esteem and increased likelihood of self-destructive behavior (Uribe and Harbeck, 1991).

Some studies have begun to document the negative attitudes of school counselors and teachers, and an overall hostile school environment for LGB youth. Data from a national survey of 289 secondary school counselors indicates that 20 per cent expressed misgivings regarding their own ability to adequately counsel gay adolescents (Price and Telljohann, 1991). One-fourth of counselors reported that teachers exhibit prejudice toward gay students, and 41 per cent believed schools were inadequate in their actions to assist these students. A study of 89 male and 31 female self-identified homosexual youth found that only one-fourth of the students stated that they were able to talk with school counselors about sexual orientation. Half of the students asserted that homosexuality had been discussed in their classes, yet within that group, almost half stated that its treatment was negative (Telljohann and Price, 1993). A survey of high school students conducted by the Massachusetts Governor’s Commission on Gay and Lesbian Youth (1993) revealed that

97.5 per cent of 398 respondents reported hearing homophobic remarks at school; 49 per cent of students reported hearing such comments frequently.

Based on this work we anticipated that sexual minority adolescents would report more negative attitudes toward school, more school troubles, and lower grades when compared to their heterosexual peers. Compromised family, teacher, social, and peer relationships (discussed below) are expected to be associated with negative school attitudes, school troubles, and reduced GPA, explaining a significant portion of (if not fully explaining) the differences between sexual orientation groups. We also anticipated differences in the relevance of the relational domains for boys and girls. Chodorow's theory of gender and human development suggests that through adolescence girls define themselves in terms of association with primary figure in their lives (mothers, family), while boys define themselves in relation to the social world (Chodorow, 1974, 1989). Thus, we anticipated that family factors would play a stronger role in mediating the effects of sexual orientation on school troubles for girls, and that social and peer factors will have stronger mediating effects for boys.

### *Adolescent sexual orientation and four relational domains*

The majority of research on adolescent sexual orientation focuses on problem outcomes (e.g. elevated risks of suicide, substance abuse, depression, and sexual practices), or developmental trajectories of identity. While adolescent/parent relationships are central to healthy adolescent development (Elder, 1992), they only recently have become a focus of empirical research on sexual minority youth (Savin-Williams, 1989). Prior research on the relationships of sexual minority youth with their families has largely been about the effects of coming out on parent-child relationships (Boxer *et al.*, 1991; Ben-Ari, 1995; Savin-Williams, 1998; Waldner and Magruder, 1999). This body of research suggests that coming out to parents is stressful for the family system, at least in the period immediately following disclosure (Savin-Williams, 1998). Over two-thirds of the gay- and lesbian-identified adolescents in a recent study reported that it was "somewhat" or "extremely" troubling to come out to parents (Pilkington and D'Augelli, 1995). An earlier study found that one-fifth of a sample of 194 youth had mothers who were intolerant or rejecting of their sexual orientation after disclosure (D'Augelli and Hershberger, 1993). In another study of 138 gay and bisexual teen males, stress over coming out to families was significantly associated with suicide attempts (Rotheram-Borus *et al.*, 1994).

Based on the research literature on adolescent sexual orientation and adolescent development, we anticipated that all adolescents would spend similar amounts of shared time with families (activities with parents). However, we expected that sexual minority youth would rate family relationships and affective interactions lower when compared to heterosexual peers. Parents of self-identified sexual minority youth were expected to rate the relationship with their adolescent child lower than parents of heterosexual youth. Our study does not include information on adolescents' self-identification as LGB, and thus our measure of adolescent sexual orientation likely includes pre-LGB-identified youth (described in detail below). Therefore, we anticipated no sexual orientation group differences in the reports by parents of their relationships with study youth.

Compared to research on the role played by the family in the lives of gay and lesbian youth, much less has been written about the roles of teachers and other adults in the social world, or of peers. The research on school outcomes summarized above highlights the importance of teachers for creating supportive learning environments, as students who

experience homophobia in schools are likely to experience psychosocial distress (Uribe and Harbeck, 1991; Walters and Hayes, 1998). Supportive teachers and non-family adult role models are important for healthy adolescent development in general (Coleman and Hoffer, 1987; Coleman, 1988). However, less research examines the association between sexual minority adolescents' relationships (with teachers or other adult relationships) and school outcomes. We expected sexual minority adolescents to score lower than their heterosexual peers on positive feelings about teachers. Compared to heterosexual adolescents, we anticipated that sexual minority youth will perceive more hostility in their social environments, and less caring from non-family adults.

Finally, peers play an important role in the lives of adolescents, serving as the first non-family reference group as many "try on" adult roles during the teenage years (Brown, 1990). Consistent with findings regarding coming out and family relationships, a recent study reported that the increased prevalence of suicidality among sexual minority youth was associated with the loss of friends due to the disclosure of sexual orientation (Hershberger *et al.*, 1997). Results of an institutional ethnography of gay teenagers in high school found that an ideology of "fag"—encompassing verbal abuse, graffiti, and other anti-gay activities—permeated everyday relations among students (Smith and Smith, 1998). We expected that the sexual minority adolescents in our study would perceive less social acceptance when compared to their peers, and will report less active peer networks.

### *Gender and identity*

There have been far more studies of male sexual minority adolescents compared to females, due to the greater proportion of males utilizing social services for sexual minority youth, and the critical problem of HIV transmission among gay adolescents and funding opportunities for its study and prevention since the 1980s (e.g. Rotheram-Borus *et al.*, 1994; Rosario *et al.*, 1996; Rhoads, 1997; Anderson, 1998). Also, past studies have focused upon self-identified gay and lesbian youth; few specifically examine those with sexual desires for or behavior with the same sex who identify as bisexual, or embrace alternative labels utilized by younger cohorts such as "queer" (notable exceptions include Diamond (1998), and Jordan *et al.* (1997)).

Bisexuality rarely has been the focus in empirical research related to adolescent sexual orientation. In most studies, sexual minority youths with attractions to the same sex are generally aggregated in one category, such as "gay and lesbian", "gay, lesbian, and bisexual", or "sexual minority". This common practice may reflect the small numbers of sexual minorities in population-based studies, as well as researchers' assumptions that youthful bisexuality does not represent a fully formed adult identity (MacDonald, 1981; Doll, 1997). In several studies, youth who are sexually attracted to or active with the same sex yet report a primarily heterosexual orientation (Hershberger *et al.*, 1997), or who are unsure of their sexual orientation (Garofalo *et al.*, 1998) have been excluded from study. In a rare study related to adolescent sexual orientation that disaggregates bisexual adolescents, those who self-identified as bisexual were five times more likely to have attempted suicide more than once when compared to lesbian- or gay-identified participants. The authors conclude that more attention should be paid to the specifics of sexual minority suicide attempters in future studies, including the disaggregation of bisexuals (Hershberger *et al.*, 1997).

In summary, much of the past research has emphasized the risks experienced by gay- and lesbian-identified youth. However, the few studies that compare experiences based on same-sex only *vs.* bisexual orientation leave us to question the degree to which exclusively

same-sex youth may be at greatest risk for negative outcomes in their lives. Thus, we do not anticipate differences between same-sex and bisexual orientation in family, teacher, social, and peer relationships, or school outcomes. We do, however, anticipate that family relationships will play a greater role in explaining the depressed school outcomes of sexual minority girls, and that social and peer relationships will play a greater role in explaining the depressed school outcomes of sexual minority boys.

## Method

### *Data source*

The National Longitudinal Study of Adolescent Health (“Add Health”) is the most recent, comprehensive study of adolescents in the U.S. (Bearman *et al.*, 1997). More than 11,000 7th to 12th grade students and one parent (usually a mother) participated in the first wave of this study. We limit our analyses to adolescents between ages 12 and 19. Further, because parental reports of the parent/child relationship are critical to our hypotheses, we limited the sample to cases with complete parental reports (80.7 per cent of the total sample included complete parental reports). This potentially biases our results, as the family relationships and school outcomes of youth whose parents did not participate might differ from those of youth with participating parents. We tested models including all youth in the study (with parental report of education controlled but mean-coded), and ran final models excluding our measure of negative parental attitudes. Few substantive differences were found; thus, we report analyses on a slightly smaller sample including parent reports, recognizing the potential differences that may exist between children who had parents (mostly mothers) who were present and able to respond to the survey, and children who did not.

In order to maximize the sample size given the low prevalence of sexual minority youth in the general population, we include the study’s over-samples of racial and ethnic groups. Our final models adjust for the contributions of these over-sampled youth and the stratified sample design of the Add Health study using survey regression methods.

Portions of the interview, including information on same-sex romantic attraction, were collected through the use of Audio-CASI (audio computer-aided self-interview). Respondents listened to questions through earphones, and their responses were recorded on a laptop computer. Past studies report a high level of self-disclosure bias in interviewer-administered surveys on sensitive behavior; interviewing methods that afford greater privacy have been found to result in higher reporting rates. Specifically, the Audio-CASI method has been demonstrated to reduce the potential for interviewer or parental influence on the responses of adolescents (Supple *et al.*, 1999; Turner *et al.*, 1998). The potential drawbacks of this method include the lack of educational and therapeutic benefits often reported by those who are interviewed on sensitive topics, and the inability of a computer to clarify the meaning of questions or refer study participants to needed social services (Turner *et al.*, 1997). However, it may be argued that the benefits of higher reporting of sensitive behavior are outweighed by these shortcomings. For example, there is evidence of a two- to five-fold increase in the number of adolescent males who reported having same-sex sexual contacts in the audio-CASI portion of the 1995 National Survey of Adolescent Males (NSAM) as compared to the self-administered questionnaire (SAQ) portion (Turner *et al.*, 1997). Nevertheless, the complex meanings of the subjective reports of same-sex sexual contact by adolescent males can only be assumed by the use of this method. Thus, while the

audio-CASI method may be one of the most accurate available for the purpose of obtaining information on adolescent sexual feelings and behavior, all methods will be highly imperfect and will reflect negative biases as long as adolescent expressions of sexuality are suppressed and same-sex sexuality is stigmatized.

### *Measures*

*Sexual orientation.* Two questions on the Wave I in-home survey measure a young person's romantic attractions: "Have you ever had a romantic attraction to a female?" and "Have you ever had a romantic attraction to a male?" These measures enable attention to romantic attraction that is based not only on same-sex *vs.* other-sex orientation. We distinguish between exclusively heterosexual, exclusively same-sex, and bisexual romantic attractions for the teenagers in the study. We use the terms "heterosexual", "bisexual attractions", and "exclusively same-sex attraction" for ease of presentation. We do not, however, assume that these are identities claimed by the youth in our study.

The Add Health Study does not include measures of sexual identity (self-identification as gay, lesbian, or bisexual). Thus, we cannot directly compare our results with previous studies of adolescents who identify themselves as gay or lesbian. Despite this drawback, we believe that this measure taps a dimension of *sexual orientation* in a way that past measures of *sexual identity* do not. A limitation of past studies of gay and lesbian teenagers is that they exclude adolescents who have not yet identified themselves as gay or lesbian (Savin-Williams and Rodriguez, 1993). Because the Add Health Study includes information about same-sex romantic attractions whether or not the respondents identify themselves as gay or lesbian, our measure of same-sex romantic attraction likely includes both self-identified and pre-identified LGB youth, as well as some youth that may never identify as LGB. We expect that our measure includes more youth than would have responded affirmatively to the LGB labels.

*School outcomes.* Our measures of school outcomes include self-reports of grade point average (GPA; averaged for reports of English, Math, History and Science, based on a 4-point scale, 4 = A), and indexes of school troubles and negative school attitudes. The school troubles scale is an average of three items pertaining to troubles during the 1995 school year: "getting along with other students", "paying attention", and "getting homework done" (0 = never, 4 = every day; Cronbach's alphas: boys = 0.65, girls = 0.66). The scale for negative school attitudes is an average of three items: "you feel close to people at your school", "you feel a part of your school", and "you are happy to be at your school" (1 = strongly agree, 5 = strongly disagree; alphas: boys = 0.75, girls = 0.79).

*Family.* We include four measures of family relationships. Positive family interaction is a three-item scale including how much the adolescent felt that: "people in your family understand you", "you and your family have fun together", and "you feel that your family pays attention to you" (averaged; 1 = not at all, 5 = very much; alphas: boys = 0.78, girls = 0.79). Positive relationship with mother is a four-item scale, averaging measures of mother's warmth, communication, closeness, and relationship satisfaction (1 = strongly disagree, 5 = strongly agree; alpha: boys = 0.82, girls = 0.87). Activities with mother is measured as the sum of five possible activities during the past four weeks, including going shopping, playing a sport, and going to a religious service or church-related event (sum of five dichotomous measures; range = 0–5). Finally, parents reported on their relationship with the study child. Four measures were used in an average index of negative parental attitudes,

including how often it was true that: “you get along with with [him/her]”, and “you feel you can really trust [him/her]” (1 = always, 5 = never; alphas: boys = 0.72, girls = 0.74).

*Teacher.* Positive feelings about teacher scale is the average of three items, including: “how much do you feel your teachers care about you” (1 = not at all, 5 = very much), “during the school year, how often have you had trouble getting along with your teachers” (1 = everyday, 5 = never), and “the teachers at your school treat students fairly” (1 = strongly disagree, 5 = strongly agree) (Cronbach’s alphas: boys = 0.63, girls = 0.59). These alpha scores are lower than ideal. Due to their strong correlations, these items could not be included individually in multivariate analyses. Rather than rely upon a single item, we have chosen to include the three-item scale, noting the lower than desirable alpha).

*Social.* We include a composite measure (people dislike/unfriendly) of the adolescents’ perception of being disliked and receiving unfriendly treatment from others. Thinking of the past week, respondents were asked how often the following were true: “people were unfriendly to you”, and “you felt that people disliked you” ( $r$ , boys = 0.49, girls = 0.51). Feelings that adults care was measured with a single item (1 = not at all, 5 = very much).

*Peers.* Two measures are used to account for peer relationships. We include social acceptance in the peer domain under the assumption that most adolescents would interpret “you feel socially accepted” with regard to their peer group (1 = strongly disagree, 5 = strongly agree). Finally, number of activities with friends is measured as the average number of five possible activities during the past week reported for male and female friends separately, for a total of 10 possible activities (e.g. “went to his/her house”, “talked with him/her on the telephone”; boys: mean = 5.22, S.D. = 2.64, girls: mean = 5.68, S.D. = 2.56).

*Controls.* We control for race/ethnicity (dichotomous controls for Black, Hispanic, and Asian; White as reference category), parental education (parent report of number of years of education of parent with highest number of years), welfare status (dichotomous measure of current household dependence on public assistance), intact family (dichotomous: living with both biological or adoptive parents *vs.* other family forms), age, and pubertal development (average of two items for girls,  $r = 0.63$ ; three-item averaged scale for boys, alpha = 0.64).

### *Analysis plan*

We begin with comparisons of romantic attraction group differences in school outcomes, and across the four relational domains of interest. There are more missing data on GPA than for school troubles or positive school attitudes. As a result, our total sample size is slightly smaller when we focus attention on GPA. After examining mean-level differences, we develop predictive models for school outcomes to assess the degree to which sexual minority youth experience negative school outcomes within the context of the four relational domains. We first test four models corresponding to each of the separate relational domains, controlling for family and socio-demographic background characteristics. We then present a fifth, full model. Weighted survey OLS regression is used to account for the stratified sample design of the Add Health Study (Chantala and Tabor, 1999).

## Results

Among the youth of the Add Health Study, 7.4 per cent of boys and 5.3 per cent of girls reported same-sex romantic attraction. While more boys than girls reported same-sex attractions, fewer boys reported exclusively same-sex attraction compared to girls (boys: same-sex exclusively = 0.7%, both sexes = 6.5%; girls: same-sex exclusively = 1.5%; both sexes = 3.8%).

Group differences on measures for each of the relational domains and the school outcomes are presented in Table 1. Differences between males and females and within romantic attraction groups are clear. Strong significant romantic attraction group differences are found for nearly all measures for girls; weaker differences are found for boys, and on fewer indicators of relationships and school outcomes. Closer inspection shows that, contrary to our expectations, some of the strongest differences are found when comparing heterosexual youth to those who report bisexual attractions—particularly for boys.

For school outcomes, we find that sexual minority girls report less positive attitudes about school, and more school troubles. The latter is particularly the case for girls reporting bisexual attractions. There is a tendency for these girls to report lower GPAs than their heterosexual peers, but this effect is not strong. Surprisingly, only bisexual-attracted boys appear to experience compromised school outcomes—school troubles and lower GPAs. We had anticipated that attitudes toward school would parallel school troubles and grades, yet there are no significant romantic attraction group differences for boys. Perhaps most surprisingly, and contrary to our hypothesis, boys reporting exclusively same-sex attractions do not differ from their peers on school outcomes.

Many of our hypothesized associations for the relational domains for girls are supported. With the exception of activities with mother, each factor associated with family, teacher, and social contexts shows compromised relationships for sexual minority girls. In most cases this is true for girls in both the same-sex and bisexual attraction groups. Girls reporting bisexual attraction, however, fare particularly poorly on feelings about their teachers, and on positive interaction within the family. The only differences *within* the sexual minority group for girls have to do with the maternal relationship; there is a tendency for girls reporting exclusively same-sex attractions to score the very lowest on the maternal relationship scale, and for their mothers to report higher negativity toward daughters.

For males, we find only weak romantic attraction differences in adolescent reports of family relationships, and no differences in feelings about teachers. There are marginally significant associations, suggesting that parental negativity is highest for boys reporting bisexual attraction, and that boys reporting exclusively same-sex attraction spend more time with their mothers in daily activities. Contrary to our expectation that sexual minority youth will have compromised peer networks, the boys and girls reporting bisexual attraction report *more frequent* activities with their peers than either heterosexual or same-sex attraction peers. At the same time, however, boys reporting bisexual attractions are significantly more likely than heterosexual boys to feel disliked and that they perceive others are unfriendly to them.

We now turn to multivariate models that predict school outcomes. Essentially, our motivation is to examine the degree to which differences based on adolescent romantic attraction in school outcomes can be explained by family, teacher, social, and peer factors. If these domains provide insight into romantic attraction differences, we are interested in which domains are most important for understanding why sexual minority youth might be at risk for negative outcomes. For attitudes toward school, there were no significant romantic

**Table 1** Mean differences between sexual orientation groups on family, teacher, social, peer, and school outcomes; Add Health. ANOVA analyses controlling for race/ethnicity, parental education level, welfare status, intact family, age, and pubertal development

	Males				Females			
	Other	Same	Both	Difference	Other	Same	Both	Difference
<i>School outcomes</i>								
Positive school attitudes	3.78	3.67	3.74		3.76	3.42	3.48	O>S**; O>B***
School troubles	1.18	1.32	1.31	O<B*	1.02	1.17	1.28	O<S+; O<B***
GPA	2.62	2.72	2.49	O>B*	2.85	2.74	2.72	O>B+
(n)	(5279)	(43)	(375)		(5802)	(94)	(232)	
<i>Family</i>								
Positive family interaction	3.77	3.92	3.79		3.70	3.50	3.43	O>S+; O>B***
Positive relationship with mother	4.38	4.34	4.36		4.24	3.78	3.99	O>S, B***; S<B+
Activities with mother	1.51	1.82	1.52	O<S+	1.71	1.52	1.56	O>B+
Negative parental attitudes	1.78	1.68	1.85	O<B+	1.80	2.04	1.94	O<S, B***; S>B+
<i>Teacher</i>								
Positive feelings about teacher	3.69	3.74	3.63		3.75	3.62	3.52	O>B***
<i>Social</i>								
People dislike/unfriendly	0.37	0.40	0.46	O<B**	0.39	0.54	0.53	O<S*, O<B***
Feeling that adults care	4.34	4.16	4.29		4.47	4.25	4.27	O>S*; O>B***
<i>Peers</i>								
Social acceptance	0.83	0.84	0.84		0.95	1.14	1.17	O<S+; O<B***
Number of activities with friends	5.21	4.86	5.60	O<B*	5.68	5.75	6.05	O<B+
n	(5334)	(44)	(380)		(5855)	(94)	(233)	

+ $p < 0.05$ ; \* $p < 0.01$ ; \*\* $p < 0.001$ ; \*\*\* $p < 0.0001$ .

attraction effects for boys, consistent with results presented in Table 1. Also, there were no significant romantic attraction effects in analyses predicting girls' GPA. However, for girls, the mean-level differences observed in school attitudes operates through *each* of the relational domains we examine; romantic attraction effects drop to insignificance when each domain is included individually. Thus, *each of these domains* plays a role in the negative attitudes sexual minority girls tend to have toward school. We present survey regression results only for those school outcomes for which there were significant romantic attraction effects in at least one of the presented models. Thus, we present regression results below for the remaining models: school troubles for boys and girls (Table 2), and GPA for boys (Table 3).

The results for school troubles presented in Table 2 indicate that feelings about teachers play the largest role in predicting the troubles of both boys and girls with bisexual attractions in school—paying attention, getting homework completed, and getting along with other students. In addition, as expected, social relationships (feeling disliked/that people are unfriendly and feeling that adults care) are significant in explaining school troubles for boys attracted to both males and females. For girls, we expected family factors to account for the effect of bisexual attractions on school troubles, and peer factors to play the same role for boys. This is only partially the case (bisexual attraction effects drop to  $p < 0.05$ ; for girls, model 1; for boys, model 4). Contrary to our expectations, it appears that social and family factors have similar effects for males and females.

Finally, Table 3 indicates that none of the relational domains that we examined can explain the significantly lower GPA scores of boys with bisexual attractions. Regardless of background characteristics, family relationships, and feelings about teachers, social interactions, or peer relationships, boys reporting attraction to both males and females score consistently near two-tenths of a grade point below their heterosexual peers.

## Conclusions

Using the first nationally representative U.S. adolescent sample that includes information on same-sex romantic attraction, our analyses illustrate the links between adolescent relational domains and three fundamental school outcomes: trouble in school, negative school attitudes, and GPA. In many ways, our finding did not support our hypotheses. Few clear hypotheses regarding the roles that family, teachers, peers, and the social world play in the school lives of LGBT youth are readily apparent from the extant body of research literature. Nevertheless, our results are an important step in the direction of understanding adolescent romantic attraction—and sexual orientation—in the broad context of young lives. We consider some of our major findings, the limitations of this study, and, in closing, the implications of this research for educational environments.

We are surprised at the degree to which youth reporting bisexual attractions stand out in our results. Recently, researchers have begun to examine the first representative samples of sexual minority youth in the U.S. Perhaps preconceptions of single-sex sexual orientation may now be challenged. Among the few population-based studies that include information on sexual identity, bisexual, unlabeled, and questioning youth are more frequent in the samples than are gay- or lesbian-identified youth (e.g., French *et al.*, 1996; Garofalo *et al.*, 1998; Remafedi, 1998; Lock and Steiner, 1999). Similarly, using the Add Health Study we find that more youth report bisexual attractions than same-sex ones. Further, we find that for

**Table 2** Survey regression results predicting school troubles for females and males; Add Health

	Females					Males				
	1	2	3	4	5	1	2	3	4	5
<i>Sexual orientation</i>										
Same-sex	0.19	0.20	0.16	0.22	0.14	0.17	0.15	0.10	0.14	0.16
Same- and other-sex	0.15+	0.11	0.18+	0.20*	0.09	0.13+	0.08	0.11	0.14+	0.06
<i>Family</i>										
Positive family interaction	-0.23**				-0.07*	-0.23**				-0.08*
Positive relationship with mother	-0.04				-0.02	-0.08+				-0.02
Activities with mother	-0.00				0.01	-0.01				-0.00
Negative parental attitudes	0.09**				0.05*	0.16**				0.12**
<i>Teacher</i>										
Positive feelings about teacher		-0.44**			-0.34**		-0.44**			-0.34**
<i>Social</i>										
People dislike/unfriendly			0.38**		0.25**			0.40**		0.25**
Feeling that adults care			-0.18**		-0.02			-0.15**		0.00
<i>Peers</i>										
Social acceptance				0.25**	0.08**				0.34**	0.08**
Number of activities with friends				0.03**	0.01				0.03**	0.01
<i>Background characteristics</i>										
Black	-0.08+	-0.13*	-0.12*	-0.04	-0.12*	-0.17**	-0.22**	-0.20**	-0.17*	-0.19**
Asian	-0.00	0.09	0.01	0.04	0.07	-0.10	-0.05	-0.08	-0.07	-0.07
Hispanic	-0.04	-0.02	-0.04	-0.01	-0.01	-0.00	-0.01	-0.03	-0.05	0.02
Parental education	0.01+	0.01*	0.01+	0.01	0.02**	-0.01	0.00	-0.00	-0.01	0.00
Welfare status	0.04	0.03	0.02	0.04	0.01	0.09+	0.07	0.07	0.12+	0.04
Intact family	-0.09*	-0.09*	-0.11**	-0.12**	-0.07+	-0.10**	-0.10**	-0.14**	-0.15**	-0.07*
Age	-0.00	0.01	0.01	-0.00	0.00	-0.01	0.02+	0.00	-0.00	-0.00
Pubertal development	0.14	0.07	0.38	0.28	0.11	0.61	0.38	0.95*	0.86+	0.56
Intercept	1.76**	2.40**	1.39**	0.59*	2.18**	2.41**	2.50**	1.59**	0.96**	2.36**
r <sup>2</sup>	0.11	0.21	0.13	0.09	0.27	0.13	0.20	0.12	0.08	0.27
	n = 6182					n = 5758				

+p<0.05; \*p<0.01; \*\*p<0.001.

**Table 3** Survey regression results predicting grade point average for males; Add Health

	Grade point average				
	1	2	3	4	5
<i>Sexual orientation</i>					
Same-sex	0.09	0.13	0.15	0.15	0.10
Same- and other-sex	-0.20**	-0.17**	-0.21**	-0.22**	-0.17*
<i>Family</i>					
Positive family interaction	0.09**				-0.01
Positive relationship with mother	-0.06+				-0.09*
Activities with mother	0.09**				0.08**
Negative parental attitudes	-0.24**				-0.22**
<i>Teacher</i>					
Positive feelings about teacher		0.31**			0.28**
<i>Social</i>					
People dislike/unfriendly			-0.06		0.02
Feeling that adults care			0.09**		0.00
<i>Peers</i>					
Social acceptance				-0.09*	-0.03
Number of activities with friends				0.00	0.02+
<i>Background characteristics</i>					
Black	-0.22**	-0.19**	-0.20**	-0.20**	-0.20**
Asian	0.16	0.13	0.15	0.15	0.15
Hispanic	-0.12+	-0.11+	-0.08	-0.07	-0.13*
Parental education	0.07**	0.07**	0.07**	0.07**	0.06**
Welfare status	-0.08	-0.09+	-0.11+	-0.12+	-0.06
Intact family	0.15**	0.15**	0.19**	0.19**	0.13**
Age	-0.01	-0.03*	-0.02+	-0.03*	-0.03*
Pubertal development	0.10	0.31	0.02	-0.05	0.17
Intercept	2.04**	1.03*	1.62**	2.15**	1.78**
$r^2$	0.16	0.19	0.12	0.12	0.22
$n = 5697$					

+ $p < 0.05$ ; \* $p < 0.01$ ; \*\* $p < 0.001$ .

many of the relational domains, the strongest effects are for girls and boys reporting bisexual attractions.

Because of the importance of multiple perspectives on the family relationships of the youth of the Add Health Study, we included parental reports of the parent/child relationship. Because we do not know which youth of the study identify themselves to family as gay, lesbian, or bisexual, we were surprised to find that parent reports did differ significantly by sexual orientation group. It seems unlikely that even the majority of the youth in our sexual minority categories have disclosed their same-sex romantic attractions to family members. As a result, our results are probably *under-estimates* of the differences between GLB-identified youth and their heterosexual peers. Yet, consistent with girl's own perceptions of their maternal relationship, responding mothers rated their relationships with sexual minority girls—particularly those who reported exclusive same-sex-attraction—much more negatively than did mothers of other girls. Most past studies have been conducted from either the point of view of the parent or the child; rarely are sexual minority youth and their parents included

in the same study. This finding persuades us of the critical need for support for mothers when daughters come to terms with a minority sexual orientation.

For girls, we found that factors from each of the four relational domains explained the association between romantic attraction and negative school attitudes. Thus, the complex interaction of multiple domains of adolescents' lives do play an important role in understanding why sexual minority girls may be at risk for negative school outcomes and other risk behavior. On the other hand, none of the relational factors mediate the significant difference in GPA between boys who report bisexual attractions and their peers. Regardless of relationships at home, in school, or with adults in the wider community, boys reporting bisexual attractions score significantly lower than do their peers on grades. This suggests to us that school grades may be associated more with boys' risk behavior and the kinds of peer networks that they develop than with their interpersonal relationships. This would be consistent with our finding that boys reporting bisexual attractions spend more time with friends, but simultaneously perceive that people are unfriendly to them and dislike them. In future work we will examine the degree to which factors such as delinquency, substance use and abuse, and sexual risk taking are associated with the depressed academic performance of sexual minority boys.

One of the great challenges of conducting empirical research on sexual minority youth is the variable nature of sexual orientation. By variable, we mean that the words "sexual orientation" have been used to pertain to behavior, identity, fantasy, and attraction, to name a few (e.g. Klein *et al.*, 1985). Until recently, social scientists collecting empirical data have tended to discount or ignore the complexities of sexuality painted by queer theorists (Minton, 1997). Over the past five years, more social scientists have been grappling with the complexities of assessing sexual orientation, bridging the gap between empirical research and queer theory (see Minton, 1997; Diamond, 1998). Thus, recent theoretical and political debates are reflected in the inconsistency of assessment of sexual orientation in empirical studies. Varied methods of assessment make it difficult to compare study results (Doll, 1997). Nevertheless, self-identification as gay, lesbian or bisexual is the most common method of assessment. This unidimensional assessment tool is particularly problematic for representative samples of youth who may exhibit same sex attractions and/or behavior yet not embrace a sexual minority identity. The classic Kinsey scale has been critiqued for its tendency to convert sexual orientation into a "zero sum game" where the more you are attracted to one sex, the less you are attracted to the other. The Klein Sexual Orientation Grid (KSOG) consists of scales for emotional and social preference, lifestyle, sexual orientation, sexual attractions, fantasies, and behavior (Klein *et al.*, 1985); yet, this scale is rarely used in its entirety. In sum, while it is recommended that assessment be conducted along multiple dimensions, no standard is widely accepted and utilized.

Since our data are derived from a national study of adolescents, a study for which only one aspect of interest was sexuality, we are severely limited by the data that is available. In particular, the sexual self-identity of the participants is unavailable. The study does, however, provide information about sexual orientation along a single dimension: romantic attraction. While we cannot decisively conclude that the youth answering these questions in the affirmative would view themselves as "sexual minority" youth, the ways in which they differ from the general population as a group suggests that the classification of youth by same-sex romantic attraction is, at least in part, relevant. Their affirmative answer to questions about attraction to the same sex may indicate an orientation toward the same sex. We recognize that our measure is a highly imperfect

assessment of sexual orientation. However, we feel that this limitation is balanced by the rarity of a large, representative sample of youth with information on romantic attraction, as well as by what we believe are significant additions to the limited information available on the school outcomes of sexual minority youth.

Not only is adolescent sexual orientation difficult to define and measure; access to quality information on school outcomes is often difficult with adolescent populations. Here we rely on self-reports of grades, school troubles, and negative school attitudes, each of which is subject to the biases of personal recall, or even intentional misrepresentation. Nevertheless, our descriptive results based on these indicators of school outcomes are consistent with the body of past research that documents, for example, that while school troubles are more common among boys, girls regularly score higher in grades (e.g. Simmons and Blyth, 1987).

Perhaps the most important implication for schools in the U.S. is the finding that relationships with teachers play a leading role in explaining the school troubles experienced by sexual minority adolescents (specifically those reporting bisexual attraction). Youth with positive feelings about their teachers were significantly less likely than their peers to experience the broad range of school troubles. Supportive teachers can help prevent school troubles of sexual minority youth; teachers need the awareness and training to help them be supportive of their sexual minority students.

Our results are consistent with much of the past research on LGB-identified youth; sexual minority youth of the Add Health Study reported compromised relationships across four important domains, as well as negative school outcomes. Our study highlights the importance of attention to variability within the sexual minority group. It is possible that some of the consistent results of past research on negative outcomes for sexual minority youth may be driven by the experiences of bisexual youth. Finally, by making use of data from the comprehensive, national survey, we are able to demonstrate mechanisms where schools and communities might begin to make a difference for sexual minority youth. Our findings underscore the important role that parents, teachers, and other adults play in the lives of adolescents, and the critical need for education for these adults about the challenges that many sexual minority youth face everyday.

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