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Sexual Orientation and Involvement in Nonviolent and Violent Delinquent Behaviors: Findings From the National Longitudinal Study of Adolescent to Adult Health

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Abstract This study examined the association between sexual orientation and nonviolent and violent delinquency across the life course. We analyzed self-reported nonviolent and violent delinquency in a sample of heterosexual males ($N = 5220$–7023) and females ($N = 5984$–7875), bisexuals ($N = 34$–73), gay males ($N = 145$–189), and lesbians ($N = 115$–150) from the National Longitudinal Study of Adolescent to Adult Health (Add Health). The analyses revealed, in general, that bisexuals were the most delinquent of the sexual orientation categories for both males and females. Additional analyses revealed that heterosexual males reported significantly higher levels of both violent and nonviolent delinquency than gay males, whereas lesbians reported more involvement in nonviolent delinquency and, to a lesser extent, violent delinquency relative to heterosexual females. Analyses also revealed that lesbians reported significantly more delinquent behavior, particularly for nonviolent delinquency, than gay males. Future research should explore the mechanisms that account for these observed patterns and how they can be used to more fully understand the etiology of delinquency.

Keywords Add Health · Antisocial behavior · Delinquency · Sexual orientation · Violence

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Introduction

One of the more intriguing findings to emerge from criminological research is the consistent association between various dimensions of sexuality and involvement in an assortment of antisocial behaviors (Bell, O'Neal, Feng, & Schoenrock, 1999; Harden, Mendle, Hill, Turkheimer, & Emery, 2007; Lussier, Proulx, & LeBlanc, 2005; Nedelec & Beaver, 2012; Widom, 1977; Zuckerman, Bone, Neary, Mangelsdorff, & Brustman, 1972; Zuckerman, Tushup, & Finner, 1976). In general, adolescents and adults who report a greater number of sexual partners (Boutwell, Barnes, Deaton, & Beaver, 2013; Nedelec & Beaver, 2012; Widom, 1977; Zuckerman et al., 1972, 1976), who have an earlier age of sexual debut (Armour & Haynie, 2007; Ramrakha et al., 2007), and who engage in riskier sexual behaviors (Biglan et al., 1990; Metzler, Noell, Biglan, Ary, & Smolkowski, 1994) are comparatively more likely to have a criminal record, to self-report greater involvement in crime and delinquency, and to be rated as more antisocial.

The nexus between sexual behaviors and criminal involvement is robust, having been detected across a wide range of heterogeneous studies. To illustrate, Ellis and Walsh (2000) examined 51 studies that tested for an association between the number of sexual partners and criminal behavior and 50 of them reported a significant association. Moreover, they also reviewed 31 studies that had examined the association between age of first sexual experience and antisocial behavior. All 31 studies included in their review found a statistically significant association, wherein

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an earlier onset of sexual behavior was associated with greater involvement in antisocial behavior. Based on the existing findings, the link between sexual involvement and antisocial behaviors (such as crime, delinquency, drug use, and certain deviant behaviors) appears to be firmly established.

Although the available empirical evidence clearly reveals that overall patterns of sexual behavior are significantly related to a wide range of criminal and antisocial behaviors, there remain a number of issues that may be connected to the sexual behavior–crime association that have yet to be fully explored. Perhaps, the area of research that is most lacking in this line of inquiry centers on the (potential) association between sexual orientation and criminal or delinquent involvement. Ellis, Hoffman, and Burke (1990) analyzed the association between sexual orientation and criminal and violent behaviors in a sample of male and female university students. The results revealed that heterosexual males were more criminal and violent than gay males on 7 of the 26 behaviors examined (significant correlations ranged between −.19 and −.41), but that bisexual males were more criminal and violent than heterosexual males (as indicated by significant mean differences). Additionally, Ellis et al. reported that lesbians were more criminal and violent than heterosexual females on 5 of the 26 behaviors examined (significant correlations ranged between .16 and .26), but not as criminal or as violent as heterosexual males.

A more recent study also reported significant associations between sexual orientation and convictions for delinquency. In this analysis, Garnette, Irvine, Reyes, and Wilber, (2011) reported that 13 % of incarcerated adolescent males were gay and about 23 % of incarcerated females were lesbians. These estimates are greater than what is typically found in the general population, thereby suggesting that homosexuals are disproportionately more involved in acts of crime and delinquency or that they are more likely to be apprehended and processed through the criminal justice system.

These within-sex sexual orientation differences in delinquency conform to a broader set of findings of within-sex sexual orientation differences in sex-typed behavior (Sandfort, 2005). For instance, gay men are typified as being more feminine and less masculine than heterosexual males, while the opposite is true for lesbians when compared to heterosexual females (Lippa, 2008).[1] Thus, the findings reported previously showing differences in delinquency across sexual orientation groups are consistent with this overall pattern. Even so, Koeppel (2015) generated results contradictory to those reported previously. Data were drawn from 645 college students and these students were asked questions about their criminal behaviors and their sexual orientation. The results of the multivariate analyses revealed no significant association between sexual orientation and assault, theft, and total number of crimes the respondent reported committing. In addition, Koeppel examined the potential association between sexual orientation and levels of self-control. Once again, the results revealed no significant differences among sexual orientation groups in terms of their average levels of self-control ($B = .001$, $p > .05$). However, one potential explanation for this disjunction with prior research may be that Koeppel grouped together bisexual, lesbian, and gay participants into one category labeled non-heterosexuals. Such categorization leaves the potential differential association between sexual orientation and criminal behavior among heterosexual, gay, lesbian, and bisexual individuals unaddressed.

The limited available research thus provides mixed evidence regarding the association between sexual orientation and antisocial behaviors. The studies that did detect a significant association were generated from convenience samples of non-representative populations (e.g., college students and inmates) or samples that are now outdated. This leaves open the possibility that the findings might not generalize to other samples or more contemporary samples. As a result, more research is needed to address the potential nexus between sexual orientation and antisocial behaviors. The current study addressed this gap in the literature by examining the link between sexual orientation and nonviolent and violent criminal behaviors in adolescence and young adulthood for both males and females using data from a nationally representative sample of youth. Based on the limited available research, we expected the cascade of antisocial behavior to be arranged as follows: heterosexual males > lesbians > gay males > heterosexual females, without making any predictions with respect to bisexuals.

Method

Participants

Data for this study were drawn from the National Longitudinal Study of Adolescent to Adult Health (Add Health) (Udry, 2003). Add Health is a four-wave nationally representative sample of American youth who were enrolled in middle or high school during the 1994–1995 school year. Data collection began with Wave 1 in-school surveys. These surveys were completed by all students who were in attendance on a specified day at each of the 132 schools that were included in the study. In total, more than 90,000 students completed the Wave 1 in-school surveys. A subsample of these youth was then selected to be re-interviewed in their homes along with their primary caregivers. These surveys, which are now referred to as the Wave 1 in-home surveys, were designed to ask more detailed questions and to cover a wider range of topics, including some that were sensitive in nature. Participants, for example, were asked about their family life, their involvement in delinquent behaviors, and their use of drugs and alcohol. Importantly, for each wave, participants provided their answers to these sensitive questions on a laptop computer and not

[1] We wish to thank the Editor for pointing out this relatively parsimonious explanation.

to the interviewer present in their home. Overall, 20,745 adolescents and more than 17,000 of their primary caregivers participated in the Wave 1 in-home component to the study (Harris, 2009; Harris et al., 2003).

About 1.5 years later, the second round of surveys was administered to 14,738 of the original Wave 1 in-home participants. Since most of the participants were still adolescents, the survey instruments remained relatively unchanged from the Wave 1 in-home surveys. Once again, participants were asked a broad range of questions, including those related to their sexual behaviors, their family and peer relationships, and their involvement in risky behaviors. In 2001 and 2002, the third wave of data was collected. At this time, most of the participants were young adults and thus the questionnaires were redesigned to include more age-appropriate questions. For example, the participants were asked about their marital status, their educational and work history, and their experience with childrearing. Overall, 15,197 participants were included in the Wave 3 component of the study. The fourth wave of data was collected in 2007–2008 and a total of 15,701 participants participated. During this wave, most of the participants were between the ages of 24 and 32 years and they were again asked a broad array of questions, including those related to their involvement in criminal behaviors, their highest level of education, and their victimization experiences.

Measures

Sexual Orientation

We opted to measure sexual orientation in adulthood because previous Add Health research has shown that items pertaining to sexual orientation in adolescence likely yield unreliable and invalid results (Savin-Williams & Joyner, 2013). To circumvent this issue, we elected to focus our attention on sexual orientation in adulthood, a time period when participants are more likely to be comfortable with their sexuality and less likely to lie or mislead others about their sexual preferences. During Wave 4 interviews, participants were asked to self-report on their sexual orientation. They were provided with the following responses: 100 % heterosexual (straight); mostly heterosexual (straight), but somewhat attracted to people of your own sex; bisexual (that is, attracted to men and women equally); mostly homosexual (gay), but somewhat attracted to people of the opposite sex; 100 % homosexual (gay); and not sexually attracted to either males or females (asexual). Overall, 85.64 % of the sample indicated that they were 100 % heterosexual, 9.72 % indicated that they were mostly heterosexual, 1.58 % indicated that they were bisexual, 0.83 % indicated that they were mostly homosexual, 1.33 % indicated that they were 100 % homosexual, 0.45 % indicated that they were not attracted to either males or females, and about 0.40 % did not respond.

Two different measures of sexual orientation were used in the current analysis. First, the original categories outlined above were used to examine the association between sexual orientation and involvement in delinquency. Importantly, those participants who indicated that they were asexual were removed from the analyses because there were too few of them to calculate ANOVAs that provided stable estimates (some cells included zeroes). Second, another sexuality measure was created by pooling together the 100 % heterosexual and mostly heterosexual categories, eliminating the bisexual and asexual categories, and pooling together the 100 % homosexual category with the mostly homosexual category. The sexuality measure was then transformed into a dichotomous variable, wherein the two outcomes were heterosexual/mostly heterosexual (97.8 %) and homosexual/mostly homosexual (2.2 %).

Delinquency

At each wave of data collection, participants were asked a series of questions pertaining to their involvement in a variety of delinquent behaviors. As a result, and following previous research (Haynie & South, 2005; Mears, Cochran, & Beaver, 2013), we were able to create three delinquency measures at each wave: a nonviolent delinquency scale, a violent delinquency scale, and a total delinquency scale that combined the nonviolent and violent delinquency scales into a composite measure. The nonviolent delinquency scales included questions that asked the participant to indicate how many times in the past 12 months they had engaged in a series of behaviors, such as damaging property, stealing a car, stealing money, and acting rowdy (responses were coded so that 0 = never, 1 = one or two times, 2 = three or four times, and 3 = five or more times). Responses to these items were then summed together to create the Wave 1 (alpha = .80; absolute range = 0–27), the Wave 2 (alpha = .80; absolute range = 0–27), the Wave 3 (alpha = .73; absolute range = 0–20), and the Wave 4 (alpha = .69; absolute range = 0–23) nonviolent delinquency scales.

A similar procedure was used to create the violent delinquency scales. Again, at each wave, participants were asked how many times in the past 12 months they had engaged in a series of behaviors, such as getting into a group fight, getting into a physical fight, and injuring someone badly enough that they needed medical care (responses for most of the items were coded so that 0 = never, 1 = one or two times, 2 = three or four times, and 3 = five or more times; for two items [whether the participants shot or stabbed someone and whether they pulled a knife or gun on someone], the item was coded such that 0 = no and 3 = at least once). Responses to these items were then summed to create the Wave 1 (alpha = .78; absolute range = 0–18), Wave 2 (alpha = .79; absolute range = 0–18), Wave 3 (alpha = .64; absolute range = 0–14), and Wave 4 (alpha = .60; absolute range = 0–13) violent delinquency scales. Similar scales have been used in previous research examining violent delinquency with the Add Health data (Haynie & South, 2005; Mears et al., 2013).

The items from the wave-specific nonviolent and violent delinquency scales were summed together to create the Wave 1 (alpha = .86; absolute range = 0–45), Wave 2 (alpha = .85; absolute range = 0–45), Wave 3 (alpha = .76; absolute range = 0–27), and Wave 4 (alpha = .72; absolute range = 0–24) total delinquency scales. Higher values on these scales represent greater involvement in nonviolent and violent delinquent behaviors during the preceding 12 months.

In addition to these wave-specific delinquency scales, we also developed a total nonviolent delinquency scale and a total violent delinquency scale that captured involvement in delinquency across all four waves of measurement. The total nonviolent delinquency scale was created by summing together all four of the wave-specific nonviolent delinquency scales (alpha = .80) and the total violent delinquency scale was created by summing together all four of the wave-specific violent delinquency scales (alpha = .84). These two scales provide total measures of delinquent involvement during adolescence and young adulthood.

Results

Delinquency and Sexual Orientation for Males (5 Groups)

We first compared mean differences on nonviolent, violent, and total composite delinquency scales across sexual orientation for males by estimating ANOVA models. These results are shown in Table 1. For nonviolent delinquency, there were significant differences across the five sexual orientation categories for all four-wave-specific scales (F values ranged between 4.54 and 10.46, $p < .05$). In general, bisexual males were the most delinquent, followed by mostly heterosexual and heterosexual males. Males who identified as mostly gay and gay were, for the most part, the least involved in nonviolent delinquency during all four waves. A relatively similar pattern of results was detected for violent delinquency at Waves 1 and 2 ($F = 11.25$ and $F = 4.17$, respectively; $p < .05$). Once again, bisexual males were the most violent at these two waves, while gay males tended to be the least violent. There were no statistically significant differences across the sexual orientation groups for Wave 3 or Wave 4 violent delinquency ($F = 2.04$ and $F = 2.17$, respectively; $p > .05$), which is likely a function of the reduced mean and variance observed for all groups at these later waves (notice that all of the means are below 1.00). The bottom panel of Table 1 shows the findings for the total composite delinquency scales. For all four of these scales, there were average group differences that were detected (F values ranging between 5.42 and 7.56, $p < .05$). In line with the previous findings, bisexual males were, on average, the most involved in delinquency followed by mostly heterosexual and heterosexual males. Mostly gay males and gay males were, on average, the least involved in delinquency across these four waves of data. Appendix 1 includes post hoc paired comparisons for all of the sexual orientation groups (for males) for all of the outcome measures, showing which groups differed significantly from each other (Bonferroni corrected for multiple comparisons).

Table 1 ANOVA tests for mean values on delinquency scales across sexual orientation for males

	Heterosexual	Mostly heterosexual	Bisexual	Mostly gay	Gay	F value
Nonviolent delinquency						
Wave 1	2.70	3.36	3.98	1.95	1.73	5.83*
Wave 2	2.08	2.81	3.11	1.30	1.45	4.54*
Wave 3	0.81	1.67	1.15	0.66	0.71	10.46*
Wave 4	0.38	0.84	0.68	0.67	0.37	9.29*
Violent delinquency						
Wave 1	1.70	1.33	1.83	0.50	0.38	11.25*
Wave 2	1.14	1.36	1.57	0.37	0.43	4.17*
Wave 3	0.38	0.40	0.18	0.15	0.14	2.04
Wave 4	0.34	0.46	0.46	0.65	0.18	2.17
Total composite delinquency						
Wave 1	4.39	4.61	5.81	2.45	2.09	7.56*
Wave 2	3.20	4.21	4.58	1.67	1.88	5.42*
Wave 3	1.18	2.08	1.32	0.81	0.82	7.17*
Wave 4	0.76	1.34	1.18	1.33	0.59	6.51*

Due to contractual requirements of the Add Health and concerns about deductive disclosure, we did not report the Ns for each cell in this table because some of the cells had relatively small sample sizes that would lead to situations where we would be unable to ensure respondent anonymity on these sensitive topics

* Indicates significant mean differences at the $p < .05$ level (equal variances not assumed) with Bonferroni correction applied (new p level is $< .004$)

Delinquency and Sexual Orientation for Females (5 Groups)

The second set of analyses pertained to females. Table 2 shows the results of these analyses: across all of the nonviolent, violent, and total composite scales, there were statistically significant average differences in delinquency across the sexual orientation groups (F values ranging between 6.88 and 55.60, $p < .05$). In general, bisexual females, on average, self-reported the greatest involvement in all forms of delinquency. Mostly heterosexual, mostly lesbian, and lesbians scored, on average, the next highest on the delinquency scales, though the exact ordering fluctuated depending on the delinquency scale being analyzed. Heterosexual females were, for the most part, the least involved in delinquency across each of the delinquency measures. Appendix 2 includes post hoc paired comparisons for all of the sexual orientation groups (for females) for all of the outcome measures, showing which groups differed significantly from each other (Bonferroni corrected for multiple comparisons).

Delinquency and Sexual Orientation for Males (2 Groups)

We next examined the results wherein we excluded bisexual males and females and only focus on participants who fell in the outer ranges of the sexual orientation continuum. Specifically, we compared participants who indicated that they were heterosexual or mostly heterosexual against those who indicated that they were gay or mostly gay. The results for males are shown in Table 3. It can be seen that across the 12 mean comparisons, there were 8 statistically significant differences (t values ranging between 2.77 and 14.42, $p < .05$). For all of these statistically significant differences, heterosexual males exhibited the highest levels of delinquency, including being more heavily involved in both nonviolent and violent forms of delinquency. None of the Wave 4 delinquency scales differed significantly between heterosexual males and gay males.

Delinquency and Sexual Orientation for Females (2 Groups)

For females, Table 4 shows a very different pattern of findings. Specifically, 9 of the 12 mean comparisons were statistically significant (t values ranging between -2.81 and -2.29, $p < .05$), but this time lesbians were more involved in delinquent behaviors than were heterosexual females. Moreover, the results revealed the most pronounced differences in self-reports of nonviolent delinquency, with all four of the wave-specific nonviolent delinquency scales being significantly different between heterosexual females and lesbians. Interestingly, only one of the violent delinquency scales (Wave 1) was significantly different between heterosexual females and lesbians ($t = -2.34$, $p < .05$). None of the other violent delinquency scales were significantly different

Table 2 ANOVA tests for mean values on delinquency scales across sexual orientation for females

	Heterosexual	Mostly heterosexual	Bisexual	Mostly lesbian	Lesbian	F value
Nonviolent delinquency						
Wave 1	1.64	2.80	2.87	2.78	2.45	54.05*
Wave 2	1.28	2.40	2.34	2.30	2.00	44.99*
Wave 3	0.25	0.62	0.71	0.41	1.06	39.15*
Wave 4	0.12	0.43	0.63	0.45	0.35	55.60*
Violent delinquency						
Wave 1	0.72	0.91	1.31	1.16	1.27	11.06*
Wave 2	0.45	0.64	0.85	0.64	0.63	6.88*
Wave 3	0.06	0.10	0.17	0.14	0.32	8.29*
Wave 4	0.10	0.18	0.21	0.05	0.40	8.14*
Total composite delinquency						
Wave 1	2.36	3.71	4.18	3.95	3.72	43.34*
Wave 2	1.73	3.03	3.19	2.95	2.66	37.29*
Wave 3	0.31	0.72	0.89	0.55	1.39	38.22*
Wave 4	0.23	0.66	0.79	0.57	0.79	43.88*

Due to contractual requirements of the Add Health and concerns about deductive disclosure, we did not report the Ns for each cell in this table because some of the cells had relatively small sample sizes that would lead to situations where we would be unable to ensure respondent anonymity on these sensitive topics

* Indicates significant mean differences at the $p < .05$ level (equal variances not assumed) with Bonferroni correction applied (new p level is $< .004$)

Table 3 Mean differences in delinquency between heterosexual and gay males

	Nonviolent delinquency		Violent delinquency		Total delinquency	
	Heterosexuals	Gay males	Heterosexuals	Gay males	Heterosexuals	Gay males
Wave 1	2.72	1.80	1.69	0.42	4.40	2.20
SD	3.86	2.98	2.75	1.13	5.82	3.51
N	6937	187	6948	189	6920	187
t value	4.17*		14.42*		8.27*	
df	203.21		253.68		214.56	
Wave 2	2.10	1.41	1.14	0.41	3.23	1.82
SD	3.39	2.27	2.36	1.08	5.00	2.80
N	5242	145	5237	145	5220	145
t value	3.58*		7.63*		5.83*	
df	162.27		184.28		170.72	
Wave 3	0.84	0.70	0.38	0.14	1.21	0.82
SD	1.89	1.51	1.15	0.54	2.51	1.74
N	5561	161	5622	163	5539	161
t value	1.22		5.30*		2.77*	
df	174.74		206.87		179.82	
Wave 4	0.40	0.46	0.35	0.33	0.78	0.83
SD	1.23	1.44	1.18	1.52	1.99	2.78
N	7019	189	7023	189	7014	189
t value	−0.57		0.12		−0.25	
df	195.50		178.60		177.81	

The gay male category was created by collapsing the homosexual and mostly homosexual categories and the heterosexual category was created by collapsing the heterosexual and mostly heterosexual categories

* Indicates significant mean difference at the $p < .05$ level, two-tailed *t* test (equal variances not assumed)

between the two groups (*t* values ranging between −1.94 and −1.00).

Delinquency and Gay Males vs. Lesbians

We next compared the means between gay males and lesbians. Table 5 shows the results of these analyses and, as can be seen, 5 of the 12 mean comparisons were significantly different. Specifically, there were significant mean differences for the Wave 1 and Wave 2 nonviolent delinquency scales ($t = -2.21$ and $t = -2.22$, respectively; $p < 05$), the Wave 1 violent delinquency scale ($t = -3.72, p < .05$), and the Waves 1 and 2 total composite delinquency scales ($t = -3.18$ and $t = -2.23, p < .05$). Of particular salience is that in all of these instances, it was lesbians who self-reported greater involvement in acts of delinquency.

Delinquency, Heterosexuals, Gay Males, and Lesbians

The last two sets of analyses used the total nonviolent delinquency scale and the total violent delinquency scale and examined the mean levels for heterosexual males, gay males, heterosexual females, and lesbians. Figure 1 plots the means and 95 % confidence intervals for the total nonviolent delinquency scale. An *F* test ($F = 104.86, p < .05$) indicated that these group means were significantly different from each other. Moreover, the figure shows that heterosexual males scored the highest on total nonviolent delinquency, followed closely by lesbians, then gay males, and finally by heterosexual females.

A very similar pattern was detected when examining the total violent delinquency scale. Figure 2 plots the mean levels of violent delinquency and shows that, once again, these mean levels differed significantly across the male/female sexuality categories ($F = 178.82, p < .05$). Heterosexual males had the highest mean score, followed by lesbians, then heterosexual females, and finally gay males.

Discussion

The results of the current study revealed three main findings. First, there were significant mean differences in delinquent involvement across the sexual orientation categories for both males and females. For the most part, bisexual males and females scored the highest on the examined delinquency scales (though some exceptions did emerge). Additionally, and as Table 3 reveals, heterosexual males, in comparison to gay males, self-reported

Table 4 Mean differences in delinquency between heterosexual females and lesbians

	Nonviolent delinquency		Violent delinquency		Total delinquency	
	Heterosexuals	Lesbians	Heterosexuals	Lesbians	Heterosexuals	Lesbians
Wave 1	1.83	2.61	0.75	1.22	2.57	3.83
SD	2.82	3.60	1.66	2.44	3.87	5.43
N	7862	148	7875	150	7851	148
t value	−2.62*		−2.34*		−2.81*	
df	150.41		151.62		149.83	
Wave 2	1.46	2.15	0.48	0.64	1.93	2.80
SD	2.54	2.95	1.37	1.69	3.35	3.99
N	5989	116	5999	115	5984	115
t value	−2.49*		−1.00		−2.31*	
df	118.32		116.90		117.11	
Wave 3	0.31	0.76	0.07	0.24	0.38	1.00*
SD	1.05	1.85	0.43	0.95	1.24	2.59
N	6674	120	6685	122	6651	120
t value	−2.68*		−1.94		−2.63*	
df	120.40		121.91		120.00	
Wave 4	0.17	0.40	0.11	0.23	0.30	0.68
SD	0.77	1.27	0.64	0.94	1.13	1.84
N	7919	150	7095	133	7094	133
t value	−2.29*		−1.49		−2.42*	
df	151.05		134.31		133.88	

The lesbian category was created by collapsing the homosexual and mostly homosexual categories and the heterosexual category was created by collapsing the heterosexual and mostly heterosexual categories

* Indicates significant mean difference at the $p < .05$ level, two-tailed *t* test (equal variances not assumed)

significantly greater involvement in violent delinquency across three of the four waves of data and nonviolent delinquency in two of the four waves of data collection. The opposite pattern was detected with females wherein lesbians, not heterosexual females, self-reported significantly greater involvement in nonviolent delinquency at all four waves and greater involvement in violent delinquency in one of the four waves. The second key finding to emerge from the analyses was that, when gay males and lesbians were compared, lesbians reported significantly greater involvement in nonviolent delinquency at two waves and violent delinquency at one wave; none of the remaining differences were statistically significant. Third, results from the analyses examining total nonviolent and total violent delinquency across heterosexual males and females and gay males and lesbians revealed that heterosexual males reported the highest levels of nonviolent delinquency, followed closely by lesbians, then gay males, and finally heterosexual females. For violent delinquency, heterosexual males were again the most delinquent, followed by lesbians, then heterosexual females, and finally gay males.

These findings have implications for research on crime and delinquency in general, as well as male–female differences in antisocial behavior. One of the—if not the—most consistent findings in relation to criminal behavior is that males are significantly more violent, aggressive, and antisocial than females (Barnes, Jorgensen, Beaver, Boutwell, & Wright, 2015; Moffitt, Caspi, Rutter, & Silva, 2001; Wilson & Herrnstein, 1985). This finding has been detected across a diverse set of samples, across different types of societies, and across broad time periods (Cantor, 1982; Gottfredson & Hirschi, 1990; Moffitt et al., 2001; Wilson & Herrnstein, 1985). This study is unique, therefore, because it reveals that the male–female difference may not be universal and that sexual orientation plays an important role. While the male–female difference observed in prior work is not in dispute, what remains to be determined is the potential mechanism(s) that might be able to explain such differences in offending (Bennett, Farrington, & Huesmann, 2005; Rowe, A. T. Flannery, & D. J. Flannery, 1995). Unfortunately, the results of the current study do not provide any insight into the specific mechanisms that might account for why there are significant differences in delinquent involvement across sexual orientation categories. This drawback should be addressed in future research in order to uncover the potential biological influences (e.g., prenatal hormone exposure), cultural effects, social-psychological processes, or socialization patterns that might be central to both sexual orientation and delinquency. For example, it would be interesting to examine

Table 5 Mean differences in delinquency between gay males and lesbians

	Nonviolent delinquency		Violent delinquency		Total delinquency	
	Gay males	Lesbians	Gay males	Lesbians	Gay males	Lesbians
Wave 1	1.80	2.61	0.42	1.22	2.20	3.83
SD	2.98	3.60	1.13	2.44	3.51	5.43
N	187	148	189	150	187	148
t value	−2.21*		−3.72*		−3.18*	
df	283.51		198.90		239.66	
Wave 2	1.41	2.15	0.41	0.64	1.82	2.80
SD	2.27	2.95	1.08	1.69	2.80	4.00
N	145	116	145	115	145	115
t value	−2.22*		−1.22		−2.23*	
df	211.77		184.73		196.41	
Wave 3	0.70	0.76	0.14	0.24	0.82	1.00
SD	1.51	1.85	0.54	0.95	1.74	2.59
N	161	120	163	122	161	120
t value	−0.30		−1.00		−0.66	
df	225.75		178.93		196.07	
Wave 4	0.46	0.40	0.33	0.23	0.83	0.68
SD	1.44	1.27	1.52	0.94	2.78	1.84
N	189	150	174	133	174	133
t value	0.41		0.71		0.56	
df	332.90		293.59		299.41	

The gay and lesbian categories were created by collapsing the homosexual and mostly homosexual categories

* Indicates significant mean difference at the $p < .05$ level, two-tailed *t* test (equal variances not assumed)

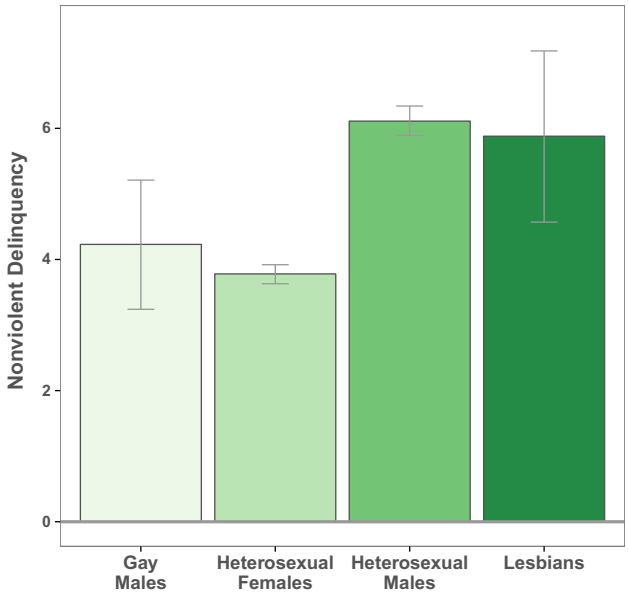

Fig. 1 Mean scores on the total nonviolent delinquency scale across sexual orientation for males and females. *Note* 95 % confidence intervals shown with *error bars*; Means significantly different at the $p < .05$ level, two-tailed *t* test ($F = 104.86$)

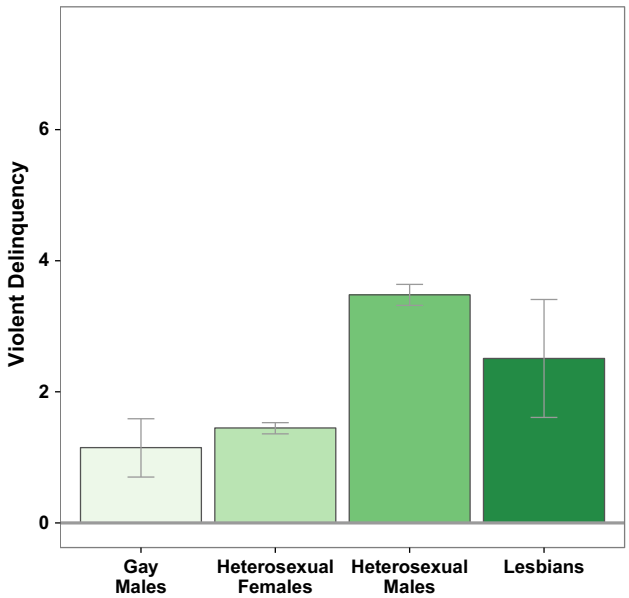

Fig. 2 Mean scores on the total violent delinquency scale across sexual orientation for males and females. *Note* 95 % confidence intervals shown with *error bars*; Means significantly different at the $p < .05$ level, two-tailed *t* test ($F = 178.82$)

whether key measures derived from the minority stress model would account for part of this association (Meyer, 1995), which is a particularly interesting possibility given that stress appears to be related to criminal involvement (Agnew, 1992). This is just one of several explanations that might be able to account for part of the reason why there is a connection between sexual orientation and criminal behavior. Future research would benefit greatly by empirically testing measures derived from different theories and explanations to determine which factors might underlie the sexual orientation–delinquency association.

It is also worth noting that our statistical models were able to partially account for male–female differences in nonviolent and violent delinquency. To our knowledge, very few studies have shown that males and females do not differ significantly in terms of their self-reported violence. Moreover, even fewer studies are available that indicate females are more violent than males. Our results showed, however, that lesbians were either significantly more violent or nonviolent than gay males or that there were no significant differences between the two groups. Further research is needed to more fully address the factors that might be able to account for such differences. Nonetheless, the key point is that the widely accepted sex gap in offending may be conditional on sexual orientation.

Although our findings converged with those of some previous studies (Ellis et al., 1990), interpretation of the current results needs to be viewed with caution due to at least two limitations. First, the measures of nonviolent and violent delinquency were based on self-reports, not official arrest data. This leaves open the possibility that participants were not forthcoming about their involvement in acts of delinquency. While this could be the case, previous research has shown that self-reports of crime and delinquency tend to be reliable and valid ways of capturing variation in antisocial behavior (Thornberry & Krohn, 2000). Pollock, Menard, Elliott, and Huizinga (2015) recently reported a strong agreement between self-reported arrests and officially recorded arrests. When there was disagreement between the two reporting sources, the data revealed that participants were just as likely to report an arrest that did not show up in official records as they were to lie in the opposite direction. In other words, there is no reason to suspect that participants systematically under-report their involvement in criminal activity in surveys. This means that it would require a unique and nuanced hypothesis to explain why we should observe the present results simply as a result of unreliable measurement strategies. If one were to argue that our use of self-reports has artificially imposed group differences, then one would need to have a theoretical justification for why lesbians would be more likely to over-report delinquency compared to gay males (the same could be said for the other significant differences that emerged). While we are not ruling out this possibility completely, it is important to note that a methodological artifact is highly unlikely to have resulted in consistent differences across groups.

A second limitation to keep in mind when interpreting the results is that previous research has revealed the measurement of sexual orientation in adolescence with the Add Health is problematic and may not be particularly valid (Savin-Williams & Joyner, 2013). We were able to overcome this issue by measuring sexual orientation from questions drawn in adulthood (at Wave 4), not adolescence. It is quite possible that measuring sexual orientation in the Add Health at Wave 4 is more reliable because sexual orientation is more likely to remain stable once one reaches adulthood. At the same time, participants were probably more likely to be forthcoming about their sexual orientation in adulthood than they would be during adolescence. Even so, it would be important for future research to examine the connection between sexual orientation and criminal behaviors at numerous time points throughout the life course. This type of research design would reveal whether changes in sexual orientation correspond to changes in criminal/delinquent involvement and would help address whether this association is causal.

There has been a tremendous amount of scholarship focused on studying and attempting to explain male–female differences in antisocial behaviors. Unfortunately, most of this research has overlooked the importance of simultaneously examining how sexual orientation might fit into the equation. The findings from the current study suggest that gender, sexual orientation, and delinquent involvement are highly interconnected and attempts to understand male–female differences in antisocial behavior should also examine sexual orientation. Although it is unlikely that the male–female gap in offending will be explained away once sexual orientation is controlled, our results suggest that including sexual orientation in a causal model might provide new insight into how and why humans differ in their propensity for offending.

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Appendix 1

See Table 6.

Table 6 Post hoc group comparisons for males (Bonferroni method)

	Wave 1	Wave 2	Wave 3	Wave 4
H vs. MH		N	N, T	N, T
H vs. B				
H vs. MG	V			
H vs. G	N, V, T	V		
MH vs. B				
MH vs. MG		T	N, T	
MH vs. G	N, V, T	N, V, T	N, T	N, T
B vs. MG	T			
B vs. G	N, V, T	T		
MG vs. G				

H heterosexual, *MH* mostly heterosexual, *B* bisexual, *MG* mostly gay, *G* gay, *N* nonviolent delinquency, *V* violent delinquency, *T* total composite delinquency

Letters (N, V, or T) are included in cells where the two group means are statistically different from each other at the $p < .05$ level (equal variances not assumed) after Bonferroni correction

Appendix 2

See Table 7.

Table 7 Post hoc group comparisons for females (Bonferroni method)

	Wave 1	Wave 2	Wave 3	Wave 4
H vs. MH	N, V, T	N, V, T	N, T	N, V, T
H vs. B	N, V, T	N, V, T	N, V, T	N, T
H vs. ML	N, T	N		N
H vs. L	V, T		N, V, T	V, T
MH vs. B	V			N
MH vs. ML				
MH vs. L			N, V, T	
B vs. ML				
B vs. L			N, T	V
ML vs. L				

H heterosexual, *MH* mostly heterosexual, *B* bisexual, *ML* mostly lesbian, *L* lesbian, *N* nonviolent delinquency, *V* violent delinquency, *T* total composite delinquency

Letters (N, V, or T) are included in cells where the two group means are statistically different from each other at the $p < .05$ level (equal variances not assumed) after Bonferroni correction

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