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Routine activities as determinants of gender differences in delinquency

Katherine B. Novak
Butler University, kbnovak@butler.edu

Lizabeth A. Crawford

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Abstract

This study examined the extent to which gender differences in delinquency can be explained by gender differences in participation in, or response to, various routine activity patterns (RAPs) using data from the second and third waves of the National Education Longitudinal Survey of 1988. While differential participation in routine activities by gender failed to explain males' high levels of deviance relative to females, two early RAPs moderated the effect of gender on subsequent deviant behavior. Participation in religious and community activities during the sophomore year in high school decreased, while unstructured and unsupervised peer interaction increased, levels of delinquency two years later substantially more for males than for females, suggesting there are gender differences in reactivity to contextual opportunities for deviance during early high school with effects that persist over time.

Introduction

Although the gender gap in property and violent offenses as well as in more general deviance has declined, especially among youth, adolescent males consistently exhibit higher levels of delinquency than their female counterparts (Regoli, Hewitt, & DeLisi, 2010). Working within the routine activities framework (Cohen & Felson, 1979; Hawdon, 1996), the extent to which this difference might be explained by gender differences in participation in, or response to, common sets of behavioral patterns is assessed.

Routine activities as social control

Control theory is one of the most widely tested models of juvenile delinquency (see Kempf, 1993 for a review of these studies). Key to this theoretical perspective is the assumption that internal bonds to society prevent deviance through attachment to individuals or institutions that uphold the normative order, commitment to or investment in institutions that promote conformity, belief in the validity of societal mores, and involvement in conventional activities that limit opportunities for delinquency (Hirschi, 1969).

Arguing that conventional activities can themselves provide opportunities for deviance insofar as they lack purpose and are invisible to agents of social control, Hawdon (1996, 1999) redefined Hirshi's (1969) concept of involvement as participation in routine activities, a construct initially used to explain crime victimization (Cohen & Felson, 1979; Felson, 1994). In an extension of this literature, Hawdon (1996, 1999) examined the relationship between what he termed routine activity patterns (RAPs) and delinquency. RAPs are relatively stable clusters of related behaviors

that characterize individuals' daily routines that vary in structure and purpose (instrumentality) and visibility to agents of social control.

Hawdon (1996) suggested that RAPs that are high in both instrumentality and visibility should reduce the frequency of delinquent behaviors, while RAPs centered on activities that lack these characteristics should increase delinquency by enhancing adolescents' opportunities for deviance. Thus, unlike Hirshi's (1969) control theory, this model emphasizes external, rather than internal, social controls. Consistent with Hawdon's predictions, measures of delinquency were inversely associated with participation in purposeful activities with high visibility, and positively related to involvement in unstructured and unsupervised social activities, among both high school (Hawdon, 1996) and college students (Hawdon, 1999).

A number of other studies have yielded similar findings. Participation in structured academic, extracurricular, community, and religious activities has been associated with low levels of delinquency, while unstructured and unsupervised peer interaction has been shown to increase adolescents' risks for deviance (Agnew & Petersen, 1989; Anderson & Hughes, 2009; Barnes, Welte, & Dintcheff, 2007; Bernburg & Thorlindsson, 2001; Crawford & Novak, 2002; Eccles & Barber, 1999; Flannery, Williams, & Vazsonyi, 1999; Fleming et al., 2008; Haynie & Osgood, 2005; Huebner & Betts, 2002; Mahoney & Stattin, 2000; Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996; Thorlindsson & Bernburg, 2006; Vazsonyi, Pickering, Belliston, Hessing, & Junger, 2002; Wong, 2005).

Modeling the relationship between gender, routine activities and delinquency

A few of the studies cited in the preceding section examined the relationship between gender, routine activities, and delinquency. Borrowing from the literature on gender and social control more generally (see Costello & Mereder, 2003; Jensen & Eve, 1976; White & LaGrange, 1987), these analyses can be categorized based on the extent to which they emphasized mediating or moderating relationships between key variables.

Mediating models specify the mechanisms through which independent variables influence dependent variables indirectly by identifying intermediate, or intervening, variables in a causal chain. For a mediating effect to exist an independent and dependent variable must be correlated, the third (mediating) variable must be associated with both the independent and the dependent variable, and one must be able to safely assume that the mediating variable is the result (rather than the cause) of the independent variable. When these conditions are met, mediating effects are detectable through a series of analyses in which variables are sequentially added into a statistical model (Baron & Kenny, 1986).

Within the context of the literature on gender and routine activities, a mediating effect is presumed to exist when the association between gender and delinquency disappears when measures of routine activities are included in the analysis. If routine activity patterns account for the effect of gender on delinquency in this manner, this suggests that that males are more

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delinquent than females simply because they are more likely to participate in RAPs conducive to deviance. As such, the mediation hypothesis is what White and LaGrange (1987) termed a common causes argument.

In support of the common causes position, Osgood et al. (1996) found that gender differences in participation in various routine activities, including unstructured peer interaction, accounted for much of the effect of gender on each of five types of deviant behavior (heavy drinking, marijuana use, the use of illicit drugs, crime and dangerous driving). Other analyses have, however, failed to show any mediating influences of routine activity patterns, including peer interaction (Anderson & Hughes, 2009), sports, religious activities and school clubs (Chapple, McQuillan, & Berdahl, 2005), on the gender-delinquency relationship.

A second group of studies focusing on gender and routine activities emphasizes moderating over mediating influences. While mediating models link an independent variable to a dependent variable through one or more intervening variables, moderating models specify interaction effects (Baron & Kenny, 1986). When the effect of gender on delinquency varies across levels of participation in various activities, evidenced by significant cross-product interactions in a regression model, RAPs are said to moderate the gender-delinquency relationship. The moderation model proposes that gender differences in delinquency are due to a heightened reactivity to RAPs low in structure and visibility, or immunity to the protective effects of RAPs high in these attributes, among males relative to their female counterparts.

In support of this model, Mahoney and Stattin (2000) have shown that low-structure recreational behaviors have a stronger effect on antisocial behavior among boys than among girls. Similarly, Crawford and Novak's (2002) study indicated that unstructured/unsupervised peer interaction during the sophomore year in high school increased the risk for subsequent drinking primarily among males.

In their analysis of routine activities and delinquency in U.S. and three other countries, on the other hand, Vazsonyi et al. (2002) found few gender differences in the effects of various activity clusters (hanging out with friends, school-based and sports activities, and solitary pursuits) on measures of delinquency. Furthermore, there was no evidence that the effects of peer interaction on smoking, drug use, and general delinquency varied by gender in Barnes et al.'s (2007) study of adolescents' use of time. Although an earlier analysis by Huebner and Betts (2002) yielded a larger inverse association between purposeful activities, such as clubs and hobbies, and a measure of general deviance among males than among females, these behaviors emerged as protective for both genders. Consistent with this, Fleming et al. (2008) found little evidence that the effects of after-school activities on delinquency varied by gender.

Thus, to date, the literature on the relationship between gender, routine activities, and delinquency has been equivocal. Although there was some evidence that frequency of peer interaction, in particular, may increase the risk for deviance more for males than for females, this effect may be specific to social encounters characterized by low structure and visibility. The

current study assessed the extent to which unstructured peer interactions, as well as a variety of other RAPs varying in both structure and visibility, mediated or moderated the relationship between gender and delinquency.

Like Hawdon's (1996; 1999) earlier work, many of the studies that examined gender and routine activities described above were cross-sectional in design, making it difficult to determine the causal direction of the relationships in question. This may be especially problematic when one considers the effects of peer interaction, as delinquent youth may be inclined to pursue encounters with friends that lack both structure and visibility (Crawford and Novak, 2008). Using data from the first and second follow ups of the National Education Longitudinal Survey (NELS:88), we assessed the effects of gender and a number of routine activity patterns on delinquency during the senior year in high school controlling for prior levels of deviant behavior.

Methods

Sample

The data used in this study were from the second and third waves of the National Education Longitudinal Survey of 1988 (NELS:88). The NELS data were collected by the National Center for Education Statistics (NCES) in an effort to extend two earlier longitudinal studies (the National Longitudinal Study of the High School Class of 1972 and High School and Beyond). Unlike the latter two studies, data were collected from students before they began high school. The first wave of the study was conducted in 1988, when respondents were in eighth grade, with follow-up surveys administered in 1990, 1992, 1994, and 2000. This comprehensive database includes demographic variables, academic and social-psychological indicators collected from students and their parents, as well as information from teachers and administrators about student and school characteristics.

Members of the 1988 eighth-grade cohort were selected for participation using a probability sampling strategy involving the selection of schools and then students from the schools included within the sampling frame. Each of the follow-up surveys included this group of core respondents as well as some more recently eligible students (e.g., 1990 high school sophomores who did not attend eighth grade in the U.S. in 1988), selected for participation using similar probability sampling techniques. In each case, students of Asian and Latino descent were over-sampled so that a sufficient number of minorities were included in the sample for researchers to make comparisons across racial and ethnic groups (National Center for Education Statistics, 1994).

In this study student data from the sophomore cohort were combined with data from the second follow-up, when students were seniors in high school. The sample weights and design effects provided by NCES (National Center for Education Statistics, 1994) were used to adjust for the complex stratified design of NELS.

Measures

Delinquency
A composite index of Time-2 delinquency, measured when students' were seniors in high school, served as our dependent variable. This variable was constructed using thirteen indicators reflecting respondents' use of alcohol and marijuana and school-based transgressions (e.g. cutting classes). Items were standardized prior to the construction of the index to give them equal weight. The delinquency index yielded a mean score of -.85 with a standard deviation of 6.81 (Alpha = .86).

Gender
Gender was measured as the dummy variable, female, where females received scores of 1 and males received scores of 0 (female = 49 percent).

Routine activity patterns
Hawdon's (1996) argument was that routine activity patterns affect the risk for delinquency by providing contextual opportunities for youth deviance. Given this, we included measures of respondents' activity patterns from the same time period as our outcome variable (delinquency during the senior year in high school) in our analyses.

Capitalizing on the longitudinal design of the NELS:88, we also examined measures of routine activities two years earlier, when respondents were high school sophomores. This enabled us to assess changes in routine activity patterns over time and the relative effects of early, versus current, levels of participation in various categories of behavior common among adolescents on delinquency.

There was a change in the wording of one of the peer questions across the two waves of data. The time spent with friends variable measured during the sophomore year specified an interactive context (the local hangout). At Time-2, the peer question asked how much time respondents spent talking or doing things with their friends. Although this question was broader in focus, it encompassed the unstructured peer activities measured by the Time-1 item.

There was also a difference in the questions pertaining to participation in school-based team sports across surveys. In this case, it was possible to reconstruct a variable using the Time-1 data that matched the Time-2 question format. Other than that, the activity question sets at Times 1 and 2 were identical.

Hawdon (1996) used exploratory factor analysis to identify clusters of routine activities common among adolescents. The twenty-three items he examined, included in the Monitoring the Future database (Johnston, Bachman, & O'Malley, 1987) upon which his analysis was based, reflected participation in a range of both solitary and social activities, such as reading, watching television, playing sports, and hanging out with friends.

The NELS includes a number of items similar to these latter questions, measured during both the sophomore and senior year. Other indicators of how adolescents spend their time available in the NELS (e.g., time spent with adults and participation in youth groups) do, however, differ in content from Hawdon's measures. Given this, an exploratory factor analysis was conducted to identify clusters of routine activities based on the series of questions in the database assessing the frequency with which adolescents participated in a range of academic, social, and community activities when they were sophomores in high school. We began with the Time-1 data.

A principal components factor analysis, with an orthogonal rotation of the factor matrices, revealed that students' responses to twenty-six items reflected the following nine distinct spheres of activity: academic, athletic, religious, social, artistic, adults, hobbies, school clubs, and nonsocial. These results are presented in Appendix A. The nine factors that emerged in the analysis explained 56 percent of the variance in responses to the twenty-six survey questions. Items reflective of each sphere of activity, as indicated by the factor analysis, were standardized and then summed to form a composite measure of routine activities within that domain.

Despite differences in some of the indicators examined across studies, seven of the activity clusters (e.g., an orientation towards academics, athletics, social interaction with peers, arts and music, hobbies, school clubs and nonsocial pursuits) were similar in their underlying themes to those identified earlier by Hawdon (1996). One notable distinction pertained to the separation of academic activities (i.e., studying) from participation in school-based clubs in this analysis, presumably reflecting the number and detailed nature of the academic items provided in the NELS data. The remaining two RAPs that emerged in our analysis—community/religious activities and time spent with adults—were comprised of items reflecting spheres of activity not encompassed by Hawdon's (1996; 1999) earlier studies.

The Time-2 activity questions had a similar factor structure to the Time-1 measures (Appendix A). Although the Time-2 peer item (talk to and spend time with friends) was broader in scope than the Time-1 indicator (spend time with friends at local hangout), the relationship between this variable and the other peer measure (driving around with friends) was similar to the relationship between the two peer variables in the Time-1 data, and it yielded a factor loading similar to the Time-1 question. Overall, the nine factors explained 54 percent of the variance in the twenty-six activity questions. The Time-2 RAPs were constructed in an identical manner to their Time-1 counterparts.

The instrumentality and visibility of each of the nine RAPs was assessed using ratings of each of their component behaviors provided by undergraduate students in one of the author's introductory sociology courses ($n = 44$). Students were asked to indicate how goal directed and visible to adults each of the behaviors were when performed by high school students in a typical setting. Behaviors were scored on a scale ranging from 1 (rarely or not at all) to three (always or almost always) in each of the two domains.

Mean instrumentality and visibility ratings for each behavioral indicator (scored 1 to 1.67 = low, 1.68 to 2.33 = moderate, and 2.34 to 3 = high) were used to estimate the risk for delinquency associated with each of the nine RAPs. The RAPs least conducive to delinquency included the academic, community/religious, artistic, adult and school club orientations. Two RAPs, the athletic and hobby orientations, were associated with a moderate risk and both the social and nonsocial RAPs were rated as highly conducive to delinquency. Overall, the results obtained are consistent with those generated by Hawdon (1996), despite the use of somewhat different behavioral indicators and an alternative source (college undergraduates versus other researchers) for determining the instrumentality and visibility of the various RAPs.

Bonds to society
Since internalized social bonds may affect the relationship between routine activities and delinquency (Bernburg & Thorlindsson, 2001), measures of attachment, commitment and belief as control variables were included in this study. Hirshi's fourth social bond, involvement, was omitted since it is encompassed by the nine RAPs described above.

Questions pertaining to the three social bonds under investigation were not available in the Time-2 data. As internal control mechanisms, bonds to society should be less malleable than contextual variables such as the RAPs. Given this, measuring social bonding at Time-1 should not have presented a threat to the validity of our analyses.

Attachment was measured using a series of six questions concerning the quality of students' relations with their parents (e.g., My parents treat me fairly). Each item (scored using a six-point scale ranging from 1 = "false" to 6 = "true") was coded so that high scores reflected quality parent-child relations and then summed, yielding a composite attachment index with a mean score of 28.78 (SD = 6.15) on a scale ranging from 6 to 36 (Alpha = .84).

Commitment, reflecting the degree to which individuals are invested in conventional activities and institutions (Hirschi 1969), was measured using students' responses to a series of five questions asking them to indicate how important it was (1 = "not important" to 3 "very important") to achieve a range of conventional goals (e.g., "to find steady work," "to help others in the community"). These items were also summed to form a composite index, with a mean score of 13.39 (SD = 1.56) on a scale ranging from 5 (low commitment) to 15 (high commitment) (Alpha = .62).

Belief, Hirschi's (1969) third bond to society, refers to the extent to which individuals accept the moral validity of conventional norms and laws. This construct was measured by summing respondents' answers to a series of six questions asking them to indicate whether they thought it was okay to violate various school rules. With one exception, items (e.g., it's okay to cheat on tests) were scored using a four-point scale ranging from 1="always" to 4 "never." A final question, assessing the degree to which students perceive discipline at school to be fair, was coded using a four-point scale ranging from 1 "strongly disagree" to 4 "strongly agree". Scores

on the belief index ranged from 6 (low belief) to 24 (high belief), with a mean of 22.40 and a standard deviation of 3.61 (Alpha = .79).

Other control variables

Since strength of religious affiliation and peer attitudes are important determinants of delinquency (Marcos, Bahr, & Johnson, 1986), indicators of Time-2 religiosity and peer support for deviance were included in all higher-order analyses as statistical controls. Religiosity was measured using students' responses to a question asking them whether or not they were a religious person (1 = "yes, very," 2 = "yes, somewhat," 3 = "no, not at all,"). Scores on this variable were reverse coded so that high scores reflected a strong religious self-definition (Mean = 1.83, SD = .65). Peer support for deviance was measured using students' responses to a question asking them to indicate how important it was to be "willing to party or get wild" among their friends. Scores on this variable ranged from 1 ("not important") to 3 ("very important"), with a mean of 2.15 (SD = .73).

Race and socioeconomic status were also included as control variables. Race was measured as a series of four 0/1 dummy variables (Asian, Black, Hispanic, and Native-American), with White students (70 percent) serving as the reference category.

Socioeconomic status was measured using the composite index provided by NCES. This variable included parental education and income, as well as a range of indicators of cultural capital (e.g., owning a home computer). Scores on this measure provided in the NELS database are standardized, yielding a sample mean of approximately 0, a standard deviation of approximately 1, and a range of –3.29 to 2.76 for the sophomore-to-senior panel sample.

A composite measure of delinquency during the sophomore year in high school, constructed using the same thirteen indicators (standardized) used to measure delinquency at Time 2, our dependent variable, was also included as a statistical control when predicting seniors' levels of deviance (Alpha = .86). The mean on this variable was -.61 and the standard deviation was 6.76.

Results

Bivariate correlations between RAPs (Time 1 – Time 2), between gender and both sets of RAPs, and the RAPs and delinquency are presented in Table 1. As shown in Column 1 of Table 1, correlations between each RAP (measured during the sophomore and again during the senior year in high school) were moderate in size, ranging from .29 (the social pattern) to .56 (the music/art pattern), suggesting a fair degree of continuity in the types of activities adolescents participate in over time.

With one exception, changes in RAPs over time did not significantly vary across gender. Interestingly, the social RAP was more stable over the two-year timeframe under investigation among males than among females. Additional analyses (data not shown) indicated that this was largely a function of gender differences in scores on this variable at Time 1. During the

Table 1. Bivariate Correlations between RAPs, Gender, and Delinquency ($n = 1,485$ weighted)

	Time-1 RAP[a] (Matched)	Female	Time-2 Delinquency
Time-1 RAPs			
Academic		.13***	-.10***
Religious/Community		.11***	-.21***
Athletic		-.25***	.05
Social		-.05	.30***
Music/Art		.16***	-.13***
Adults		.08**	-.08**
Clubs		.13***	-.08**
Hobbies		-.10***	-.10***
Nonsocial		-.07**	-.03
Time-2 RAPs			
Academic	.35***	.06*	-.20***
Religious/Community	.51***	.04	-.22***
Athletic	.53***	-.26***	.05
Social	.29***	.02	.21***
Music/Art	.56***	.09**	-.13***
Adults	.40***	.13***	-.04
School Clubs	.40***	.14***	-.12***
Hobbies	.51***	-.07**	-.04
Nonsocial	.35***	-.09**	-.08**

[a]Correlations are for each Time-1 RAP and its Time-2 counterpart
* $p < .05$
** $p < .01$
*** $p < .001$

sophomore year, males participated in significantly more unstructured/unsupervised interactions than females. By the time respondents were seniors, scores on the social RAP were similar for the two genders. It is unclear whether this shift was due to the changes in question wording noted earlier or to the effect of gender on respondents' social behaviors as they progressed through high school. Although the substitution of questions across waves (from an indicator of unstructured to any peer interaction) was less than ideal, it was less problematic in subsequent high-order analyses. Within the context of these models, the effects of the social RAP on delinquency were estimated with controls for structured peer activities in the form of the various RAPs.

Preliminary bivariate analyses showed that males were significantly more deviant than their female counterparts ($t_{\text{Time 1}} = 5.54$, df 3645, $p < .001$; $t_{\text{Time 2}} = 12.25$, df 2813, $p < .001$). As shown in Column 2 of Table 1, there were also gender differences in scores on most of the RAPs. Moreover, all of the RAPs, with the exception of the athletic, the Time-1 nonsocial and the Time-2 adult and hobby orientations, were significantly associated with delinquency. Thus, the overall pattern of results in Table 1 met the preliminary criteria for mediating effects–in this case a negative (positive) correlation between the variable female and a particular RAP, and a positive (negative) correlation between that RAP and the measure of delinquency.

A series of OLS regressions were used to assess the relationships between gender, RAPs and deviant behavior with controls for race/ethnicity, socioeconomic background, religiosity, peer

support for substance use, and social bonds. The listwise deletion of missing cases yielded a final sample size of 1485 for each model.

The initial analysis was conducted in a series of four steps. First, the deviance index was regressed on gender and the control variables, including the measures of bonds to society and Time-1 delinquency. In a second step, the nine Time-1 RAPs were added into the regression model. This enabled us to both assess the effects of early activity patterns on deviant behavior and to determine whether this set of variables mediated the gender-delinquency relationship. The results of these analyses are presented in Columns 1 (gender and the control variables) and 2 (gender, the control variables, and the Time-1 RAPs) of Table 2, respectively.

In a third analysis, we added the Time-2 RAPs into the regression model (Table 2, Column 3), enabling us to assess their individual effects with earlier activity patterns held constant and to determine whether they mediated the gender-delinquency relationship. Since correlations between RAP pairs were all below .60 (Table 1, Column 1), multicollinearity was not a problem.

In a final set of regressions, we tested the significance of cross-product interactions between gender, RAPs (measured at Time 1 and then at Time-2) and delinquency in order to determine whether there were any moderating effects. Only those interactions that were statically significant are included in Column 4 of Table 2.

As shown in Column 2 of Table 2, two of the Time-1 RAPs, the athletic and the social orientations, increased respondents' subsequent levels of deviance in the predicted manner. None of the other Time-1 measures of routine activities (the academic, religious, artistic, adult, hobbies, school club and nonsocial orientations) significantly affected scores on the delinquency index in an additive fashion. Thus, the increase in the proportion of explained variation in levels of delinquency resulting from the addition of this block of variables into the statistical model was minimal (change in R^2 = .006). Moreover, a comparison of the coefficients for the variable female between Columns 2 and 1 of Table 2 offered no indication of mediation.

As routine activity patterns are presumed to affect youth deviance by providing contextual opportunities for misbehavior, it was expected that the later (Time-2) RAPs would be better predictors of Time-2 levels of delinquency. This was, in fact, the case. As shown in Column 3 of Table 2, four of the nine RAPs measured at Time-2 (the academic, religious, social and nonsocial patterns) significantly affected respondents' levels of delinquency. As expected, given the structure and visibility of their component behaviors, the academic and religious patterns reduced, while the social pattern increased, participation in deviant activities. The inverse relationship between the nonsocial RAP and delinquency, on the other hand, was unanticipated, given the low structure and visibility associated with that activity cluster. Not surprisingly, the inclusion of the Time-2 RAPs in the statistical model ameliorated the effects of the earlier (Time-1) activity patterns.

Table 2. OLS Regressions Predicting Total Time-2 Delinquency Scores (n = 1,485 weighted)

	Step 1		Step 2		Step 3		Step 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Constant	.92		1.68		.50		.40	
Female	-1.16***	-.09	-1.04***	-.08	-1.08***	-.08	-1.13***	-.09
Asian	-.53	-.02	-.47	-.01	-.32	-.01	-.32	-.01
Black	-1.10*	-.04	-.94	-.04	-.58	-.02	-.68	-.03
Hispanic	.20	.01	.25	.01	.55	.02	.47	.02
Native	-.33	.00	-.13	.00	.08	.00	.04	.00
SES	.19	.02	.27	.03	.36	.04	.36	.04
Religiosity	-.69**	-.07	-.60**	-.06	-.29	-.03	-.26	-.03
Peer Support	1.81	.19	1.73***	.19	1.61***	.17	1.62***	.17
Attachment	.01	.01	-.01	-.01	.00	.00	-.01	-.01
Commitment	.03	.01	.01	.00	.01	.00	.01	.00
Belief	-.17***	-.09	-.16***	-.08	-.14**	-.07	-.13**	-.07
T1 Delinquency	.55***	.55	.53***	.53	.52**	.53	.53***	.53
T1 Academic			-.01	.00	.03	.02	.03	.02
T1 Rel/Comm			-.11	-.04	-.05	-.02	-.19*	-.06
T1 Athletic			.13*	.04	.14	.04	.14	.04
T1 Social			.17*	.04	.07	.02	.27*	.07
T1 Music/Art			-.03	-.01	-.02	-.01	-.03	-.01
T1 Adult			.14	.03	.16	.04	.15	.04
T1 Clubs			-.01	.00	.01	.00	.01	.00
T1 Hobbies			-.08	-.02	-.04	-.01	-.04	-.01
T1 Nonsocial			-.11	-.02	-.06	-.01	-.06	-.01
T2 Academic					-.17***	-.08	-.17***	-.08
T2 Rel/Comm					-.21**	-.07	-.21**	-.07
T2 Athletic					.03	.01	.03	.01
T2 Social					.39***	.09	.38***	.09
T2 Music/Art					.01	.00	.01	.00
T2 Adult					-.16	-.04	-.16	-.04
T2 Clubs					.04	.01	.04	.01
T2 Hobbies					-.02	-.01	-.01	.00
T2 Nonsocial					-.20*	-.04	-.20*	-.04
T1 Rel*Female							.24*	.06
T1 Social*Female							-.37*	-.07
R-Square	.502***		.509***		.525***		.529***	
Ch R-Square			.006*		.017***		.003**	

* $p < .05$
** $p < .01$
*** $p < .001$

Including early (Time-1), as well as later (Time-2), RAPs in our analyses enabled us to assess the pathways through which gender influenced high school seniors' levels of delinquency. A series of supplemental regressions (data not shown) indicated that gender had a number of indirect (but no direct) effects on three of the four Time-2 RAPs that were significantly related to Time-2 deviance (the academic, religious/community and nonsocial orientations). Through these paths gender was, at a minimum, three times removed from the outcome in question (e.g., females had higher scores than males on the Time-1 academic RAP, which increased their participation in these activities at Time 2, which subsequently reduced their risk for delinquency). Thus, the overall impact of the indirect effects of gender on Time-2 deviance was miniscule.

The test for mediation described earlier (the comparison of coefficients for the variable female in the regressions with and without the Time-2 RAPs) confirmed this. As shown in Columns 2 and 3 of Table 2, there was very little change in the effect of gender on delinquency when the nine Time-2 RAPs were added into the analysis, suggesting that differential participation in routine activities did not explain the observed gender gap in deviant behavior.

There was, however, some support for the moderation hypothesis. Although there was no evidence that gender moderated the effects of any of the Time-2 RAPs, on delinquency, as shown in Column 4 of Table 2, cross-product interactions between gender and the Time-1 religious/community RAP, and between gender and the Time-1 social RAP, were strong enough to reach statistical significance.

In order to determine the direction of these effects, we used the procedure for interpreting interactions suggested by Ross, Mirowsky, and Huber (1983). Predicted deviance scores for males and for females were computed using the regression equation from Column 4 of Table 2. In each case, scores on the predictor of interest (the religious/community or the social RAP) were varied from one standard deviation below to one standard deviation above the sample mean, while holding all other variables constant at their mean score. Means and standard deviations on the model variables are presented in Appendix B.

The effect of participation in religious and community activities on delinquency by gender is shown in Fig. 1. As indicated here, a two standard deviation increase on the religious/community RAP, measured during the sophomore year, decreased the risk for deviant behavior substantially among senior males (but not females) when current participation in religious and community activities (the Time-2 religious/community RAP) was held constant.
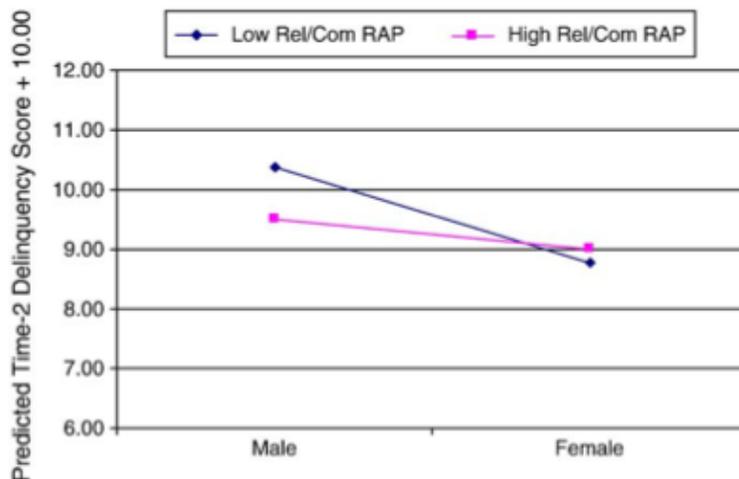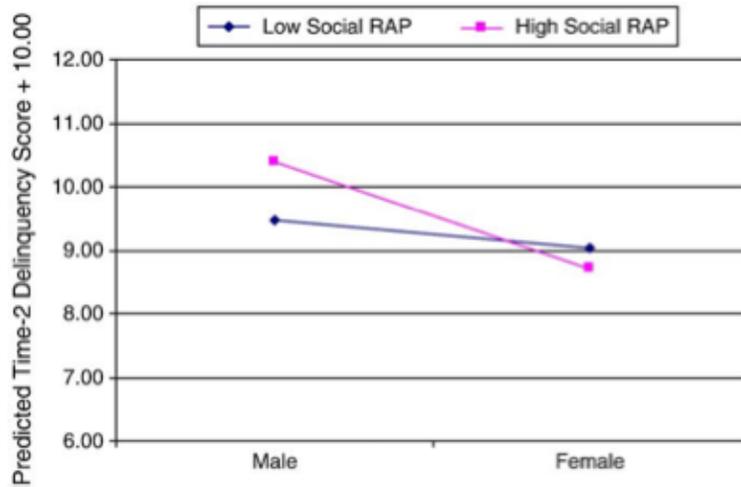

Fig. 1. Effects of Time-1 Religious/Community RAP on Delinquency

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Fig. 2. Effects of Time-1 Social RAP on Delinquency

A similar pattern was observed when the nature of the interaction between gender, the social orientation, and delinquency was examined. Fig. 2 shows the estimated effects of a two standard deviation increase in the social RAP on deviant behavior by gender. While the social orientation had a minimal effect on delinquency among females, frequent participation in unstructured and unsupervised peer interactions during the sophomore year in high school substantially increased deviance among males two years later, when they were seniors, irrespective of their current levels of peer interaction.

Again, the Time-2 religious/community and social RAPs were strongly associated with delinquency, but these effects did not vary across gender. Overall, RAPs explained 2.7 percent of the variance in delinquency among the high school sample (Table 2).

Discussion

The purpose of this study was to assess the extent to which differential participation in, or reactivity to, routine activity patterns would explain gender differences in delinquency. Thus, both mediating (common causes) and moderating (differential reactivity) models were examined using measures of RAPs at two points in time.

Although four Time-2 RAPs (the academic, religious/community, social and nonsocial orientations) significantly affected delinquency for both genders, males' levels of participation in these activities was no different from that of their female counterparts. As a result, RAPs did not explain males' heightened risk for delinquency in the manner suggested by the mediation hypothesis, a set of findings in opposition to some earlier results within the routine activities literature.

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As mentioned in the introduction, Osgood et al. (1996) found that routine activities explained much of the relationship between gender and measures of alcohol and drug use, dangerous driving, and criminal behavior. The amount of variance in deviant behavior explained by routine activities was also substantially larger in Osgood et al.'s analysis than it was in our study. Osgood et al. (1996) did not include controls for bonds to society or peer associations in their statistical model, which may have led them to overestimate the magnitude of the effect of routine activities on deviance (Bernburg & Thorlindsson, 2001). Discrepancies between our results and Osgood et al.'s findings may also reflect differences in sample composition. Their analysis was based on a five-wave panel sample of youth transitioning from late adolescence into adulthood, whereas this study focused on high school students. Clearly adolescents and young adults experience different sets of role-related responsibilities and freedoms. Further research might focus on identifying the ways in which the relationships between gender, routine activities, and deviant behavior vary across these life stages.

Although there was little support for the common cause model, there was some evidence that routine activities moderated the gender-delinquency relationship. It was, however, two early (Time- 1) activity patterns (the religious/community and the social orientations) that varied in their effects on delinquency across gender.

From a theoretical standpoint, it is significant that the two RAPS that moderated the effect of gender on delinquency reflected the extremes on the structure and visibility continuums. The religious/ community orientation was among the highest in both purpose and visibility, and participation in these activities substantially reduced males', but not females', levels of deviance. The social orientation, the RAP rated lowest in both structure and visibility, on the other hand, substantially increased males' risks for delinquency. Unstructured and unsupervised peer interactions during the sophomore year in high school had a negligible impact on deviance two years later, during the senior year, among females.

The fact that the effects of these RAPs on deviant behavior were largest among males is consistent with the results of Mahoney and Stattin's (2000) prior study of early adolescents as well as Crawford and Novak's (2002) assessment of the determinants of high school students' drinking behaviors and suggests that there may be important gender differences in reactivity to contextual opportunities for delinquency. It also supports the notion that males are more responsive than females to external social controls more generally (Heimer, 1996).

That it was early (Time-1), rather than later (Time-2), measures of participation in religious/ community and social activities that exerted such strong influences on delinquency among males is puzzling. While the effects of contextual opportunities for deviance on behavior may vary across individuals or over time due to a variety of other motivating factors, little attention has been given to these issues within the routine activities literature (Bratt, 2008; Sasse, 2005). Future research is needed to identify the underlying cause of the moderating effects observed in this study and their theoretical implications.

The negative relationship between the nonsocial RAP and delinquency also bears further investigation. Although the direction of this effect was unanticipated given the low structure and visibility attributed to this behavioral cluster, it becomes more interpretable when one considers the items used in constructing this measure (i.e., not working for pay and watching television). These types of activities typically involve limited peer contact, which may have reduced the risk for deviance associated with this pattern. Activities involving interaction with peers was the general category of behavior most strongly related to delinquency in Agnew and Petersen's (1989) comprehensive analysis of adolescent leisure. Similarly, overall sociability emerged as an important determinant of levels of alcohol consumption in Bergmark and Andersson's (1999) longitudinal study of the antecedents of problem drinking among adolescents. Perhaps the limited opportunities for social interaction associated with its component behaviors explains why the nonsocial RAP did not increase adolescents' levels of delinquency in this study, despite its low structure and visibility. Future analyses might consider sociability, as well as structure and visibility, when assessing the risk associated with common adolescent activities.

In general, our findings support the utility of the routine activities framework for explaining youth deviance. Although the overall effects of concurrent RAPs on delinquency were less substantial than earlier cross-sectional studies (Hawdon, 1996, 1999) have indicated, our analyses did suggest some notable gender differences in reactivity to prior patterns of activity. Some recent papers (Cross, Gottfredson, Wilson, Rorie, & Connell, 2009; Osgood, Anderson, & Shaffer, 2005) have emphasized routine activities as a potential point of intervention. Our study findings suggested that males, in particular, would benefit from service requirements and other social programs that reduce the frequency with which they engage in unstructured and unsupervised interactions with peers during the early high school years.

Appendix A. Factor Analyses, Time-1 and Time-2 Indicators of Routine Activities (*n* = 1485 weighted)[1]

Factors		Academic	Religious/ Community	Athletic	Social
Activity	Communalities				
Math homework	.587/.528	**.758/.657**	.075/.138	.017/.069	-.049/.046
Science homework	.571/.488	**.743/.600**	.057/.131	.060/.049	-.032/.061
English homework	.620/.538	**.782/.718**	.036/.082	-.018/-.010	.005/.018
History homework	.378/.414	**.609/.612**	-.002/-.069	.067/.051	-.023/-.029
Other homework	.530/.485	**.715/.628**	.003/.006	-.007/-.003	-.035/-.086
Youth group	.699/.633	.044/.040	**.812/.699**	.098/.337	.090/.051
Religious activities	.662/.654	.054/.078	**.786/.788**	.037/-.068	-.121/-.007
Community Service	.428/.446	.069/.120	**.528/.523**	.023/.100	.047/-.062
School team sports	.605/.515	.062/.089	.063/.057	**.762/.585**	.006/.121
Ball/other sports	.652/.610	.023/.015	.132/.140	**.715/.725**	.274/.149
Sports lessons	.420/.636	.041/.050	-.015/.018	**.598/.747**	-.043/-.100
Drive around	.690/.588	-.065/-.067	-.009/-.066	.033/.033	**.806/.749**
Friends	.706/.683	-.060/.031	.007/-.006	.099/.091	**.827/.816**
School band/orchestra	.641/.635	.052/.047	.136/.164	-.057/-.090	-.038/-.001
School play/musical	.502/.564	.023/.012	.022/-.028	-.024/-.040	.006/.063

Music/art/dance class	.460/.508	.065/.118	.062/.046	.117/.164	-.019/-.118
Time parents	.728/.597	.102/.151	.092/.227	.050/-.034	-.069/.471
Time other adults	.721/.562	.030/-.019	.094/.199	.025/.014	.159/.406
School service clubs	.505/.390	.097/.113	.150/.267	.027/-.054	-.008/.064
School academic clubs	.398/.441	.079/.076	.033/.093	.059/.007	-.010/-.042
School yearbook/paper	.382/.537	.029/.070	-.012/-.090	.004/.037	-.002/-.018
Hobbies	.549/.526	.011/.033	.003/.111	.073/.018	.142/.110
Read on own	.453/.533	.140/.122	.010/-.080	-.201/-.086	-.064/-064.
Personal computers	.449/.506	.018/.034	.104/.146	.194/.066	-.108/.084
No work for pay	.543/.389	.003/.092	.034/.079	.047/.025	-.172/-.014
Watch television	.600/.599	-.201/-.054	-.081/-.082	-.052/-.016	.101/-.058
Eigenvalue		3.389/.3.148	2.179/1.712	1.763/1.534	1.401/2.053
Percentage of variance		13.03/12.11	8.38/6.58	6.78/5.90	5.39/7.90

	Factors Music/Art	Adults	Clubs	Hobbies	Nonsocial
Activity					
Math homework	.035/-.032	.033/-.250	.037/.070	.009/-.035	.023/-.021
Science homework	.013/-.035	.055/-.286	.026/.142	.072/.036	-.052/-.011
English homework	.020/.056	.017/.056	.067/.093	.028/.034	.017/-.005
History homework	.062/.053	.041/.159	-.005/-.007	-.017/.045	-.017/.009
Other homework	.060/.082	.054/.238	.077/.016	.076/.126	.008/.058
Youth group	.086/.057	.053/-.019	.072/-.017	.069/.129	.002/.076
Religious activities	.091/.115	.104/.082	-.042/.017	-.010/.045	-.061/.031
Community Service	.063/.013	.047/.150	.287/.313	.231/.039	.011/-.148
School team sports	.000/-.012	-.053/-.215	.018/.087	-.120/-.192	.003/.238
Ball/other sports	-.068/-.099	.039/-.058	-.101/-.073	.124/.150	.126/-.021
Sports lessons	.064/.042	.107/.209	.155/.033	.097/-.035	-.097/-.127
Drive around	-.006/-.023	.137/.053	.000/-.088	-.085/.061	-.093/-.050
Friends	-.039/.044	-.055/.062	-.011/.031	.051/.031	.013/-.026
School band/orchestra	**.781/.768**	-.005/-.038	-.062/-.033	-.039/-.007	-.014/.076
School play/musical	**.689/.676**	-.028/-.105	.156/.288	.009/.066	-.034/.052
Music/art/dance class	**.599/.512**	.152/.312	.132/.002	.194/.140	.007/-.267
Time parents	.055/-.022	**.833/.531**	.046/.101	.030/-.034	.035/.071
Time other adults	.032/-.081	**.816/.571**	.034/.048	.122/.151	-.040/.009
School service clubs	-.025/.008	.046/-.066	**.682/.475**	-.061/-.126	-.024/-.229
School academic clubs	.137/.074	.093/-.064	**.597/.629**	.056/.132	.030/-.035
School yearbook/paper	.075/.095	-.060/.169	**.597/.675**	.112/.069	-.057/.155
Hobbies	.127/.127	.162/.102	.021/-.101	**.690/.675**	.068/-.089
Read on own	.001/.009	.078/.171	-.016/.124	**.602/.675**	-.099/.008
Personal computers	.006/-.018	-.079/-.209	.152/.154	**.598/.633**	-.037/.059
No work for pay	-.013/.202	.010/-.160	.040/.000	-.036/-.021	**.712/.554**
Watch television	-.026/-.165	-.013/.199	-.094/-.023	-.016/-.001	**.755/.720**
Eigenvalue	1.278/1.148	1.193/1.068	1.182/1.093	1.073/1.266	1.020/.983
Percentage of variance	4.92/4.41	4.59/4.11	4.55/4.20	4.13/4.87	3.93/3.78

[1]Top numbers (above diagonal) are Time-1 values. Bottom numbers are Time-2 values. RAPs were constructed using items with factor loadings over .400. These values are in bold-face type.

Appendix B. Descriptive Statistics (*n* = 1,485 weighted)

	Mean	Standard Deviation
Female	.54	.50
Race		
Asian	.04	.19
Black	.07	.25
Hispanic	.07	.25
Native-American	.01	.07
Socioeconomic status	.15	.73
Religiosity	1.83	.65
Peer support	2.17	.73
Social Bonds		
Attachment	29.24	5.88
Commitment	13.53	1.43
Belief	22.48	3.43
Time-1 RAPs		
Academic	.31	3.64
Religion/community	.20	2.25
Athletic	.02	2.12
Social	-.05	1.66
Music/art	.17	2.02
Adults	.09	1.66
School clubs	.15	1.97
Hobbies	.25	2.03
Nonsocial	-.10	1.47
Time-1 Delinquency	-.85	6.81
Time-2 RAPs		
Academic	.15	3.16
Religion/community	.08	2.23
Athletic	-.09	2.03
Social	.17	1.56
Music/art	.11	2.17
Adults	.09	1.67
School clubs	.20	2.08
Hobbies	.20	2.07
Nonsocial	-.08	1.42
Time-2 Delinquency	-.61	6.76

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