2-1999

Low Self-Control and Opportunity: Testing the General Theory of Crime as an Explanation for Gender Differences in Delinquency

Teresa C. Lagrange
Cleveland State University, t.lagrange@csuohio.edu

Robert A. Silverman
Queen's University - Kingston, Ontario

Original Citation

Lagrange, T. C., & Silverman, R. A. (1999). Low self-control and opportunity: Testing the general theory of crime as an explanation for gender differences in delinquency. Criminology, 37(1), 41-72. doi:10.1111/j.1745-9125.1999.tb00479.x

LOW SELF-CONTROL AND OPPORTUNITY: TESTING THE GENERAL THEORY OF CRIME AS AN EXPLANATION FOR GENDER DIFFERENCES IN DELINQUENCY*

TERESA C. LaGRANGE
Cleveland State University

ROBERT A. SILVERMAN
Queen's University at Kingston, Ontario

This research tests Gottfredson and Hirschi's general theory of crime as an explanation for gender differences in the delinquency of approximately 2,000 Canadian secondary school students. Separate psychological factors, including a preference for risk seeking, impulsivity, temper, present oriented, and carelessness, are used as measures of self-control, *and additional measures of the construct are taken from the frequency of self-reported smoking and drinking. Elements of delinquent* opportunity *are controlled for by including measures of parental/adult supervision. These measures and their interactions are used to predict self-reported general delinquency, property offenses, violence, and drug offenses. Results provide partial support for the general theory, revealing relationships between measures of self-control and delinquency that vary by magnitude across genders and for different offense types. Implications for the generality of the theory are discussed.*

Gottfredson and Hirschi's (1990) general theory of crime claims to be *general*, in part, due to its assertion that the operation of a single mechanism, low self-control, accounts for "all crime, at all times": acts ranging from vandalism to homicide, from rape to white-collar crime (p. 117). Whether or to what extent an individual engages in any one or more of these crimes or analogous actions, such as smoking, drinking, gambling, or prostitution, may depend on individual circumstances and opportunities; but it is low self-control that provides the impetus to commit them (Hirschi and Gottfredson, 1994). Beyond this, the general theory claims to be *general* by offering an explanation for all of the persistent, well-documented correlates of crime. The effects of gender, age, race, social class,

* This research was funded by a grant from the Social Sciences and Humanities Research Council of Canada. The authors wish to thank Robert Bursik, Jr., and several anonymous reviewers for their thoughtful and very helpful suggestions and comments on earlier drafts of this article.

peer relationships, family structure and relations, school performance, and employment, all may be interpreted on the basis of their role in the formation of self-control, the extent to which they reflect its expression, or the degree to which they alter the context of opportunity (Gottfredson and Hirschi, 1990).

A growing body of empirical research has demonstrated at least moderate support for the first of the theory's contentions: that low self-control predicts a variety of criminal and noncriminal deviant behaviors (Arneklev et al., 1993; Brownfield and Sorenson, 1993; Creechan, 1995; Grasmick et al., 1993; Keane et al., 1993; Kennedy and Forde, 1995; Polakowski, 1994). What remains unclear, however, is the degree to which the theory can appropriately claim to be a general one by explaining common correlates of crime, such as gender. It is this issue that our research examines, using data from a recent cross-sectional survey of Canadian secondary school students. Consistent with previous research, we assess self-control through self-reported psychological traits (Arneklev et al., 1993; Grasmick et al., 1993). In order to explore fully the dynamics of these traits as predictors of gender differences in offending, however, we retain them as separate measures rather than sum them to form an unweighted scale (Hirschi and Gottfredson, 1993; Longshore et al., 1998; Wood et al., 1993, 1995). Additional indicators of self-control are obtained from self-reported frequency of equivalent but noncriminal behaviors (smoking and drinking). Measures of parental and adult supervision are introduced to control for delinquent opportunity, and multiplicative interaction terms are computed from measures of self-control and opportunity combined. We use these measures of self-control, opportunity, and their interactions to predict self-reported general delinquency, as measured by a summed 20-item scale, and property, violent, and drug offenses, among males and females.

THEORY AND PREVIOUS RESEARCH

Gender differences in crime rates are widely acknowledged; as Gottfredson and Hirschi (1990:145) point out, males "always and everywhere" offend more often than females. Recently, however, the *reasons* for these persistent differences have become the subject of considerable theoretical debate. The debate centers on two related questions: why females are substantially less delinquent/criminal than males; and whether females, when they are delinquent/criminal, act for the same reasons as males (Broidy and Agnew, 1997; Chesney-Lind and Shelden, 1998; Ensminger, 1983). Several prominent and influential theorists, beginning in the mid-seventies, attributed persistent gender differences in crime and delinquency to differences in opportunity (Adler, 1975, 1977, 1981; Simon,

1975, 1979). Females, traditionally relegated to uniquely "feminine" roles that kept them at home, or more closely supervised at school and at work, were less likely to engage in "drinking, stealing, gang activity, and fighting" (Adler, 1975:95) because they had fewer opportunities to do so.

The corollary of this explanation for lesser female participation in crime/delinquency is that, given similar opportunities to those already enjoyed by males, females will behave similarly; in other words, female crime arises from the same mechanisms, and in a parallel way, to male crime. Underscoring this, theorists writing from this perspective predicted that as females gained greater freedom and wider social participation, their involvement in crime would also increase and converge with that of males (Adler, 1975; Simon, 1975). Early studies based on female arrests for serious (index) crimes seemed initially to support this prediction; they reported dramatic increases for females in such nontraditional, "masculine" categories as robbery and even homicide. Subsequent and more systematic research, however, has failed to demonstrate that such a trend toward equality in crime is occurring (Steffensmeier, 1978, 1980, 1981, 1989). Overall, the actual differences between male and female crime participation remain substantial and, in fact, appear to have stabilized in recent years.

Gender equality in terms of rates of participation has thus failed to materialize and recent research into gender-stratified crime and delinquency has evolved in several different directions (Chesney-Lind, 1986, 1989; Chesney-Lind and Shelden, 1992, 1998; Hagan, 1989; Hagan et al., 1979, 1985). In one theoretical model of gender differences in offending, Hagan and his associates (Hagan, 1989; Hagan et al., 1985) propose that family class positions influence the way in which parents socialize their children. The theory argues that in more traditional (patriarchal) families, characterized by male dominance at home as a reflection of male authority in the workplace, girls are socialized to be passive and submissive. Boys, on the other hand, are socialized to be independent risk takers, a pattern that produces gender stratification in delinquency rates. In more egalitarian families, on the other hand, more equitable parental social class positions in the workplace lead to more equitable treatment of children, regardless of sex, at home. Greater similarity in socialization leads, in turn, to greater similarity in delinquent behavior.

Attempts to evaluate power-control theory empirically have produced ambiguous results (Hill and Atkinson, 1988; Jensen and Thompson, 1990; Singer and Levine, 1988). But the issue the theory raises—that power and class relations in the larger social structure may affect gender-stratified socialization—is a significant one, and is central to several contemporary views on female crime. Several prominent feminist criminologists have argued that female crime cannot be explained by opportunity differences

between males and females; even given similar situational opportunities, females behave differently. Female crime participation, they suggest, is shaped by the societal enforcement of gender-hierarchical social roles. The socialization of females not only restricts their opportunities, it also conditions them to powerlessness and dependence. Girls who have been taught to suppress their independent and aggressive impulses will thus respond differently in the face of similar circumstances. While several different perspectives have developed among feminist criminologists with respect to the origins and the mechanisms of gender-stratified social roles, there is some general agreement on one issue: Female crime does not simply parallel male crime, albeit at a rate restricted by opportunity differences. When girls or women do offend, they do so in distinctive, "female" ways (Chesney-Lind, 1989; Daly and Chesney-Lind, 1988; Klein, 1973; Messerschmidt, 1986).

Despite the debates and controversies surrounding the issue of gender, Gottfredson and Hirschi (1990:145) devote a relatively brief discussion to the topic, arguing that "gender differences appear to be invariant over time and space." They note that males are not only more likely to commit delinquent or criminal acts; they are also more likely to engage in analogous behaviors, such as drinking, smoking, and drug use—behaviors so easily committed that opportunity is not an issue, even for juveniles (1990: 147). Furthermore, even where female opportunities have increased, female involvement in crime has not increased in proportion. And for personal offenses, females are portrayed as having at least potentially the same opportunities as males—they spend equal or even greater amounts of time in the close, intimate contact that usually generates these offenses. Yet, despite the possibility for relatively high rates of female violence, female participation in this sort of offending remains significantly lower than that reported for males.

These observations, Gottfredson and Hirschi (1990:147) argue, provide evidence of "a substantial self-control difference between the sexes." Given that the development of self-control is linked directly to early childhood socialization, this suggests differential socialization of females (as argued by feminist theorists); but these differences are not implicated in the development of a distinctively different feminine pattern. Their significance lies in the mechanism of self-control: Effective socialization results in its development, while ineffective socialization does not. Hence, more intensive socialization of girls results in their having, in general, more self-control than boys. These differences in propensity, moreover, are compounded by differences in opportunity: Females tend to be more closely monitored than males throughout childhood (and into adulthood). They

therefore have fewer opportunities to express their propensities in antisocial actions, even if such propensities exist. Gottfredson and Hirschi conclude that gender-based differences in crime participation are due to the combination of differential socialization of males and females, which results in the gender stratification of self-control, and the element of opportunity. The general theory thus provides an answer to both of the previously noted questions about gender differences in offending. On the one hand, lesser female crime and delinquency are attributed to the combination of greater self-control and lesser opportunity; but when female offending occurs, it can be expected to parallel male offending, since it is seen as arising from the same sources.

Gottfredson and Hirschi are somewhat ambiguous, however, regarding the *extent* to which their theory can or will fully account for gender differences. Some interpretations have noted that the general theory compares gender effects to those observed for age (1990:145), thus implying that just as there is an independent age effect, there might well be persistent gender effects, beyond what can be explained by self-control and opportunity. Yet, the arguments advanced regarding age are not that its effects lie beyond the explanatory model. Rather, the general theory notes that *crime* declines with age, due in part to "the inexorable aging of the organism" (1990:141) and to shifts in circumstances and opportunity. *Criminality* or low self-control, however, is assumed to remain unchanged—in fact, Gottfredson and Hirschi (1990:141) explicitly argue that the decline "cannot be explained by change in the person." Criminality simply finds expression in the analogous behaviors of smoking, drinking, and similar nonserious activities—an explanation that accounts for age's effects within the causal model of the theory.

For gender, Gottfredson and Hirschi (1990:149) conclude their discussion of its persistence as a predictor of differences in crime by noting that a full explanation of gender differences may be "beyond the scope of any available set of empirical data." This observation does not mean, however, that gender differences are beyond explanation or should be viewed as having a consistent, independent source. And in fact, Gottfredson and Hirschi qualify their observation by noting that "by conceptualizing the problem as crime and criminality, available data may be examined in a new light" (p. 149). Crime, or actual offending, is shaped in part by external factors, such as opportunity; criminality, by contrast, describes the propensity to commit crime and is viewed as equivalent to low self-control. This statement reemphasizes the point that gender predicts substantial differences in rates of offending and in self-control. In the absence of any further clarification of the role that gender plays, it seems appropriate to evaluate the theory based on its premise that, in contrast to the view that

"special theories are required to explain female and male crime," (Gottfredson and Hirschi, 1990:117) the general theory can provide an explanation for gender-stratified differences in offending.

Several previous empirical tests of the general theory have included gender as a control variable but have not addressed its theoretical implications. One exception is Keane et al.'s (1993) examination of drinking and driving among some 12,000 Ontario drivers. In this analysis, low self-control, as measured by a number of variables (seat-belt use, how much the subject drank in the past seven days, whether someone tried to discourage the subject from driving), was used to predict subjects' blood alcohol concentration (BAC) levels (p. 33). The authors report strong support for relationships between the predictors and the likelihood of driving under the influence (DUI), and they conclude the behavior is "impulsive, risky, [and] hedonistic," compatible with predictions derived from the general theory (Keane et al., 1993:42; see Argeriou, 1985; Lucker et al., 1991). Consistent with the theory's argument of differential socialization, Keane et al. found that female drivers were less prone to the types of behaviors taken as evidence of low self-control (1993:36). Yet to the extent that women displayed low self-control, they were found to have an increased likelihood of driving under the influence. Thus, Keane et al. (1993:42) argue that "the same risk-taking variables can be used to explain variations in both male and female drinking-driving," a conclusion that is supportive of the general theory. A more recent study, however (Longshore et al., 1996), reports less consistent results. The authors used separate subfactors of personality items from a self-control scale, rather than the higher-order scale used in earlier research (Grasmick et al., 1993). Although the results and their interpretation have led to some debate (see Piquero and Rosay's 1998 reanalysis, which arrives at an entirely different conclusion, based on the same data), Longshore et al.'s analysis reveals distinctive male and female patterns in offending, and the authors conclude that the viability of low self-control as an explanation for female crime remains unresolved (1998:180).

CONTROLLING FOR OPPORTUNITY

Opportunity is a key factor in many causal models of gender-stratified offending; in addition, it is central to the general theory. According to Gottfredson and Hirschi (1990:91–94), *crimes* are specific acts of "force or fraud" committed in the pursuit of self-interest; *criminality*, by contrast, is the propensity to commit such acts. It is this distinction that allows them to conclude that the actual occurrence of crimes is shaped by a number of "necessary conditions," including "activity, opportunity, adversaries, victims, [and] goods" (p. 137). Opportunity in this context, and as it has been addressed by previous tests of the general theory, refers primarily to the

structural conditions of access and target availability (Grasmick et al., 1993; Kennedy and Forde, 1995).[1] Drug abuse presupposes access to drugs; driving under the influence of alcohol entails access to a vehicle and alcohol; theft from an employer requires having a job; getting into brawls may be related to frequenting bars.

For adolescents, however, opportunity is further constrained by adult supervision. The degree to which parents monitor where teens are and who they are with can be expected to have a direct impact on their opportunities to offend. In support of this, a substantial body of research has demonstrated that weak parental supervision predicts increased delinquency (Canter, 1982; Gove and Crutchfield, 1982; Hagan et al., 1985, 1988; Krohn and Massey, 1980; LaGrange and White, 1985; Rankin and Kern, 1994). More important, from the perspective of the current discussion of gender differences, differential supervision of male and female children has been identified as a significant factor in the gender stratification of delinquency. Since females of all ages are assumed to be monitored more closely than their male counterparts, they could be expected to have lesser delinquent opportunities.

The claim that the expression of low self-control in delinquency and crime is dependent on situational opportunities suggests that closer supervision of girls would tend to limit their delinquent involvement. Nevertheless, to the extent that they are lacking in self-control, females should be just as likely as males to act on their propensities when they have the chance. When differences in levels of self-control and opportunity are controlled, therefore, the general theory predicts that low self-control will manifest itself in similar patterns of delinquent behavior for both sexes.

MEASURES OF LOW SELF-CONTROL

The issue of what, precisely, is embraced by the concept of low self-control, and how it might best be measured, has been raised in several critiques of the theory (Akers, 1991; Barlow, 1991) and recently has become the subject of some empirical debate (Longshore et al., 1998; Piquero and Rosay, 1998). Gottfredson and Hirschi (1990:90) contend that the low self-control individual is "impulsive, insensitive, physical (as opposed to mental), risk-taking, short-sighted, and nonverbal," although they offer little evidence to support this description, or their subsequent contention that "there is considerable tendency for these traits to come

1. This argument on the role of opportunity in specific actions closely parallels routine activities and opportunity perspectives (Cohen and Felson, 1979; Felson and Cohen, 1980; Sherman et al., 1989). And in fact, Gottfredson and Hirschi acknowledge the affinity, observing that the two viewpoints "are not necessarily inconsistent" (Gottfredson and Hirschi, 1990:23; Hirschi, 1986).

together in the same people." In keeping with this description, however, previous tests of the theory have based their measure of self-control on personality inventories encompassing all or most of these psychological manifestations of low self-control (Gottfredson and Hirschi, 1990:89; Grasmick et al., 1993:14–15). Grasmick et al., for example, used principal components factor analysis to assess the multidimensionality of items and then combined all of them into an *unweighted* scale used as "a single, unidimensional personality trait" measuring low self-control (Grasmick et al., 1993:9; see also Brownfield and Sorenson, 1993). This scale was then used to predict "force" and "fraud," in one analysis (Grasmick et al., 1993), and the likelihood of engaging in imprudent noncriminal behaviors in a second (Arneklev et al., 1993:233). Brownfield and Sorenson (1993) followed the same technique, using an equivalent unweighted composite scale to predict self-reported and official delinquency in their reanalysis of the Richmond Youth Study (p. 257).

Yet the construction of a single, unweighted scale as a measurement for low self-control may do little to unravel the precise etiology of criminal/delinquent behavior. The unweighted scale assigns an equal predictive value to each item, so that an individual who scores highly on items for present orientation but not other characteristics, for example, will be viewed as equivalent to one who scores highly on risk-seeking items but not others. It might well be, however, that these traits are *not* equally reflective of low self-control; if they are, they may not be equally predictive of crime and delinquency, and the elements important to females may not be the same as those for males. Recent research has suggested that the inclusive self-control scale may have little predictive value beyond that of its more widely researched components (particularly risk seeking and impulsivity) (Longshore et al., 1998; Piquero and Rosay, 1998). One key issue is whether low self-control as a general construct comprises similar elements and operates similarly for different subgroups, such as males and females; some evidence suggests that it may not (Longshore et al., 1998:175).

Hence, closer attention to what, precisely, constitutes low self-control would seem to be warranted, particularly in light of the fact that several other models of offending have identified one or more of its specific components as predictive of criminal behavior in general and gender-stratified offending in particular. Impulsivity, for example, has been consistently identified as a criminogenic factor in research ranging from Eysenck and his associates' work on personality and crime in England (Eysenck, 1985) to Wilson and Herrnstein's *Crime and Human Nature* (1985). The latter authors conclude that while impulsivity cannot be viewed as equivalent to criminality, since its effects may be mediated by social factors, nevertheless it is a strong predictor of crime (1985:217; see also Farrington, 1988;

Frost et al., 1989). Moreover, Wilson and Herrnstein link impulsivity to gender differences, arguing that biology and socialization practices combine to make males (particularly young males) more impulsive and, hence, more likely to commit serious criminal or delinquent actions (1985:508). More recently, research by Caspi and his colleagues suggests that crime-prone personalities are characteristically more impulsive and aggressive than those who abide by the law (Caspi et al., 1994). Other research, notably that of Hagan and his associates in Toronto (1979, 1985, 1989), has identified a preference for risk taking as the primary mechanism for explaining delinquency. And significantly, Hagan's power-control theory argues that this specific trait is especially prevalent in boys as a result of the gender-stratified early socialization discussed above and thus provides an explanation for the etiology of male/female differences in offending.

Gottfredson and Hirschi claim that low self-control should not be thought of as a coherent "criminal personality." In their commentary on Grasmick et al.'s 1993 study, for example, they note that while low self-control is a single underlying propensity, it may be expressed in multidimensional ways, ways shaped largely by situational and opportunity differences (Hirschi and Gottfredson, 1993:53). Just as low self-control persons will be likely to commit crimes, they will be similarly likely to display characteristics such as temper, impulsivity, a preference for risk taking, and so forth. These traits can therefore be seen as by-products of low self-control, and the extent to which they occur does provide some indication of the construct. Nevertheless, the implication is that *low self-control* refers to some distinctive, underlying characteristic (or propensity, as Gottfredson and Hirschi identify it) that encompasses these various traits. The question remains, then, whether all of these assumed by-products of low self-control are equally predictive of delinquency and crime, or whether only some more-specific traits are associated with offending. Is low self-control simply another name for impulsivity or risk seeking? If so, it would seem preferable to use the more concise and specific concept, one that more clearly identifies the characteristics leading to crime/delinquency, rather than the broader, vaguer term of low self-control.

To address this issue, and in view of the role assigned to traits such as impulsivity and risk taking in other models of gender differences in offending, we have chosen not to combine all personality traits into a single, unweighted scale for our analysis. Instead, we have retained each of the personality traits as separate measures. In addition, we have included two behavioral measures of the concept, self-reported smoking and drinking, as advocated by Akers (1991:204) and by Hirschi and Gottfredson (1993:53).

We use these measures of low self-control to predict self-reported delinquency, measured as general delinquency and as specific offense types

(property, violence, and drugs), controlling for opportunity and its interactions with low self-control, age, social class, and race. Consistent with Gottfredson and Hirschi's explanation of gender differences in offending, we expect that when differences in inclination and situational opportunities are controlled, both genders will offend in similar ways.

METHOD

STUDY AND DATA

Data for this research came from the *University of Alberta Juvenile and Adolescent Behavior Study*, a cross-sectional survey of secondary school students completed in Edmonton, Alberta, in 1994. Edmonton is a medium-sized western Canadian city with a population of approximately one-half million. Secondary schools in the city's public school district include 13 senior high schools serving grades 10 to 12 and 30 junior high schools for grades 7 to 9. In addition, a separate Catholic school district includes 6 high schools and 10 junior high schools. A multistage cluster sampling design was used to select 15 schools for this study: 5 public senior high schools, 6 public junior highs, 2 Catholic high schools, and 2 Catholic junior highs. School selection was initially based on school and neighborhood vandalism rates, obtained from a previous citywide study of vandalism (LaGrange, 1994). Schools were selected to represent all sections of the city, and schools in high-vandalism areas were oversampled. Within each school, cluster sampling was used across grades. Individual classes were selected from the language arts and social studies programs (required courses for all enrolled students) to ensure full coverage of each school's population and to eliminate overlap.

Questionnaires were administered to students in each school during October and November of 1994 by a team of trained graduate students. Participating students completed the questionnaire during one of their regularly scheduled class periods of approximately 50 minutes. Of the 2,425 questionnaires completed, a total usable sample of 2,383 was obtained. Elimination of 70 respondents who were over the age of 18 and listwise deletion of missing cases (with one exception, discussed below) produced an effective sample size of 2,095, consisting of 961 males (46%) and 1,134 females (54%) between the ages of 11 and 18.

For purposes of this analysis, 65 variables were extracted to measure self-control, opportunity, and delinquency. Opportunity measures, taken from items about family and/or adult supervision, were combined into summed indices, as were the delinquency items; factor analysis was used to construct measures of the psychological expressions of self-control; and questions about smoking and drinking behavior were retained as separate

measures. Age, race, and a family income measure were included as exogenous variables. To examine the general theory's predictions regarding gender, we first analyzed general delinquency and specific offense types for the total sample of 2,095, with gender as a dummy variable, controlling for age. To examine further differences between males and females, we then analyzed the two groups separately.

MEASURES OF LOW SELF-CONTROL

The study contained an inventory of 26 items that correspond to the traits identified in previous research as reflective of low self-control—impulsivity, a preference for simple tasks and physical activities, a taste for risk seeking, self-centeredness, and temper (Arneklev et al., 1993; Grasmick et al., 1993:13–16; Kennedy and Forde, 1995). Several of these items were adapted from a subscale of the Basic Personality Inventory (BPI; Jackson, 1986) measuring impulsivity; additional items concerning "preference for risk taking" (five questions) and "temper" (three questions) were included, adapted from Grasmick et al. (1993).

Principal components factor analysis with varimax rotation on these items identified five factors, with eigenvalues ranging from 5.3 to 1.1. The difference in eigenvalues between the first and second factors of 3.5 represents a marked break, and the first factor accounts for almost half of the explained variance for these variables. Based on the scree discontinuity plot as a criterion (Cattell, 1966), these observations support a unidimensional measure of low self-control, as undertaken by Grasmick et al. (1993). In order to retain as much information as possible about the predictors, however, and the relative magnitude of their effects, we retained them as separate measures for use in the subsequent analysis (Wood et al., 1995). These factors, reported along with their factor loadings in Appendix 1, consist of *impulsivity* (six items); *risk-taking* (four items);[2] *carelessness* (five items); *temper* (five items); and *present oriented*

2. Grasmick et al. use Gottfredson and Hirschi's description of the low self-control person's taste for "exciting, risky, or thrilling" actions as the basis for their "risk-seeking" element (Gottfredson and Hirschi, 1990:89; Grasmick et al., 1993:8). "Impulsiveness," by contrast, is described as a "here and now" orientation that fails to consider the future consequences of actions. Following this distinction, our grouping of items reflects our expectation that some behaviors are engaged in primarily because they appeal to the "fun" of the moment, with little thought for consequences (*impulsivity*); others have a more dangerous element that implies recklessness (*risk seeking*). Although the wording of some items suggests that they might be viewed as addressing either quality, we chose to distinguish between those items that seemed to convey a more extreme risk-seeking awareness ("dangerous," "reckless," "almost anything," "excitement and adventure") and those that did not ("fun," "foolish," "a little risky").

(four items).[3]

SMOKING AND DRINKING

In addition to personality traits, low self-control was measured by two items about frequency of smoking and drinking. The survey had asked, How often do you smoke cigarettes? and How often do you drink alcoholic beverages? Each question provided five response categories, ranging from "never" to "every day" ("a pack a day," for smoking). Original coding was retained, with higher values associated with increased frequency and consistent with lower self-control. The majority of respondents (80%) had answered "never" on each of these questions.

OPPORTUNITY

Eight questions regarding parental and adult supervision were used to measure opportunity. Four of these asked about parents' knowledge of where youths were during the course of a day and who they were with; two others asked respondents about whether they had a curfew. Two further questions dealt with adult supervision more generally, asking respondents about time spent with companions in the absence of adults. The four questions regarding parental supervision consisted of two items about *mother's supervision* (In the course of a day, how often would your mother/female guardian know where you are? and How often would your mother/female guardian know who you are with?) and two parallel questions about *father's supervision.* For each of these items, original coding was retained (four categories ranging from "often" to "never") so that increased values are consistent with increased opportunity.[4] The two items about mother's knowledge were summed into a single scale of *mother's supervision* (alpha = .78), as were the two questions about fathers (*father's supervision*, alpha =.91). Resulting scales for each range from 1 to 8.

In addition to direct parental supervision in the form of knowledge of whereabouts and companions, two additional questions asked whether

3. The composition of these factors and factor loadings for specific questions differs from those identified by previous research (Grasmick et al., 1993). These dissimilarities, however, may reflect a number of differences in our data, including sample size (over 2,000 compared to Grasmick et al.'s 395) and an adolescent rather than adult sample. In addition, although there is considerable overlap between the BPI subscale that served as the primary source for this index and the self-control indices used in previous research, item content is not completely identical.

4. Those who indicated that they did not have a guardian of the appropriate sex were coded as "never" on these variables. While there are important differences between having a parent who lives at home but does not closely supervise and having one who does not live at home, the concern in this analysis was with daily supervision rather than other subtler aspects of the relationship. Forty-six respondents had indicated no mother/female guardian; and 276 indicated no father/male guardian.

respondents had a curfew. One asked, Do you have a set time to be home on school nights? and the other, Do you have a set time to be home on weekend nights? Both provided three response categories ("yes," "no," and "don't know"). These questions were recoded so that "no" responses were the higher value, consistent with greater opportunity. The ambiguous category of "don't know" was recoded as the middle category. These two items were also combined into a summed scale (alpha = .71).

Two final questions relevant to opportunities for delinquency asked about more general freedom from adult (rather than specifically parental) supervision. One asked, How often do you and a friend get together where no adults are present? and a second, How often do you and a friend drive around in a car with nowhere special to go? For each, five substantive response categories were provided, ranging from "almost every day" to "never." Based on the reasoning that these two forms of supervision were conceptually distinct from one another, and also from the previous items regarding curfews and parental knowledge,[5] they were retained as separate measures of opportunity. Each was reverse recoded so that they were parallel to the other supervision items, with higher values associated with greater freedom from supervision and hence greater opportunity.

DEPENDENT VARIABLE

The dependent variable, delinquency, was measured by a summed 20-item scale. Respondents had been asked how many times during the past year they had committed actions that corresponded to crimes ranging from shoplifting to armed robbery. For each question, response categories ranged from "never" to "more than three times." The most frequently reported of the delinquency items, "hitting someone to hurt them," was reported by 35% of respondents; the least frequent, "physically hurt someone to force them to have sex," was reported by less than 1%. An additional six questions asked how many times (actual count) respondents had committed six different types of vandalism. Vandalism items were summed and recoded equivalently to the other delinquency items and included in the scale as a single additional item. Inter-item reliability for all 21 delinquency items including vandalism was .86. Removal of the item for "hurting someone to have sex" improved the scale alpha to .87, and this item was dropped. The remaining 20 items were summed to construct a general delinquency scale (for specific items, see Appendix 2). In addition, three summed scales corresponding to different categories of offending were

5. In support of this, bivariate correlations between "curfew on school nights" or "curfew on weekend nights," on the one hand, and "getting together with friends" or "driving around," on the other, were relatively modest. The largest (r = .14) was observed for "curfew on weekend" and "getting together with friends."

constructed: property offenses (10 items, alpha = .81), violent offenses (5 items, alpha = .69), and drug offenses (4 items, alpha = .71).[6] While the majority of adolescents in this study had committed one or more delinquent offenses in the past year (65%), all scales were positively skewed. To correct for skewness, scores above the 90th percentile were recoded at that value (Nagin and Smith, 1990). After recoding, the delinquency scale ranged from 0 to 16; property from 0 to 12; violence from 0 to 6; and drug offenses from 0 to 4.

In addition to measures of low self-control, opportunity, and delinquency, four exogenous variables were included: age, two dummy variables representing categories of racial minority (Asian and Aboriginal),[7] and mean neighborhood income as a measure of socioeconomic status. Racial minority was taken from a single item that had asked respondents about their family ethnicity.[8] Three hundred and thirty-nine of the respondents (16%) were of Asian background; an additional 136 (6%) were Aboriginal,[9] and the remaining 1,620 (77%) were non-Asian, non-Aboriginal ("other" on both dummy variables). A measure of family socioeconomic status was taken from Canadian National Census data regarding the mean annual income for similar households in the respondent's neighborhood. For this analysis, raw income estimates were recoded into eight categories, ranging from less than $19,900/year to $80,000+/year. A significant number of missing responses for this variable (325, or 13%) did not allow listwise deletion of missing data, as employed for all other measures; in order to retain these cases, missing values were recoded at the mean (category 4).

To evaluate the prediction that delinquency will be most likely when persons with low self-control have greater opportunity, the interaction between the two constructs was assessed by multiplying measures of the

---

6. The general delinquency scale includes one item, "in the last year I have run away from home," not suitable for inclusion in any of these specific offense-category subscales.

7. Canadian research has identified these two ethnic categories as over-represented in crime statistics; they also represent the two largest minorities for the city where the questionnaire was administered (see Gordon and Nelson, 1996; Wood and Griffiths, 1996).

8. "Asian" was coded as 1 based on identification of a single response category, listed as "Chinese/Asian." "Aboriginal" was coded as 1 based on identification of one of three response categories: "Inuit," "Native Indian," or "Metis."

9. This figure differs from the officially recorded proportion of Aboriginals in the population of Edmonton, reported variously as between 3 and 4%. Our higher figure may be due to the fact that subjects categorized as Aboriginal in this research include all three groups of Native Indians, Inuit, and Metis. Official figures, on the other hand, are based on legal status criteria that do not include "non-status" Aboriginals or the much larger group of Metis (Morrison and Wilson, 1986:524).

two together (Friedrich, 1982; Jaccard et al., 1990). Relationships between independent and dependent variables were then analyzed using ordinary least squares (OLS) regression.

RESULTS

DESCRIPTIVE STATISTICS

Means for each of the measures of low self-control and opportunity (reported in Appendix 3), reveal substantial and in a number of cases statistically significant gender differences. The mean score on impulsivity for females (-.07) was substantially lower than that reported for males (.12), as were scores on risk seeking (mean of -.21 for females, .21 for males). Differences are also seen for present oriented (.06 for females vs. -.09 for males). While these differences are all statistically significant, differences in means for the other two personality factors, temper and carelessness, are small and nonsignificant. Females, overall, reported smoking slightly more than males (.98 vs. .89), but this does not represent a statistically significant difference. For drinking, however, the lower mean for females of .82 differs significantly from the mean of .99 for males.[10]

REGRESSION RESULTS

An initial regression of delinquency and the offense-specific subscales on only the structural variables, reported in Table 1, reveals the largest effects (based on a comparison of the standardized coefficients) for gender as a predictor of general delinquency and property offenses (β = .19 for both) and violent offenses (β = .21). For drug offenses, the largest effect is that associated with age differences among the teens. The variance in delinquency and the offense subtypes explained by these five variables is modest (for delinquency, R^2 = .10).

Inclusion of measures of self-control, opportunity, and interaction terms (reported in Table 2) results in a very substantial increase in explained variance (R^2 = .55 for general delinquency). For delinquency, all measures of low self-control are statistically significant predictors of increased offending. The strongest predictor for this group of teens, based on a comparison of the standardized coefficients, is risk seeking (b = 1.44, β = .26), followed by the behavioral indicators of smoking (b = .71, β = .21) and drinking (b = .86, β = .19). When the dependent variable is restricted to

10. Statistical significance of the differences in means for females vs. males, based on independent samples t- tests, are as follows: *impulsivity*, t = -4.45; *risk seeking*, t = -10.80; *present oriented*, t = 3.58; *drinking*, t = -3.21; for all, $p < .01$. For the other two personality factors, *temper* and *carelessness*, and for *smoking*, differences between means are nonsignificant (see Appendix 3).

Table 1. Reduced Form Model Effects for Delinquency and Offense Types on Structural Variables (Standardized Coefficients in Parentheses)

	General Delinquency	Property Offenses	Violent Offenses	Drug Offenses
Gender	2.12 (.19)**	1.49 (.19)**	.82 (.21)**	.13 (.05)*
Age	.49 (.17)**	.31 (.15)**	.00 (.01)	.20 (.28)**
Race/Asian	−1.68 (−.12)**	−.63 (−.09)**	−.30 (−.06)**	−.52 (−.15)**
Race/Aboriginal	2.16 (.10)**	1.23 (.08)**	.89 (.11)**	.34 (−.06)**
Neighborhood Income	−.01 (−.02)**	.01 (.00)**	−.01 (−.05)*	−.02 (−.02)
R^2	.10	.08	.07	.11

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

property offenses, which accounted for approximately half of the delinquency items and were the most frequently reported delinquent acts for the teens, results are very similar: Almost all measures of low self-control are strong and statistically significant predictors, and risk seeking again has the largest effect ($b = 1.00, \beta = .25$). For violent offenses, largest effects are again associated with risk-seeking in its interaction with the opportunity measure of getting together with friends in the absence of adults ($b = 12, \beta = .27$). While a number of other measures of low self-control and interactions between low self-control and opportunity predict modest increases in this type of delinquency, the effects are substantially less. For drug offenses, almost all statistically significant effects are associated with interactions between various measures of low self-control and opportunity, rather than low self-control alone.

Based on the previous discussion of male and female differences, females are assumed to be less likely to exhibit traits reflecting low self-control than males, an assumption given some preliminary support by the observed differences in means for almost all of the low self-control items. In addition, previous research has suggested that males and females have differential access to opportunity. When these differences are controlled, however, predictions based on the general theory were that male and female effects would be similar: Low self-control and opportunity should translate into delinquency in the same way for all teens, regardless of their gender. Introduction of the causal factors identified by the general theory are expected to lessen the impact of gender as a predictor of differences in delinquency. In our analysis, the introduction of measures of self-control, opportunity, and their interactions substantially reduces (but does not

Table 2. Regression Coefficients for General Delinquency and Specific Offenses on Measures of Low Self-Control, Opportunity, and Interactions for Total Sample (Standardized Coefficients in Parentheses)

	General Delinquency	Property Offenses	Violent Offenses	Drug Offenses
Gender	1.01 (.09)**	.70 (.09)**	.50 (.13)**	.01 (.00)
Age	−.09 (−.03)	−.05 (−.03)	−.11 (−.10)**	.06 (.08)**
Race/Asian	−.37 (−.02)	−.13 (−.01)	−.01 (.00)	−.17 (−.05)**
Race/Aboriginal	.43 (.02)	.26 (.02)	.45 (.06)**	−.03 (−.00)
Neighborhood Income	.02 (.00)	.05 (.02)	−.03 (−.02)	.00 (.00)
Measures of Low Self-Control				
Impulsivity	.46 (.08)*	.08 (.02)	.10 (.05)	−.03 (−.02)
Risk Seeking	1.44 (.26)**	1.00 (.25)**	−.05 (−.02)	.02 (.01)
Temper	.60 (.11)**	.41 (.10)**	.11 (.06)	.09 (.06)
Carelessness	.72 (.13)**	.51 (.13)**	.13 (.07)**	.04 (.03)
Present Oriented	.39 (.07)**	.21 (.05)**	.17 (.09)**	.10 (.07)*
Smoking	.71 (.21)**	.32 (.13)**	−.01 (−.01)	.06 (.07)
Drinking	.86 (.19)**	.55 (.17)**	.18 (.11)**	−.15 (−.14)
Measures of Opportunity				
Mother's Supervision	.39 (.11)**	.23 (.09)**	.06 (.05)	.00 (.00)
Father's Supervision	.15 (.06)**	.09 (.05)*	.05 (.05)**	.00 (.00)
Curfew	.01 (.00)	.01 (.00)	.01 (.01)	−.01 (−.01)
Together with Friends	.19 (.04)*	.07 (.02)	.10 (.05)**	.00 (.00)
Drive Around	.15 (.03)*	.17 (.06)**	−.01 (−.01)	.00 (.00)
Interactions Between Low Self-Control and Opportunity[a]				
Impuls*Mother Super	.27 (.16)**	.18 (.15)**	.07 (.12)**	. . .
Impuls*Drive Around	. . .	.13 (.08)	. . .	.05 (.09)**
Risk*Together Friends	. . .	. . .	.12 (.27)**	. . .
Risk*Drive Around	. . .	. . .	. . .	.06 (.12)**
Temper*Mother Super	. . .	. . .	.05 (.09)*	. . .
Temper*Father Super	. . .	. . .	. . .	−.02 (−.09)*
Careless*Curfew	. . .	. . .	. . .	−.04 (−.06)*
Careless*Drive Around	. . .	. . .	. . .	.04 (.07)*
Present*Mother Super	. . .	. . .	.03 (.12)*	. . .
Present*Father Super	. . .	. . .	. . .	−.03 (−.11)**
Smoke*Mother Super	. . .	. . .	. . .	.03 (.15)**
Smoke*Curfew	. . .	. . .	. . .	.04 (.12)**
Smoke*Drive Around	. . .	. . .	. . .	.04 (.14)**
Drink*Father Super	. . .	. . .	. . .	.04 (.19)**
Drink*Curfew	. . .	. . .	. . .	−.03 (−.07)*
Drink*Together Friends	. . .	. . .	. . .	.10 (.42)**
Drink*Drive Around	. . .	. . .	. . .	−.07 (−.19)**
R^2	.55	.45	.31	.50

[a] Only interactive effects retained in final regression equations shown.

* $p < .05$

** $p < .01$

entirely eliminate) gender as a predictor. For general delinquency, property offenses, and violent offenses, gender retains a smaller but still statistically significant effect (b = 1.01, b = .70, and b = .50, respectively; $p < .01$ for all), indicating that the variables in the regression analyses do not fully explain gender differences in offending. For drug offenses, however, the magnitude of gender differences was initially smaller, and when differences in self-control and opportunity are introduced, these differences are eliminated. Gender differences in drug use among the teens are explained by differences in the measures of low self-control and opportunity.

RESULTS FOR SAMPLE SPLIT ON GENDER

To investigate further the persistence of gender differences in patterns of offending, we split the sample into two groups consisting of females (N = 1,134) and males (N = 961). An initial examination of the covariance matrices for the two groups was undertaken using discriminant analysis with gender as the grouping variable, in order to assess the total score profiles for each gender (Tabachnick and Fidell, 1983). Results from this analysis reveal significantly different overall patterns based on the chi-square statistic, which examines score profiles as a whole. For delinquency, $\chi^2(17) = 292$, $p < .000$; for property, $\chi^2(17) = 286$; for violence, $\chi^2(17) = 301$; and for drugs $\chi^2(17) = 255$ ($p < .000$ for all). These findings confirm that the female and male teens in this sample had significantly different profiles on all scores taken together. The single dimension on which the two gender groups differ most, reported as the most influential predictor, was identified as "risk seeking" for delinquency and all of the offense-specific subtypes (Fung, 1995; Tabachnick and Fidell, 1983).[11]

Regression results for the split sample are reported in Table 3. For both genders, the strongest predictors of general delinquency are measures of low self-control; for females, however, the largest effects are reported for risk seeking (b = 1.58, $p < .01$), while impulsivity has the largest effect for males (b = 1.49). Smoking and drinking are significant predictors for both genders, and their effect is similar (for smoking, b = .65 for females and b = .75 for males; for drinking, b = .86 and b = .80 for females and males, respectively).

Property offenses follow a similar pattern—the largest effects for females are associated with risk seeking (b = .93). As with general delinquency, smoking and drinking are significant predictors of increased offending, for both genders. For females, however, the interaction between low self-control and opportunity predicts increased offending, beyond the effects identified for low self-control alone, as is apparent by

11. For risk seeking and delinquency, r(.58); for property r(.59); for violence r(.57); and for drugs r(.62).

Table 3. Regression Coefficients for Delinquency and Offense Types on Measures of Low Self-Control, Opportunity, and Interactions for Females and Males (Standardized Coefficients in Parentheses)

	Total Females (N = 1,134)				Total Males (N = 961)			
	Delinq.	Property	Violent	Drugs	Delinq.	Property	Violent	Drugs
Age	−.16 (−.06)**	−.10 (−.06)*	−.13 (−.15)**	.05 (.09)**	−.01 (−.00)	.01 (.01)	−.09 (−.08)*	.07 (.08)**
Race/Asian	−.21 (−.02)	−.06 (−.01)	.05 (.11)	−.13 (−.04)	−.56 (−.04)	−.16 (−.00)	−.09 (−.02)	−.21 (−.06)*
Race/Aboriginal	.97 (.04)*	.68 (.05)*	.53 (.07)**	.10 (.02)	.03 (.00)	−.10 (−.01)	.32 (.04)	−.17 (−.03)
Neighborhood Income	−.08 (−.03)	.01 (.00)	−.05 (−.05)	−.01 (−.01)	.09 (.03)	.07 (.03)	−.02 (−.01)	.01 (.01)
Measures of Low Self-Control								
Impulsivity	.14 (.03)	−.02 (−.01)	−.05 (−.03)	.08 (.07)**	1.49 (.25)**	1.05 (.24)**	.38 (.17)**	.06 (.04)
Risk Seeking	1.58 (.27)**	.93 (.24)**	.41 (.21)**	.08 (.05)	.18 (.03)	.89 (.23)**	.49 (.24)**	−.39 (−.29)**
Temper	.70 (.14)**	.45 (.13)**	.32 (.19)**	.15 (.11)*	.44 (.08)**	.34 (.08)**	.08 (.04)	−.01 (−.01)
Carelessness	.14 (.03)	.44 (.13)**	−.05 (−.03)	−.04 (−.03)	.72 (.12)**	.57 (.13)**	.10 (.05)	.07 (.05)*
Present Oriented	.43 (.09)**	.25 (.07)**	.16 (.09)**	.14 (.11)*	.80 (.13)**	.17 (.04)*	.20 (.09)**	.08 (.06)
Smoking	.65 (.21)**	.26 (.13)**	.18 (.18)**	.06 (.08)	.75 (.20)**	.38 (.14)**	−.31 (−.23)	.19 (.22)**
Drinking	.86 (.20)**	.80 (.27)**	.13 (.09)**	−.20 (−.18)	.80 (.17)**	.51 (.16)**	.19 (.11)**	−.16 (−.15)
Measures of Opportunity								
Mother's Supervision	.31 (.09)**	.16 (.07)*	.11 (.09)**	−.02 (−.02)	.49 (.13)**	.29 (.10)**	.11 (.08)*	.03 (.03)
Father's Supervision	.09 (.03)	.03 (.02)	.02 (.03)	−.01 (−.02)	.24 (.08)**	.14 (.07)*	.06 (−.06)	.00 (.00)
Curfew	.02 (.01)	.19 (.09)**	.01 (.01)	.04 (.05)	−.03 (−.01)	−.01 (−.00)	.00 (.00)	−.02 (−.02)
Together with Friends	.08 (.02)	−.02 (−.01)	.03 (.02)	.00 (.00)	.37 (.06)**	.21 (.05)	.15 (.07)*	.00 (.00)
Drive around	.10 (.02)	.15 (.05)*	−.02 (−.01)	−.02 (−.02)	.16 (.04)	.20 (.06)*	.04 (.03)	−.01 (−.01)

(Table 3, continued)

	Total Females (N = 1,134)				Total Males (N = 961)			
	Delinq.	Property	Violent	Drugs	Delinq.	Property	Violent	Drugs
Interactions Between Low Self-Control and Opportunity[a]								
Impuls*Mother Super	.36 (.23)**	.19 (.18)**	.12 (.22)**	...	...	...	...	...
Impuls*Curfew	...	.17 (.10)**	...	...	...	...	...	...
Risk*Curfew	...	.13 (.07)**	...	.07 (.09)**	−.22 (−.09)*	...	...	...
Risk*Together	...	...	...	...	...	...	...	.10 (.33)*
Risk*Drive Around	...	...	...	...	...	...	...	.05 (.11)*
Temper*Father Super	...	...	...	−.05 (−.18)**	...	...	...	...
Temper*Curfew	...	...	...	...	...	...	.10 (.11)*	...
Careless*Father Super	.13 (.13)*	...	.05 (.14)*	...	...	...	...	...
Careless*Drive Around	...	...	...	.05 (.09)*	...	...	...	...
Present*Father Super	...	...	...	−.04 (−.15)**	...	...	...	...
Present*Curfew	...	...	...	...	.27 (.22)*	...	...	...
Present*Drive Around	...	...	...	...	...	...	...	−.06 (−.10)*
Smoke*Mother Super	...	...	...	.04 (.19)**	...	...	...	...
Smoke*Curfew	...	...	...	.06 (.17)**	...	...	...	.03 (.08)**
Smoke*Drive Around	...	...	−.04 (−.13)**	...	...	...	...	.05 (.19)**
Drink*Father Super	...	...	...	.04 (.22)**	...	...	...	.03 (.17)*
Drink*Drive Around	...	...	...	...	...	...	...	−.05 (−.17)*
Drink*Together Friends	...	...	...	.10 (.40)**	...	...	.11 (.37)*	.08 (.34)*
Drink*Curfew	...	−.13 (−.12)*	...	−.09 (−.22)**	...	...	...	...
R^2	.54	.44	.27	.47	.53	.42	.30	.53

[a] Only interactive effects retained in final regression equations shown.

* p <.05

** p <.01

the significant effects identified for three of the interaction terms. For males, by contrast, property offending is predicted almost entirely by measures of low self-control alone, and all indicators of the concept are statistically significant. Violent offenses are linked to the factor of risk seeking (b = .41 for females, b = .49 for males) and to the interaction between low self-control and opportunity—for both genders, the magnitude of coefficients for interaction terms exceeds those for measures of low self-control by itself. The interactions between low self-control and opportunity are also the most important predictors for drug offenses; they account for almost all of the explained variance in this form of offending for females, while for males additional increases in drug offenses are predicted by smoking (b = .19).

DISCUSSION

As noted at the outset of this article, contemporary debates about the relationship between gender and crime/delinquency encompass two fundamental issues: why females are persistently and markedly less likely to offend than males; and whether, when they do offend, they do so for the same reasons as males (Broidy and Agnew, 1997; Chesney-Lind and Shelden, 1998; Ensminger, 1983). According to Gottfredson and Hirschi's general theory of crime, actual offending (crime) is shaped partly by inclination (criminality or low self-control) and also by specific situations of opportunity. Thus, the theory offers a possible explanation for both of these questions about gender, through its distinction between crime and criminality: Lower female rates of offending may be attributed to a combination of lesser inclination and reduced opportunities. To the extent that these differences are controlled, however, females are assumed to offend for the same reasons as males—low self-control in combination with circumstances of opportunity.

In this analysis of self-reported delinquency among a large sample of Canadian secondary school students, therefore, we expected to find significant gender differences in self-control, with males more likely to express traits and behavior reflecting low self-control than females. We also expected to find significant differences in opportunity, with females being objects of substantially closer parental and adult supervision. Overall, results of the analysis are consistent with these expectations. An initial examination of means for measures of low self-control and opportunity reveals that the teen females do, as predicted, differ significantly from their male counterparts in their propensities to specific behaviors and the degree to which they report parental/adult supervision. When measures of delinquency are regressed on predictors, the initial effect identified for gender, for each of the measures of delinquency, is substantially reduced

by inclusion of measures of self-control and opportunity, indicating that these variables account for a sizable proportion of gender differences. Results for males and females identify consistent relationships between measures of low self-control and reported delinquency. Preferences for risk seeking and impulsivity, in particular, were found to be robust predictors of increased delinquency, of various types and to varying degrees. It should be noted, too, that consistent with the theory those teens in our sample who reported smoking and drinking were also significantly more likely to engage in delinquency. Given that the general theory identifies all of these specific measures—risk seeking, impulsivity, smoking and drinking—as indicators of low self-control, these observations offer support for the theory.

Support for the theory is not unequivocal, however. Variables measuring self-control, opportunity, and their interactions substantially reduce, but do not eliminate, the impact of gender; it remains a significant predictor of differences in general delinquency, property offenses, and violence. Although the measures included in the model explain a substantial portion of the variance for each of these behaviors, the continuing effects of gender suggest that there is something about being male or female that persists in predicting real and substantial differences in behavior. Complete explanations of a social phenomenon are, of course, almost nonexistent in the social sciences, and we cannot realistically demand such from the general theory. But the theory's discussion of and explanation for gender-stratified offending does not address what the *sources* of those differences might be, beyond low self-control and opportunity. The question remains open, therefore, whether these constructs are adequate to explain gender differences in offending, or whether some other additional element needs to be introduced.

A further caveat arises in regard to the most predictive measures of low self-control. Girls in our sample reported a significantly lower propensity for risk-taking behaviors than boys; but this specific trait is associated with a very substantial increase in delinquency. For boys, on the other hand, impulsivity is an additional consistent and robust predictor of increased delinquency. Differences between males and females are large enough in magnitude to be statistically significant; they also vary, depending on how delinquency is measured. The contrast in effects is much more marked for general delinquency and property offenses than for violent offenses or drugs. Property offenses, as previously noted, made up half of the offenses included in our delinquency items, and they were also the most frequently reported, especially among females. These results suggest, then, that the factor structure of low self-control, to the extent that it can be viewed as a unitary construct, differs between males and females. This, in turn, implies

that there may be different patterns of causality leading to male and female offending.

In addition, the most important variable overall in terms of explaining gender differences is a preference for risk seeking, as seen from the examination of total score profiles and from results of the regression analysis. It remains unclear whether the broader, more general construct of low self-control adds anything to the understanding of crime and delinquency, when greater precision might be obtained by restricting the causal mechanisms to narrower concepts like risk seeking and impulsivity—concepts that have been well-established in previous literature (Longshore et al., 1998). Hagan and his associates (1985, 1988), for example, attribute lower female delinquency to differences in the preference for risk seeking and the closer supervision of females—two factors consistently identified as significantly associated with delinquency in this analysis. And research going back several decades has identified impulsivity as an important predictor of gender-stratified delinquency (Eysenck, 1985; Wilson and Herrnstein, 1985).

Our results suggest that further research into the theory's explanations of gender differences is warranted. Aside from gender, however, other variables, such as race and social class, are also, in the general theory's causal model, attributable to differences in low self-control; and these issues have not been addressed in any depth in the empirical literature. The general theory attributes racial differences in rates of offending, in large part, to differential child-rearing practices among ethnic/racial groups (Gottfredson and Hirschi, 1990:153). Class, by contrast, along with other structural factors, is generally irrelevant to the theory's microsocial focus. It receives only a peripheral discussion in relation to white-collar crime (pp. 181–183) and in a brief review of social disorganization (Shaw and McKay, 1969) and strain (Merton, 1938) theories as earlier representatives of "positivist social science" (pp. 79–80).

In our analysis, we controlled for two categories of racial minority and a measure of neighborhood level of social class. A consideration of the results, based on the coefficients for these measures in each of the regression analyses, suggests that for our sample, being of Aboriginal background is associated with an increase in violent behavior (especially among girls), being of Asian background is associated with a decrease in drug offending, especially among boys, and these effects persist even while controlling for differences in self-control and opportunity. The measure for social class, by contrast, has little impact. While an exploration of these relationships is beyond the scope of this study, an evaluation of the significance of such factors would be an important direction for future discussions of the theory.

In addition to its relative neglect of structural factors, the general theory

also dismisses the relevance of more temporally proximate individual factors, such as peers. Teens who are delinquent tend to have friends who are delinquent; and some types of delinquency, particularly drug abuse, seem to be closely related to group activity (Elliott et al., 1979, 1985; Erickson and Jensen, 1977). Consistent with this literature, drug offenses and violence in our results were found to be dependent to some degree on the opportunities provided by spending a great deal of unsupervised time with peers. The general theory does not dispute the existence of these relationships, however; instead, its disagreement with other perspectives centers on the direction and temporal order of the apparent relationship. Gottfredson and Hirschi contend that peer relationships are a reflection of low self-control: Youths who lack self-control, who are risk seeking and prone to delinquency, are inclined to associate with like-minded others, and these circumstances may provide the situational opportunities for some types of deviance. Alternative interpretations, however, are that youths learn to engage in such behaviors as smoking and risk seeking from their association with others (Akers et al., 1979; Krohn et al., 1985; Sutherland and Cressey, 1978); or that there is actually an interaction between individual propensities and peer influences (Agnew, 1991; Thornberry et al., 1994). These issues, too, are in need of further exploration.

Our analysis of the University of Alberta Study of Juvenile and Adolescent Behavior suggests that the general theory's concept of low self-control provides a partial, but not complete, explanation for marked gender differences in offending among our sample. The validity of the theory's claim to explain "all crime, at all times" (Gottfredson and Hirschi, 1990:117), among all offenders, thereby proving itself to be a "general theory of crime," thus remains to be demonstrated in further research.

REFERENCES

Adler, Freda

1975 Sisters in Crime. New York: McGraw-Hill.

1977 The interaction between women's emancipation and female criminality. International Journal of Criminology and Penology 5:102–112.

1981 The Incidence of Female Criminality in the Contemporary World. New York: New York University Press.

Agnew, Robert

1991 The interactive effect of peer variables on delinquency. Criminology 29(1):47–72.

Akers, Ronald L.

1991 Self-control as a general theory of crime. Journal of Quantitative Criminology 7(2):201–211.

Akers, Ronald L., Marvin Krohn, Lonn Lonza-Kaduce, and Marcia Radosevich

1979 Social learning and deviant behavior: A specific test of a general theory. American Sociological Review 44:636–655.

Argeriou, Milton, Dennis McCarty, and Edward Blacker
1985 Criminality among individuals arraigned for drinking and driving in Massachusetts. Journal of Studies on Alcohol 46:525–529.

Arneklev, Bruce J., Harold G. Grasmick, Charles R. Tittle, and Robert J. Bursik, Jr.
1993 Low self-control and imprudent behavior. Journal of Quantitative Criminology 9(3):225–247.

Barlow, Hugh D.
1991 Explaining crime and analogous acts, or the unrestrained will grab at pleasure whenever they can. Journal of Criminal Law and Criminology 82:229–242.

Broidy, Lisa and Robert Agnew
1997 Gender and crime: A general strain theory perspective. Journal of Research in Crime and Delinquency 34(3):275–306.

Brownfield, David and Ann-Marie Sorenson
1993 Self-control and juvenile delinquency: Theoretical issues and an empirical assessment of selected elements of a general theory of crime. Deviant Behavior 14(3):243–264.

Canter, Rachelle J.
1982 Family correlates of male and female delinquency. Criminology 20(2):149–167.

Caspi, Avshalom, Terrie Moffitt, Phil A. Silva, Magda Stouthamer-Loeber, Robert F. Krueger, and Pamela S. Schmutte
1994 Are some people crime-prone? Replications of the personality-crime relationship across countries, genders, races, and methods. Criminology 32:163–195.

Cattell, Raymond B.
1966 The meaning and strategic use of factor analysis. In Raymond B. Cattell (ed.), Handbook of Multivariate Experimental Psychology. Chicago: Rand McNally.

Chesney-Lind, Meda
1986 Women and crime: The female offender. Signs: Journal of Women in Culture and Society 12:78–96.
1989 Girls' crime and woman's place: Toward a feminist model of female delinquency. Crime & Delinquency 35:5–29.

Chesney-Lind, Meda and Randall G. Shelden
1992 Girls, Delinquency and Juvenile Justice. Pacific Grove, Calif.: Brooks/Cole.
1998 Girls, Delinquency, and Juvenile Justice. 2d ed. Belmont, Calif.: Wadsworth.

Cohen, Lawrence and Marcus Felson
1979 Social change and crime rate trends: A routine activity approach. American Sociological Review 44:588–608.

Creechan, James H.
1995 A test of the general theory of crime: Delinquency and school dropouts. In James H. Creechan and Robert A. Silverman (eds.), Canadian Delinquency. Scarborough, Ontario: Prentice-Hall.

Daly, Kathleen and Meda Chesney-Lind
1988 Feminism and criminology. Justice Quarterly 5:497–538.

Elliott, Delbert S., Suzanne S. Ageton, and Rachelle J. Canter
1979 An integrated theoretical perspective on delinquent behavior. Journal of Research in Crime and Delinquency 16:3–27.

Elliott, Delbert S., David Huizinga, and Suzanne S. Ageton
1985 Explaining Delinquency and Drug Use. Beverly Hills, Calif.: Sage.

Ensminger, Margaret E., Sheppard G. Kellam, and Barnett R. Rubin
1983 School and family origins of delinquency: Comparisons by sex. In Katherine Teilman Van Dusen and Sarnoff A. Mednick (eds.), Prospective Studies of Crime and Delinquency. Boston: Kluwer-Nijhoff.

Erickson, Maynard L. and Gary F. Jensen
1977 Delinquency is still group behavior! Toward revitalizing the group premise in the sociology of deviance. Journal of Criminal Law and Criminology 68(2):262–273.

Eysenck, Hans and Michael W. Eysenck
1985 Personality and Individual Differences. New York: Plenum.

Farrington, David P.
1988 Psychological factors in the explanation and reduction of delinquency. Today's Delinquent (1988): 37–51.

Felson, Marcus and Lawrence Cohen
1980 Human ecology and crime: A routine activity approach. Human Ecology 8:389–406.

Friedrich, Robert J.
1982 In defense of multiplicative terms in multiple regression equations. American Journal of Political Science 16:797–833.

Frost, Laurie, Terrie Moffitt, and Rob McGee
1989 Neuropsychological correlates of psychopathology in an unselected cohort of young adolescents. Journal of Abnormal Psychology 98:307–313.

Fung, Wing K.
1995 Diagnostics in linear discriminant analysis. Journal of the American Statistical Association 90(431):952–956.

Gordon, Robert M. and Jacquelyn Nelson
1996 Crime, ethnicity, and immigration. In Robert A. Silverman, James J. Teevan, and Vincent F. Sacco (eds.), Crime in Canadian Society. 5th ed. Toronto: Harcourt Brace.

Gottfredson, Michael R. and Travis Hirschi
1990 A General Theory of Crime. Stanford, Calif.: Stanford University Press.

Gove, Walter R. and Robert D. Crutchfield
1982 The family and juvenile delinquency. The Sociological Quarterly 23:301–319.

Grasmick, Harold G., Charles R. Tittle, Robert J. Bursik, Jr., and Bruce J. Arneklev
1993 Testing the core empirical implications of Gottfredson and Hirschi's general theory of crime. Journal of Research in Crime and Delinquency 30(1):5–29.

Hagan, John
1989 Structural Criminology. New Brunswick, N. J.: Rutgers University Press.

Hagan, John, John Simpson, and A. R. Gillis
1979 The sexual stratification of social control: A gender-based perspective on crime and delinquency. British Journal of Sociology 30:25–38.

Hagan, John, A. R. Gillis, and John Simpson
1985 The class structure of gender and delinquency: Toward a power-control theory of common delinquent behavior. American Journal of Sociology 90:1151–1178.

Hagan, John, A.R. Gillis, and John Simpson
1988 Feminist scholarship, relational and instrumental control and a power control theory of gender and delinquency. British Journal of Sociology 39: 301–336.

Hill, Gary D. and Maxine P. Atkinson
1988 Gender, familial control, and delinquency. Criminology 26:127–149.

Hirschi, Travis
1986 On the compatibility of rational choice and social control theories of crime. In Derek B. Cornish and Ronald V. Clarke (eds.), The Reasoning Criminal: Rational Choice Perspectives in Offending. New York: Springer-Verlag.

Hirschi, Travis and Michael Gottfredson
1993 Commentary: Testing the general theory of crime. Journal of Research in Crime and Delinquency 30(1):47–54.
1994 The Generality of Deviance. New Brunswick, N.J.: Transaction Books.

Jaccard, James, Robert Turrisi, and Choi K. Wan
1990 Interaction Effects in Multiple Regression. Newbury Park, Calif.: Sage.

Jackson, Douglas
1986 Basic Personality Inventory. London, Ont.: Sigma Assessment Systems, Research Psychology Press Division.

Jensen, Gary F. and Kevin Thompson
1990 What's class got to do with it? A further examination of power-control theory. American Journal of Sociology 95:1009–1023.

Keane, Carl, Paul S. Maxim, and James J. Teevan
1993 Drinking and driving, self-control, and gender: Testing a general theory of crime. Journal of Research in Crime and Delinquency 30(1):30–46.

Kennedy, Leslie W. and David R. Forde
1995 Self-control, risky lifestyles, routine conflict and crime: A respecification of the general theory of crime. Edmonton: University of Alberta, Center for Criminological Research.

Klein, Dorie
1973 The etiology of female crime: A review of the literature. Issues in Criminology 8:3–29.

Krohn, Marvin D. and James Massey
1980 Social control and delinquent behavior: An examination of the elements of the social bond. Sociological Quarterly 21:529–543.

Krohn, Marvin D., William Skinner, James Massey, and Ronald L. Akers
1985 Social learning theory and adolescent cigarette smoking: A longitudinal study. Social Problems 32:455–471.

LaGrange, Randy L. and Helen R. White
1985 Age differences in delinquency: A test of theory. Criminology 23:19–45.

LaGrange, Teresa C.
1994 Routine activities and vandalism. Unpublished master's thesis. Edmonton: University of Alberta.

Longshore, Douglas, Susan Turner, and Judith A. Stein
1996 Self-control in a criminal sample: An examination of construct validity. Criminology 34(1):209–228.

Longshore, Douglas, Judith A. Stein, and Susan Turner
1998 Reliability and validity of a self-control measure: A rejoinder. Criminology 36(1):175–182.

Lucker, G. William, David J. Kruzich, Michael T. Holt, and Jack D. Gold
1991 The prevalence of antisocial behavior among U. S. Army DWI offenders. Journal of Studies on Alcohol. 52:318–320.

Merton, Robert K.
1938 Social structure and "anomie." American Sociological Review 3:672–682.

Messerschmidt, James
1986 Capitalism, Patriarchy and Crime: Toward Socialist Feminist Criminology. Totowa, N.J.: Rowman & Littlefield.

Morrison, R. Bruce and C. Roderick Wilson
1986 Native Peoples: The Canadian Experience. Toronto: McClelland & Stewart.

Nagin, Daniel S. and Douglas A. Smith
1990 Participation in and frequency of delinquent behavior: A test for structural differences. Journal of Quantitative Criminology 6:335–365.

Piquero, Alex R. and Andre B. Rosay
1998 The reliability and validity of Grasmick et al.'s self-control scale: A comment on Longshore et al. Criminology 36(1):157–174.

Polakowski, Michael
1994 Linking self- and social control with deviance: Illuminating the structure underlying a general theory of crime and its relation to deviant activity. Journal of Quantitative Criminology 10(1):41–78.

Rankin, Joseph and Roger Kern
1994 Parental attachments and delinquency. Criminology 32(4):495–516.

Shaw, Clifford and Henry McKay
1969 Juvenile Delinquency and Urban Areas. Rev. ed. Chicago: University of Chicago Press.

Sherman, Lawrence W., Patrick R. Gartin, and Michael E. Buerger
1989 Hot spots of predatory crime: Routine activities and the criminology of place. Criminology 27(1):27–55.

Simon, Rita J.
1975 Women and Crime. Lexington, Mass.: Lexington Books.
1979 Arrest statistics. In Freda Adler and Rita J. Simon (eds.), The Criminology of Deviant Women. Boston: Houghton Mifflin.

Singer, Simon I. and Murray Levine
1988 Power-control theory, gender, and delinquency: A partial replication with additional evidence on the effects of peers. Criminology 26:627–648.

Steffensmeier, Darrell
1978 Crime and the contemporary woman, 1960–1975. Social Forces 57:566–584.
1980 Sex differences in patterns of adult crime, 1965–1977. Social Forces 58:1080–1109.
1981 Patterns of female property crime, 1960–1978: A postscript. In Lee H. Bowker (ed.), Women and Crime in America. New York: McMillan.
1989 Trends in female crime: It's still a man's world. In Richard C. Monk (ed.), Taking Sides: Clashing Views on Controversial Issues in Crime and Criminology. Guilford, Conn.: The Dushkin Publishing Group, Inc.

Sutherland, Edwin and Donald Cressey
1978 Principles of Criminology. Philadelphia: Lippincott.

Tabachnick, Barbara G. and Linda S. Fidell
1983 Using Multivariate Statistics. New York: Harper & Row.

Thornberry, Terence P., Alan J. Lizotte, Marvin D. Krohn, Margaret Farnworth, and Sung Joon Jang
1994 Delinquent peers, beliefs, and delinquent behavior: A longitudinal test of interactional theory. Criminology 32(1):47–84.

University of Alberta
1994 University of Alberta Juvenile and Adolescent Behavior Study, Edmonton, AB: University of Alberta.

Wilson, James Q. and Richard Herrnstein
1985 Crime and Human Nature. New York: Simon & Schuster.

Wood, Darryl S. and Curt T. Griffiths
1996 Patterns of aboriginal crime. In Robert A. Silverman, James J. Teevan, and Vincent F. Sacco (eds.), Crime in Canadian Society. 5th ed. Toronto: Harcourt Brace.

Wood, Peter B., Betty Pfefferbaum, and Bruce J. Arneklev
1993 Risk-taking and self-control: Social psychological correlates of delinquency. Journal of Crime and Justice 16:111–130.

Wood, Peter B., John K. Cochran, Betty Pfefferbaum, and Bruce J. Arneklev
1995 Sensation-seeking and delinquent substance use: An extension of learning theory. Journal of Drug Issues 25(1):173–193.

Teresa C. LaGrange is an Assistant Professor at Cleveland State University. Her interests include rational theories of crime and delinquency and their implications for social control. She is currently conducting research on the impact of organizational processes on the exercise of police discretion.

Robert A. Silverman is Professor of Sociology and Dean of the Faculty of Arts and Sciences at Queen's University (Canada). His recent research interests have been in the areas of homicide and juvenile and adolescent delinquency. His most recent book is *Crime in Canadian Society* (6th ed.) Toronto: Harcourt Brace, 1999.

Appendix 1. Means, Standard Deviations and Factor Loadings for Personality Measures of Low Self-Control

	Mean	*S.D.*	*Factor Loading*	*Eigen-value*	*% Variance*
Impulsivity				5.3	22.2
Sometimes I will take a risk just for the fun of it.	1.56	.49	.72		
I might do something foolish for the fun of it.	1.59	.49	.66		
I like to test myself every now and then by doing something a little risky.	1.59	.49	.66		
I sometimes find it exciting to do things for which I might get caught.	1.35	.48	.58		
I sometimes take unnecessary chances.	1.48	.50	.54		
I find it exciting to ride in or drive a fast car.	1.58	.49	.54		
Risk Seeking				1.8	7.6
The things I like to do best are dangerous.	1.17	.38	.72		
I often behave in a reckless manner.	1.14	.34	.67		
I'll try almost anything regardless of the consequences.	1.15	.36	.64		
Excitement and adventure are more important to me than security.	1.20	.40	.57		
Carelessness				1.6	6.6
I generally make careful plans.*	1.36	.48	.73		
I have a well thought-out reason for almost everything I undertake.*	1.48	.50	.67		
I am careful in almost everything I do.*	1.35	.48	.66		
I can work for a pretty long amount of time without becoming bored.*	1.46	.50	.52		
I often leave jobs unfinished.	1.31	.46	.47		
Temper				1.4	5.7
When I have a serious disagreement with someone, it's usually hard for me to talk about it without getting upset.	1.63	.48	.60		
I lose my temper pretty easily.	1.39	.49	.60		
Often when I am angry at people, I feel more like hurting them than talking to them about why I am angry.	1.46	.50	.54		
I am often somewhat restless.	1.56	.50	.50		
I am the type to be bored one minute and excited about something the next.	1.69	.46	.48		
Present Oriented (No Plan).				1.1	4.5
I sometimes do silly things without thinking.	1.77	.42	.69		
Many times I act without thinking.	1.53	.50	.60		
I usually say the first thing that comes into my mind.	1.47	.50	.55		
I often take risks without stopping to think about the results.	1.36	.48	.40		
Total Variance (N = 2,158)					46.6

* For all items indicated with an asterisk, original coding was retained. All other items were recoded prior to analysis so that higher values were consistent with lower self-control.

Appendix 2. Scale Items and Alpha for Measures of Opportunity and Delinquency (N = 2,158)

	Scale Alpha
Measures of Opportunity	
Mother's Supervision	
In the course of a day, how often would your mother/female guardian know where you are?	
How often would your mother/female guardian know who you are with?	.78
Father's Supervision	
In the course of a day, how often would your father/male guardian know where you are?	
How often would your father/male guardian know who you are with?	.91
Curfew	
Do you have a set time to be home on school nights?	
Do you have a set time to be home on weekend nights?	.71
Delinquency Measures	
General Delinquency (20 items)	.87
In the last year I have . . .	
1. gone into (or tried to get into) a building to steal something.	
2. gone into or tried to get into a building to damage something.	
3. tried to steal or actually stole money or other things.	
4. shoplifted or taken something from a store on purpose without paying.	
5. stolen someone's purse or wallet or picked someone's pocket.	
6. stolen something from a car that did not belong to me.	
7. tried to buy or sell things that were stolen.	
8. taken a car or motorcycle for a ride without the owner's permission.	
9. used or tried to use a credit card that I did not have permission to use.	
10. hit someone with the idea of hurting them.	
11. used a weapon (knife, bat) to hurt someone.	
12. been involved in a gang fight.	
13. used a weapon or force to take something from someone.	
14. thrown objects such as rocks or bottles at people.	
15. used marijuana.	
16. used hard drugs like crack, cocaine, heroin, LSD, or other non-prescription drugs.	
17. sold drugs such as marijuana.	
18. sold drugs such as crack, heroin, LSD, cocaine.	
19. run away from home.	
20. reported vandalism, summed and recoded as a single item: Acts of damage or vandalism to (1) school window; (2) school property; (3) park equipment; (4) public building; (5) phone booth or bus shelter; (6) house, car, or bottles in street.	
Property (10 items: 1–9 and 20 of General Delinquency Scale)	.81
Violence (5 items: 10–14 of General Delinquency Scale)	.69
Drugs (4 items: 15–18 of General Delinquency Scale)	.71

SOURCE: University of Alberta Juvenile and Adolescent Behavior Study (1994)

Appendix 3. Means and Standard Deviations for Measures of Low Self-Control, Opportunity, and Delinquency for Males and Females

	Females (N = 1,134)		Males (N = 961)		
Measure	Mean	S.D.	Mean	S.D.	T Test of Differences[a]
Impulsivity	−.07	.98	.12	.95	−4.45**
Risk Seeking	−.21	.83	.21	1.06	−10.80**
Temper	.03	.96	−.03	.99	1.88
Carelessness	−.05	.95	.04	.99	−1.93
Present Oriented	.06	.95	−.09	.99	3.58**
Smoking	.98	1.58	.89	1.57	1.51
Drinking	.82	1.09	.99	1.25	−3.21**
Age	14.94	1.84	15.05	1.82	. . .
Curfew	1.49	1.48	1.87	1.54	−5.66**
Together with Friends	3.74	1.12	4.07	.99	−7.18**
Drive around with Friends	1.93	1.61	2.23	1.32	−5.18**
Mother Supervision	2.93	1.35	3.41	1.50	−7.15**
Father Supervision	4.51	2.07	4.63	2.06	.92
Neighborhood Income	4.10	1.57	3.98	1.61	. . .
Delinquency	3.80	4.78	6.04	5.81	−9.41**
Property	2.18	3.21	3.73	4.16	−9.38**
Violence	.92	1.60	1.76	2.13	−10.21**
Drugs	.60	1.25	.75	1.40	−2.71**

SOURCE: University of Alberta Study of Juvenile and Adolescent Behavior (1994)

[a] Independent samples t-test for differences between means for males and females.

* $p < .05$, two-tailed.

** $p < .01$, two-tailed.