CRIMINAL VICTIMIZATION AND LOW SELF-CONTROL: AN EXTENSION AND TEST OF A GENERAL THEORY OF CRIME*

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In this paper I theorize that low self-control is a reason why offenders are at high risk of being victims of crime. I reformulate self-control theory into a theory of vulnerability and test several of its hypotheses, using data from a survey administered to a sample of college students. This research investigates how well self-control explains different forms of victimization, and the extent to which self-control mediates the effects of gender and family income on victimization. Low self-control significantly increases the odds of both personal and property victimization and substantially reduces the effects of gender and income. When criminal behavior is controlled, the self-control measure still has a significant direct effect on victimization. These results have many implications for victimization research.

The similarities between offenders and their victims are impressive. Research has established that victims of crime are disproportionately male, young, and members of racial and ethnic minority groups (Gottfredson 1986; Hindelang 1976; Hindelang, Gottfredson, and Garofalo 1978; Laub 1990). Offenders belong disproportionately to the same groups (see Gottfredson and Hirschi 1990; Hirschi and Gottfredson 1995). In addition, individual-level research has found that offenders are frequently victims of crime (Gottfredson 1984; Jensen and Brownfield 1986; Lauritsen, Sampson, and Laub 1991; Sampson and Lauritsen 1990).

These parallels between victimization and offending raise the possibility that a common underlying cause can influence the likelihood of becoming both an offender and a victim. So far, virtually all

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theories have regarded offenders and victims as distinct groups requiring separate etiological explanations (also see Esbensen and Huizinga 1991; Reiss 1981). In this paper I address this theoretical issue by introducing and testing the possibility that low self-control, a factor used to explain offending, also increases the risk of criminal victimization.

The Present State of Victimization Theory

In spite of this situation, however, theories of victimization exist. Gottfredson (1981) distinguishes between theories of absolute and probabilistic exposure to victimization. Situations that increase or decrease victimization risk determine absolute level of exposure to victimization. Where there is no convergence of the minimum conditions necessary for a crime, the absolute risk of victimization is zero. In the presence of convergence, risk varies with the level of the necessary conditions. Theories of absolute exposure include the routine activities approach (Cohen and Felson 1979).

Some people tend to incur greater overall levels of absolute risk than others. Gottfredson describes these systematic between-individual differences as probabilistic exposure to victimization. Some probability theories focus mainly on differences in victimization based on lifestyle choices and demographic variables, as in the lifestyle approach (Hindelang et al. 1978) and in opportunity theory (Cohen, Kluegel, and Land 1981), but they do not focus much attention on individual characteristics from which lifestyle choices emerge. Further, differences can be systematic across groups of individuals; these in turn lead to aggregate differences in victimization (such as those for sex and for race).

The few attempts to theorize about individual differences in probabilistic risk of victimization are limited mainly to descriptive typologies that have received little attention from researchers (e.g., Silverman 1974; von Hentig 1948). Singer (1981) takes a different approach, arguing that offenders can become victims because they value violence, which places them at greater risk of retaliation. This perspective, however, appears to make sense only for violent victimization. There is a need for a theory that can explain both personal and property risk of victimization while remaining consistent with the evidence on victimization. In view of Forde and Kennedy's (1997) recent recommendation, I turn to self-control theory as a framework for addressing this theoretical issue.

SELF-CONTROL AS A THEORY OF VULNERABILITY

Linking Self-Control Theory with Victimization

According to self-control theory, behaviors are motivated by their inherent benefits and costs. Because victimization produces almost no benefits at relatively high cost, the relationship between victimization and self-interest would not appear to make any sense—at least at first glance. Gottfredson and Hirschi (1990) point out that behavior marked by low self-control, which bring immediate, easy, certain, and short-term satisfaction of desires, has secondary consequences for an individual's quality of life. One by-product of low-self-control behavior, for example, is accident-proneness: such behavior (e.g., smoking, drinking, and speeding) increases the risk of accidents. Smoking increases the possibility of fire and disease, while drinking impairs coordination and decision making. Persons higher in self-control are more likely to see that low-self-control behavior can often have unfortunate consequences; therefore they are more likely to refrain from engaging in behavior that carries the risk of accidents.

By the same logic, low self-control is linked with vulnerability to crime. It is not in anyone's self-interest to be a victim of crime, but low self-control behavior produces vulnerability as a by-product. Heavy drinkers, for example, are less able to defend themselves or guard their belongings. Criminal behavior, another indicator of low self-control, frequently involves untrustworthy associates who try to double-cross one another, especially if some of the conspirators take no precautions against betrayal. The presentation of self-control theory, however, centers on offending rather than on victimization; therefore I reformulate the theoretical discussion to show how the elements of low self-control generally correspond to increased risk of victimization.

The first element of self-control is an individual's degree of *future orientation*. This dimension includes the extent of impulsive behavior and the willingness or unwillingness to defer gratification. A person who exists in the "here and now" ranks low in future orientation and, by extension, in self-control. People with low levels of future orientation are less likely to appreciate the potential long-term consequences of their behavior, including acts that might endanger their safety and that of their possessions. For instance, those with lower self-control are more likely to seize opportunities to have fun without making sure that they or their belongings will be safe from their associates or others.

The second component of self-control is *empathy*. This dimension refers to a person's sensitivity to others: People who have less

self-control tend to be more insensitive. Gottfredson and Hirschi (1990:89-90) point out that self-centered people do not necessarily have to be rude or unkind, but that their acts of kindness are not motivated by genuine concern for others. A person with poor empathy has few friends or close personal relationships. In regard to victimization, those with low self-control are less likely to know their next-door neighbors; this situation would decrease guardianship around a house and make a break-in more attractive to a burglar. A person with low empathy also might be poor at evaluating the intent of others; this, too, would increase vulnerability.

A third element of self-control is *tolerance for frustration*. A person with a low level of this quality is quick to anger, and the belligerent behavior may result in hostility that can provoke a criminal attack or counterattack. People with low tolerance for frustration are often pugnacious; in their lives, the difference between offending and being victimized depends on who wins the fight. Thus the victim need not be merely a passive bystander. The effects of minimal tolerance for frustration, however, need not be limited to temper or other forms of personal victimization. People with this shortcoming could become impatient with complex security devices such as steering wheel locks, and might give up using them or else use them carelessly.

A fourth component of self-control is *diligence*: People with less self-control tend to lack tenacity and persistence. A want of diligence leads to inconsistent use of security measures and neglect of guardianship, even when such measures are immediately available. For example, nondiligent people chronically fail to lock doors every night. Lack of diligence also leads to failure to take precautions against personal victimization. Low self-control, manifested through lack of diligence, thus helps opportunistic offenders to make quick, effortless gains.

The fifth dimension of self-control is *preference for mental rather than physical activity*. Persons who prefer physical activity are less likely to use their cognitive ability to assess a risky situation and possible responses to that situation. Such a person, for example, might choose to handle a hostile situation by adopting a posture of defense or attack (which could worsen the situation), whereas a person with higher self-control might try to calm the situation or leave. Individuals who prefer physical activity would be more at risk of becoming victims.

The final element is *risk avoidance*: People who are low in self-control are more inclined to involve themselves in thrill-seeking activities. This type of behavior, such as hitchhiking or driving

around at night looking for something to do, places individuals in situations in which they are vulnerable.

Individuals who lack any or all of these six characteristics are at greater risk of victimization than those with more self-control, everything else being equal. Although I treat the six dimensions separately here, deficits in all of these characteristics tend to converge in those who have low self-control. Behaviors and lifestyles that manifest these characteristics often result in greater vulnerability.

Using the concept of self-control to explain victimization may lead to the claim that the theory blames the victim, but such an interpretation is a distortion. Not all victims of crime have low self-control; the theory says only that those who engage in low-self-control behavior risk greater vulnerability to crime. In addition, it does not follow that those with low self-control morally deserve to be victims. We can say, however, that the average offender prefers to commit crimes that require less effort (Gottfredson and Hirschi 1990), and that vulnerable targets therefore are preferable. Low-self-control behavior may be an important risk factor for victimization, but it is only one reason why people become victims.

The link between self-control theory and victimization leads to several research questions. Can self-control help to account for demographic differences in victimization? Does criminal behavior mediate the effect of self-control, thus obviating the theory's usefulness? Finally, can self-control account for different forms of victimization? I address these questions in the following sections.

Differences in Victimization Due to Gender

Gender is an established correlate of victimization: Offenders victimize males much more frequently than females. Research efforts to explain gender differences, with few exceptions (e.g., Sampson and Lauritsen 1990), have not met with much success (see, for example, Corrado et al. 1980; Miethe, Stafford, and Long 1987). Self-control theory can offer some insight into the victimization gender gap. In keeping with the assertions by Gottfredson and Hirschi (1990) about the relationship between gender and crime, I predict here that the gender difference in self-control is an important reason why females are at less risk of victimization than males.[1]

[1] Women are at greater risk of domestic and sexual assault than men; in this paper, however, I focus on general risk of victimization, not on risk in regard to specific offenses. It is possible that women with low self-control are at greater risk of being victims of domestic assault than are those with higher self-control. For corroborating evidence, compare self-control and self-reported offending for female victims and for female nonvictims (Table 3).

This hypothesis receives empirical support. Miller (1982), for instance, found that men are more likely than women to abuse alcohol and drugs; such abuse is an indicator of a lifestyle known to increase the risk of victimization (e.g., Hough and Mayhew 1983; Laub 1990; Sampson and Lauritsen 1990). Given that alcoholism and drug abuse are both manifestations of low self-control, researchers should expect a gender gap in self-control and should expect that this gap will be responsible at least in part for the gender gap in victimization. This does not mean that self-control is the only explanation for the victimization gender gap; accounting for self-control, however, should substantially reduce this difference in vulnerability.

Self-Control and Criminality

There is much evidence favoring the belief that criminal behavior increases the risk of victimization (e.g., Lauritsen et al. 1991; Sampson and Lauritsen 1990). Gottfredson and Hirschi (1990) state that criminal behavior is a consequence of low self-control; the research supports this argument (Gibbs and Giever 1995; Grasmick et al. 1993). Thus we have good reason to view the large amount of research showing a link between level of offending and victimization risk as indirect evidence that self-control influences such risk. The problem, however, is that delinquency can also influence victimization risk in ways not directly attributable to low self-control. For instance, risk of victimization can increase through criminal behavior because of proximity to offenders. The usefulness of the self-control explanation thus rests on the presence of a substantial direct effect on victimization risk after controlling for criminality. If the effect of self-control is indirect—that is, if victimization risk is explained entirely through its association with offending—then the theory offers nothing new for understanding this risk. In this paper, to address this possibility, I treat self-control and self-reported offending as independent contributors to victimization risk. Self-control must have a direct effect on victimization while accounting for criminality in order to justify its use as a distinct indicator of victimization risk.

Self-Control and Type of Victimization

The description of the six characteristics of self-control suggests that low self-control is applicable to risk of both personal and property forms of victimization. Versatility of behavior is one of the claims made by Gottfredson and Hirschi for the concept of self-control (also see Britt 1994; Junger 1994; Sorensen 1994). Direct empirical support for the victimization-versatility hypothesis does not

yet exist; Lauritsen et al. (1991), however, link delinquent lifestyles with many different forms of victimization. This evidence leads to the expectation that self-control also should explain different forms of victimization. Therefore possession of low self-control should significantly increase the odds of victimization for both personal and property offenses as well as the overall risk of victimization.

CHARACTERISTICS OF THE DATA

In this research I use the 1996 Tucson Youth Project (TYP) survey of 1,039 undergraduate college students at the University of Arizona. TYP survey designers drew their sample from five large-enrollment undergraduate courses taught by several departments in business and public administration and in the social and behavioral sciences. Two of the five classes surveyed included criminal justice or criminology students. Participation in this survey was voluntary. Of the 1,039 students surveyed, 959 answered all of the question items used in this analysis. Demographics of the sample are presented in Appendix A.

A number of researchers have questioned the usefulness of college student samples (see Jensen, Erikson, and Gibbs 1978; Williams and Hawkins 1986); others support their use (see Gibbs and Giever 1995; Nagin and Paternoster 1993, 1994). Much criticism of college samples correctly pertains to representativeness. As I show in the next paragraph, a general-population sample in victimization research can present significant problems of its own; this point, however, does not nullify the fact that a college sample is not perfect. The important issue here is whether college students are too homogeneous to produce statistically significant results. Previous research using college students (e.g., Gibbs and Giever 1995; Nagin and Paternoster 1993, 1994) provides reason for optimism, however: Although homogeneity appears to be an issue for several of the demographic variables in the data set, the other variables seem to vary enough to prevent difficulty for the analysis (see Tables 2 and 3, and Appendix B).

General population samples can encounter difficulties to which college student samples are less susceptible. Researchers using general-population data frequently complain that victimization is an extremely rare event (e.g., Miethe et al. 1987 using the National Crime Survey; Sampson and Lauritsen 1990 using British Crime Survey data). The consequence of this for statistical analyses is that the dependent variable may not provide enough information to produce statistically significant results. Conversely, there is no reason to expect scarcity of victimization to be a problem with college students. Nagin and Paternoster (1993) point out that for

studies of crime, college students represent a high-risk group for offending. The assumption of similarity between offenders and victims on this characteristic suggests that college students are a high-risk group for victimization as well; the TYP data affirm this point. (See Table 3 for victimization frequencies. Also see Fisher et al. 1998.) In sum, benefits and trade-offs exist in both general-population and student samples; general-population samples—at least when victimization is examined—are not a priori superior to student samples.

MEASURES

The TYP survey collected information on demographic variables such as gender, race, age, type of residence, and family income. Zero-order correlations revealed that gender was the demographic variable most strongly related to victimization; in much of this discussion I examine the extent to which self-control reduces the effect of gender. Family income, for the most part, also was associated significantly with victimization. At least in this sample, increased income corresponded to increased risk of overall and property victimization. Routine activity researchers have explained the positive influence of income as probably due to increased target attractiveness (e.g., Cohen et al. 1981). Income was significantly correlated with victimization when dichotomized (1 = above median income). These two demographic variables constitute the baseline model for comparison with self-control and self-reported offending. The other demographic items, however, did not vary appreciably across members of the sample and had no significant statistical relationship to victimization; I dropped these variables from the analysis.

I operationalized self-control as a personality index. This index consists of 30 items, many of which were developed by Gibbs and Giever (1995) and Grasmick et al. (1993), along with several cognate items developed by TYP survey designers. The response options for the self-control questions follow the standard Likert pattern (see Babbie 1990 for more details on Likert scaling), in which the subject can respond either "strongly agree," "agree," "uncertain," "disagree," or "strongly disagree."[2] Survey respondents who answered items in keeping greater low self-control received

[2] It is somewhat questionable whether the response option "uncertain" (as opposed, for example, to "neither agree or disagree") represents a midpoint between "strongly agree" and "strongly disagree." Readers should note the possibility of a cognitive disconnection between the two.

four points. The number of points declines toward zero as the response becomes more consistent with higher self-control: The response "uncertain" thus is worth two points. The overall self-control index consists of a sum of the item scores; therefore a higher score on the index denotes lower self-control. (Descriptive statistics for the raw scores of the individual items are presented in Appendix B along with the item-total correlations. Descriptive statistics for the self-control index itself are presented in Tables 2 and 3.)

The self-control index represents the traditional approach to measuring self-control (e.g., Forde and Kennedy 1997; Gibbs and Giever 1995; Grasmick et al. 1993). One advantage of this type of index is that survey designers can easily alter the wording of the items so as to reflect more clearly a specific element of self-control. For Gibbs and Giever (1995) and for Grasmick et al. (1993), the self-control items tended to group under a single index rather than under multiple subscales. Nevertheless, because the TYP self-control index is slightly different in content from those used in previous research, it is necessary to reconfirm the number of distinct dimensions as well as the construct validity of the index.

A principal-components factor analysis is the usual procedure for assessing the number of dimensions in a series of question items. Self-control theory suggests that the factors should correlate with each other; this point indicates that an oblique factor rotation is appropriate. The results of the Scree Discontinuity Test appear to favor the use of a unidimensional scale for the TYP data. The largest distinction between the eigenvalues was that between the first (4.73) and the second (1.99) factors. The remaining eigenvalues were relatively undifferentiated: Those for the second through the eighth factors ranged between 2.0 and 1.0.[3] The generated factors indicate that the items are factorially complex; many loaded onto two or more factors. Many of the self-control items loaded onto their proper elements, but the collinearity between the generated subscales precluded their use in a regression.[4]

In sum, there seems not to be enough evidence to justify multiple self-control subscales. Further, the overall self-control index

[3] The respective eigenvalue differences for the first through the tenth factors are 2.73, .14, .31, .12, .15, .19, .05, .04, and .03.

[4] Gottfredson and Hirschi (1990) observe that the elements of low self-control tend to converge in the same people; this point suggests that these items (at least by social science standards) are highly correlated. The item-total correlations in Appendix B and the principal components factor analysis confirm this observation. Consequently a regression analysis with the six subscales would be theoretically equivalent to estimating the effect of self-control while controlling for self-control. Treating self-control as a unitary construct therefore appears to be indicated; in fact, other researchers (e.g., Gibbs and Giever 1995; Grasmick et al. 1993) have taken this approach.

was internally consistent (alpha = .796, average interitem correlation = .1202), with an alpha coefficient and item-total correlations (see Appendix B) similar to those found in the self-control indexes of other studies (see Gibbs and Giever 1995).

A comparison of the zero-order correlations between the self-control index, self-reported offending, demographic variables, and victimization would help to demonstrate construct validity. If construct validity exists, the self-control personality scale, offending, and gender (1 = male) will be associated positively. Table 1 shows that all of these correlations are statistically significant and fairly strong. The relationship between the self-control index and self-reported offending is consistent with prior tests of the general theory. In sum, then, the indexes are consistent with theoretical expectations and with previous research.

Table 1. Zero-Order Correlation Matrix for Independent and Dependent Variables

	Income	Male	Low Self-Control	Criminality	Violent	Property	Overall
Income	1.000	.088 (.007)	.106 (.001)	.104 (.001)	.042 (.191)	.077 (.017)	.082 (.011)
Male		1.000	.347 (.000)	.361 (.000)	.246 (.000)	.138 (.000)	.183 (.000)
Low Self-Control			1.000	.439 (.000)	.250 (.000)	.173 (.000)	.206 (.000)
Criminality				1.000	.310 (.000)	.211 (.000)	.238 (.000)
Violent Victimization					1.000	.317 (.000)	.567 (.000)
Property Victimization						1.000	.865 (.000)
Overall Victimization							1.000

Note: Coefficient *p*-values are in parentheses.

Which items should make up the criminality index? Gottfredson and Hirschi (1990:90) recommend using offenses with the greatest likelihood of public awareness as measures of self-control (and hence, of criminality). Six items in the TYP data set appeared most likely to carry the highest risk of public awareness (see Appendix B). The coding scheme for these items is as follows: 1 = never, 2 = once or twice, 3 = several times, 4 = many times. The item-total correlations suggest that a single criminality index is appropriate. I summed the individual item scores to create the index. An alpha reliability test (alpha = .75) and the item-total correlations confirmed that the index is internally consistent.

The dependent variable, victimization, consists of seven question items patterned after the National Crime Survey (see Appendix B for a list). The data set provides no other details about individual victimization incidents; thus it is possibile that at least some of the incidents are trivial. The survey designers coded the responses for the number of times victimized as follows: 0 = never, 1 = once or twice, 2 = several times, 3 = many times. I totaled the scores for the individual items, thus creating the overall victimization index. The alpha reliability test (alpha = .7358) as well as item-total correlations showed that the victimization index is internally consistent. I also created two victimization subindexes: one index each for property (alpha = .6204) and for personal (alpha = .676) victimization. I then dichotomized the scores for the three indexes to reduce their skew (0 = was not victimized, 1 = was victimized). Descriptive statistics and item-total correlations for the dichotomized measures are presented in Appendix B.

DESCRIPTIVE METHODS AND RESULTS

If self-control is to account for the victimization gender gap, males and females must differ significantly in levels of self-control and victimization. In the analysis I use a t-test of the means to assess the significance of gender differences in victimization as well as the differences in self-control and criminality. The analysis also compares the means for the self-control and criminal behavior indexes within each sex for both victims and nonvictims. A lack of a statistically significant gender difference for any of the variables would be evidence against the theory or the viability of the data set. Victims also should possess less self-control than nonvictims.

Table 2 shows the sex differences for victimization, criminal behavior, and the self-control personality index. Females in the sample were significantly less likely to be victimized than their male counterparts. The difference between males and females is likewise significant for both personal and property victimization. These findings are consistent with theoretical expectations as well as prior research (e.g., Laub 1990). Female students, in contrast to male students, had more self-control and reported lower levels of offending. Again, these differences are statistically significant.

Table 3 shows levels of victimization, self-control, and offending within each sex for victims and nonvictims. Within each sex, the difference in self-control between victims and nonvictims was statistically significant and (with one exception), as expected. Male victims had less self-control than male nonvictims; female victims had less self-control than female nonvictims. The average female victim, however, possessed greater self-control and reported less

Table 2. Descriptive Statistics on Victimization and Self-Control, by Sex

	Males (N = 507)		Females (N = 452)		
	Mean	SD	Mean	SD	Difference
Low Self-Control	45.58	11.69	37.14	10.98	8.44
Criminality	8.71	2.59	6.99	1.69	1.73
Overall Victimization	.60	.49	.4	.49	.19
Property Victimization	.51	.5	.36	.48	.15
Violent Victimization	.35	.48	.13	.34	.22

Note: Victimization measures are dichotomized, with the means indicating the average probability of victimization.
All differences are significant at the .001 level.

criminal behavior than did males who reported no victimization. Because no other research exists with which to compare males' and females' low self-control and victimization, it is unclear whether this finding is an artifact of the TYP data or is due to theoretical factors omitted from the model. I further examine this unexpected finding and its implications in the final section of this paper.

Table 3. Descriptive Statistics for Self-Control and Criminality, by Sex and Victimization

Males	Victims (N = 302)		Nonvictims (N = 205)		
	Mean	SD	Mean	SD	Difference
Low Self-Control	46.79	11.66	43.8	11.54	−2.996
Criminality	9.1	2.71	8.14	2.3	−.953
Females					
	Victims (N = 182)		Nonvictims (N = 270)		
	Mean	SD	Mean	SD	Difference
Low Self-Control	39.53	11.25	35.53	10.52	−3.998
Criminality	7.37	2.19	6.73	1.18	−.639

Note: All differences are significant at the .001 level.

MULTIVARIATE TEST OF THE THEORY

Analytic Procedure

In the second stage of the analysis I use logistic regression to estimate the probability of victimization in the sample. Logistic regression is an appropriate technique because it reduces some of the difficulty of using data with skewed dependent variables. In addition, as with crime, self-control theory views victimization as a probabilistic event. Therefore, probability statistical models such as logistic regression are well suited for studying the relationship

between latent propensities such as self-control and measured outcomes such as victimization (see Osgood and Rowe 1994).

To support the theory, the regression must establish that low self-control significantly increases the odds of victimization. For each form of victimization, I compute three models. The first model produces results for only the demographic variables. The second estimates the effect of self-control and of the demographic variables on victimization. To support the theory, the results for the second model must show that the effect of the demographic variables decreases when self-control is controlled. To compute the proportion of the reduction in the demographic effects attributable to self-control divide the log-odds for gender and income in the full model by the log-odds for gender and income in the reduced model(s), and subtract the result from 1.

The third model estimates the effect of criminality in addition to the other variables; self-reported offending should correspond to increased risk of victimization. If self-control is to be useful in victimization research, it still must exert a significant direct effect on victimization even when self-reported offending is taken into account. The results are presented in Table 4.

Table 4. Log Odds (Standard Errors), Degrees of Freedom, and Chi-Squares for Logistic Regression of Victimization on Demographics, Self-Control, and Criminality

	Income		Male		Low Self-Control		Criminality		df	Model Chi-Square
Overall										
(1) Demographics only	.27*	(.13)	.76***	(.13)	—		—		2	40.06
(2) With self-control	.23*	(.14)	.56***	(.14)	.03***	(.01)	—		3	60.41
(3) Full model	.20	(.14)	.40**	(.15)	.02**	(.01)	.15***	(.04)	4	78.45
Property										
(1) Demographics only	.27*	(.13)	.59***	(.13)	—		—		2	25.70
(2) With self-control	.23*	(.14)	.41***	(.14)	.02***	(.01)	—		3	41.57
(3) Full model	.21	(.14)	.27*	(.15)	.02**	(.01)	.13***	(.03)	4	56.31
Violent										
(1) Demographics only	.10	(.16)	1.25***	(.17)	—		—		2	62.54
(2) With self-control	.02	(.16)	.97***	(.18)	.04***	(.01)	—		3	92.68
(3) Full model	−.02	(.16)	.78***	(.18)	.03**	(.01)	.17***	(.04)	4	117.34

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

Results

The first model estimates only the effect of gender and income on risk of victimization. Gender was the strongest predictor: Male

students were more than twice as likely as females to report a victimization incident. In addition, greater income resulted in a smaller but still considerable increase in the odds of victimization over those with below-median income. The effect of income on overall victimization, however, is due almost solely to the relationship between income and property victimization.

In Model 2, the self-control index is added to the model with the demographic variables. Possession of low self-control significantly increased the odds of victimization. The demographic variables still had significant effects even after accounting for low self-control, but self-control mediated 16 percent of the effect of income and 27 percent of the effect of gender.

In Model 3, the self-reported delinquency index is added. Although the delinquency scale mediated about one-third of the effect of self-control, both low self-control and higher levels of criminality corresponded significantly and independently to increased odds of victimization. Among the demographic variables, gender still had the strongest effect: Males in the sample were 49 percent more likely than females to be victimized. Adding self-reported offending to the model, however, mediated the effect of gender 28.1 percent in addition to the portion mediated by self-control. High income vanished from statistical significance. The finding concerning the reduction in the effect magnitude for gender is very similar to that reported by Jensen and Brownfield (1986) and Sampson and Lauritsen (1990): Low self-control and self-reported offending removed much of the effect of the demographic variables on the odds of overall victimization.

To address the question of the versatility of self-control in explaining victimization, I disaggregated victimization into personal and property categories. The analysis begins with property victimization. In keeping with the findings in the demographics-only model for total victimization, being male had the strongest effect on self-reported victimization. Above-median family income had a significant but more modest effect.

The addition of the self-control index to the property victimization model produced results similar to those found for overall victimization. When the demographic variables were controlled, self-control had a significant effect and reduced the size of the direct effect of the demographic variables: For instance, the effect of income declined 15.1 percent as a function of self-control. Self-control had a stronger mediating effect on gender, decreasing the odds by 31.5 percent. Nevertheless, the effect of gender still was substantial and significant.

In the full model, criminality had a large positive effect on risk of property victimization. Criminality also mediated 35.9 percent of the effect of self-control; low self-control, however, still had a significant direct effect on property victimization. The direct effects of the demographic variables decreased still further when criminality was included: The effect of income became insignificant. Being male still had a significant effect, but criminality further mediated the effect of gender. In combination, self-control and criminality explained slightly more than half the direct effect of gender on victimization.

Violent victimization is the final dependent variable. As before, gender was the demographic variable that affected most strongly the odds of violent victimization: In the demographics-only model, males were 248 percent more likely than females to be victims of a personal crime. Income was not associated significantly with violent victimization.

The next model included self-control. In accordance with the theory, those with low self-control were at greater risk of being victims of a personal crime. The effect of being male was still substantial, but self-control mediated 22.6 percent of the effect size in log-odds.

Adding criminality to the personal victimization model had much the same effect as for the overall and the property victimization models. Criminality, which had a considerable effect of its own, mediated about 35 percent of the direct effect of self-control. Self-control, however, still significantly increased the odds of violent victimization. In spite of the presence of self-control and criminality, the effect of being male was quite high; when criminality was included in the model, however, the gender effect was reduced 65 percent in addition to the portion mediated by low self-control, for a total reduction of about 34.7 percent. The reduction in the odds for gender was even more striking: falling from 248 percent to 118 percent. The effect of income remained nonsignificant. Low self-control therefore appears to exert a versatile effect on the risk of victimization, while at the same time mediating much of the effect of gender and income.

DISCUSSION AND CONCLUSIONS

In this paper I reformulate self-control theory into a theory of vulnerability to crime. The reformulated theory is useful in helping to make better sense of the overlap between offenders and victims. Measures of self-control also can serve as individual-level predictors of victimization risk. Moreover, these measures can help to explain demographic differences in victimization. The concept of

self-control also has the advantage of applicability to many different forms of victimization.

The findings reported in this paper support these claims. The investigation was concerned with several questions. First, does low self-control correspond to increased odds of all forms of victimization? The answer is yes. Criminality, however, was responsible for some of the effect of the self-control measure. Nevertheless, self-control consistently had a significant direct effect on the odds of victimization. Consequently there is greater evidence that victimization risk is increased by low self-control per se, rather than by miscellaneous factors associated with delinquency, which may have no relation to self-control. Thus we have good reason to believe that victimization research may profitably use indicators of self-control as predictors of risk, even when measures of self-reported criminality are taken into account.

Second, in this paper I was concerned with the versatility of self-control in accounting for both personal and property victimization. The self-control measure was quite successful in this sense: Self-control and criminality exerted the strongest effect on personal victimization, as well as a substantial effect on property victimization. The evidence thus supports the use of self-control to explain different forms of victimization as well as crime. Those who are interested in researching victimization risk therefore need not limit the use of self-control indicators to any single category of victimization.

Third, how much does self-control reduce the effect of demographic correlates of victimization, if it does so at all? In the analysis, both self-control and criminality substantially and independently reduced the effect of the demographic variables. The self-control index by itself reduced the effect of income in both the overall and the property victimization models (income was never significant for the personal victimization model); the criminality measure then rendered income nonsignificant. This finding suggests, at least for this sample, that income differences in victimization were attributable more to low self-control and criminality than to differences in economically based target attractiveness.

Empirically, the more interesting variable is gender because it is frequently among the stronger demographic predictors of victimization (e.g., Sampson and Lauritsen 1990). Self-control and criminality accounted for sizable proportions of the gender gap, but did not explain it entirely. In addition, female victims on average had greater self-control than male nonvictims. This finding does not falsify the theory, but it leaves the door open for other possible theoretical explanations of the gender gap in victimization. Sex-graded

opportunity (Zager 1994), for instance, may be responsible for an increase in female risk independent of self-control. Nevertheless, the average female victim still had less self-control than the average female nonvictim.

Other Implications

Felson (1998) describes how concepts relevant to Hirschi's social control theory correspond to opportunities to commit crime. According to a similar logic, the concept of self-control also may have useful consequences for the routine activity and lifestyle approaches, which are presently the leading theories of victimization. Sobel (1981) notes that lifestyle measures suffer from lack of agreement among researchers about definitions and indicators; such a problem can encourage ex post facto explanations of observed correlations (also see Bernard and Ritti 1990; Garofalo 1987). This lack of agreement may be responsible for the modest success or failure of many routine activities/lifestyles studies in accounting for demographic differences in victimization (e.g., Corrado et al. 1981; Miethe et al. 1987).

Self-control theory can offer guidance about specifying in advance the lifestyle/routine activity indicators that carry risk of victimization. That is, researchers may develop measures of activities and lifestyles that reflect the elements of low self-control. For example, those with low self-control are more likely to engage in unstructured and unmonitored social activities such as partying and excessive drinking or cruising at night, which can reduce guardianship (also see Lauritsen et al. 1991; Sampson and Lauritsen 1990). In sum, we have good reason to believe that self-control theory can form the basis for routine activity and lifestyle measures.

Other research issues exist as well. Researchers interested in self-control and victimization should strive to develop representative data sets that can measure, at the least, self-control personality items, theoretically relevant lifestyles and activities, and victimization. Preferably, future data sets also should be able to test important factors such as community-level risk due to social disorganization (Sampson and Groves 1989; Shaw and McKay 1942) or other ecological contexts. Construction of a data set capable of measuring these and other variables should be the next step in testing the relationship between self-control and victimization.

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Appendix A. Sample Demographics (N = 959)

	N	Percent
Sex		
Male	507	52.9
Female	452	47.1
Age		
17 or younger	10	1.0
18	57	5.9
19	89	9.3
20	147	15.3
21 or older	654	68.2
Missing	2	.2
Race		
White	687	71.6
Hispanic	144	15.0
Asian	78	8.1
Black	29	3.0
Native American	9	.9
Missing	12	1.3
Family Income		
Below sample median	433	45.2
Above sample median	526	54.8

Note: With the exception of family income (which was dichotomized), the frequencies are presented with their original response options. For example, age consists of five legitimate responses.

Appendix B. Descriptive Statistics and Item-Total Correlations for the Victimization Measures, Self-Reported Delinquency, and Self-Control

	Mean	SD	Item-Total Correlation
Victimization Index			
In the past year, how frequently has someone:			
Personal Victimization (Subindex alpha = .6760)			
1. Taken something from you by force (e.g., a stickup, mugging, or threat)?	.08	.27	.4900
2. For reasons other than self-defense, beaten you up, attacked you or hit you with something like a rock or bottle?	.09	.29	.5360
3. Threatened to beat you up, or threatened you with some form of weapon?	.19	.40	.4614
Property Victimization (Subindex alpha = .6204)			
4. Stolen things that belonged to you from inside your car or truck?	.24	.43	.5020
5. Stolen something from your residence?	.25	.43	.4440
6. Stolen your automobile?	.06	.24	.4101
7. Stolen your bike?	.15	.35	.3869
(Cronbach's alpha = .7358)			
Criminality Index			
Have you ever. . .?			
1. Beaten up someone other than your brother or sister?	1.36	.65	.4673
2. Purposely damaged or destroyed public property?	1.42	.69	.5408
3. Been picked up by the police?	1.31	.54	.5058
4. Driven a car without the owner's permission?	1.27	.53	.4352
5. Stolen things of value (over $50)?	1.22	.55	.5126
6. Used force to get something from another person?	1.32	.58	.4890
(Cronbach's alpha = .7507)			
Self-Control Personality Index			
Please indicate how strongly you agree or disagree with the following statements:			
1. To get ahead, you have to do some things that are not right.	1.35	1.04	.4764
2. I care about what other people think of me.	1.05	.92	.1674
3. I try to get the things I want even when I know it's causing problems for other people.	1.33	.98	.3940
4. I am usually pretty cautious.	.83	.79	.2697
5. I often do whatever brings me pleasure here and now, even at the cost of some future goal.	1.55	1.02	.4455
6. I can carry a grudge for a long time.	1.99	1.27	.2801
7. Most things that people call delinquency don't really hurt anyone.	1.21	.84	.3434
8. My motto is, "Do unto others before they do unto you."	1.06	1.05	.3273
9. There is something especially exciting about casual sex.	1.67	1.33	.4709
10. I'd rather have 10 really good years and die young than be watching TV in a rocking chair when I'm 70.	1.55	1.12	.2533
11. There are some people I really hate.	2.04	1.25	.3468
12. Some people think I am hot-headed.	1.67	1.14	.2944
13. It hurts me to see people suffer.	.73	.79	.2725
14. A person should live for today and let tomorrow take care of itself.	1.55	1.12	.2702

15. There is no sense looking ahead because no one knows what the future will be like.	.90	.88	.2824
16. I lose my temper pretty easily.	1.46	1.08	.3353
17. I'd rather have great looks than exceptional intelligence.	1.31	.92	.3195
18. I see no need for hard work.	.43	.66	.3328
19. I don't devote much thought and effort to preparing for the future.	.86	.84	.3545
20. I seldom pass up an opportunity to have a good time.	2.27	1.08	.3080
21. I don't understand how some people can sit and read for hours.	1.60	1.29	.2441
22. Sometimes I take a risk just for the fun of it.	2.19	1.10	.4164
23. I try to save as much money as I can.	1.64	1.15	.1490
24. I have had sex with more than one partner in the same week.	.86	1.42	.2833
25. I share my thoughts and feelings with my mother.	1.41	1.17	.1950
26. Sky diving would be fun.	2.72	1.28	.1886
27. I like to test myself by doing risky things.	1.62	1.01	.4785
28. I try hard in school.	.95	.89	.2308
29. If people are victims of crime, it's nobody's fault but their own.	.66	.87	.1714
30. Whatever I do, I try hard.	1.08	.90	.2308
(Cronbach's alpha = .7960)			