

However, even though self-control seems to be highly correlated with offending, it is possible that self-control has a different impact on offending for individuals with different characteristics and backgrounds. This notion is rarely discussed within the literature on self-control theory. Gottfredson and Hirschi (1990) themselves argue that the effect of self-control may be dependent on the opportunities for crime, although this is not really important given that the simple nature of offending ensures that almost everyone has possibilities to offend. Apart from opportunity, they neglect the possibility that there are interaction effects with other risk factors for offending: In their reasoning, those risk factors are causes of crime only in that they lead to more or less self-control. Nevertheless, some studies have found empirical evidence that self-control does interact with other variables, such as perceived opportunity for crime (Grasmick, Tittle, Bursik, & Arneklev, 1993; Longshore, 1998), time spent with peers and parental supervision (Hay & Forrest, 2008; LaGrange & Silverman, 1999), and the average delinquency of school friends (Meldrum, Young, & Weerman, 2009). Whether self-control might interact with other individual characteristics, for example, moral attitudes, is something about which very little is known. This study examines whether self-control and morality have an interactive effect on offending.

THEORY AND PREVIOUS RESEARCH

Situational action theory (SAT; Wikström, 2004, 2005, 2006; Wikström & Treiber, 2007) is a general theory of crime that aims to integrate the individual and the environmental perspectives in the explanation of offending. SAT states, basically, that human action and offending is the outcome of how individuals perceive their alternatives for action and make their choices when confronted with different types of settings. This perception-choice process is seen as the *situational mechanism* that links individuals and environments to offending. In the theory, perception is regarded as more important than choice: If an individual does not see crime as an action alternative, the individual does not need to make a decision about it (Wikström, 2006).

Whether individuals will see an act of crime as an action alternative and decide to choose that alternative depends ultimately on their *crime propensity* and the exposure to various settings.¹ *Morality* (moral values and moral emotions, such as shame and guilt) and the *capability to exercise self-control* are the two key elements that influence crime propensity (Wikström & Treiber, 2007). According to SAT, morality has been conceptualized as the main factor in offending, influencing whether an individual will see crime as an alternative for action. An individual's capability to exercise self-control is also an important factor in this theory because it influences an individual's process of choice.

In SAT, offending is assumed to be primarily a question of morality and not of low self-control (Wikström, 2006; Wikström & Treiber, 2007). The SAT also stipulates that morality and self-control interact with each other. When an individual does not see crime as an action alternative (a high level of morality), self-control is irrelevant as a cause of crime. Self-control is a relevant factor in offending only when an individual actively considers committing a crime as an action alternative (thus having a low level of morality). Against this background, we hypothesize that there is an interaction effect of morality and self-control on offending. More precisely, we expect that self-control has a more important effect on offending for individuals with low levels of morality than for individuals with high levels of morality.

The question of whether morality and self-control interact with regard to offending has rarely been examined in the research to date. As far as we know, only three studies have

explicitly tested this interaction (Antonaccio & Tittle, 2008; Shoenfer & Piquero, 2006; Wikström & Svensson, 2005). Another study, De Li (2004), has examined whether self-control interacts with different factors of social bonds, which included interactions with moral beliefs.

In a survey of 1,957 adolescents (ages 14 to 15), Wikström and Svensson (2005) found a strong interaction effect between morality and self-control on overall offending, serious theft, aggressive behavior, and shoplifting. This interaction effect indicates that the impact of self-control on offending is dependent on the strength of an individual's morality. Shoenfer and Piquero (2006) used vignettes (scenarios) about behavioral intentions among 382 students to study the interaction effect. They found that low self-control was related with intentions to steal for individuals with low levels of morality but not for individuals with high levels of morality. However, such a result was not found for intentions to fight. Antonaccio and Tittle (2008) used face-to-face interviews with 500 eligible adults. Using a variety scale, they found a weak interaction effect between morality and self-control on projections of future crime. No interaction was found with regard to projected property and projected violent offending. Using a survey of 4,866 high school students, De Li (2004) found an interaction effect between moral beliefs and self-control in the prediction of general offending. This indicates that the effect of self-control on offending is positive at all levels of moral beliefs, although the effect is much stronger when the moral belief is less conventional.

In short, these studies reveal that there are indications for an interaction effect between morality and self-control on offending. However, these studies have their limitations. First, Shoenfer and Piquero (2006) and Antonaccio and Tittle (2008) focused on intentions to commit crimes but not on actual offending. To say that one has the intention to commit a crime does not necessarily mean that one actually will do it. Shoenfer and Piquero (2006, p. 68) acknowledged this and pointed out that "future research should strive to replicate our results using actual behavior." Second, there are some limitations in the sampling strategies used by Shoenfer and Piquero and by Antonaccio and Tittle. Antonaccio and Tittle (2008) point out that they "cannot be sure of the accuracy of the data" (p. 503); Shoenfer and Piquero used a rather small sample of university students of a mean age of 22. Third, although it is the most extensive study until now, Wikström and Svensson (2005) used a combination of tolerance for offenses and shame feelings as a measure of morality instead of a more direct measurement of moral values.

THE CURRENT STUDY

The current study extended these earlier studies by using direct measures of offending, self-control, and morality and by employing three independent samples with various measures of delinquency, self-control, and morality. That method offers a very robust replication of the earlier indications of the interaction effect. In line with SAT, we hypothesized that there is an interaction between morality and self-control with regard to the explanation of individuals' involvement in crime. More specifically, self-control is assumed to have a more important effect on offending for individuals with low levels of morality than for individuals with high levels of morality. The three independent samples come from Belgium (Antwerp), Sweden (Halmstad), and the Netherlands (the Hague and nearby places). This article is based not on a cross-national comparative study in the true sense of the term but on three different and independent urban samples. Our goal was not to compare the three

countries but to test a theoretical argument in different circumstances and with different methodologies. Results replicated and similar across the three samples would provide a stronger and more robust basis for drawing conclusions than would be the case if the study were based on only a single sample.

METHOD

PARTICIPANTS

The study is based on data from three independently drawn samples. There are both similarities and a number of important differences between the surveys employed and also between the three cities in which the samples were drawn. Two surveys employ a traditional classroom paper-and-pencil strategy, including the provision of an envelope to ensure the respondents' anonymity. One survey (South-Holland) employed a computer-assisted strategy, which was conducted in the classroom and in which respondents' anonymity was also ensured. Each of the samples focused on adolescents in nearly the same age group. There are a few differences with regard to the structural background characteristics between the samples. In the Antwerp sample, there was a higher level of adolescents with an immigrant background in comparison to Halmstad and South-Holland. In the South-Holland sample, a higher level of adolescents lived in a single-parent family in comparison to the Halmstad and Antwerp samples. The samples are described in more detail below. For additional details of the surveys in Antwerp and Halmstad, see Pauwels and Svensson (2008, 2009) and Svensson and Pauwels (2008); for more information on the Dutch survey in South-Holland, see Weerman and Bijleveld (2007); Weerman, Harland, and van der Laan (2007); and Meldrum et al. (2009).

Antwerp school survey. Antwerp, one of the largest cities in Belgium, has a population of approximately 500,000 inhabitants (including suburbs). With regard to levels of income and the proportion of immigrants in the population, Antwerp is not comparable to the Belgian average. Antwerp is instead characterized by higher levels of poverty and has a higher proportion of immigrants. The Antwerp school survey included all first-grade (comparable with seventh grade in the U.S. school system) students that both lived in the city of Antwerp and went to school in Antwerp. The survey thus constitutes a census of 2,486 first graders attending 23 secondary schools in Antwerp. The average age of this population is 13 years at the time they enter the first grade and 14 years when they leave the first grade. The study was conducted between January and June of 2005. The questionnaires were distributed by researchers, and the students completed the questionnaires during lesson time in the presence of the researcher. The nonresponse rate for the Antwerp sample was 7.5%. Following listwise deletion of missing values, the analyses below are based on 2,324 respondents. The Antwerp sample consisted of 49.4% boys and 50.6% girls. Almost half of the respondents had a fully native background (both parents of Belgian descent), 10% of the respondents had one parent with an immigrant background, and 45.5% of the respondents had two parents with an immigrant background. This represents an overrepresentation of students with an immigrant background, which is attributable to a higher level of participation among schools in inner-city areas. Almost three quarters of the respondents were ages 12 to 14 years, and 26.2% of the respondents were ages 15 to 17. Fifteen percent of

the respondents lived in a single-parent or single-caregiver family, and 85% of the respondents lived with two parents or caregivers.

Halmstad school survey. Halmstad is a medium-sized city on the southwest coast of Sweden with approximately 90,000 inhabitants. With regard to levels of income, unemployment, and educational achievement, the sample is comparable to the Swedish average. The Halmstad school survey included all students in their final year of compulsory education (on average, 15 years of age). The study constitutes a census of 1,003 adolescents in 13 schools. The study was conducted between February and March of 2005. In Halmstad, the headmaster of each school distributed the questionnaires with information about the study to teachers, and students completed the questionnaires during lesson time in the presence of the teacher. The nonresponse rate for the population was 15.2%. Following listwise deletion of missing values, the analyses below are based on 952 respondents. The Halmstad survey consisted of 48.1% boys and 51.9% girls. Seventy-five percent of the respondents had a fully native background (both parents from Sweden), 11.5% of the respondents had one parent with an immigrant background, and 13.5% of the respondents had two immigrant parents. The great majority of the respondents (82.8%) lived with both parents, and 17.2% lived in a single-parent family.

South-Holland school survey. South-Holland is the most densely populated province of the Netherlands. The city of the Hague (which delivered most of the respondents in the Dutch sample) has a population of approximately 450,000 inhabitants. The sample also contains respondents from two medium-sized cities (approximately 100,000 inhabitants) in the nearby area and from one smaller town (approximately 10,000 inhabitants). The Hague and the two other cities have relatively high levels of poverty and a large proportion of immigrants. The South-Holland school survey included all first- and third-grade students who went to the participating schools. We selected schools and students with mainly general and vocational training, a basic type of education that holds approximately half of the Dutch students in its age group. This focus on lower-educated city youths was chosen to increase the chances of problem behavior among our respondents while keeping some variation with regard to the location of the schools. The sample consisted of two cohorts of students who completed a questionnaire in the spring of 2002 (and were followed up in a consecutive study). These students were either in their first or third year of secondary education. The first graders were mostly 13 years old; the third graders, mostly 15 years. The respondents participated on a voluntary basis during school time and completed their questionnaires on computers in a classroom. At least two research assistants were present during the administration of the survey to explain the goal of the questionnaire and to ensure an orderly and anonymous setting. In total, more than 83% of the complete first- and third-grade student population of the participating schools (2,370 students) is included in sample, which consists of 1,978 students. Most of the remainder did not participate because they were ill during the data collection period or because they were absent for unknown reasons (which often implied that they were truant). The sample contains a reasonably comparable number of girls and boys (45% girls, 55% boys). More than half of the students (58%) went to school in the Hague, 34% attended schools in a medium-sized city, and the remainder (8%) went to school in the smaller town. A substantial number of the students (38%) belong to ethnic minorities (determined by one or both of their parents being born outside the Netherlands), and 28% of the respondents lived in a single-parent family. Because our

sample is stratified across larger and smaller cities in the densely populated province of South-Holland, it gives a rough representation (although it is not a random sample) of students in the lower half of secondary education in urbanized areas in the Netherlands.

MEASURES

Self-reported offending is measured by a scale summing the respondents' offending frequencies across nine criminal offenses in Antwerp, 14 offenses in Halmstad, and 12 offenses in South-Holland. The delinquency scales have alphas of .81 in Antwerp, .84 in Halmstad, and .80 in South-Holland. Detailed information on the index and the wording of the items is provided in the appendix.

Self-control is an additive index primarily based on the items used and developed by Grasmick et al. (1993). The construct taps into whether an individual has the ability to resist temptations and provocations. The scale is based on 7 items in the Antwerp study with a scale alpha of .78, 5 items in the Halmstad study with an alpha of .71, and 12 items in the South-Holland study with an alpha of .79.² High values on the measure indicate a low level of self-control.

Morality is an additive scale measuring moral values about rule breaking in general. This means that other dimensions, such as moral emotions (shame and guilt) are not included in this scale. In Halmstad, the morality scale is based on six items regarding potential wrongdoings (e.g., Wikström & Butterworth, 2006). The morality scale used in Antwerp is adapted from the Sampson and Bartusch (1998) Legal Cynicism Scale and is based on four items. The South-Holland morality scale is based on four items that partially overlap with the Legal Cynicism Scale used in Antwerp. The morality scales take the form of additive indexes with scale alphas of .78 in Antwerp, .83 in Halmstad, and .68 in South-Holland. High values on the scales indicate a low level of morality.

Table 1 presents a correlation matrix for all the variables included. Both the morality and self-control scales are positively correlated with higher levels of offending in all three locations. Morality and self-control are also significantly correlated with one another in Antwerp ($r = .58, p < .001$), Halmstad ($r = .40, p < .001$), and South-Holland ($r = .51, p < .001$).

RESULTS



TABLE 1: Correlation Matrix (Pearson r) and Descriptive Statistics for Antwerp ($N = 2,324$), Halmstad ($N = 952$), and South-Holland ($N = 1,978$)

	1	2	3
Antwerp			
1. Low self-control	—		
2. Low morality	0.58***	—	
3. Overall delinquency	0.45***	0.51***	—
Range	7-35	4-20	0-18
<i>M</i>	21.19	9.91	1.80
<i>SD</i>	6.33	4.35	2.96
Halmstad			
1. Low self-control	—		
2. Low morality	0.40***	—	
3. Overall delinquency	0.46***	0.57***	—
Range	5-20	6-24	0-46
<i>M</i>	11.13	8.01	3.22
<i>SD</i>	2.99	2.71	6.15
South-Holland			
1. Low self-control	—		
2. Low morality	0.51***	—	
3. Overall delinquency	0.38***	0.39***	—
Range	1-48	0-16	0-71
<i>M</i>	27.19	4.93	3.77
<i>SD</i>	8.70	3.69	6.76

*** $p < .001$.**TABLE 2: Ordinary Least Squares Regression Analysis With Self-Control and Morality Predicting Overall Offending in Antwerp, Halmstad, and South-Holland: Unstandardized (b) and Standardized (β) Regression Coefficients**

Variable	Model 1			Model 2		
	<i>b</i>	SE	β	<i>b</i>	SE	β
Antwerp ($N = 2,324$)						
Low self-control	0.110***	0.010	0.235	0.119***	0.010	0.253
Low morality	0.260***	0.015	0.379	0.226***	0.015	0.329
Low Self-Control \times Low Morality				0.019***	0.002	0.180
R^2	0.301			0.332		
Adj. R^2	0.301			0.331		
Halmstad ($N = 952$)						
Low self-control	0.559***	0.057	0.264	0.588***	0.055	0.278
Low morality	1.054***	0.063	0.464	0.732***	0.070	0.322
Low Self-Control \times Low Morality				0.158***	0.017	0.208
R^2	0.389			0.439		
Adj. R^2	0.388			0.437		
South-Holland ($N = 1,978$)						
Low self-control	1.861***	0.160	0.275	1.966***	0.156	0.290
Low morality	1.629***	0.167	0.231	1.415***	0.163	0.200
Low Self-Control \times Low Morality				1.341***	0.126	0.211
R^2	0.194			0.238		
Adj. R^2	0.193			0.237		

*** $p < .001$.

TABLE 3: The Effects of Low Self-Control on Overall Offending at Different Levels of Morality in Antwerp, Halmstad, and South-Holland: Unstandardized Regression Coefficients

<i>Low Self-Control</i>	<i>Morality</i>		
	<i>High</i>	<i>Medium</i>	<i>Low</i>
Antwerp	0.059***	0.119***	0.253***
Halmstad	0.320***	0.539***	1.334***
South-Holland	0.748***	2.055***	4.161***

****p* < .001.

[REDACTED]

DISCUSSION AND CONCLUSION

[REDACTED]



Appendix
Measures Employed in the Three Samples

<i>Measure</i>	<i>Antwerp</i>	<i>Halmstad</i>	<i>South-Holland</i>
Offending	Vandalism, graffiti, buying stolen property, shoplifting, serious theft, threatening, hitting on purpose, fighting outside school, burglary	Shoplifting, stealing from school, bicycle theft, moped theft, car theft, theft from car, burglary, robbery, hitting someone badly, hurting someone with knife, using knife as weapon when going out, vandalism, tags, graffiti	Vandalism, graffiti, buying stolen property, shoplifting <€5, shoplifting >€5, bicycle or moped theft, car theft, burglary, robbery, other theft, hitting or fighting outside school, wounding someone

(continued)

Appendix (continued)

Measure	Antwerp	Halmstad	South-Holland
	Last year frequencies: <i>never, once or twice, three times or more</i>	Last year frequencies: <i>never, once, 2-3 times, 4-5 times, 6-10 times, more than 10 times</i>	Last year frequencies: <i>never, once, twice, 3-5 times, 6-10 times, more than 10 times</i>
Morality (antisocial values)	Rules are made to be broken; OK to break rules as long as you do not get caught; fighting OK when provoked; if honest ways to achieve something fail, then use dishonest ways	Wrong to tease classmates about their clothes, wrong to destroy something your own, wrong to shoplift, wrong to burgle, wrong to threaten someone to steal something, wrong to assault someone	OK to do something illegal as long as you don't get caught, OK to lie if that brings you a lot of money, breaking and entering in rich peoples houses is not so bad, OK to steal if you need money
	5-point scale: <i>totally agree, agree, neither agree nor disagree, disagree, totally disagree</i>	4-point scale: <i>very wrong, wrong, a little wrong, not wrong at all</i>	5-point scale: <i>totally agree, agree, neither agree nor disagree, disagree, totally disagree</i>
Self-control	I often do things without thinking first; when angry, others had better stay away from me; I have fun when I can, even if I get into trouble afterwards; when I am angry, I'd rather hit than talk; I say what I think, even if it's not smart; I often do what I want; I get angry very fast	I often do things without thinking about it, I avoid difficult things in school, I easily get angry, I take risks because it is exciting, I find it exciting to do things for which I might get in trouble	I often do things without thinking first; I make fun if I can, even if it leads me into trouble; I say immediately what I think, even when that's not clever; I often do what I feel like immediately; I like to do exciting and adventurous things; I like to try out scary things; I love doing dangerous things; I think it's stupid to do things for fun where you might get hurt; When I'm angry, people better keep away from me; When I'm angry, I will rather hit than talk; I can discuss arguments calmly; I get angry easily
	5-point scale: <i>totally agree, agree, neither agree nor disagree, disagree, totally disagree</i>	4-point scale: <i>totally disagree, disagree, agree, totally agree</i>	5-point scale: <i>totally agree, agree, neither agree nor disagree, disagree, totally disagree</i>

NOTES

1. Some studies have found empirical evidence that crime propensity and exposure to criminogenic settings interact in the explanation of offending (Svensson & Pauwels, 2008; Wikström, 2009; Wikström & Svensson, 2008). Common to these studies is the finding that exposure to criminogenic settings has a stronger effect on offending for individuals with a high propensity to offend.

2. In the South-Holland study, missing data on separate items on the self-control scale and the morality scale were imputed, using the Expectation Maximization method in SPSS. Analyses using nonimputed variables resulted in findings similar to those with imputed variables.

3. The results are the same when control is held for demographic variables (gender, immigrant status, and family structure) and other relevant variables, such as parental monitoring, attachment to parents, school bonds, and peer delinquency. The reason we do not include these variables in the main analyses is that they are not a part of the theoretical rationale proposed by situational action theory. Nevertheless, the results including control variables show the robustness of our results.

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