Another Look at the Self-Control vs. Psychopathy Debate: a Study Assessing Sexual Aggression, Aggression, and Substance Abuse

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Abstract

Self-control and psychopathy are general theories of antisociality that have considerable empirical support, are conceptually similar, and have occasionally been studied together. A recent head-to-head test of the theories and found that self-control generally outperformed psychopathy among assorted criminal outcomes among institutionalized delinquents. Using data from university students ($N = 1611$) and different measures of self-control (Grasmick et al. scale) and psychopathy (Levenson Self-Report Psychopathy Scale), the current study revisited this work and found that self-control had robust associations with sexual aggression, general aggression, and substance abuse problems, and extreme scores on these outcomes variables. However, the effects of self-control were negated once psychopathy was specified, suggesting that psychopathy is more important for understanding assorted forms of deviance than self-control in the undergraduate population. Given the empirical heft of both theories, we encourage further study to determine which has greater predictive validity for understanding various forms of crime among different populations spanning student, community, forensic, and correctional samples. We also encourage the specification of both self-control and psychopathy as standard control variables.

Keywords Self-control · Psychopathy · Crime · Deviance · Antisocial behavior · Criminological theory

Introduction

As multidisciplinary general theories of antisocial behavior, self-control and psychopathy have a variety of similarities. Both constructs are present in individuals who are

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selfish and egocentric as opposed to altruistic, who are impulsive and poorly tempered as opposed to moderate and self-regulated, and who have a risky, action orientation as opposed to a cautious, cognitive one. Due to the salience of self-centeredness, both theories also invoke a manipulative and—taken to the extreme—predatory interpersonal and behavioral repertoire. Also similarly, persons with clinical self-control deficits or high psychopathic features tend to experience problems in multiple spheres of life spanning family, school, work, and relationship domains (Caspi et al., 2017; Christian, Frick, Hill, Tyler, & Frazer, 1997; Hare, 1993; Hay & Meldrum, 2015; Loeber et al., 2001; Moffitt et al., 2011; Moffitt & Caspi, 2001). In terms of externalizing and conduct problems, self-control and psychopathy are among the most robust and consistent individual-level correlates of crime.[1]

Relating to their multifaceted predictive capacity, self-control and psychopathy are versatile in the sense the central constructs are associated with manifold forms of crime spanning substance use, interpersonal violence, sexual aggression, property crime, and other inappropriate and illegal behaviors. Indeed, numerous meta-analytic studies report that self-control (de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012; Pratt, Turanovic, Fox, & Wright, 2014; Vazsonyi, Mikuška, & Kelley, 2017; Walters, 2016) and psychopathy (Fox & DeLisi, 2019; Geerlings, Asscher, Stams, & Assink, 2020; Leistico, Salekin, DeCoster, & Rogers, 2008; Muris, Merckelbach, Otgaar, & Meijer, 2017; O'Connell & Marcus, 2019) are significantly associated with such an array of conduct problems, externalizing symptoms, crime, and violence that both are invoked in unified theories of crime (DeLisi, 2016; Gottfredson & Hirschi, 1990; Hare, 1996; Mischel & Shoda, 2008).[2] Although self-control and psychopathy are independent constructs and literatures, there have been recurrent attempts to explore their interconnections and also to empirically determine which theory has stronger predictive validity. The current study is a similar head-to-head test of these general theories of crime.

Self-Control Vs. Psychopathy

The comparative history of self-control and psychopathy dates back several decades. In a seminal examination, Gough (1948) applied a sociological perspective to psychopathy and presented a behavioral profile that is compatible with later sociological conceptualization of self-control, such as Gottfredson and Hirschi's (1990) general theory. According to Gough (1948, p. 362), the sociological profile includes:

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[1] A variety of studies also revealed that psychopathy (Cale, Lussier, McCuish, & Corrado, 2015; Corrado, DeLisi, Hart, & McCuish, 2015; McCuish, Bouchard, Beauregard, & Corrado, 2019; McCuish, Corrado, Hart, & DeLisi, 2015) and self-control (Chapple & Hope, 2003; DeLisi & Vaughn, 2008; Meldrum, Trucco, Cope, Zucker, & Heitzeg, 2018; Wolff, Baglivio, Piquero, Vaughn, & DeLisi, 2016; Wolff, Baglivio, Vaughn, DeLisi, & Piquero, 2017) are especially germane to the study of the most serious, violent, and chronic offenders.

[2] These empirical associations are not limited to the United States but also exist based on data from disparate nations including China (Ren, He, Zhao, & Zhang, 2017), Italy (Garofalo, Neumann, & Velotti, 2018), Japan (Vazsonyi, Wittekind, Belliston, & Van Loh, 2004), Poland (Debowska, Boduszek, Kola, & Hyland, 2014), Portugal (Pechorro et al., 2014), Saudi Arabia (Sacarellos et al., 2016), and the United Kingdom (Debowska et al., 2018) in addition to multinational studies (Neumann, Schmitt, Carter, Embley, & Hare, 2012; Vazsonyi, Pickering, Junger, & Hessing, 2001).

Unconcern over the rights and privileges of others when recognizing them would
interfere with personal satisfaction in any way; impulsive behavior…; inability to
form deep or persistent attachments to other persons or to identify in interpersonal
relationships; poor judgment and planning in attaining defined goals; apparent
lack of anxiety and distress over social maladjustment…; a tendency to project
blame onto others and to take no responsibility for failures…'almost complete
lack of dependability and unwillingness to assume responsibility; and, finally,
emotional poverty.

Gough's quotation makes clear that the basic set of symptoms and social functioning of
psychopathic persons is very consistent with the traits and social conduct of those with
low self-control. Indeed, given the similarities between psychopathy, Gough's (1948)
sociological interpretation of psychopathy, and sociological accounts of self-control
(Gottfredson & Hirschi, 1990), some have speculated whether low self-control was a
derivative, less pernicious, or "watered down" form of psychopathy (cf., Cooke,
Michie, & Hart, 2006; DeLisi, 2003; Fox, Jennings, & Farrington, 2015; Vaughn,
DeLisi, Beaver, Wright, & Howard, 2007).

In the intervening years, investigators have occasionally compared the theories
usually showing that both have predictive validity for antisocial behavior (e.g.,
Connolly et al., 2017; Flexon & Meldrum, 2013; Jonason & Tost, 2010; Vaughn
et al., 2007; Wright et al., 2017). Using an undergraduate sample, Wiebe (2003) found
that psychopathy provides more specific details of an antisocial person beyond merely
having low self-control. Specifically, Wiebe used structural equation modeling and
found that two factors integrate psychopathy and self-control. One is an antisociality
factor that includes anger, risk seeking, antisocial cognition, low commitment, manip-
ulativeness, and delinquency and the second is a self-direction factor that includes low
diligence and shortsightedness. When one considers the basic traits of psychopathy and
low self-control, the antisociality factor appears to most instantiate the etiological focus
of the theories.[3]

Prado, Treeby, and Crowe (2015) studied a community sample and found that
subclinical psychopathic features (in their study defined as having psychopathic traits
without diagnosis or a criminal history present) predicted deficits in self-control,
suggesting that not only are the constructs related, but that self-control could be a
derivative manifestation of psychopathy. Indeed, based on offender data, Vaughn et al.
(2007) examined whether psychiatric and personality-based constructs including psy-
chopathy were predictive of self-control. Among psychopathy oriented factors, they
found that guiltlessness was positively associated with low self-control while fearless-
ness had no association. In addition, two measures of narcissism derived from the
Psychopathic Personality Inventory Short-Form (PPI-SF) and the Antisocial Process
Screening Device (APSD) were positively associated with low self-control. Their
findings indicated that narcissism was the primary personality feature that drove deficits

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[3] Gottfredson and Hirschi (1990) were dismissive of the notion that self-control is part and parcel of
personality but there is copious evidence that the low self-control profile is consistent with an individual
who scores low on Agreeableness, scores low on Conscientiousness, and scores differentially on Extraversion
(see, DeLisi, 2013). Readers should also note that this precise profile from structural personality research
particularly low scoring on Agreeableness and Conscientiousness comports with the basic profile of psychop-
athy (see, Jones, Miller, & Lynam, 2011; Lynam & Miller, 2015; Vize, Miller, & Lynam, 2018).

in self-regulation. There is also evidence that the effects of self-control and psychopathy depend on the type of antisocial conduct under consideration. For instance, a recent study found that psychopathy was a better predictor of violent delinquency and rendered effects of self-control spurious, but these associations flipped for drug delinquency where self-control was the stronger predictor (Wright et al., 2017).

Recently, DeLisi, Tostlebe, Burgason, Heirigs, and Vaughn (2018) conducted a head-to-head test of self-control and psychopathy using data from a statewide population of institutionalized delinquents. Using a 15-item self-control scale (LSCS; DeLisi & Vaughn, 2008) and a modified 56-item version of the Psychopathic Personality Inventory-Short Form (mPPI-SF; Lilienfeld & Hess, 2001), they examined associations with several criminal outcomes. In hierarchical models, self-control but not psychopathy was associated with self-reported violent offending net the effects of sex, race, ethnicity, age, welfare receipt, ADHD, past year drug use, antisocial behavior onset, arrest/police contact onset, and juvenile court onset. Both self-control and psychopathy were associated with self-reported property offending, overall self-reported delinquency, and self-reported victimization; however, effect sizes were generally larger for self-control. Both self-control and psychopathy were also significantly predictive of thresholds of 90th percentile or above for chronic violent offending, property offending, total offending, and victimization, but again, estimates for self-control were more robust than psychopathy. Based on results from multiple analytical models, DeLisi et al. (2018) declared self-control theory the winner of the head-to-head test.

Current Aim

Another commonality between self-control and psychopathy is that these constructs are believed to be so central for understanding antisocial behavior that they have each been invoked as general or unified theories of crime (e.g., DeLisi, 2016; Gottfredson & Hirschi, 1990; Hare, 1996; Mischel & Shoda, 2008). As such, it is important to empirically test their differential validity particularly in the wake of recent research that indicated that self-control may be more useful than psychopathy for understanding deviance. It is also unclear about the relative merits of each theory vis-à-vis different types of samples, for instance, adjudicated offenders compared to university students, as well as different types of criminogenic behaviors. The current study sought to extend DeLisi et al.'s (2018) study by conducting a new head-to-head test of the theories.

Method

Data utilized in the current study were originally collected to examine the impact of sexual arousal on decision-making related to the use of sexual coercion among university students. A total of 1166 male ($n = 383$; 33%) and female ($n = 779$; 67%) students who were enrolled in several introductory criminal justice, criminology and psychology classes at the time were asked to volunteer to participate in an IRB-approved study of "college student decision-making." After volunteering, students in the original study were randomly assigned to view either a 6-min long clip from an erotic video (depicting consensual sexual activities between an adult male and female

actor), or 6 min of an academic lecture on criminology, in order to experimentally induce a state of arousal. As intended, the arousal manipulation increased the level of self-reported sexual arousal (rated on a 0–100% aroused scale) among those in the experimental group (mean of 42%) compared to the control group (mean 5%, $t = -24.327$, $p < .01$). The arousal manipulation was not however, related to the variables examined in this study, with the exception of the level of psychopathy as measured with the Levenson scale (experimental group mean = 47.2, control group mean = 48.6, $t = 1.994$, $p < .05$), and even this difference is relatively small in magnitude. No other variables examined here differed by group (i.e., age, gender, race, level of self-control, IORNS scales, prior sexual coercive behavior use) and so our analyses make use of the combined sample of individuals from both the experimental and control groups.

Participants and Procedures

After agreeing to participate, students were asked to complete a survey that included questions about levels of self-control and psychopathy. The survey also included the Inventory of Offender Risk, Needs, and Strengths (IORNS; Miller, 2006a, 2006b) and questions about demographics, including age, gender and race/ethnicity and finally, a series of questions about past use of sexually coercive tactics. In terms of the generalizability of this sample, due to the use of the psychology research subject pool and the characteristics of psychology majors at this university, the sample used here overrepresents female students (67% of the sample, 58% of the university). Likewise, since the sample involved predominantly introductory level courses, the average age of the sample is somewhat lower (about 21.5 years) than the university average (about 24 years). On the other hand, the university population during this data collection period was comprised of about 74% White students and our sample contained 75.9% White students.

Measures

Self-Control The individual's level of self-control was measured using the 24-item scale originally developed by Grasmick and colleagues (Grasmick, Tittle, Bursik, & Arneklev, 1993). Several studies support the reliability and validity of the Grasmick et al. scale (Chui & Chan, 2016; DeLisi, Hochstetler, & Murphy, 2003; Jones, 2017; Li & Vazsonyi, 2019; Piquero, MacIntosh, & Hickman, 2000; Venables et al., 2018). This scale includes items such as "Sometimes I will take a risk just for the fun of it" and "I lose my temper easily." Students rated each item using a 5-point Likert scale, such that higher values indicated lower levels of self-control (4 = Strongly Agree, 2 = No Opinion, 0 = Strongly Disagree). Among this sample of students, the mean self-control scale score was 49.59 (SD = 9.78, range = 24–92) and the scale demonstrated good internal consistency (Cronbach's $\alpha = .84$).

Psychopathy The Levenson psychopathy scale (LSRP) consists of 26 items that assess both primary and secondary psychopathy (Levenson, Kiehl, & Fitzpatrick, 1995). For instance, the scale includes items such as "For me, what's right is whatever I can get away with" and "When frustrated, I often let off steam by blowing my top." These 26 items represent characteristics of both primary and secondary psychopathy. Elevations

of primary psychopathy indicate attitudes of callousness and self-importance, while elevations of secondary psychopathy indicate higher levels of impulsivity and frustration intolerance. In the current study, we use the total psychopathy scale score in our analyses, as a point of comparison to the total self-control score described previously. Prior research has demonstrated the reliability and validity of the LSRP's items among non-clinical samples including students and the general population (Bouffard, Bouffard, & Miller, 2016; Christian & Sellbom, 2016; Garofalo, Noteborn, Sellbom, & Bogaerts, 2019; Levenson et al., 1995) and clinical and offender samples (Anestis et al., 2016; Gray, Weidacker, & Snowden, 2019; Thomson et al., 2019; Wang et al., 2018). In the current sample the reliability estimate (Cronbach's α) for the total scale was .73, indicating acceptable item reliability. The mean score on the total scale was 47.95 (SD = 10.14, range = 26–86).

Demographic Covariates Students were asked a series of questions related to their age, gender and race/ethnicity. The sample included 75.9% White students, and 24.1% non-White students (19.1% of the sample identified themselves as Hispanic ethnicity). As indicated, this sample over-represents female students (67%) relative to male students (33%), and the average age of the total sample is 21.5 years (SD = 4.54, range = 18–69).

Dependent Variables

Coercive Sexual Aggression Students were asked whether they had ever previously engaged in each of six specific sexually coercive/aggressive behaviors in order to obtain sex. Specifically, students were asked to respond yes (1) or no (0) to each of the following items:

1. I have become so excited during sex that I could not stop myself.
2. I have threatened to end a relationship in order to obtain sex.
3. I have pressured someone with continual arguments to obtain sex.
4. I have said things I did not mean to obtain sex.
5. I have gotten someone drunk or high to obtain sex.
6. I have used physical force to obtain sex.

The measure of coercive sexual behaviors used in the current study is the sum of how many of these coercive/aggressive items each student reported having used in the past. The mean score on this summative scale was 0.45 (SD = .85, range = 0–6).

Inventory of Offender Risk, Needs, and Strengths (IORNS; Miller, 2006a) Finally, participants were also asked to complete the 130-item IORNS (Miller, 2006a). The IORNS is a risk and treatment need measure that assesses several static, dynamic, and protective factors related to offending behavior. In particular, the IORNS includes a number of relevant component scales and sub-scales including Aggression and Alcohol/Drug Problems that were of interest in the current study. Previous research has reported on the reliability and validity of the IORNS instrument (Bergeron & Miller, 2013; Miller, 2006a, 2006b, 2015) with both offender and community samples.

Reliability estimates for the scales have ranged from .60 to .92 in various samples and the factors assessed on the IORNS have been significantly related to recidivism, aggressive behaviors, criminal activity, drug and alcohol problems, and desistence from crime (Miller, 2006a, 2006b, 2015). For the current study, the scales of Aggression and Alcohol/Drug Problems had average raw scores of 5.2 (SD = 1.7) and 1.8 (SD = 1.7), respectively. Both of these scales have previously demonstrated adequate to good reliability with internal consistency scores ranging from α = .69 to .89 (Bergeron & Miller, 2013; Miller, 2006a, 2006b, 2015).

Analysis

We utilized three forms of data analysis. Negative binomial regression was used for count-data dependent variables with evidence of overdispersion where the variance exceeds the mean. The LR test of α was conducted to confirm the negative binomial estimator and these coefficients are shown in Tables 1 and 3. Poisson regression was used for count-data dependent variables without overdispersion (Table 2). Binary logistic regression was used to estimate models indicating aggression outcomes at the 90th percentile or above (0 = below 90th percentile, 1 = 90th percentile or above). We specified the *estat classification* and *lroc* commands in Stata 12.1 to provide classification accuracy of the models including the percent of cases correctly classified and receiver operating characteristic area under the curve (AUC). To increase confidence in the estimates, we performed all negative binomial, Poisson, and logistic regression models with bootstrapped standard errors with 500 replications.[4]

Results

Negative Binomial Regression Models for Total Coercive Sexual Aggression

As shown in model 1 in Table 1, self-control was significantly associated with total coercive sexual aggression (IRR = 1.05, z = 8.94, p < .001) indicating that those with lower self-control engaged in a greater diversity of acts of sexual aggression. Males and nonwhites also engaged in a greater diversity of acts of sexual aggression. In model 2, self-control is not significant once psychopathy was specified (IRR = 1.06, z = 5.70,

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[4] Psychopathy and self-control are not only conceptually related, but also statistically correlated (r = .71, p < .001), which raises concerns about multicollinearity. Negative binomial and regression models were transformed to linear regression models to perform regression diagnostics for total coercive sexual aggression (Mean VIF = 1.44, psychopathy VIF = 2.08, tolerance = .48, self-control VIF = 2.03, tolerance = .49), IORNS Aggression Scale (Mean VIF = 1.43, psychopathy VIF = 2.05, tolerance = .49, self-control VIF = 2.00, tolerance = .50), and IORNS Alcohol/Drug Problems Scale (Mean VIF = 1.43, psychopathy VIF = 2.06, tolerance = .49, self-control VIF = 2.01, tolerance = .50). These VIF and tolerance values do not suggest multicollinearity. For the logistic regression models, we installed the *collin* feature and determined that multicollinearity was also not a problem for 90th percentile total coercive sexual aggression (Mean VIF = 1.38, psychopathy VIF = 2.11, tolerance = .47, self-control VIF = 2.01, tolerance = .50), 90th percentile IORNS Aggression Scale (Mean VIF = 1.37, psychopathy VIF = 2.07, tolerance = .48, self-control VIF = 2.01, tolerance = .50), and 90th percentile IORNS Alcohol/Drug Problems Scale (Mean VIF = 1.37, psychopathy VIF = 2.09, tolerance = .48, self-control VIF = 2.01, tolerance = .50).

$p < .001$) indicating that those with more psychopathic features had greater sexual aggression. Males and older participants also engaged in a greater diversity of sexual aggression.

Poisson Regression Models for IORNS Aggression Scale

As shown in model 1 in Table 2, self-control was significantly associated with scores on the IORNS Aggression Scale (IRR = 1.00, z = 2.95, $p < .01$) indicating that those with lower self-control were more aggressive. Significant associations were found for males and nonwhites. In model 2, self-control drops from significance once psychopathy is specified (IRR = 1.00, z = 2.84, $p < .01$) indicating that participants with more psychopathic features accrued higher scores on aggression. Males and nonwhites were also significant in model 2.

Negative Binomial Regression Models for IORNS Alcohol/Drug Problems

As shown in model 1 in Table 3, self-control was significantly associated with scores on IORNS Alcohol/Drug Problems (IRR = 1.02, z = 3.62, $p < .001$) indicating that those with lower self-control had greater substance use problems. Age was positively associated with alcohol/drug problems. In model 2, self-control drops from significance once psychopathy was specified (IRR = 1.01, z = 3.23, $p < .001$) indicating that psychopathic features were positively associated with alcohol and drug problems. Age retained its positive association with alcohol/drug problems.

Logistic Regression Models for 90th Percentile for Coercive Sexual Aggression

As shown in model 1 in Table 4, self-control was significantly associated with the greatest diversity of sexual aggression (OR = 1.02, z = 3.08, $p < .01$) indicating that those with low self-control were most likely to be extensively diverse in sexual aggression. Males were also significant. In model 2, self-control fell from significance once psychopathy was specified (OR = 1.07, z = 4.97, $p < .001$) indicating that psychopathy was positively associated with extreme scores on diverse coercive sexual aggression. The positive effect for males remained in model 2. The classification accuracy of the model improved with the specification of psychopathy as the percentage of cases correctly classified improved from 79.23% to 87.93% and the model AUC improved from .64 to .69.

Logistic Regression Models for 90th Percentile for IORNS Aggression Scale

As shown in model 1 in Table 5, self-control was significantly associated with 90th percentile scores for IORNS Aggression Scale (OR = 1.02, z = 3.23, $p < .001$) indicating that those with lower self-control were more likely to score at the 90th percentile or above for aggression. Significant effects were found for males, nonwhites, and younger participants. In model 2, self-control fell from significance once psychopathy was specified (OR = 1.03, z = 2.23, $p < .05$) indicating that greater psychopathy was associated with greater aggression. Males and nonwhites were also more likely to score at

Table 1 Negative binomial regression models for total coercive sexual aggression

Variable	Model 1		Model 2	
	IRR (BSE)	z	IRR (BSE)	z
Self-Control	1.05 (.01)	8.94***	1.00 (.01)	0.38
Psychopathy			1.06 (.01)	5.70***
Male	1.63 (.18)	4.35***	1.38 (.21)	2.09*
White	.80 (.09)	−2.09*	.93 (.14)	−0.50
Age	1.01 (.01)	1.42	1.03 (.01)	2.96**
Constant	.03 (.01)	−8.75***	.01 (.00)	−9.97***
Wald χ2	116.80***		123.24***	
LR Test of α	59.25***		16.18***	

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

the 90th percentile or above. The percentage of cases correctly classified in model 2 improved from 61% to 75.6% but the model AUC declined somewhat from .65 to .63.

Logistic Regression Models for 90th Percentile for IORNS Alcohol/Drug Problems

As shown in model 1 in Table 6, self-control was significantly associated with 90th percentile scores for IORNS Alcohol/Drug Problems (OR = 1.03, z = 4.24, $p < .001$) indicating that those with lower self-control with more likely to have extreme scores on alcohol and drug problems as were males and nonwhites. In model 2, self-control fell from significance once psychopathy was specified (OR = 1.04, z = 3.32, $p < .001$) indicating that more psychopathic persons were more likely to score highly on alcohol and drug problems. Age was positively associated with scores in model 2. The percentage of cases correctly classified improved from 60.5% in model 1 to 81.6% in model 2 and the AUC increased modestly from .62 to .63.

Table 2 Poisson regression models for IORNS aggression scale

Variable	Model 1		Model 2	
	IRR (BSE)	z	IRR (BSE)	z
Self-Control	1.00 (.01)	2.95**	1.00 (.01)	0.06
Psychopathy			1.00 (.01)	2.84**
Male	1.08 (.03)	2.96**	1.08 (.02)	3.53***
White	.90 (.02)	−3.93***	.92 (.03)	−2.63**
Age	.99 (.01)	−1.31	.99 (.01)	−0.81
Constant	5.03 (.40)	20.22***	4.69 (.40)	17.95***
Wald χ2	34.47***		25.02***	

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

Table 3 Negative binomial regression models for IORNS alcohol/drug problems

Variable	Model 1		Model 2	
	IRR (BSE)	z	IRR (BSE)	z
Self-Control	1.02 (.01)	3.62***	1.01 (.01)	0.93
Psychopathy			1.01 (.01)	3.23***
Male	1.09 (.07)	1.29	1.01 (.08)	0.18
White	.97 (.08)	−0.38	1.07 (.08)	0.90
Age	1.02 (.01)	4.11***	1.02 (.01)	4.15***
Constant	.50 (.15)	−2.23*	.41 (.11)	−3.34***
Wald χ2	26.89***		39.96***	
LR Test of α	79.27***		62.68***	

***p < .001, **p < .01, *p < .05

Sensitivity Analyses

To check the robustness of the findings, we conducted additional models (not shown) with primary psychopathy and secondary psychopathy specifications as opposed to the total psychopathy score. Differential effects emerged. In the model for total coercive sexual aggression, both primary psychopathy (IRR = 1.06, z = 3.78, p < .001) and secondary psychopathy (IRR = 1.06, z = 2.32, p < .05) were significant while the effect for self-control remained non-significant. In the model for IORNS Aggression Scale, primary psychopathy was significant (IRR = 1.01, z = 2.24, p < .05) but secondary psychopathy was not. In the model for IORNS Alcohol/Drug Problems, secondary psychopathy (IRR = 1.04, z = 3.56, p < .001) was significant but primary psychopathy was not. In the logistic regression models set at 90th percentile thresholds, the same pattern emerged. Both primary (OR = 1.05, z = 2.14, p < .05) and secondary (OR =

Table 4 Logistic regression models for 90th percentile for coercive sexual aggression

Variable	Model 1		Model 2	
	OR (BSE)	z	OR (BSE)	z
Self-Control	1.02 (.01)	3.08**	.99 (.02)	−0.48
Psychopathy			1.07 (.01)	4.97***
Male	2.00 (.27)	5.14***	1.69 (.32)	2.72**
White	.78 (.14)	−1.38	.86 (.24)	−0.55
Age	.99 (.02)	−0.24	1.03 (.04)	0.80
Constant	.06 (.05)	−3.45***	.01 (.01)	−4.75***
Wald χ2	61.02***		47.76***	
Correctly Classified	79.23%		87.93%	
AUC	.64		69	

***p < .001, **p < .01

Table 5 Logistic regression models for 90th percentile for IORNS aggression scale

Variable	Model 1		Model 2	
	OR (BSE)	z	OR (BSE)	z
Self-Control	1.02 (.01)	3.23***	1.00 (.01)	0.38
Psychopathy			1.03 (.01)	2.23*
Male	2.16 (.26)	6.31***	1.83 (.28)	3.93***
White	.61 (.08)	−3.62***	.65 (.12)	−2.41*
Age	.95 (.02)	−3.06**	.99 (.02)	−0.32
Constant	1.17 (.63)	0.29	.11 (.08)	−3.09***
Wald χ2	75.93***		35.83***	
Correctly Classified	61%		75.6%	
AUC	.65		.63	

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

1.10, z = 3.02, $p < .01$) psychopathy were significantly associated with 90th percentile coercive sexual aggression, primary psychopathy (OR = 1.03, z = 2.06, $p < .05$) was significantly associated with 90th percentile scores for IORNS Aggression Scale, and secondary psychopathy (OR = 1.08, z = 2.66, $p < .01$) was significantly associated with 90th percentile scores for IORNS Alcohol/Drug Problems.

Discussion

Self-control and psychopathy constitute general theories of antisocial conduct and have robust associations with deviance. Due to the similar behavioral and personality profiles that self-control and psychopathy theories present, investigators recurrently

Table 6 Logistic regression models for 90th percentile for IORNS alcohol/drug problems

Variable	Model 1		Model 2	
	OR (BSE)	z	OR (BSE)	z
Self-Control	1.03 (.01)	4.24***	1.01 (.01)	0.70
Psychopathy			1.04 (.01)	3.32***
Male	1.79 (.22)	4.70***	1.04 (.23)	0.19
White	.73 (.07)	−3.18***	.96 (.18)	−0.21
Age	.98 (.02)	−0.93	1.05 (.02)	2.47*
Constant	.31 (.17)	−2.08*	.01 (.01)	−6.34***
Wald χ2	69.59***		35.08***	
Correctly Classified	60.5%		81.6%	
AUC	.62		.63	

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

explored their interconnections and more recently conducted head-to-head tests of the theories' relative merits. Given calls for greater replication in criminology (Hochstetler, DeLisi, & Puhrmann, 2007; Lösel, 2018; McNeeley & Warner, 2015; Pridemore, Makel, & Plucker, 2018), the current study compared self-control theory and psychopathy using an undergraduate sample and different measures of the variables of interest. Several findings have research implications.

Our central finding is that self-control had significant associations with all forms of antisocial conduct spanning sexual coercion, general aggression, substance use problems, and extreme scores on these outcomes; however, these effects were completely diminished once psychopathy was specified. These effects are sharply discrepant from DeLisi et al.'s (2018) recent comparative study where self-control outperformed psychopathy in several respects. In their study, both self-control and psychopathy were generally associated with all outcomes although self-control was significant in more models. It was just the case that self-control performed better, more consistently, and had larger effect sizes as indicated by z-score standard deviation units. In contrast, the current models showed that psychopathy completely attenuated the effects of self-control, and in various models, psychopathy also reduced the effects of sex, race, and age from significance. It is important to note there are fundamental measurement and sample differences between the studies: DeLisi et al. (2018) employed an institutionalized delinquent sample and used a 15-item self-control scale and the PPI while the current effort used an undergraduate sample, the Grasmisk et al., scale, and the Levenson Self-Report Psychopathy Scale. In this regard, the criminality of the samples was different as were the measures suggesting that the self-control vs. psychopathy debate is not only not resolved, it is likely just beginning.

That psychopathy so resoundingly rendered the effects of self-control non-significant is compatible with prior suggestions that self-control is a subclinical or "watered-down" variant of psychopathy (see, DeLisi, 2003) yet also challenges Gottfredson and Hirschi's notion that self-control is the indispensable cause of crime and analogous outcomes. We also observe that Gottfredson and Hirschi seemed to derive part of their self-control construct from Gough and Robins' research on psychopathy and antisocial personality (see, Gottfredson & Hirschi, 1990, pp. 93–94). Even though Gottfredson and Hirschi separate their construct from personality, it nevertheless is consistent with these psychological and psychiatric constructs. Moreover, it suggests to us there is clear conceptual overlap and also likely conceptual contamination between self-control as it is known in criminology and psychopathy.

We employed standard control variables of age, race, and sex; however, these control variables did not fare well other than sex where males were significantly associated with outcomes in nine of 12 models. Race was significant in six of 12 models with all effects in the direction of non-whites and age was significant in just five of 12 models (four effects were positive and one model showed an inverse age effect). That standard demographic control variables were only significant in 20 of 36 regression models speaks to the explanatory power of both self-control and psychopathy for understanding antisocial conduct. Indeed, in two models, the specification of psychopathy rendered race effects non-significant and in three models, the specification of psychopathy reduced significant age effects or indicated suppression (null age association in model one was significant once considering psychopathy). Based on this,

perhaps it is time for criminologists to specify self-control *and* psychopathy as standard control variables when conducting individual-level research on crime.

The dependent variables spanned a range of outcomes including general aggression, sexual aggression, drug and alcohol problems, and extreme scores on these outcomes that are consistent with the general approach of the theories. Both self-control and psychopathy also fared generally well at correctly classifying 90th percentile scores with baseline models with self-control achieving 79.23% for coercion sexual aggression, 75.93% for IORNS Aggression Scale, and 60.5% for IORNS Alcohol/Drug Problems and model improvements of 8.7%, 24.6%, and 21.1%, respectively once psychopathy was specified. It is interesting that although psychopathy rendered self-control spurious in all models, it only marginally improved classification accuracy for coercive sexual aggression, but dramatically improved classification accuracy for aggression and alcohol/drug problems.

Sensitivity models also revealed that facets of psychopathy are variously linked with aggression. Both primary and secondary psychopathy were associated with coercive sexual aggression and primary psychopathy was linked with higher aggression. These results both support and conflict with prior research. For instance, Muñoz, Khan, and Cordwell (2011) similarly employed a university sample and the Levenson scale and found that only primary but not secondary psychopathy was associated with sexual coercion. A major distinction between primary and secondary psychopathy is comorbidity with secondary variants more likely to experience additional psychiatric burden compared to primary psychopaths who are "cleaner" psychiatrically with their deficient conscience (Anestis, Anestis, & Joiner, 2009; Gill & Stickle, 2016; Vaughn, Edens, Howard, & Smith, 2009). In this regard, it is not surprising that secondary psychopathy was associated with alcohol/drug problems.

Considering the current sample composition is helpful to contextualize the findings. Although there is variation in self-control and psychopathy herein, it is substantively the case that university students have generally good self-control inasmuch as they have the wherewithal to balance their academic requirements in addition with other responsibilities relating to work, family, and other adult roles. Students with deficits in self-control have more behavioral problems as shown in the baseline models, but student samples do not contain clinically severe offenders that would have pathological deficits in self-control. That said, what distinguishes "offenders" in a non-offender sample is their level of pathology, in this case psychopathy. Levenson et al. (1995) developed the LSRP on a university student sample, thus it is normed on the same population as the current study, and, does a good job of differentiating those in non-correctional settings that engage in sexual coercive behaviors as shown in prior research (e.g., Bouffard et al., 2016; Muñoz et al., 2011).

In terms of practical implications, there are challenges when attempting to improve the self-control or reduce the psychopathic features of an adult. Most of the successes in the intervention literature regarding self-regulation improvements relate to children and adolescents (Friese, Frankenbach, Job, & Loschelder, 2017; Piquero, Jennings, Farrington, Diamond, & Gonzalez, 2016) and these significant improvements have generally small effect sizes and their post-intervention continuity is also limited. The treatment prognosis is even more negative for psychopathy. Indeed, a recent review (Reidy, Kearns, & DeGue, 2013) of the treatment outcomes for psychopathic populations found a mélange of null effects, iatrogenic effects, studies where the psychopathic

clients exploited a feature of the intervention to increase their antisocial acumen, and, when there were significant treatment effects, a host of methodological limitations. Nevertheless, interventions that seek to reduce aggression and help individuals appreciate how their behavior affects others are worthwhile.

Conclusion

In closing, we note study limitations that hopefully future studies can overcome. The self-reported psychological features and antisocial behaviors are partially limited by shared methods variance. Future work could reduce this problem by supplementing data collection with official offending data, such as arrests. In addition, investigators should aim to employ data with both community and correctional participants and multiple measures of self-control and psychopathy to arrive at a more definitive understanding of the self-control versus psychopathy debate. At this juncture, it appears that when studying institutionalized populations where psychopathy and self-control deficits are prevalent, it is self-control that is most useful for understanding antisocial outcomes. In contrast, when studying normative populations such as undergraduates where psychopathy and self-control deficits are rarer, psychopathic features are paramount for understanding sexual aggression, aggression, and substance problems.

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