

DOES LOW SELF-CONTROL PREDICT JUVENILE DELINQUENCY AMONG A NATIONALLY REPRESENTATIVE SAMPLE OF BOSNIAN ADOLESCENTS?

Original Scientific Paper

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Abstract

Purpose: This study examines the robustness of Gottfredson and Hirschi's (1990) general theory of crime by examining whether or not low self-control predicts juvenile delinquency among adolescents residing in Bosnia and Herzegovina. It is hypothesized that Bosnian adolescents with lower levels of self-control will be more likely to have engaged in juvenile delinquency (risky behaviors, property violence, and violence perpetration) than Bosnian adolescents with higher levels of self-control.

Design/methodology/approach: The current study relies on self-reported survey data from International Self-Report Delinquency Study 2 (ISRD-2). In Bosnia and Herzegovina, students from seventh and eighth grade from 37 primary schools across the country were surveyed (N=1756).

Findings: Results from a series of multivariate statistical analyses indicate that low self-control predicts juvenile delinquency among Bosnian adolescents after controlling for important opposing theoretical and individual characteristics. Theoretical and practical implications stemming from these results are discussed.

Keywords

Low self-control, Juvenile Delinquency, Criminological Theory

In their *General Theory of Crime*, Gottfredson and Hirschi (1990) present a general theory that makes the claim that crime is the result of an individual's underlying level of self-control. Specifically, criminal propensity increases when individual levels of self-control decrease. Studies that have examined the relationship between self-control and crime have generally been supportive, finding that individuals who have low levels of self-control are more likely to be criminal or delinquent (Longshore, Turner & Stein, 1996; Pratt & Cullen, 2000). The majority

of this research, however, has been conducted using western based samples of which the bulk is American. Less is known about the validity of the GTC from a comparative or international context. Considering that Gottfredson and Hirschi (1990) have put forth a theory that is broad enough in scope to explain *all* crime (not to mention behaviors analogous to crime), the theory should also be able to explain criminal and delinquent behavior, regardless of geographical location. Thus, the inclusion of an international sample, from a theoretical standpoint, allows researchers to test the robustness of a theory. A theory that purports to be general in scope, such as the GTC, should not only be applicable to a specific country (e.g., Bosnia and Herzegovina) or region (e.g., the Balkans) but other areas across the globe. As such, the research purpose of this study is to examine the relationship between low self-control and juvenile delinquency in Bosnia and Herzegovina.

Research Setting: Bosnia and Herzegovina

Bosnia and Herzegovina is a southeastern European country located on the Balkan Peninsula. On the north, west, and south, Bosnia and Herzegovina borders with Croatia, on the east with Serbia, and on the southeast with Montenegro. It has a total land area of 51,200 km², and a 21 km long coastline on the Adriatic Sea. According to the initial results of the census conducted in October of 2013, the official results of which are to be known sometime in the first half of 2014, the resident population of Bosnia and Herzegovina is about 3.8 million (BHAS, 2013) and the population density is estimated at 75 inhabitants per km (BHAS, 2011).

Bosnia and Herzegovina is a poor, post-conflict country in transition. In addition to some positive effects (law reforms, institutions rebuilding, democracy, respect for rule of law in general, etc.), the process of transition brought, unfortunately, a number of negative effects too. The most significant negative effects would be poverty, high unemployment rate (ca. 27.6%), increased crime rates (Maljević, 2004). The overall value of the GDP has been, more or less, increasing constantly since re-gaining independence in 1992. This can be seen as an indicator of positive development of the economy. However, it must be noted that the economy of Bosnia and Herzegovina was severely damaged by the 1992-95 war; in 2009 the GDP was only 80% of the pre-war value (Zaimović, 2011: 202). In 2011, GDP was estimated at 25.6 billion BAM (ca. 17.07 billion USD) (BHAS, 2011).

According to Budimlić and associates (2006), the war in Bosnia and Herzegovina, which commenced in April 1992, drastically impacted the demographic and physical profile of the country. A total of 2,200,000 persons were displaced from their homes, constituting over 55% of the pre-war domicile population. Industrial production all but stopped during the war reaching only 5% of pre-war production. Destruction was rampant to buildings (including city complexes, office spaces, schools, religious buildings, and parks), infrastructure (e.g., road and rail networks, telecommunications, and power and water supplies) and basic public services (e.g., healthcare, education, social services, etc.) with an estimated 80% of the population living on humanitarian aid during the war years.

Juvenile delinquency in Bosnia and Herzegovina

An additional issue that is often associated with the post-war situation is juvenile delinquency (Sijerčić-Čolić, 2002; Kosović, 2002). Some authors have argued that juvenile delinquency is an acute and highly visible challenge for the justice system in Bosnia and Herzegovina (Sijerčić-Čolić, 2002; Kosović, 2002). Additionally, the post-war years have witnessed a few trends related to juvenile offending that are alarming. These include an increase in the number of juveniles younger than 14 years of age committing criminal offenses, formation of organized groups (i.e., gangs) comprised of juveniles and adults, increasing number of violent offenses committed by juveniles that are considered to be more "severe" (i.e., crime against life and limb), and reoffending (Maljević, 2005; Budimlić et al., 2010).

Looking at official statistics, juvenile delinquency in Bosnia and Herzegovina ranged between 8% and 12% (Muratbegović, 2011) in the period 2006-2010, which is below the average of 13% found in the European Union (Grbić-Pavlović et al., 2012). In terms of the offenses committed, police statistics show that juveniles most frequently commit property crime (up to 90% of registered juvenile delinquency), whereas violent criminal offenses such as those against life and limb are rarely committed (Muratbegović, 2011).

Previous Research on Juvenile Delinquency in Bosnia and Herzegovina

Despite the general interest in the topic, research into juvenile offending in Bosnia and Herzegovina is rather scarce. The most recent, and most comprehensive research conducted on juvenile offending in Bosnia and Herzegovina is the self-report delinquency study conducted in 2005/2006 by Budimlić, Maljević and Muratbegović within the framework of the International Self-Report Delinquency Study 2 (ISRD2)¹. The study, based on a national representative sample of youth (N=1756) aged 13-17, attending primary schools in the country, and the data collected within the study are practically unexplored. So far, only three publications appeared. Budimlić et al (2009) published the basic and general description of the nature of self-reported delinquency in Bosnia and Herzegovina. They looked at variables such as age, gender, migration, victimization, family composition, risk behavior, and types of reported delinquent behavior. Interestingly, Budimlić et al. (2009: 351) found that lifetime prevalence of property related delinquency ranges between 0.6% for burglary to 5.9% for shoplifting, which is significantly different from the official statistics figures. Violent delinquency lifetime prevalence rates, however, range between 2.1% for an assault to 15.6% for group fights. Looking at the overall lifetime prevalence of delinquency, Junger-Tas found (2012: 70) that out of 30 countries participating in the ISRD2, forming six different clusters, Bosnia and Herzegovina had the second lowest self-reported delinquency rate.

¹ In another paper, Budimlić (2008), using the same ISRD2 data, looked more closely into the prevalence of violent juvenile delinquency in Bosnia and Herzegovina, again offering a description of the phenomenon, primarily focusing on the differences in detection and sentencing rates of juvenile delinquency committed by individuals versus that committed by groups.

A number of studies conducted in the Netherlands (Junger-Tas, 1997), Germany (Baier et al., 2006), and Switzerland (Eisner, Manzoni & Rbeaud, 2000), showed that immigrants report higher rates of delinquency. At the same time, in Switzerland, a heated political and academic debate ensued in the course of which it was argued that juveniles from the Balkans are used to violent behavior, it is part of their culture, and it is all natural that they bring that with them to Switzerland. The ISRD2 data allowed Killias and colleagues (2010), to examine the differences in delinquency between juveniles born and raised in Bosnia and Herzegovina and Switzerland on one side, and juveniles of the so-called first and the second generation immigrants to Switzerland on the other. What they have found is that there are no significant differences in delinquent behavior of non-immigrant juveniles (i.e., juveniles in Bosnia and Herzegovina are no more delinquent than their Swiss peers in Switzerland), yet juveniles from the Balkans are significantly more violent than both their Swiss and Bosnian and Herzegovinian peers. The results therefore suggested that when looking into the delinquent behavior of immigrants, one should look more into integration processes than into cultural and ethnical aspects of the phenomenon.

Another large study conducted at approximately the same time (2007) by Mujanović, Muratbegović, Maljević and Budimlić was the study into youth gangs, based on the Eurogang school survey. Due to the specificity of the issue, the study was conducted on a purposive sample, whereby 20 schools in 5 biggest cities have been visited in which a total of 58 classrooms were randomly selected. The sample consisted of 2206 children. A number of papers came out of this study. Nash et al. (2011), examined protective effects of parental monitoring on offending in victimized youth in Bosnia and Herzegovina. What they have found is that victimization does increase the risk of offending, but that parental monitoring moderates the effect of victimization. However, the effect of moderation varies by age and gender.

Using the same sample, Winfree (2012), in a comparative article covering Germany and Bosnia and Herzegovina examines the reasons for juveniles to join various types of troublesome youth groups, but also the effects of certain measures of self-control, bonding, and social learning theories separately and collectively on level of delinquency attributed by the juveniles to their respective groups. In addition to finding that parental monitoring, school commitment, peer commitment, social and non-social reinforcers figure as important factors in all analyses conducted, he points out that reliability analyses revealed various domain measures to be more reliable for the Bosnia and Herzegovina data than was the case for the German data; a finding that calls for examination of various domains, their utility and possible limitations in international comparisons.

In another study, Winfree (2013), examines the effect of citizenship, youth group membership, nation of current residence, putative risks and protective factors on individual delinquency of street gang members and troublesome youth group members in Bosnia and Herzegovina, Germany, and the Netherlands. He has found that geography (where one comes from) is an important predictor of protective/risk measures, the level of self-reported misconduct, and group offending. Interestingly, he has also found that gender, family situation, and nativity (variables

usually associated with delinquency), turned out to be relatively unimportant when it comes to youngsters involved with troublesome youth groups (not street gangs).

Overall:

- Little is known about causes of juvenile delinquency in Bosnia and Herzegovina.
- The nature and extent of juvenile offending seems to be high in comparison with other European countries.
- Geography seems to play a role in juvenile offending (at least when it comes to Bosnia and Herzegovina).

Theoretical Foundation: A General Theory of Crime

The foundation for this study is driven by Gottfredson and Hirschi's (1990) general theory of crime which is touted as a general theory designed to not only explain crime and delinquency, but also behaviors that are analogous to crime such as deviance. As theories go, the general theory of crime is a relatively parsimonious theory in that it is designed around one leading factor: self-control. According to Gottfredson and Hirschi (1990), self-control is a time stable construct. Thus, when presented with the opportunity to engage in criminal or delinquent behavior, individuals lacking in self-control will participate in the behavior. Furthermore, the general theory of crime asserts that an individual's lack of self-control is inversely related to their underlying level of criminal propensity. Crimes in this context are considered crimes of opportunity and most likely lack planning with no cost-benefits analysis (Gottfredson & Hirschi, 1990). Previous literature has supported the relationship between low levels of self-control and high levels of crime and delinquency (Longshore, Turner & Stein, 1996; Pratt & Cullen, 2000).

Hypotheses

To test the robustness of Gottfredson and Hirschi's (1990) GTC, we have set out to explore whether low self-control predicts various forms of juvenile delinquency among a nationally representative sample of adolescents from Bosnia and Herzegovina. This study presents three hypotheses that are derived from the GTC and tested among a nationally representative sample of adolescents from Bosnia and Herzegovina.

Hypothesis 1: Low self-control is associated with alcohol and minor drug use among a sample of Bosnian adolescents even after controlling for competing theoretical explanations including control, social disorganization, learning, and routine activities theories.

Hypothesis 2: Low self-control is associated with property crime among a sample of Bosnian adolescents even after controlling for competing theoretical explanations including control, social disorganization, learning, and routine activities theories.

Hypothesis 3: Low self-control is associated with violence perpetration among a sample of Bosnian adolescents even after controlling for competing theoretical explanations including control, social disorganization, learning, and routine activities theories.

Methodology

Sample

This study uses data from the second wave of the International Self-Report Delinquency Study (ISRD-2; Budimlic, Maljevic, & Muratbegovic, 2010). The ISRD-2 is a nationally representative sample² of juveniles enrolled in public schools across Bosnia and Herzegovina who were surveyed in 2005 and 2006, when they were 11-17 years old. A total of 1,756 adolescents from 37 schools were surveyed. Overall, the sample was gender symmetric with 50.5% male and 49.5% female. The median age was 13.79 years of age (SD=0.785, range 11-17).

Measures

Dependent Variables. Three dependent variables were utilized in the current study: alcohol and minor drug use, property crime, and violence perpetration. For each dependent variable a series of questions were asked (e.g., "Did you ever steal anything from a shop or a department store?"; see Table 1) for which students responded yes (coded as 1) or no (coded as 0) to each question. Questions were then summed together creating an additive scale (that ranged from 0-4) for each dependent variable. For ease of interpretation, each dependent variable was recoded into a dichotomous measure where students either had engaged in the said behavior in the past (coded as 1) or had never engaged in such behavior (coded as 0). Overall, 40.0% of juveniles (n = 703) indicated they had used alcohol or minor drugs in the past, 6.4% of juveniles (n = 113) had engaged in property crime, and 15.9% of juveniles (n = 279) had committed an act of violence.

Table 1
Dependent Variables (N=1,756)

Dependent Variables	Frequency	Statistic
Alcohol and Minor Drug Use	703	40.0%
Did you ever drink beer, breezers or wine?	702	40.0%
Did you ever drink strong spirits (gin, rum, vodka, whisky?)	258	14.7%
Did you ever use weed, marijuana or hash?	25	1.4%
Property Crime	113	6.4%
Did you ever steal anything from a shop or a department store?	100	5.7%
Did you ever break into a building with the purpose to steal something?	10	0.6%
Did you ever steal a bicycle, moped or scooter?	10	0.6%
Did you ever steal something out of or from a car?	10	0.6%
Violence	279	15.9%
Did you ever threaten somebody with a weapon or to beat them up, just to get money or other things from them?	24	1.4%

² For a more detailed account of the sampling methodology used for the Bosnian version of the ISRD-2, see Budimlic, Majlevec, & Muratbegovic, 2010.

Did you ever participate in a group fight on the school playground, a football stadium, the streets or in any public place?	267	15.2%
Did you ever intentionally beat up someone, or hurt him with a stick or knife, so bad that he had to see a doctor?	36	2.1%

Independent Variable of Interest. According to Gottfredson and Hirschi (1990), an individual's level of self-control is indicative of his or her propensity to commit crime, as well as acts that are analogous to crime. While Hirschi and Gottfredson (1993; 2003) prefer behavioral measures of self-control³, research indicates that psychological measures of self-control are just as accurate (Longshore, Turner & Stein, 1996; Pratt & Cullen, 2000; Unnever, Cullen & Pratt, 2003). As such, the current study makes use of a psychological measure of self-control that is an abbreviated version of Grasmick, Tittle, Bursik and Arneklev's (1993) scale of low self-control scale and is focused on four dimensions: risk-taking, impulsivity, temper, and self-centeredness. Students were presented with 12 questions which they answered using a 4-point scale where "1" indicates "fully agree" and "4" indicates "fully disagree" (see Table 2). Scores were subsequently summed so that higher levels indicate a higher level of self-control. On average, Bosnian adolescents exhibited moderate levels of self-control ($M = 2.88$, $SD = 0.67$, range 1-4). The Cronbach alpha for the scale is .845 indicating moderate reliability.

Control Variables. Several variables were included in the current study as control variables. They include respondents' demographics such as sex and age, as well as several theoretical variables drawn from social disorganization (e.g., neighborhood disorganization), social learning (e.g., delinquent peers, violent attitudes), control (e.g., social bonds, intact family), and routine activities (e.g., going out at night, previous victimization) theories. Respondents were asked to self-report their sex (0 = female, 1 = male) and age (in years).

Neighborhood disorganization was measured by asking 5 questions in which students indicated their agreement with each statement on a 4-point scale where "1" indicates "fully disagree" and "4" indicates "fully agree". The score for each of the five questions were then summed together to form an overall neighborhood index (Table 2). Higher scores indicate a higher level of neighborhood disorganization. In general, students appeared to reside in relatively organized neighborhoods ($M = 1.52$, $SD = 0.67$, range 1-4). The Cronbach alpha for the neighborhood disorganization scale was 0.785, indicating that the scale had acceptable internal consistency.

³ Gottfredson and Hirschi (1993, 2003) continue to take offense with the attitudinal measurement of self-control (i.e., the Grasmick et al., 1993 scale). Rather, Gottfredson and Hirschi contend that self-control should be measured using observed non-criminal behavior. It is important to point out, however, that in the meta-analysis conducted by Pratt and Cullen (2000) both types of measurement (observational and attitudinal) were examined and found to support Gottfredson and Hirschi's overall theoretical argument that levels of self-control are inversely related to crime regardless if self-control was measured via observations or as an attitudinal construct. In order to avoid the tautological nature of using behavior to predict behavior, the current study will measure self-control as an attitudinal construct.

Five questions were used to capture the extent that respondents were associating with delinquent peers (Table 2), of which they were asked to respond yes (coded as 1) or no (coded as 0) to each question. Questions were then summed together creating an additive scale that ranged from 0 up to 5. For ease of interpretation, this scale was recoded into a dichotomous measure where students either had friends who were delinquent (scores of 1-5 were coded as "1") or did not have friends who were delinquent (score of 0 was coded as "0"). Overall, 20.2% of juveniles in the sample indicated they associated with delinquent peers.

Violent attitudes were assessed by asking juveniles five questions about the use of violence (Table 2). On a 4-point Likert scale, students indicated how much they agreed or disagreed with each statement, with "1" indicating "fully disagree" and "4" indicating "fully agree". The score for each of the five questions was summed together to create an additive index of violent attitudes where higher scores indicate greater adherence to pro-violence attitudes. As a group, Bosnian juveniles do not appear to hold pro-violence attitudes ($M = 1.86$, $SD = 0.64$, range 1-4). The Cronbach alpha for the violent attitudes scale was 0.672, indicating acceptable internal consistency.

The current study includes an index variable indicative of the strength of the student's overall social bonds. This variable is comprised of three measures of the student's bonds to their school. On a 4-point Likert-scale, students were asked to indicate how much they agreed with each statement, where "1" indicates "fully disagree" and "4" indicates "fully agree". The score for each of the three questions dealing with social bonds were then summed together to form an overall social bonding index (Table 2). Higher scores indicate a higher level of social bonds. In general, students appeared to be moderately bonded to their school ($M = 3.36$, $SD = 0.71$, range 1-4). The Cronbach alpha for the social bonds scale was 0.647, indicating that the scale had acceptable internal consistency.

Coming from an intact family was measured by asking students whether or not they resided with both their biological mother and biological father (yes = 1, no = 0). At the time of the survey, the vast majority of students (83.3%) were residing with both biological parents.

Going out at night was assessed by asking students, "how many times a week do you usually go out at night?" On a scale of 1-8, students indicated how often they went out at night with "1" representing "never" and "8" representing "daily". A higher score, thus, is reflective of more night time activity outside of the house. On average, juveniles reported they went out 2 times a week ($M = 2.69$, $SD = 1.8$, range 1-8).

Previous victimization was measured by asking four questions (Table 2), of which participants were asked to respond yes (coded as 1) or no (coded as 0) to each question. Questions were then summed together creating an additive scale that ranged from 0 to 4. For ease of interpretation, this scale was recoded into a dichotomous measure of having ever experienced victimization (coded as 1) or never having experienced victimization (coded as 0). Overall, 24.1% of juveniles reported they had been victimized in the past.

Table 2
Independent Variables (N=1,756)

Independent Variables	Statistic
Self-Control¹ (Cronbach alpha = .845)	2.88 (0.67)
I act on the spur of the moment without stopping to think.	2.71 (1.12)
I do whatever brings me pleasure here and now, even at the cost of some distant goal.	3.20 (1.05)
I'm more concerned with what happens to me in the short run than in the long run.	2.19 (1.10)
I like to test myself every now and then by doing something a little risky.	2.91 (1.15)
Sometimes I take a risk just for the fun of it.	3.05 (1.13)
Excitement and adventure are more important to me than security.	3.17 (1.07)
I try to look out for myself first, even if it means making things difficult for other people.	2.99 (1.11)
If things I do upset people, it's their problem not mine.	3.31 (1.04)
I will try to get the things I want even when I know it's causing problems for other people.	3.47 (0.91)
I lose my temper pretty easily.	2.53 (1.19)
When I'm really angry, other people better stay away from me.	2.59 (1.20)
When I have a serious disagreement with someone, it's usually hard for me to talk calmly about it without getting upset.	2.36 (1.15)
Neighborhood Disorganization² (Cronbach alpha = .785)	1.52 (0.67)
There is a lot of crime in my neighborhood.	1.54 (0.91)
There is a lot of drug selling.	1.33 (0.77)
There is a lot of fighting.	1.54 (0.93)
There are a lot of abandoned and empty buildings.	1.45 (0.90)
There is a lot of graffiti.	1.78 (1.11)
Violent Attitudes² (Cronbach alpha = .672)	1.86 (0.64)
A bit of violence is part of the fun.	1.60 (1.00)
One needs to make use of force to be respected.	1.46 (0.91)
If someone attacks me, I will hit him/her back.	3.09 (1.04)
Without violence everything would be much more boring.	1.47 (0.93)
It is completely normal that boys want to prove themselves in physical fights with others.	1.74 (1.04)
Social Bonds² (Cronbach alpha = .647)	3.36 (0.71)
If I had to move I would miss my school.	3.51 (0.94)
Teachers do notice when I am doing well and let me know.	3.50 (0.82)
I like my school.	3.07 (1.04)
Delinquent Peers³	20.2%
I have friends who used soft or hard drugs like weed, hash, XTC, speed, heroin or coke.	5.5%
I have friends who did steal something from a shop or department store.	15.2%
I have friends that entered a building with the purpose to steal something.	5.2%
I have friends who did threaten somebody with a weapon or to beat him up, just to get money or other things from him.	3.0%
I have friends who did beat someone up or hurt someone badly with something like a stick or a knife.	6.3%

Previous Victimization³	24.1%
Someone wanted you to give him/her money or something else (watch, shoes, mobile phone) and threatened you if you did not do it.	6.5%
Someone hit you violently or hurt you so much that you needed to see a doctor.	4.6%
Something was stolen from you.	16.0%
You were bullied at school.	4.6%
Intact Family³	83.3%
Going Out at Night⁴	2.69 (1.8)
¹ 4-point Likert scale (1 = Fully agree, 4 = Fully disagree)	
² 4-point Likert scale (1 = Fully disagree, 4 = Fully agree)	
³ Dichotomous measure (1 = yes, 0 = no)	
⁴ 8-point Likert scale (0 = Never, 8 = Daily)	

Analytical Plan

The current study sets out to test the robustness of Gottfredson and Hirschi's (1990) theoretical claims that all crime is explainable via one construct, self-control, through the utilization of a nationally representative sample of adolescents from a non-Western country, Bosnia and Herzegovina. Three hypotheses will be tested through the use of bivariate and multivariate methods, including independent samples t-tests, chi-square analyses, and a series of binary logistic regression models.

Findings

Predicting Alcohol and Minor Drug Use

The first hypothesis this study explored was whether low self-control predicts alcohol and minor drug use among Bosnian adolescents. As hypothesized, self-control is associated with alcohol and minor drug use among Bosnian adolescents at both the bivariate and multivariate levels. Adolescents who reported having consumed alcohol or used drugs had significantly lower levels of self-control ($M = 2.65$, $SD = 0.65$) compared to students who had not ($M = 3.06$, $SD = 0.62$), a statistically significant difference ($t(1413) = 11.945$, $p < .001$). This effect held up in the binominal logistic regression ($OR = 0.4878$, $p < .001$) even after controlling for competing theoretical explanations including control, social disorganization, learning, and routine activities theories, as well as sex and age.

Increased levels of self-control decreased the odds of alcohol and minor drug use by 51.3 percent. It should be noted that being male, being older, having delinquent associates, and going out at night all increased the odds of alcohol/drug use among Bosnian adolescents, while having social bonds decreased the odds. Previous victimization, neighborhood disorganization, violent attitudes, and intact family were not found to impact the odds of alcohol/drug use in the multivariate model. The adjusted explained variance ($R^2 = .273$) implies that this model does a fairly decent job of predicting alcohol/drug use within this sample.

Table 3**Results from bivariate and multivariate statistics predicting alcohol and minor drug use (N=1,756)**

Variable	Descriptives			Binomial Logistic Regression Model		
	Yes	No	Test Statistic	B	SE	Exp(B)
Male	59.1%	43.9%	$\chi^2 (1) = 7.695^{***}$	0.541***	0.093	1.718
Age in years (SD)	13.96 (0.76)	13.65 (0.76)	$t (1666) = -.102^{***}$	0.458***	0.093	1.581
Self-Control (SD)	2.65 (0.65)	3.06 (0.62)	$t (1413) = 11.945^{***}$	-0.720***	0.134	0.487
Neighborhood Disorganization(SD)	1.61 (0.73)	1.44 (0.60)	$t (1532) = -4.915^{***}$	-0.201	0.118	0.818
Violent Attitudes	2.022 (0.69)	1.74 (0.58)	$t (1558) = -8.856^{***}$	0.082	0.141	1.086
Social Bonds (SD)	3.19 (0.77)	3.50 (0.62)	$t (1608) = 8.973^{***}$	-0.524***	0.106	0.592
Delinquent Peers	33.9%	10.0%	$\chi^2 (1) = 138.595^{***}$	0.873***	0.041	1.161
Previous Victimization	30.8%	18.9%	$\chi^2 (1) = 28.383^{***}$	0.262	0.166	1.300
Intact Family	83.6%	83.7%	$\chi^2 (1) = 0.004$	0.088	0.190	1.092
Going Out at Night (SD)	3.10 (1.81)	2.38 (1.63)	$t (1631) = -8.456^{***}$	0.150***	0.041	1.161
Constant	--	--		-3.552*	1.455	0.029

$R^2 = .273$; $X^2 (10) = 249.100$, $p < .001$
 *** $p < .001$, ** $p < .01$, * $p < .05$, 2-tailed.

Predicting Property Crime

The second hypothesis addressed whether low self-control is associated with property crime among Bosnian adolescents. As expected, self-control is related to Bosnian youth's property offending at both the bivariate and multivariate levels. Adolescents who reported having committed a property offense had significantly lower levels of self-control ($M = 2.21$, $SD = 0.64$) compared to students who had not ($M = 2.93$, $SD = 0.64$), a statistically significant difference ($t (1421) = 10.723$, $p < .001$). This effect held up in the binomial logistic regression ($OR = 0.330$, $p < .001$) even after controlling for competing theoretical explanations and demographic characteristics.

Specifically, increased levels of self-control decreased the odds of property offending by 67.0 percent. It should be noted that being male and having delinquent peers increased the odds of property offending Bosnian adolescents, while having social bonds decreased the odds. Age, previous victimization, neighborhood disorganization, violent attitudes, intact family, and going out at night were not found to impact the odds of property crime in the multivariate model. The adjusted explained variance ($R^2 = .347$) implies that this model does a rather decent job of predicting property offending within this sample.

Table 4

Results from bivariate and multivariate statistics predicting property crime (N=1,756)

Variable	Descriptives			Binomial Logistic Regression Model		
	Yes	No	Test Statistic	B	SE	Exp(B)
Male	72.6%	48.3%	$\chi^2 (1) = 24.801^{***}$	0.759**	0.300	2.135
Age in years (SD)	13.99 (0.88)	13.76 (0.77)	$t (1684) = -2.993^{**}$	0.247	0.175	1.280
Self-Control (SD)	2.21 (0.64)	2.93 (0.64)	$t (1421) = 10.723^{***}$	-1.110***	0.262	0.330
Neighborhood Disorganization(SD)	2.03 (0.78)	1.47 (0.64)	$t (1539) = -8.727^{***}$	-0.004	0.193	0.996
Violent Attitudes	2.40 (0.74)	2.93 (0.64)	$t (1570) = -9.310^{***}$	0.139	0.237	1.149
Social Bonds (SD)	2.85 (3.40)	3.40 (0.69)	$t (1619) = 7.928^{***}$	-0.450**	0.177	0.637
Delinquent Peers	69.4%	16.8%	$\chi^2 (1) = 171.843^{***}$	1.767***	0.294	5.853
Previous Victimization	48.5%	21.9%	$\chi^2 (1) = 36.219^{***}$	0.303	0.291	1.353
Intact Family	82.3%	83.8%	$\chi^2 (1) = 0.177$	0.152	0.362	1.164
Going Out at Night (SD)	3.50 (2.02)	2.63 (1.71)	$t (1652) = -5.1303^{***}$	0.040	0.074	1.041
Constant				-3.478	2.758	0.031
$R^2 = .347$; $\chi^2 (10) = 160.487$, $p < .001$ *** $p < .001$, ** $p < .01$, * $p < .05$, 2-tailed.						

Predicting Violence

The third hypothesis suggested that low self-control is associated with violence perpetration among Bosnian adolescents. As expected, self-control is associated with violence perpetration among Bosnian adolescents at both the bivariate and multivariate levels. Adolescents who reported having perpetrated violence had significantly lower levels of self-control ($M = 2.44$, $SD = 0.66$) compared to students who had not perpetrated violence ($M = 2.97$, $SD = 0.63$), a statistically significant difference ($t (1434) = 11.773$, $p < .001$). This effect held up in the binomial logistic regression ($OR = 0.628$, $p < .01$) even after controlling for variables associated with learning, control and routine activities theory, as well as sex and age.

In support of GTC, increased levels of self-control decreased the odds of violence perpetration by 37.2 percent. It should be noted that being male, having delinquent associates, adherence to pro-violence attitudes, residing in a disorganized neighborhood, and going out at night all increased the odds of violence perpetration among Bosnian adolescents. Age, previous victimization, social bonds, and intact family were not found to impact the odds of violence perpetration in the multivariate model. The adjusted explained variance ($R^2 = .371$) implies that this model does a rather accurate job of predicting violence perpetration within this sample.

Table 5
Results from bivariate and multivariate statistics predicting violence perpetration (N=1,756)

Variable	Descriptives			Binomial Logistic Regression Model		
	Yes	No	Test Statistic	B	SE	Exp(B)
Male	76.3%	45.2%	$\chi^2 (1) = 90.761^{***}$	1.470***	0.217	4.351
Age in years (SD)	13.94 (0.81)	13.75 (0.77)	t (1703) = -3.668***	0.040	0.124	1.040
Self-Control (SD)	2.44 (0.66)	2.97 (0.63)	t (1434) = 11.773***	-0.466**	0.180	0.628
Neighborhood Disorganization(SD)	1.88 (0.79)	1.44 (0.62)	t (1554) = -9.785***	0.313*	0.140	1.367
Violent Attitudes	2.28 (0.69)	1.77 (0.60)	t (1588) = -12.087***	0.608***	0.170	1.836
Social Bonds (SD)	3.07 (0.81)	3.42 (0.67)	t (1636) = 7.690***	-0.218	0.130	0.804
Delinquent Peers	50.9%	14.1%	$\chi^2 (1) = 187.440^{***}$	1.108***	0.209	3.028
Previous Victimization	35.8%	21.6%	$\chi^2 (1) = 22.669^{***}$	0.062	0.083	1.064
Intact Family	84.1%	83.6%	$\chi^2 (1) = 0.053$	0.039	0.257	1.040
Going Out at Night (SD)	3.68 (1.99)	2.49 (1.62)	t (1668) = -10.705***	0.258**	0.050	1.295
Constant				-3.942*	1.989	0.019
R ² = .371; X ² (10) = 274.300, p < .001						
*** p < .001, ** p < .01, * p < .05, 2-tailed.						

Discussion

In 1990, Gottfredson and Hirschi presented a general theory of crime capable of explaining all types of crime and all types of deviance by all types of people (i.e., juveniles, adults, etc.). Defining crime as an “act of force or fraud done in pursuit of self-interest” (Gottfredson & Hirschi, 1990), Gottfredson and Hirschi argue that what separates criminals from non-criminals is the extent to which individuals are restrained from committing crime. People who lack restraint (i.e., self-control) will tend to be impulsive, insensitive, physical, risk-taking, short-sighted, and nonverbal. Resultantly, they engage in crime. Criminal behaviors are attractive to people with low self-control because, as stated by Gottfredson and Hirschi (1990) most crimes require little effort planning or skill, provide immediate gratification, and most crime is exciting, risky and thrilling. In the last three decades, the general theory of crime has become one of the most tested criminological theories with research generally finding fairly strong support for Gottfredson and Hirschi’s theoretical propositions. The bulk of this research, however, has been conducted with Western samples.

The current study set out to evaluate the strength of Gottfredson and Hirschi’s (1990) general theory of crime by assessing whether low self-control predicts juvenile delinquency amongst a nationally representative sample of adolescents from Bosnia and Herzegovina. Our initial results showed that, as predicted, low self-control was associated with alcohol/drug

use, property crime, and violent offending, even after controlling for important theoretical variables and demographic characteristics. Overall, this study found that students that are male, have delinquent peers, and have lower levels of self-control are the most likely to have engaged in juvenile delinquency. These findings are by and large consistent with a social control argument.

The results from this study raise several important questions for future research. The selection of variables, while guided by theory, was somewhat limited. As such, the analyses presented in the current study cannot be seen as representing a complete test of the general theory of crime. Future studies should be carried out that examine the influence of opportunity and socialization (primarily parenting), as these are important components of the theory not evaluated in the current study.

For example, it would be pertinent to examine the causes of low self-control. According to Gottfredson and Hirschi (1990) low self-control appears in the absences of nurturance, discipline, and training when a child is young. As such, the major cause of low self-control is ineffective parenting (i.e., parents who do not monitor their child's behavior, recognize problematic behavior when it occurs, and punish that behavior via consistent discipline). Additionally, Gottfredson and Hirschi (1990) argue that this training must occur early in life as one's level of self-control is developed by about the age of 8 and remains stable throughout life. Recent research, however, has called into question these arguments (Moffitt, et al, 2013; Unnever, Cullen & Agnew, 2006; Wright et al., 2008). Future studies should examine the effect parenting has on self-control using non-Western samples. Additionally, future tests should expand the current analysis to include different types of delinquency and different types of samples (e.g., adults).

Finally, further studies should be carried out that examine the role formal and informal sanctioning efforts can have on dissuading adolescents from engaging in delinquency. As this study has shown, juvenile delinquency is relatively prevalent among Bosnian youth.

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Sažetak

Svrha: Ovo istraživanje ispituje jačinu Gottfredson i Hirschi (1990) generalne teorije o kriminalitetu ispitujući da li slaba samokontrola utiče na maloljetničku delinkvenciju adolescenata koji žive u BiH. Pretpostavka je da će adolescenti u BiH koji imaju slabiju samokontrolu vjerovatnije biti uključeni u delinkventna ponašanja (rizična ponašanja, imovinski kriminalitet, i nasilni kriminalitet) nego njihovi vršnjaci sa izraženijom samokontrolom.

Dizajn/metodologija/pristup: Istraživanje se oslanja na podatke prikupljene u okviru ISRD2 istraživačkog projekta. Projektom je obuhvaćeno 1756 učenika iz slučajnim uzorkom odabranih 37 osnovnih škola iz cijele Bosne i Hercegovine.

Rezultati: Rezultati serije multivarijantnih analiza indiciraju da slabija samokontrola utiče na maloljetničku delinkvenciju adolescenata u Bosni i Hercegovini, ukoliko se kontrolišu važne suprotne teoretske pretpostavke i lične karakteristike. Teorijske i praktične implikacije rezultata će biti predmet diskusije.

Keywords

Niska samokontrola, Maloljetnička delinkvencija, Kriminološke teorije

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