

Self-Control and Morality in Slovenian Primary and Secondary School Sample: The Results of YouPrev Study

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Purpose:

The purpose of this paper is to test one of the main concepts of Situational Action Theory – the concept of the crime propensity on a large Slovenian sample of young people ages 13–17. Crime propensity is constructed from self-control scale and moral values scale.

Design/Methods/Approach:

The factor analysis was used to see if separate dimensions of self-control could be distinguished. A multiple regression was run to predict 16 self-reported delinquent acts from morality and self-control variables, which represented generalized crime propensity index.

Findings:

On the basis of 19 questions concerning self-control and moral values, almost one third of variance of self-reporting of 16 different delinquent acts was explained. The construct of crime propensity was proven relevant even with different methodology.

Research Limitations/Implications:

Even though YouPrev study employed a similar set of questions concerning self-control and moral values, some very crucial differences should be noted between the two studies; the most important is the inclusion of risk-taking component in the self-control scale in the YouPrev study which was not included in the PADS+ study.

Originality/Value:

The paper presents the analysis that hasn't been made yet in connection with self-reported delinquency acts in Slovenia.

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Keywords: juvenile delinquency, morality, self-control, crime propensity, Slovenia

Samonadzor in moralnost mladih v slovenskem osnovnošolskem in srednješolskem vzorcu: ugotovitve raziskave YouPrev

Namen prispevka:

Namen prispevka je preverjanje zanesljivosti enega najbolj ključnih konceptov situacijskoakcijske teorije, in sicer koncepta nagnjenosti h kriminaliteti na vzorcu skoraj 2.000 adolescentov iz Slovenije, starih 13–17 let. Koncept nagnjenosti je sestavljen iz posameznikovega samonadzora in moralnih vrednot.

Metode:

Različne dimenzije koncepta samonadzora so bile preverjane s faktorsko analizo. Večkratna regresija je bila opravljena z odvisno spremenljivko samonaznanjenimi prestopniškimi dejanji in neodvisnimi spremenljivkami samonadzora ter moralnih vrednot.

Ugotovitve:

Skorajda tretjina variance odvisne spremenljivke prestopniških dejanj je bila pojasnjena na podlagi 19 vprašanj glede samonadzora in moralnih vrednot. Konstrukt nagnjenosti h kriminaliteti se je izkazal za relevantnega tudi pri spremenjenih vprašanjih in v drugačnem kulturnem okolju.

Omejitve/uporabnost raziskave:

Čeprav je raziskava YouPrev uporabljala podoben nabor vprašanj, ki so se dotikala samonadzora in moralnih vrednot, je treba opozoriti na nekatere bistvene razlike med raziskavama; najbolj bistvena razlika je vključitev spremenljivk, ki merijo tvegano početje v raziskavi YouPrev in odsotnost te komponente samonadzora v raziskavi PADS+.

Izvirnost/pomembnost prispevka:

Prispevek predstavlja analizo, ki v povezavi s samonaznanjenimi prestopniškimi dejanji v Sloveniji še ni bila opravljena.

UDK: 343.91-053.6(497.4)

Ključne besede: mladoletniško prestopništvo, moralnost, samonadzor, nagnjenost h kriminaliteti, Slovenija

1 THE INFLUENCE OF THE MORALITY AND SELF-CONTROL ON JUVENILE DELINQUENCY

Gottfredson and Hirschi have combined classical theory with the concept of »self-control« and named it general theory of crime. They have defined self-control as the »tendency to avoid acts whose long-term costs exceed their momentary advantages (Hirschi & Gottfredson, 1994: 3). Similarly to the classical authors Gottfredson and Hirschi (1990) also assume that all individuals are pursuing pleasure and avoiding pain, thusly maximizing their individual well-being. By both theories, individuals have a constant motivation to deviate. Authors themselves reflect upon the idea of Bentham and other classical theorists that moral and social sanctions are more crucial than the penalties, brought by law (Gottfredson & Hirschi, 1990: 85).

What distinguishes general theory of crime from classical theory is that classical theory does not explain the individual differences in propensity to commit crimes; by their account, offenders are different from the nonoffenders only by the result of their calculation of the costs and benefits of their crime. Gottfredson and Hirschi (1990: 87) propose that the difference is "self-control", which persist regardless of different risks. While the classical theory is more concerned with the external control of behavior (perception of the costs of crime), the focus of the general theory is internal control of behavior: "Combining the two ideas thus merely recognizes the simultaneous existence of social and individual restraints on behavior." (Gottfredson & Hirschi, 1990: 88)

There are many different dimensions of character in Gottfredson and Hirshi's (1990: 91) description of the concept of self-control, like attachment to others, delay of gratification etc.

Low self-control stems from ineffective parenting, characterized by »poor monitoring of children's behavior, the inability or reluctance to recognize children's deviance, and the unwillingness to punish children for their misdeeds« (DeLisi, Hochstetler, & Murphy, 2003: 242). Hay (2001: 725) found that parental monitoring and discipline were in connection with self-control and delinquency; self-control mediated a part of the relationship between parenting and delinquency. Rebellon, Straus, and Medeiros (2008) have tested this assumption across 32 national settings and came to the same conclusion (Rebellon et al., 2008: 355). Perrone, Sullivan, Pratt, & Margaryan (2004) found that parental efficacy (mother's attachment to her child, her effectiveness in recognizing problematic behavior and responding to this behavior) was "a major precondition for self-control in youngsters" (Perrone et al., 2004: 306).

High self-control is connected to persistency, diligence in individuals; those, who have low self-control cannot tolerate frustration and want to attain thing in an effortless way. They do not have the cognitive or academic skills¹ and seek thrills and adventures, whereas people with high self-control tend to be cautious and cognitive. According to authors: "people who lack self-control will tend to be impulsive, insensitive, physical (as opposed to mental), risk taking, short sighted, and nonverbal, and they will tend therefore to engage in criminal and analogous acts" (Gottfredson & Hirschi, 1990: 90–91), and on the other side of the scale "people with high self-control are less likely under all circumstances throughout life to commit crime" (Gottfredson & Hirschi, 1990: 118). People who lack self-control are not concerned with the needs of others and are indifferent to the harm they might create with their actions (Sorenson & Brownfield, 1995: 24).

To sum the characteristics of people with low self-control: they tend to be impulsive, insensitive, short sighted, risk takers who are unable to resist the opportunity to offend. As a result, they are likely to choose the immediate gains of crime even through the long-term consequences are greater.

This characteristic is not just limited to the adolescence: "crime as a consequence of relatively stable characteristics of people and the predictable solutions and opportunities they experience ... it may therefore be adequately tested at any point

1 Or as DeLisi et al. (2003: 242) put it: "fail to see the long-term benefits of investing in social institutions".

in the life course" (Gottfredson & Hirschi, 1990: 249). This also means that "life events, including those of marriage, peers, employment, and the like, should exert little influence on criminal activity once self-control is taken into consideration" (Piquero & Bouffard, 2007: 2). This assumption was generally confirmed by Arneklev, Elis, & Medicott (2006), with the exception of marriage, which was associated with a significantly lower involvement in crime.

The general theory of crime, also known as self-control theory (Grasmick, Tittle, Bursik, & Arneklev, 1993), has been tested extensively and has received strong support as one of the most significant correlates of juvenile delinquency (DeLisi et al., 2003; DeLisi & Vaughn, 2008; Rebellon et al., 2008; Winfree, Taylor, He, & Esbensen, 2006) and also victimization (Pauwels & Svensson, 2011). The theory was tested in different cultural settings (Lu, Yu, Ren, & Haen Marshall, 2013; Rebellon et al., 2008), races (Cheung & Cheung, 2008; Vazsonyi & Crosswhite, 2004), including various offences, even binge drinking, marijuana use and prescription drug misuse (Ford & Blumenstein, 2013), cyberdeviance (Holt, Bossler, & May, 2012) and with a criminal sample (Longshore, Turner, & Stein, 1996). A meta-analysis of the theory, done by Pratt and Cullen (2000), has shown that a lack of self-control was in all cases significantly (and positively) connected to criminal activity, even if the measures were different.² What it also showed was the fact that self-control wasn't always the only (or the strongest) predictor of criminal activity.

Grasmick et al.'s (1993) measure continues to be the most commonly used, but is not the only one in use; Burton, Evans, Cullen, Olivares, and Dunaway (1999), for instance, devised a 12-item scale which measured impulsivity, temper, physicality, and risk-taking.³ Sorenson and Brownfield (1995: 26–27) have used in their study measures of parental attachment, academic effort and school performance, all of which had a significant correlation with drug use in adolescents. Attachment to teachers, evaluation of academics, time spent on homework and educational expectations proved statistically insignificant in their effects on drug use (Sorenson & Brownfield, 1995: 31).

Authors have contested some of the assumptions of the theory; Winfree et al. (2006) and DeLisi and Vaughn (2008) have proved – even though Gottfredson and Hirschi (1990) were very vocal critics of the theories that dealt with "career criminals" saying that the majority of crimes are committed in adolescence or young adulthood, hence the studies in criminal careers are of no use – that there was a statistically significant difference in self-control between young people that have been marked as career criminals and nonhabitual offenders. Also, findings of DeLisi et al. (2003: 256), Winfree et al. (2006: 278) and McKee (2012: 373) have shown that self-control is not a stable propensity and it might not even be unidimensional.⁴ Arneklev, Grasmick, and Bursik (1999) wrote on the subject of unidimensionality

2 Marcus (2004) in his article on "theoretical implications of a measurement problem" writes that every comparison that was made is essentially wrong, because all of them use the operationalization that doesn't encapsule the original theory behind it.

3 Perhaps the most important reason, why Grasmick et al.'s (1993) measure is so widely used is the high reliability in different replications, whilse Burton et al.'s (1999) measure had relatively low ($\alpha = 0.64$) reliability.

4 It should be stated that all abovementioned studies have used the operationalization of self-control by Grasmick et al. (1993). Items are the same as in YouPrev study.

of the concept, that "the six dimensions discussed in Gottfredson and Hirschi's theory do seem to coalesce into a final latent global trait" (Arneklev et al., 1999: 327), but at the same time comment that "impulsivity seems to be more important central dimension of low self-control, relative to the other components" (Arneklev et al., 1999: 327).

In his later reassessment of the approaches to measure the concept of self-control, Hirschi expressed that the measures that used their list of elements of self-control »were mistakes and that they have 'muddied the waters'« (Piquero & Bouffard, 2007: 3), mainly because they have operated on the assumption that offenders and nonoffenders have different personality traits; offenders are impulsive, selfish, risk takers, and nonoffenders aren't. This is in direct conflict with the original theory, which is based on the assumption that potential offenders act upon a consideration, and those factors influence that consideration in a manner that presents a crime in more appealing way that it does to a nonoffender (Piquero & Bouffard, 2007: 4).

2 SITUATIONAL ACTION THEORY (SAT) AND THE CONCEPT OF CRIME PROPENSITY

SAT explains crime involvement of young people with a concept of propensity, which they define as "their tendency to see, and if so, to choose to break a rule of conduct (stated in law)" (Wikström, Oberwittler, Treiber, & Hardie, 2012: 132). Their propensity is a "consequence of morality and ability to exercise self-control" (Wikström et al., 2012: 15).

Morality is defined as person's moral rules and to this moral rules attached moral emotions. These moral rules are not just general, but also specific, pertaining to an exact situation (*action relevant moral rules*), which are more important as motivators when assessing propensity to participate in individual delinquent activities.

Second component of crime propensity is the ability to exercise self-control, which is important in situations, where there are external encouragements to break a moral rule. This ability depends on a set of factors, most importantly on person's executive capabilities (Wikström & Treiber, 2007), but also on factors such as alcohol drinking, using drugs, stress or emotive state.

SAT does not, however, propose direct influence of crime propensity on delinquent behavior, but focuses also on how much time do young people spend in the environment, that is conducive to delinquent behavior – *criminogenic exposure* (Wikström, 2010). The acts of crime are thusly "an outcome of a perception-choice process initiated and guided by exposure". Propensity and exposure influence individual's perception of action alternatives, which after a perception-choice process results in an act of crime.

Crime propensity and exposure are the causal factors, that start the causal process which in turn engage people to participate in acts of crime.

SAT comes close to the new definition of self-control theory, proposed by Hirschi – it is based on an assumption that offender and nonoffender are not that

different and that factors, such as self-control influence the perception of a specific activity as appropriate or less appropriate. SAT, in the same way as the original self-control theory, views delinquency as an outcome of a dynamic process, rather than a state of someone's personality traits.

3 MEASURES

Self-control in the *YouPrev* study was captured using three core elements of Gottfredson and Hirschi's (1990) theory (impulsivity, risk-seeking, and self-centeredness) borrowed from the original Grasmick et al. (1993) scale. Self-control in the PADS+ study was captured also using three core elements of Gottfredson and Hirschi's (1990) theory (impulsivity, risk-seeking, and temper) borrowed from the original Grasmick et al. (1993) scale, but with certain new elements, added by authors (Wikström et al., 2012: 136).

YouPrev self-control scale was formed in a way so that first three questions tap into impulsivity, next three into risk-seeking and last three into self-centeredness. In PADS+ self-control scale, questions 1, 2 and 7 are measuring impulsivity, 3 and 4 measure risk-seeking and 5, 6 and 8 deal with temper component of self-control.

Responses to each question capturing low self-control ranged from 1 (strongly agree) to 4 (strongly disagree). These responses were reverse coded for consistency so that higher scores indicated lower levels of self-control. PADS+ used the same principle, coding the answers from 0 (strongly disagree) to 3 (strongly agree).

The scores for the 9 items were summed, creating a measure ranging from 9 to 36 (mean = 21.12; standard deviation = 5.06). Higher scores on the scale indicate less self-control; a positive correlation was thus expected between this measure and the dependent variables. Cronbach's alpha for the index was 0.87, indicating good reliability. Similar to previous research, principle components analysis indicated six factors with eigenvalues over one. The scree discontinuity test, however, revealed a one-factor solution with the largest drop between the first and second factors.

The morality scale also differed from the one used in PADS+; it omitted three questions concerning morality of substance abuse and small offences (namely, skateboarding in a place where it isn't allowed and riding a bike through a red light). The responses ranged from 1 (very wrong) to 4 (not at all wrong). The scores of the 10 items were summed, creating a measure ranging from 10 to 40 (mean 16.13; standard deviation = 4.25).

In *YouPrev* study, we have included multiple types of delinquency (i.e. minor delinquency, violent delinquency, drug selling, and drug / alcohol use). There were 16 dichotomous questions asking whether or not the respondent had ever done the delinquent act (0 = no, 1 = yes). A Delinquency index was created from all 16 questions (Cronbach's $\alpha = .70$). Respondents were asked if they had ever done the said delinquent act. Due to an expected positive skew, the delinquency scale was logged (ln).

4 RESULTS

An exploratory factor analysis (EFA) was conducted on 9 low self-control questions using principal component analysis with Varimax rotation. The EFA found that all 9 questions from the 3 constructs of self-control loaded onto 3 factors explaining nearly 64% of the variance (Eigenvalues > 1.0). These three scales were then combined to create a global measure of self-control. See Table 1 for all appropriate factor loadings and α reliabilities.

Table 1:
Exploratory
factor analysis
factor
loadings and
communalities
based on
principal
components
analysis with
Varimax
rotation for 9
self-control
items

Question/ Scale	Component		
	Risk-seeking ($\alpha = 0.83$)	Self-centeredness ($\alpha = 0.72$)	Impulsivity ($\alpha = 0.48$)
1. Participant acts on the spur of the moment without stopping to think			.583
2. Participant is doing what gives him / her pleasure			.619
3. Participant is more concerned with what happens to him / her in the short run than in the long run			.797
4. Participant likes to test himself / herself every now and then by doing something a little risky	.816		
5. Participant will sometimes take a risk just for the fun of it	.854		
6. Participant thinks that excitement and adventure are more important to him / her than security	.805		
7. Participant tries to look out for himself / herself first, even if it means making things difficult for other people		.829	
8. Participant thinks that if things he / she does upset people, it's their problem not participants'		.737	
9. Participant will try to get the things he / she wants even when he / she knows it's causing problems for other people		.740	
Eigenvalues < 0.5 suppressed			

Table 2 shows which items were included in our self-control scale, which was recoded, so the higher values meant that participant agreed more with a statement, thus showing poorer self-control (1 – strongly disagree, 4 – strongly agree).

	13	14	15	16	17
Participant acts on the spur of the moment without stopping to think.	2.60	2.65	2.72	2.74	3.04
		0.05	0.07	0.02	0.30
Participant is doing what gives him / her pleasure.	2.45	2.61	2.73	2.91	2.74
		0.16	0.08	0.18	-0.17
Participant is more concerned with what happens to him / her in the short run than in the long run.	2.91	2.92	2.98	2.99	2.78
		0.01	0.06	0.01	-0.21
Participant likes to test himself / herself every now and then by doing something a little risky.	1.90	2.15	2.25	2.51	2.48
		0.25	0.10	0.26	-0.03
Participant will sometimes take a risk just for the fun of it.	2.00	2.22	2.30	2.59	2.43
		0.22	0.08	0.29	-0.16
Participant thinks that excitement and adventure are more important to him / her than security.	2.05	2.17	2.22	2.40	2.17
		0.12	0.05	0.18	-0.23
Participant tries to look out for himself / herself first, even if it means making things difficult for other people.	1.94	1.99	2.06	2.06	2.26
		0.05	0.07	0.00	0.20
Participant thinks that if things he / she does upset people, it's their problem not participants'.	2.14	2.21	2.25	2.46	2.30
		0.07	0.04	0.21	-0.16
Participant will try to get the things he / she wants even when he / she knows it's causing problems for other people.	1.84	1.86	1.94	2.14	2.09
		0.02	0.08	0.20	-0.05
Ability to exercise self-control scale	19.77	20.79	21.43	22.74	22.30
		1.02	0.64	1.31	-0.44
Alpha	0.76	0.77	0.79	0.81	0.80

^a1 – Strongly disagree, 2 – Disagree, 3 – Agree, 4 – Strongly agree

Table 2: Mean scores for the ability to exercise self-control scale and individual items by age, with change in scores at the different age groups

The self-control scale is a limited version of the self-control scale presented by Grasmick et al. (1993) and differs from the self-control scale, used in PADS+ in one factor – self-centeredness (PADS+ used temper factor instead).

Remarkably, the results of age means in comparison were very similar to the results of PADS+, showing quite stable self-control scores across ages. There was a tendency (also seen in PADS+) for participants to express willingness to participate in risky activities more with age.

Table 3 shows the morality scale's mean scores and stability over different ages of participants. Our »morality« scale was different from the one, used in PADS+, since it had mostly serious moral infractions and had no substance use moral infractions, which influenced the results and made the comparison more difficult.

Most serious moral infractions according to the answers given were considered "to humiliate, hit or threaten one's girlfriend / boyfriend", "to use a weapon or force to get money or things from other people" and "to break into building to steal something". Those three actions were considered very wrong by majority of respondents, and opinion about those acts changed only to a small degree with older participants, with an exception of 17-years old, who on average expressed a little bit more favorable opinion (still the average for 17-years old is in between the

answers "very wrong" and "wrong"). Same pattern was observed with answers to how wrong it is "to humiliate, hit or threaten someone at school just for fun", "to hit someone with the idea of hurting that person" and "to purposely damage or destroy property that does not belong to him / her" with a little bit higher averages in general (participants considered those act as less wrong as the first three we mentioned). Answers to the statement "to knowingly insult someone because of his / her religion etc." were on average at the age 13 similar to the answers to the statements above, but older participants in general still thought that this is very wrongful thing to do; at the age 17, participants considered this act to be the most wrongful act on the list besides "to humiliate, hit or threaten one's girlfriend / boyfriend".

Table 3:
Mean scores
for the morality
scale and
individual
items by age,
with change
in scores at the
different age
groups

	13	14	15	16	17
How wrong does participant thinks it is to lie, disobey or talk back to adults	2.07	2.00	2.14	2.19	1.96
		-0.07	0.07	0.12	-0.11
... to knowingly insult someone because of his / her religion etc.	1.34	1.36	1.32	1.41	1.50
		0.02	-0.02	0.07	0.16
... to purposely damage or destroy property that does not belong to him / her	1.38	1.45	1.41	1.47	1.87
		0.07	0.03	0.09	0.49
... to illegally download films or music from the internet	2.96	3.04	3.29	3.38	3.09
		0.08	0.33	0.42	0.13
... to steal something small like a chocolate bar from a shop	1.90	1.88	2.03	2.10	2.25
		-0.02	0.13	0.20	0.35
... to break into a building to steal something	1.19	1.20	1.25	1.35	1.71
		0.01	0.06	0.16	0.51
... to hit someone with the idea of hurting that person	1.28	1.31	1.35	1.48	1.79
		0.03	0.07	0.20	0.51
... to use a weapon or force to get money or things from other people	1.14	1.12	1.16	1.24	1.63
		-0.02	0.02	0.10	0.49
... to humiliate, hit or threaten someone at school just for fun	1.27	1.27	1.25	1.37	1.71
		0.00	-0.02	0.10	0.44
... to humiliate, hit or threaten one's girlfriend / boyfriend	1.11	1.13	1.15	1.22	1.50
		0.02	0.04	0.11	0.39
MORALITY SCALE	15.64	15.76	16.35	17.21	19.01
		0.12	0.71	1.57	3.37
Alpha	0.84	0.81	0.81	0.81	0.93
*1 – very wrong, 2 – wrong, 3 – a little wrong, 4 – not at all wrong					

At the age of 13, participants on average thought that it is wrong to steal something small like a chocolate from a shop and to disobey, lie and talk back to adults; both acts were considered less wrongful by the older participants. As expected, statement "to illegally download films or music from the internet" had the highest average among the acts in the morality scale; on average, participants

felt it was only little wrong to download; their opinion didn't differ that much between age groups.

The generalized crime propensity index was calculated from measures of self-control and morality to reflect key variation among young people in their crime propensity according to their age. Variables in both scales were added, then standardized, and the z-scores for self-control and morality scales were finally added together, forming new composite measure of crime propensity.

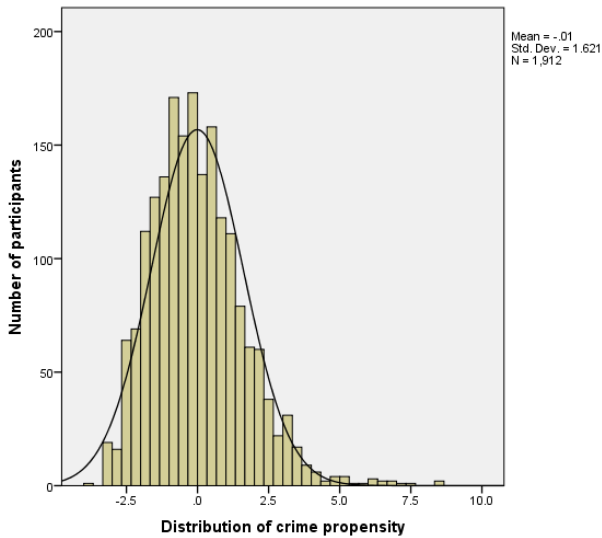


Figure 1:
Distribution
of crime
propensity in
the Slovenian
sample

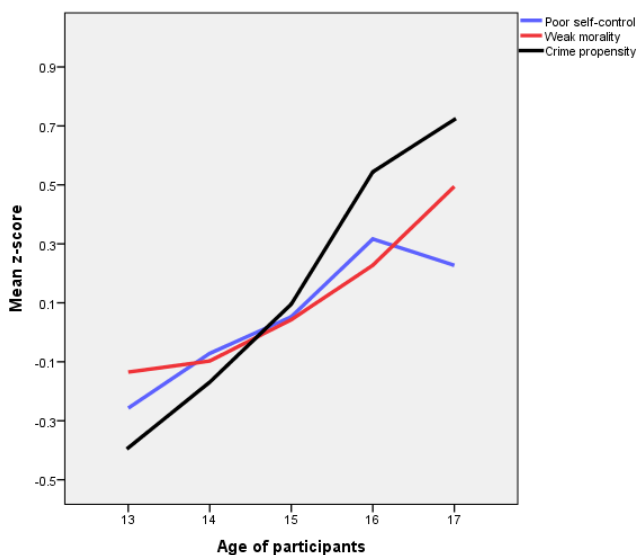


Figure 2:
Poor ability
to exercise
self-control,
weak morality
and crime
propensity by
age

Crime propensity in the Slovenian sample was normally distributed (Figure 1). Even though the self-reported ability to exercise self-control showed decline after the age of 16 (meaning that the older respondents showed better self-control), the crime propensity continued to rise with age, as shown in Figure 2.

A multiple regression was run to predict self-reported delinquent acts from morality and self-control variables, which represented generalized crime propensity index. The decision to employ multiple regression with all the variables, instead of linear regression with the composite measure was taken to see which of those variables contributes statistically significantly to the regression model. The assumptions of linearity, independence of errors, homoscedasticity, unusual points and normality of residuals were met. These variables significantly predicted self-reported delinquent acts, $F(19.1889) = 0.061$, $p < 0.0005$, $R^2 = 0.301$. Variables, that added statistically significantly to the prediction are presented in the Table 4 below.

Table 4:
Summary of multiple regression analysis

	<i>B</i>	<i>SE_β</i>	<i>β</i>
How wrong does participant thinks it is to lie, disobey or talk back to adults	0.020	0.008	0.056
How wrong does participant thinks it is to illegally download films or music from the internet	0.069	0.006	0.234
How wrong does participant thinks it is to steal something small like a chocolate bar from a shop	0.051	0.008	0.146
How wrong does participant thinks it is to use a weapon or force to get money or things from other people	0.043	0.019	0.070
Participant is doing what gives him / her pleasure	0.021	0.007	0.065
Participant likes to test himself / herself every now and then by doing something a little risky	0.024	0.008	0.084
Participant will sometimes take a risk just for the fun of it	0.028	0.008	0.096
Participant thinks that excitement and adventure are more important to him / her than security	0.019	0.008	0.064
* $p < 0.05$; <i>B</i> = unstandardized regression coefficient; <i>SE_β</i> = Standard error of the coefficient; <i>β</i> = standardized coefficient			

5 DISCUSSION

In this paper the SAT theory and the results of longitudinal study PADS+ were tested using similar measures in the *YouPrev* study. The point of interest was the measure of crime propensity; high crime propensity was defined as a composite of low self-control and weak moral values.

Both self-control measures used the core elements of Gottfredson and Hirschi's theory (1990); two of them (impulsivity and risk-seeking) were common for both studies, whilst PADS+ study employed temper (and added some new elements, added by authors) and *YouPrev* employed self-centeredness.

Morality scales, although tapping into the same general area, used somewhat different wordings; the morality scale, used in *YouPrev* study omitted three questions

concerning morality of substance abuse and small offences (namely, skateboarding in a place where it isn't allowed and riding a bike through a red light).

The results show that crime propensity measure can explain 30% of variance of the dependent variable, which was all the self-reported delinquency in the previous year. This means that the crime propensity explained almost a third of variance with such a diverse list of acts, such as shoplifting, burglary, vandalism, and even illegal downloading over the internet. The variables, that had the most influence on the dependent variable were the moral values about lying/disobeying adults, downloading from the internet, stealing something small from a shop and using a weapon or force to extort things from others; self-control variables were seeking pleasure, and all the three variables that measured taking risks.

Statistical significance of the risk-taking component of the self-control measure is not coincidental, as McKee (2012: 373) noted in the results of his study that "It appears, then, that children in this study from intact homes had higher levels of risk-seeking, which was predictive of delinquency. [...] The distinct differences in risk-seeking is similar to past research that has also found subcomponents of the self-control scale to vary from each other and from the combined unidimensional measure." (Arneklev et al., 1999; Winfree et al., 2006) Author concludes that some of the components of self-control relate to delinquency, and other don't.

The research field of criminology is still divided concerning how to measure low self-control; some researchers like Hirschi & Gottfredson (1994) prefer using behavioral, others like Piquero & Bouffard (2007), Arneklev et al. (2006) like to use attitudinal measures. Pratt & Cullen (2000) have in their comprehensive meta-analysis of the theory showed that both measures have similar effect.

Piquero and Bouffard (2007: 15–16) have used the redefined theory, as proposed by Hirschi in 2004, and created a measure, based on scenarios and participants' evaluation of sailence of difference deterrence factors or "costs". They have used a measure, similar to the one we used in *YouPrev* study and found out, that both had significant and positive effect on drunk-driving and sexual coercion intentions. But when the authors controlled for newly defined Hirschi self-control measure, it retained its significant effect in both hypothetical situations, while previously used instrument proved insignificant. This means that self-control research in the future should also include situationally based measures.

A very controversial question is also whether the self-control variables can help explain the variance in delinquent acts with older population; Burton et al. (1999: 51) concluded that lower levels of self-control meant the person was more likely to engage in criminal acts or imprudent behaviors, but only in age groups 18–30 years and 31–50 years; low self-control had no significant effect on crime over the age of 50, which contradicts Gottfredson and Hirschi's (1990) predictions about the wide applicability of the theory across all age groups.

Connection between cyberdeviance and low self-control has been noted before with Holt et al. (2012: 389), which on the results of their study concluded that the low self-control was positively correlated with the commission of cyberdeviance.

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