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Comparison of self-control and metacognition components in normal minors and juvenile delinquents at correction and rehabilitation centers

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Original Article

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Abstract

Self-control and cognition are among the factors involved in the tendency toward delinquency. The aim of this study was to compare self-control and metacognition components in normal minors and juvenile delinquents at correction and rehabilitation centers. This was a causal-comparative descriptive study. The statistical sample included 70 juvenile delinquents (55 boys and 15 girls), selected via convenience sampling. The boys were at the correction and rehabilitation center of Tabriz and the girls were referred to the detention center of morality police by the intelligence department of police in Tabriz. The normal minors included 70 high-school students (55 boys and 15 girls) who were matched with the case group in terms of age, sex, and education. Data collection tools included Tangney's self-control scale and metacognition scale. Results showed that there were significant differences in the self-control variables between juvenile offenders and normal minors. Moreover, there were significant differences in the metacognition components between the juvenile offenders and normal minors. This means that juvenile offenders had low self-control and metacognition. Adoption of socially accepted behaviors is strictly related to self-control and metacognition. Adolescents with low self-control ability and impaired metacognition are less adaptive to social norms.

Keywords: juvenile, Metacognition, Offenders, Self-Control

Introduction

Adolescence is associated with a series of physical, cognitive, social-emotional, and environmental changes. It is a dynamic and emotional stage of life that includes enhanced thinking ability, onset of puberty, family relationship change, self-sufficiency without over-dependence on others, and new orientations towards the future as an independent and productive adult [1,2]. At present, one of the complex and unpleasant issues, which concerns many researchers, psychologists, and health professionals, is the increasing rate of minors who have violated the law, or "juvenile delinquents" [3]. Social deviance and delinquency by juveniles, as a social issue, can end in insecurity and chaos [4], and have long-term consequences for them [5].

Psychologists believe that a behavior does not emerge from nowhere, but emerges out of

many underlying causes. This fact applies also to juvenile misbehaviors. The cognitive control development through adolescence is a currently researched delinquency-related area [6]. In this regard, Gottfredson and Hirschi developed one of the major theories in criminology, namely "general theory of crime," used mostly to explain one's inclination towards crime and other problematic behaviors. This theory concentrates on self-control level, as a dominant and independent variable and the main determinant of misbehaviors and problematic behaviors [7]. Gottfredson and Hirschi define self-control as a series of mechanisms that control delinquency and similar behaviors [8].

Experimental studies have shown that self-control is significantly correlated with certain delinquency risk factors, such as peer relationship [9] and social bond elements [10]. Vera and Moon showed that poor self-control skill has a significant effect on different types of delinquent behaviors, such as alcoholism and substance abuse. They also showed that poor self-control increases the likelihood of delinquency behaviors [11]. Walthal et al. [12] found out that having self-control ability is like a psychological capacity, where high-quality adolescent-parent relationships may reduce anxiety, depression, and inclination to antisocial behaviors through interpersonal mechanisms. In this regard, Koolhof et al. [13] showed that low IQ juveniles committe more delinquent acts than higher IQ offenders; therefore, it seems that serious offenders possess greater self-control skill.

Metacognition is another important variable of juvenile delinquency. It is any kind of knowledge or cognitive process that involves assessment, supervision, or cognitive control [14]. Metacognition is one's knowledge about thinking process and learning activities, and ability to control them [15]. It seems that metacognitive aspects are very important risk factors of juvenile delinquency. This is because it can be disrupted by delinquency and may be strictly related to cognitive analyses of antisocial individuals. In effect, such people cannot put together all aspects of a particular situation and predict the consequences of their misbehavior for themselves, others, family, and society [16].

Several researchers found out that affective and concrete thinking are developed in juvenile delinquents. For example, Gardner et al. [17] and Welch et al. [18] showed the presence of metacognitive problems in delinquents, and reported positive effects of metacognitive interventions on antisocial behaviors. Another study showed that impaired metacognitive components are among risk factors of antisocial behavior, which can be significantly corrected through metacognitive interventions [19].

Adolescence is a crucial period in the development of human personality. Potential problems and concerns of adolescents necessitate research on their risk factors. Among the most important objectives of this study was to fill the research gaps through gaining better understanding of delinquency risk factors, aiming to develop appropriate preventive programs. Given the high rate of juvenile delinquency and its direct relationship with self-control and metacognition, it should be considered in the analysis of results; therefore, this study aimed to compare normal minors and juvenile delinquents at correction and rehabilitation centers.

Method

This was a causal-comparative descriptive study. The statistical population included all minors, aged 15-18 years, in Tabriz, Iran in 2017. The participants included 70 juvenile delinquents (55 boys and 15 girls), selected via convenience sampling. The boys were at the Correction and Rehabilitation Center of Tabriz and the girls were referred to the detention center of morality police by the intelligence department of police in Tabriz. The normal minors included 70 high-school students (55 boys and 15 girls) who were matched with the case group in terms of age, sex, and education.

The following questionnaires were used to assess research variables:

Tangney's self-control scale: This 36-item self-control scale was developed by Tangney et al. in 2004. It is actually the modified version of its ancestors. The items are rated on a five-point Likert scale anchored by 1 ('Not at all like me'), 2 ('A little like me'), 3 (Neutral), 4 ('Mostly like me), and 5 ('Very much like me'). The minimum and maximum scores after summing all the responses are 36 and 180, respectively. Validity of the questionnaire was measured in two studies on two groups of Bachelor's students. The mean, standard deviation, and Cronbach's alpha were 114.48, 18.81, and 0.89 in the first group, and 102.66, 18.19, and 0.89 in the second group, respectively. Internal consistency of the scale indicated its high reliability. The Cronbach's alpha for the total self-control scale was 89.0, indicating its high reliability [20].

Metacognition Scale: This scale was developed by Wells et al. [21] and comprised 30 self-report items to measure one's beliefs about own thinking. In this scale, items were rated on a 4-point Likert scale anchored by 1 ('do not agree') to 4 ('agree very much'). This scale includes five sub-scales, each comprising six items. The sub-scales include positive metacognitive beliefs about worry, negative metacognitive beliefs about worry, low cognitive performance, negative metacognitive beliefs about thoughts such as superstition, and cognitive self-consciousness. The internal consistency of overall scale is approximately 0.93. Moreover, correlation coefficient of the overall scale with the Penn State Worry Questionnaire (PSWQ) was reported to be 0.54. The retest validity coefficient of the overall scale (with a four-week interval) was reported as 0.75; in addition, the validity of sub-scales was reported on a range from 0.59 to 0.87 [21]. The multivariate analysis of variance (MANOVA) was used for data analysis.

Results

Demographic findings showed that the greatest frequency of age was 16 years (44%). The mean age of delinquent boys/girls and that of normal boys/girls were 16.4/16.3 and 16.2/16.3, respectively. Moreover, the greatest frequency of education was the second year of high school (50.8%).

According to Table 1, the mean score of cognitive confidence was higher among juvenile delinquents than normal minors. In addition, the mean scores of positive beliefs, negative beliefs, cognitive awareness, need to control the thoughts, and self-control were lower in juvenile delinquents than normal minors.

The Box and Levene's tests were employed before utilization of the parametric-form of MANOVA to assess its presumptions. According to the Box's test, which was not significant for none of the variables, the homogeneity of variance-covariance matrices was accurately observed (p=0.59, F=0.87, and BOX= 13.85). Since the Levene's test was not significant for all variables, the equality condition of variances was observed (Table 2). Therefore, the multivariate variance analysis was applicable.

Table 1 *Mean scores and standard deviation of self-control variables and components of metacognition in juvenile delinquents and normal minors*

Variables	Juvenile delinquents		Normal minors	
	M	SD	M	SD
Cognitive confidence	14.33	2.43	11.98	2.78
Positive beliefs	14.52	1.82	18.78	2.82
Negative beliefs	15.91	2.85	19.20	3.03
Cognitive awareness	14.60	2.29	18.68	3.10
Need to control the thoughts	15.05	2.38	20.08	3.76
Self-control	119.82	6.97	130.61	8.70

Table 2 *Levene's test results on presumed equality of variances of both groups for self-control variables and components of metacognition*

Variables	F	df_1	df_2	Sig
Cognitive confidence	0.71	1	138	0.40
Positive beliefs	0.002	1	38	0.96
Negative beliefs	0.12	1	138	0.72
Cognitive awareness	3.52	1	138	0.13
Need to control the thoughts	0.47	1	138	0.49
Self-control	0.92	1	138	0.33

The Wilks' Lambda Statistic showed that the group had a significant effect on the set of metacognition and self-control components ($p<0.001$; $F=5.87$; Wilks' Lambda=0.81). This test allowed for the application of MANOVA. Results suggested that there was a significant between-group difference at least in one variable.

Table 3 *MANOVA results concerning the main effect of independent variable (group) on dependent variables*

Variables	Value	F	Sig
Pillais trace	0.18	5.87	0.001
Wilks lambda	0.81	5.87	0.001
Hotellings trace	0.23	5.87	0.001
Roys largest root	0.23	5.87	0.001

Table 4 *MANOVA results for the mean scores of self-control and components of metacognition in juvenile delinquents and normal minors*

	Dependent Variable	SS	df	MS	F	Sig
Group	Cognitive confidence	327.75	1	327.75	6.33	0.01
	Positive beliefs	589.05	1	589.05	9.44	0.002
	Negative beliefs	275.62	1	275.62	4.49	0.03
	Cognitive awareness	138.62	1	138.62	2.59	0.001
	Need to control the thoughts	270.40	1	270.40	4.71	0.03
	Self-control	351.05	1	351.05	4.75	0.03

The following mean scores were obtained from MANOVA: cognitive-based trust ($F=6.33$), positive beliefs ($F=9.44$), negative beliefs ($F=4.49$), cognitive awareness ($F=2.59$), witnessing thoughts ($F=4.71$), and self-control ($F=4.75$). These scores suggested that metacognitive beliefs and self-control values were significantly lower in the juvenile delinquents.

Discussion

Findings showed a between-group difference in terms of self-control. In other words, normal minors had greater self-control ability than the other group. This finding is consistent with the results of Koolhof [13], and Vitacco and Rogers [22]. To explain this finding, it can be said that the presence of negative emotional tendencies in juvenile delinquents leads to self-control impairment. Self-control is a series of mechanisms that control delinquency and similar behaviors. Individuals with low self-control ability cannot resist temptations in a short period; thereby they commit abnormal and illegal acts [8]. Moreover, executive functioning of inhibition is significantly impaired in juvenile delinquents. Behavioral inhibition tunes out cognitive processes at lower levels and consequently facilitates self-control (self-regulation) process; therefore one can behaviorally adapt to his/her environment; whereas, behavioral inhibition impairment causes uncontrolled thoughts, acts, and emotions, and leads to maladaptive

and involuntary impulsive behaviors. All these interactions provide a context for exhibiting delinquent behaviors by juveniles [22]. Therefore, juvenile delinquents exhibit impaired inhibitory control behavior when they are strategically incapable of decreasing their mistakes. Consistently, Koollhof [13] showed that the inhibition deficits of boys with a lower IQ play a significant role in delinquency etiology. Bogg and Roberts [23] found out that self-control, as a social skill, can determine the likelihood of adolescence achievement. In other words, people with great self-control ability are more physically active and less likely to use drugs and alcohol than individuals with limited self-control ability. They also have healthier dietary habits and less social problems.

Bogg and Roberts also found a significant difference in the components of metacognition between delinquent and normal groups. In effect, the mean scores of positive beliefs, negative beliefs, cognitive awareness, witnessing thoughts, and self-control were lower in juvenile delinquents than normal minors. Therefore, the former group suffered from impaired metacognitive beliefs. These findings are consistent with those of Gardner et al. [17] and Welch et al. [18]. Higher mean score of cognitive-based trust can be attributed to inflated self-concept. False confidence beyond the cognition (which is different from metacognition) results in mindless involvement of such people in situations beyond their ability to deal with. The unfavorable outcome of this involvement makes them commit antisocial and delinquent acts for compensation and achievement [24]. With respect to cognitive awareness, Blair [25] indicated that offenders disregard their own and others' feelings and mindlessly exhibit impulsive behaviors. They are more likely to blame others for their own mistakes, and less likely to think to make more logical and informed decisions. In other words, they suffer from cognitive deficits and impaired cognitive functions. With respect to positive and negative beliefs about worry, Davey and Wells [26] argued that its adaptive form is problem-solving-oriented, which leads to problem-solving-centered behavior. It seems that positive metacognitive beliefs about worry cause people to concern about the consequences of negative behaviors, such as the future-related concerns, likelihood of social exclusion, caught in the act, job loss, leaving education, and arrest and imprisonment-related punishments. These worries make them more sensitive to comply with laws and norms. In other words, worry about consequences of a behavior can be advantageous by making individuals more committed, thereby fostering their self-awareness. Moreover, offenders have false perception of anger. On the one hand, their interpretations of the situation, made upon these false perceptions, make them stimulated and irritated. On the other hand, the incorrect beliefs about anger cause them to show antisocial and delinquent behaviors, assuming that their thoughts, thereby their behaviors, are not observable. Given the need for witnessing thoughts, it can be said that the aspect of metacognitive regulation or witnessing includes prediction, planning, reviewing thoughts, and exploring consequences.

This study was associated with some limitations. Sampling constraints and the lack of access to facilities required for large-scale sampling were of the research limitations. Moreover, there is a chance of bias in self-report inventories. Therefore, researchers are recommended to select sample from other prisons and correction-and-rehabilitation centers to obtain more applicable and generalizable results at the national level. It is also recommended that besides family, future studies should investigate the role of some organizations including the Ministry of Health and Medical Education, the Law Enforcement Force, the Ministry of Education, higher education centers, the National Youth Organization, and the Ministry of Culture and Islamic Guidance played by holding training courses for vulnerable groups, publishing educational brochures, hosting scientific conferences, etc. In addition, prison authorities are recommended to use

experienced psychologists and counselors for making metacognitive interventions, aiming to correct such personalities.

Conclusion

Adoption of socially accepted behaviors is strictly related to self-control and metacognition. Adolescents with low self-control ability and impaired metacognition are less adaptive to social norms.

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Contribution

Study design: JBK
Data collection and analysis: JBK, RHK
Manuscript preparation: JBK

Conflict of Interest

"The authors declare that they have no competing interests".

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