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Comparison of the analytical capacity of general, verbal, performance intelligence and its subscales and academic achievement between criminal and non-criminal juveniles

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Abstract

Introduction: Criminal juveniles usually have many problems in school and show obvious differences compared to non-criminal juvenile. This study has been carried out to compare the analytical capacity of general, verbal, performance intelligence and its subscales and academic achievement between criminal juveniles and non-criminal juveniles.

Materials and Methods: The sample consisted of 71 male criminal juveniles and 71 non-criminal juveniles who were selected among criminal juveniles of Correction and Rehabilitation Center Offenders and high school juvenile, in the academic year 2013-2014, in Gorgan and Sari through convenient and clustering sampling method. Research instrument were demographic questionnaire, Wechsler intelligence scale and questionnaire of academic achievement. Data analyzed through multivariate variance and t test.

Results: There is a significant difference between the criminal and normal juveniles' general intelligence ($P < 0.01$). The comparison showed a significant difference between two groups in verbal intelligence and performance intelligence ($P = 0.000$). Normal juveniles have more scores in general verbal and performance intelligence, as well as criminal juvenile have less academic achievement compared to the other group.

Conclusion: The results showed criminal juveniles achieved less scores in general, verbal, performance intelligence and its components, as well as criminal juveniles have less academic achievement than non-criminal juveniles.

Keywords: Academic achievement, Criminal juveniles, Intellectual capacity

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Introduction

Criminal juveniles usually have many problems in school, such as lack of academic success, staying in a class, participating in special training classes, dropout, suspension, and expulsion (1). Educational and training issues and intelligence capacity directly impact crime (2,3), and, likely, common fundamental factors such as nerve-psychological defects, defects in verbal functions, or inappropriate socio-economic status are the reason for academic problems or crime (4). There is little evidence to suggest that the leading cause of academic failure, especially in childhood, is psychopathic behavior. Many children, long before they start school, show patterns of psychopathic behavior.

Common fundamental factors such as nerve-psychological defects, defects in verbal functions, or inappropriate socio-economic status are the reason for academic problems or crime. In addition, it is assumed that the verbal-linguistic deficiencies may be involved in anti-social behaviors by interfering in the growth of emotional control self-regulation and labeling others' emotions, leading to a lack of sympathy (5). Research showed that verbal IQ is "8 score (6), 15 points (7), 8 to 12 score and 5 points (8) lower than nonverbal intelligence and cited domain of 85 in verbal intelligence and even in some studies on criminal juveniles, 13 percent of them were known with intellectual disability (9). They are the same group of students excluded from the education system cycle due to repeated failing and disability in understanding contents and inappropriate book contents according to their intellectual capacity but have appropriate practical and mobility skills.

This group of students is those who do not have good verbal and linguistic skills but have appropriate practical abilities and even very well (10). Ahadi and Mohseni researched juvenile delinquency and concluded that the correlation between IQ and the ability to read and a juvenile's deviant behavior remains even after controlling variables such as family size and social class. In general, the negative correlation between deviant behavior and the ability to read is more than the correlation between deviant behavior and IQ. Thus, since these individuals cannot mention their desires and take their rights through

speaking, they prove everything by action, such as physical conflicts, which increase the possibility of crime.

It is most likely that children with psychopathic and criminal problems face educational disadvantage problems in language and reading and deficiencies in executive and verbal functions, which are their other problems. In addition, if children and adolescents with attention delinquency and hyperactivity problems face problems, they will face serious academic problems (11).

Researches on criminal juveniles' academic achievement suggest it is most likely that criminal juveniles may have too low academic achievement and their IQ level is below the normal level (12), and unfortunately, the prevalence of learning disability is more in them (13). Most criminal juveniles have normal intelligence but obtain, on average, eight scores lower than their peers on IQ tests. This intelligence failure may be premature and even more than 15 scores, and factors such as low social class cannot explain the reason for this (14). Halahan and Kaufman argued that students with emotional problems and delinquency are located in the low intelligence field (about 90). Compared with the normal distribution of intelligence, most of these individuals are located in the domain of students who learn slowly and have mild mental retardation (15).

Research unanimously shows that in offenders /criminals, the verbal and overall IQ is lower than normal (16). The researchers believe that low IQ and verbal intelligence in criminals exist in children at an early stage of development and before delinquency problems. They believe that children with low verbal performance associated with family adversity show aggressive behavior four times higher than children who only have one of these matters (17).

According to the above research, the necessity of self-awareness, intellectual capacity, and academic characteristics of criminal juveniles are perceived. So this study has been carried out to compare the analytical capacity of overall verbal, performance intelligence and its subscales and academic achievement of criminal juveniles with normal ones.

Materials and Methods

This research is descriptive and, in terms of data collection, is causal-comparative. Thus, criminal and normal juveniles' intellectual capacity features and educational improvement were compared and analyzed.

The sample population in the offenders' group was all male criminal juveniles in the Correction and Rehabilitation Center of Golestan, Mazandaran Province, respectively.

In the normal group, all juveniles were studying in schools in the academic year 2013-2014, in the city of Gorgan and Sari high schools. The first population was 71 offenders selected through available sampling among all the patients in detention or imprisonment for various crimes in the Correction and Rehabilitation Center of Golestan, Mazandaran Province.

The population of the latter group was 71 normal juveniles selected through a random cluster sampling method concerning juvenile offenders from high schools.

This research is a primary type of goal /purpose and is causal-comparative regarding the data collection method. Data were analyzed by SPSS 17 software. Descriptive statistics, multivariate variance analysis, independent t-test, and chi-square were applied to analyze the data.

The criteria for involvement included not having any physical or mental disorder, major stressful events in the last quarter, and having attendance experience in school. In addition, due to moral considerations, participants were assured that their information would remain confidential.

Research instrument

A) *Demographic questionnaire:* This questionnaire was designed by the researcher and was applied to gather more information from clinical and normal samples.

The questionnaire contains detailed family information such as juvenile's education level, grade point average, parents, type of juveniles crime, type of parents' possible crime, offenders Criminal record, number of siblings, juvenile's disability, disabilities or physical and psychological problems in family or siblings, parents remarriage, income, socio-economic status.

B) *Wechsler Intelligence Scale for Children:* The scale measures the intelligence of children ages 6 to 16 years, 11 months, and 30 days. This scale consists of 12 subscales.

Children's verbal scale includes general information subtests, comprehension, calculation, analogies, vocabulary, and numbers memory, and children's practical scale includes images completion subtests, images adjustment, design with cubes, parts assembly, encoding (which is the counterpart of adults numerical codes,). Three IQ tests are obtained by applying Wechsler different questionnaires: verbal IQ, performance IQ, and general IQ. Verbal IQ demonstrates a person's ability in verbal skills. Performance IQ specifies a person's ability in objective, tangible and practical activities. Overall determines a person's overall abilities. Test reliability was calculated by split and retest methods for subsidiary tests and verbal IQ, performance IQ, and general IQ. Split average reliability coefficients through the even/odd method for verbal IQ, performance IQ, and general IQ were 0.94, 0.90, and 0.96, respectively, and retest coefficients of three age groups (6.5 to 7.5, 10.5 to 11.5 and 14.5 to 15.5) was reported as 0.93, 0.90 and 0.95, respectively. The validity of this test was reported through correlation with Stanford-Bine test equals to 0.78, with A group intelligence test equals to 0.66 and with appropriate criterion tests, including Peabody College academic achievement test equals to 0.71 and with class scores equals to 0.39 (18).

C) *Academic achievement:* Academic achievement data were collected through a demographic questionnaire so that the average of the last academic year was considered as criteria.

Results

The demographic characteristics of the participants indicated that shows that the average age of criminal juveniles is 16.11 years, and the average age of normal ones is 16.02 years.

Regarding education, 32 percent of criminal juveniles were in primary school, 38 percent in guide school, and 30 percent in high school students. The average grade of criminal juveniles was 12.05 and for normal ones was 15.45. In addition, 52.1 percent of criminal juveniles had failed records, while 7.7 percent of normal ones had failing records.

Table 1. General intelligence differences in criminal and normal juveniles

Variant	Variants	Mean	Standard deviation	T	Degrees of freedom	P
General intelligence	Criminal	85.87	5.83	-14.185	140	0.000
	Normal	100.76	6.56			

T-test for independent groups was applied to evaluate differences in criminal and normal juveniles' general intelligence. The results of the t-test showed that there is a difference between

criminal and normal juveniles' overall intelligence, the general intelligence ($P < 0.01$, $t(140) = -14.185$), and criminals have more general intelligence.

Table 2. Results of tests effects between subjects

Change source	Test	Sum of squares	Degrees of freedom	Mean of squares	F	P	Chi-square
Group	Verbal intelligence	1179	85.87	5.83	-14.185	0.140	0.000
	Performance intelligence	71	100.76	6.56			

Table 2 shows the effect of group ($P = 0.000$, $F(2,137) = 131.74$, $\text{Lambda Wilks}' = 342.0$) is significant and 65.8 percent ($\eta^2 = 0.658$) variance account group membership he does. The comparison between the two groups in verbal intelligence showed there is a significant

difference between the two groups in verbal intelligence ($P = 0.000$, $F(1,138) = 262.067$), and performance ($P = 0.000$, $F(1,138) = 58.759$) and normal juveniles have more in both verbal and performance intelligence.

Table 3. Test results of effects between subjects

Change source	Test	Sum of squares	Degrees of freedom	Mean of squares	F	P	Chi-square
Group	Information	677.6	1	677.6	118.131	0.000	0.461
	Similarity	464.464	1	464.464	114.994	0.000	0.455
	Arithmetic	387.779	1	387.779	93.041	0.000	0.403
	Vocabulary	303.114	1	303.114	59.101	0.000	0.300
	Comprehension	345.714	1	345.714	68.367	0.000	0.331
	Pictures completion	35	1	35	7.65	0.000	0.053
	Adjustment	61.779	1	61.779	15.547	0.000	0.101
	Cubes	15.779	1	15.779	5.205	0.024	0.036
	Assembly	3.15	1	3.15	1.103	0.29	0.008
	Signs	194.464	1	194.464	44.7	0.000	0.245

Table 3 shows the effect of group ($P = 0.000$, $F(10,129) = 26.267$, $\text{Lambda Wilks}' = 0.329$) is significant and group membership explains 67.1 percent ($\eta^2 = 0.671$) variance. The comparison between the two groups in the intelligence components showed there is a difference between the two groups in information, similarity,

arithmetic, vocabulary, comprehension, pictures completion, pictures adjustment, cubes, and normal juveniles are better in all components. However, there is not a significant difference between the two groups in parts assembly ($P = 0.29$, $F(1,138) = 1.103$).

Table 4. Differences in academic achievement between criminal and normal juveniles

Variant	Variants	Mean	Standard deviation	T	Degrees of freedom	P
Academic achievement	Criminal	12.05	4.86	-5.452	88.91	0.000
	Normal	15.45	1.86			

T-test analysis results with modified degrees of freedom showed that there is a difference between criminal and normal juveniles' academic achievement ($P < 0.01$, $t(88.91) = -5.452$), and normal ones have more academic achievement.

Discussion

The results of the t-test showed a difference between criminal and normal juveniles' general intelligence, and normal juveniles have more general intelligence. Also, the comparison results between the two groups in verbal intelligence indicated a significant difference between the two groups in verbal intelligence and between the two groups in performance intelligence. Normal juveniles have more verbal and performance intelligence scores. These results are aligned with the results of research which were conducted by Farrington et al. (19), Lueber et al. (20), Goodman (21), Nagin et al. (22), Fergusson et al. (23), Karami (18), Hinshaw (17), Chandler et al. (24), Maniadaki (9), Kandle et al. (25), Schönfeld et al. (26), Gellert and Elbero (27). All these studies have shown that criminal juveniles are of lower intelligence. Undoubtedly, family problems, parents' education level, their employment level, children's supervision level, noting the education as a necessary factor by family and mental illness and unfortunately cognitive problems in parents which children inherit them provide background for more intelligence problems. Research also showed that verbal intelligence is lower than performance intelligence in offenders, which is a particular failure and inclusive in language that may affect receptive language and reading, problem-solving, expressive language and writing, and overall memory (4). In parallel with the cognitive problems, offenders also have academic problems, which signifies the delicate interaction between cognitive variables and academic achievement. Most of the research on academic achievement and delinquency has shown a correlation between poor academic achievement and delinquency, and offenders face serious

challenges in academic achievement (28). Other studies unanimously agree that juvenile delinquency significantly correlates with academic failure (29,30). Research has also concluded that school affairs and educational status have a stronger relationship with delinquency than social class when offenders' social class, educational status, and school are under control.

T-test analysis results with a modified degree of freedom showed a difference between criminal and normal juveniles' academic achievement, and ordinary individuals have more academic achievement. These results are aligned with the results of Maniadaki and Kakurus (9), Farrington et al. (20), Wang, Bloomberg and Lee (32), Hogan (6), Alm and Anderson (33), Jensen et al. (34), Meltzer et al. (35), Gellert and Elbero (28), Noori (36), Fatthi Aghdam et al. (13), Ebrahminasab et al. (37).

It is most likely that children and teenagers with poor academic skills will increasingly lose interest in school and join with their delinquent peers. In adolescence, the relationship between poor academic achievement and psychopathic and criminal behavior is stabilized seriously (4).

According to the results of this study, reading and writing skills and intellectual capacity are effective in delinquency. In addition, having a low verbal IQ but high-performance intelligence is associated with psychopathic behavior. Parallel to this matter, these problems in intelligence issues are predictors of academic difficulties in the future. According to existing studies and the results of this study, it seems that it is essential to pay particular attention to the issue of students with learning disabilities and slow learners in order to prevent conflict with the law and the risk of delinquency through the emphasis on reading and writing skills and applying guidance which increases verbal IQ.

Conclusion

The results of this study showed that in terms of verbal, performance, and general intelligence,

criminal juveniles received lower scores in all components, As well as comparison results between two groups in verbal and performance intelligence components showed ordinary

juveniles are better than offenders, except in parts assembly subscales that there is no significant difference. Offenders also have lower academic achievement than the ordinary group.

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