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CRIMINAL ATTITUDES OF EX-PRISONERS: THE ROLE OF PERSONALITY, CRIMINAL FRIENDS AND RECIDIVISM

By Daniel Boduszek, Christopher G. McLaughlin, & Philip E. Hyland¹

Abstract

Background: Previous research suggests that those who enter prison with a low level of criminal attitudes, tend to acquire more deviant attitudes during their sentence due to persistent contact with criminal others, and moreover, presence of criminal personality may be sufficient to develop criminal attitudes.

Aim: To determine which of the independent variables: age, education level, marital status, number of children, location, recidivism, association with criminal friends, and personality traits could be used to explain why ex-prisoners hold criminal attitudes.

Method: The Measure of Criminal Attitudes and Associates together with Eysenck Personality Questionnaire and Recidivism Scale were distributed to the opportunistic sample of sixty four ex-prisoners (N = 64).

Results: Multiple regression analysis reported that personality, association with criminal friends, and recidivism explained 71% of the variance in criminal attitudes, indicating psychoticism as the best predictor of criminal attitudes.

Conclusion: This study constitutes the first piece of empirical evidence demonstrating a predictive relationship between antisocial personality traits and criminal attitudes. These results lead to a better understanding of the underlying psycho-sociological mechanisms of criminal attitudes and indicate that future research regarding the nature of criminal attitudes should consider the role of personality, associations with criminal friends, and recidivistic behaviour.

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Introduction

Social and criminal psychology research, when examining what influences criminal behaviour, consistently indicates that attitudes (thinking style) are important. The significant link between criminal attitudes and criminal behaviour has been well established in previous studies, (Nesdale, Maass, Kiesner, Durkin, Griffiths, and James, 2009; Mills, Kroner, and Forth, 2002; Stevenson, Hall, and Innes, 2003; Simourd, 1999; Andrews and Kandel, 1979; Bagozzi and Burnkrant, 1979), indicating that individuals who are orientated towards criminal behaviour and have internalized criminal concept of behaviour are at a greater risk of engaging in that particular behaviour.

Criminal thinking has been defined as thought content and process conducive to the initiation and maintenance of habitual law-breaking behaviour (Walters, 2006). One of the first theoretical concepts that looked at criminal thinking was Sutherland's Differential Association Theory which views criminal attitudes that result from associations with delinquents as the root cause of delinquent behavior (Sutherland, Cressey and Luckenbill, 1992). Akers (1985) in his Differential Reinforcement Theory suggested that people are first initiated into delinquent conduct by differential associations with antisocial companions. Then, through differential reinforcement, they gain knowledge of how to reap rewards and avoid punishment as the actual or anticipated consequences of particular conduct. This theory tends to fit well into criminology because it provides an explanation of the decision-making process involved in development of the cognitive (criminal attitudes), behavioural and motivational techniques essential to commit a criminal act (Akers, Krohn, Lanze-Kaduce and Radosevich, 1979).

Holsinger (1999) suggested that people who have been socialized in criminal settings and have acquired antisocial attitudes toward criminal behaviour are more likely to commit a crime in the future. Further findings reported by Losel (2003) suggested that through interactions with group influences, delinquent adolescents develop attitudes, values and self-related cognitions which encourage criminal behaviour. A meta-analysis conducted by Gendreau, Little, and Goggin (1996) examined a broad range of predictors related to adult recidivism (repeated or habitual criminal behaviour; a measurement of the rate at which offenders commit other crimes, either by arrest or conviction baselines, after being released from incarceration) of which the four best predictors were criminal friends, criminal attitudes, antisocial personality, and adult criminal history. These findings suggest that antisocial attitudes, criminal associates, recidivism, and antisocial personality are closely tied both theoretically and empirically.

Andrews and Kandel (1979) and Mills et al (2002) reported that normative influence of criminal friends interacts with criminal attitudes, and furthermore, when these variables are strongly associated, the relationship to criminality is particularly strong. Additionally, Rhodes (1979) in his research found that those offenders who enter prison with a low level of criminal attitudes, tend to acquire more deviant attitudes while serving their sentence given persistent contact with criminal others.

Yochelson and Samenow's (1976) criminal personality approach was another precursor of views on criminal thinking style. They identified 52 thinking errors that they believed characterized the thinking of the criminal personality. As there was no control group of non-offenders in the Yochelson and Samenow study and the 255 offenders they interviewed were not randomly sampled from a larger criminal population, questions have been raised about the validity and generalizability of their results (see Conklin, 2003). Nonetheless, Yochelson and Samenow introduced idea that personality could possibly play a role in criminal thinking style.

Development of the criminal personality has been largely investigated over the last decade, particularly the relationship between personality traits and delinquency. Eysenck

(1977) who constructed theory on a link between personality and crime (see also Eysenck and Gudjonsson, 1989) suggested that there are three fundamental dimensions of personality: Psychoticism (P), Extraversion (E), and Neuroticism (E). Eysenck hypothesized that criminal offenders tend to score significantly higher on all three factors of personality.

Recent research strongly supports Eysenck's position that people likely to commit a crime will score high on the P scale (Cale, 2006; Center, Jackson and Kemp, 2005; Heaven, Newbury, and Wilson, 2004; Kemp and Center, 2003; Levine and Jackson, 2004; Van Dam, Janssen, and De Bruyn, 2005; Walker and Gudjonsson, 2006). Heaven, et al. (2004) reported that the P-scale was effective in identifying those individuals likely to commit delinquent offenses of all kinds, but it appears to be effective in identifying only serious offending in young adults. Neuroticism has generally shown a significant relationship with offending, although not as strong as the P scale (Cale, 2006). The N scale does well in predicting serious crimes (Kemp and Center, 2003) and is somewhat successful in predicting recidivism (Van Dam et al., 2005). It might be expected that the N scale does better at predicting recidivism since Eysenck hypothesized that high N scorers tend to be driven to continue their habitual behaviours and be unusually impulsive. The power of the E scale is more in question, as several studies have found only a weak association with offending (Cale, 2006; Center et al, 2005; Kemp and Center, 2003).

The ability of attitudes to change distinguishes them from characteristics such as traits and personality (Mills, Kroner, and Hemmati, 2004), and Mills (2000) also suggested that antisocial personality, criminal attitudes, and antisocial friends, although related, are not identical constructs. Criminal friends are entirely external to the individual and may serve various purposes such as reinforcing existing attitudes, providing a conforming environment for the expression of antisocial behaviour or providing modelling for antisocial behaviour. Mills and colleagues (2004) hypothetically stated that the presence of antisocial personality may be sufficient to indicate the presence of criminal attitudes, but the absence of antisocial personality would not necessarily mean the absence of criminal attitudes. However, there is little research to suggest that personality traits are reflected in criminal attitudes and beliefs. More recently in a Dutch prison study conducted by Bulten, Nijman, and van der Staak (2009) criminal lifestyles were supported by criminal belief systems which incorporated criminal thinking styles, and were also supported by specific personality traits such as "Impulsivity".

In the complex interactions among thinking styles (attitudes), personality traits, and influence of antisocial friends, offenders develop and maintain their criminal lifestyle. Therefore, if criminal attitudes, personality traits, and antisocial associates influence criminal behaviour, the question arises, what are the associations among these variables and which variables have the most significance in predicting the presence of criminal attitudes? Therefore, the main objective of the study was to determine which of the independent variables: age, education level, marital status, number of children, location, recidivism, association with criminal friends, and personality traits can be used in the prediction of criminal attitudes among ex-prisoners, and which of these variables have a significant influence on criminal thinking styles.

Method Section

Participants and Procedure

The opportunistic sample comprised of sixty four (N = 64) ex-prisoners who at the time of this study were not under the Irish Probation Service or any kind of therapeutic program. The sample was recruited over a 13 months period between 2010 and 2011. Participants were selected from the Salvation Army (Dublin) and three other anonymous institutions located in the Republic of Ireland. The respondents ranged in age from 21 to 57.

The mean age for participants was 35.55 (SD = 9.25). The demographics of respondents are presented in Table 1.

The Ethical approval for this project was granted by Dublin Business School Ethics Committee, the Director of Salvation Army (Dublin) and managers of three other institutions. The self-administrative paper-and-pencil questionnaires were distributed to the ex-prisoner population in their institutions during their free time; this procedure was coordinated by institution staff. 12 out of 64 ex-prisoners were interviewed by researcher due to a lack of sufficient education. Each participant was provided with a brief description of the study including general area of interest, how to fill out the questionnaire, and the general completion time (approximately 25 minutes). Participants were assured about confidentiality of their participation and informed that they could withdraw from the study at any time.

Measures

The Measure of Criminal Attitudes and Associates (MCAA; Mills and Kroner, 1999) is a two-part self-report measure of criminal thinking style and associations with criminal friends.

Part A of the measure intends to quantify criminal associations. Participants were asked to recall four individuals with whom they spent most of their time and then answered four questions regarding the degree of criminal involvement of their associates. Responses were used to analyze two measures of criminal associations. The first, "Number of Criminal Friends," which was calculated by adding up the number of friends to which the participant answered "yes" to any of question on criminal association. The second measure was the "Criminal Friend Index", calculated by assigning 1 through 4 to the percent of time options available for each friend. That number was then multiplied by the number of "yes" responses to the four questions of criminal association.

Part B is a 46-item measure of criminal thinking style (criminal attitudes) including four sub-scales: Violence (12 items), Entitlement (12 items), Antisocial Intent (12 items), and Associates (10 items). Participants responded to a dichotomous choice of yes or no. Each approval on an antisocial test's item (or rejection on a pro-social one) received 1 point, whereas each rejection on an antisocial item (or acceptance on a pro-social one) yielded 0 points. For each sub-scale, then scores were summed, with higher scores reflecting higher criminal attitudes. Based on the current sample the reliability of the measure was sufficient (Cronbach's $\alpha = .91$).

The Eysenck Personality Questionnaire Revised-Abbreviated (EPQR-A; Francis, Brown, and Philipchalk, 1992) is a 24-item inventory of four sub-scales with 6 items each:

Extraversion (E), Neuroticism (N), Psychoticism (P) and a Lie scale (L). It was scored on Yes (1) and No (0) format and possible scores ranged between 0 and 6, with higher scores indicating higher levels of the personality trait. Current research reported acceptable level of reliability for Extraversion (Cronbach's $\alpha = .84$), Neuroticism (Cronbach's $\alpha = .54$), and Psychoticism (Cronbach's $\alpha = .74$).

Recidivism and Demographic Questionnaire was provided as a standard measure in the process of data collection. It requested information regarding respondents' age, location (urban, rural), education, relationship status, and number of children. Additionally, recidivism was estimated on the frequency of continual criminal behaviour ("How many times have you been in prison?").

Results

The descriptive statistics shown in Table 2 indicate that the 64 ex-prisoners included in the analysis reported moderate level of criminal attitudes on average ($M = 18.86$, $SD = 9.10$). The Recidivism scale indicates that participants were incarcerated on more than occasion in Irish prisons ($M = 1.37$, $SD = .65$). The data also suggest that on average, the ex-prisoner population reported having ongoing relationships with criminal associates ($M = 4.84$, $SD = 6.34$). The ex-prisoners were also found to exhibit low to moderate level of scores on all subscales of the personality measure.

Multiple linear regression was employed to help determine which of the independent variables could be used to explain the presence of criminal attitudes among ex-prisoners.

Initially, the correlations amongst the independent variables (age, education level, marital status, number of children, location, recidivism, association with criminal friends, and personality traits) included in the study were examined and these are presented in Table 3. All correlations were weak to moderately strong, ranging between $r = -.27$, $p < .05$ and $r = -.73$, $p < .01$. This indicates that multicollinearity was unlikely to be a problem (see Tabachnick and Fidell, 2007). Six independent variables (education level, recidivism, association with criminal friends, psychoticism, extraversion, and neuroticism) were significantly correlated with criminal attitudes which indicate that the data was suitably correlated with the dependent variable for examination through multiple linear regression to be reliably undertaken. The correlations between the six independent variables and the dependent variable (criminal thinking style) were all weak to moderately strong, ranging from $r = .27$, $p < .05$ to $r = .68$, $p < .01$.

Since no *a priori* hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the multiple linear regression analyses. The six independent variables (Model 1) explained 73% of variance in criminal attitudes ($F(6, 56) = 28.45$, $p < .05$). The predictors with the lowest non-significant regression coefficient (neuroticism $\beta = .08$, $t(61) = 1.14$, $p > .05$; education $\beta = -.11$, $t(61) = -1.01$, $p > .05$; and extraversion $\beta = .13$, $t(61) = 1.70$, $p > .05$) were removed and a final regression analysis conducted had an R of .85, $R^2 = .73$, and an adjusted R^2 of .71, with only three significant predictors of criminal attitudes. Together, these three predictors shared 71% explained variance in criminal attitudes ($F(3, 59) = 52.60$, $p < .05$). The strongest predictor was psychoticism ($\beta = .41$), followed by association with criminal friends ($\beta = .28$), and recidivism ($\beta = .26$) (see Table 4).

Discussion

The purpose of the present study was to investigate the impact of a range of sociological and psychological variables on the prediction of criminal attitudes among an Irish sample of ex-prisoners. The pattern of results indicates that of the total set of independent variables examined, psychoticism, association with criminal peers, and recidivistic tendencies significantly predicted the presence of criminal attitudes. When these three variables were considered together, they were found to explain 71% of variance in the presence of criminal attitudes. Psychoticism was identified to be the strongest predictor of criminal attitudes, followed by association with criminal peers, and levels of recidivism. The role of personality (psychoticism) as the strongest predictor of criminal attitudes within this sample of ex-prisoners is a unique and interesting discovery.

An open question within the criminal psychology literature surrounds the nature of the relationship between personality traits and criminal attitudes. Although certain researchers have speculated as to the relationship between personality and criminal attitudes (Bulten, et

al., 2009), little or no research has been conducted to investigate any possible relationship that may exist between these psychological variables. Mills and colleagues (2004), for example, hypothesized that an antisocial personality type would constitute a sufficient condition for the presence of antisocial/criminal attitudes however this hypothesis has unfortunately not been subjected to empirical testing. Findings from the current study begin to provide empirical evidence regarding the possible nature of the relationship between personality traits and criminal attitudes.

Although this finding certainly does not provide support for Mills et al.'s, (2004) hypothesis that an antisocial personality type is a *sufficient* condition for the presence of criminal attitudes, it does however provide initial empirical support for the more general hypothesis of a significant predictive relationship between an antisocial personality and the presence of criminal attitudes. This evidence of a significant relationship between psychoticism and the presence of criminal attitudes adds to the existing empirical literature (Cale, 2006; Center, et al., 2005; Heaven, et al., 2004; Kemp and Center, 2003; Levine and Jackson, 2004; Van Dam, et al., 2005; Walker and Gudjonsson, 2006), in a new and important manner, attesting to the importance of personality in understanding criminal behaviour.

An association with criminal peers was also found to significantly predict the presence of criminal attitudes. In other words, these findings suggest that individuals who spend longer periods of time in the presence of social peers who engage in criminal behaviour are at greater risk of acquiring antisocial/criminal attitudes. This finding is consistent with Sutherland's Differential Association Theory (Sutherland, et al., 1992) which states that criminal attitudes are formed as a consequence of learning that takes place in close personal or social groups. This result further demonstrates the importance of the social-environment in which a person exists in understanding the acquisition of criminal cognitions. The relationship between criminal attitudes and criminal associates identified in the current study is congruent with the findings of Andrews and Kandel (1979) and Mills et al. (2002) who described the interactional relationship between the normative influence of criminal associates and an individual's own criminal attitudes.

Criminal attitudes were also found to be significantly predicted by recidivistic levels suggesting that as the number of incarcerations a person experiences increases the greater the likelihood a person will possess attitudes of a criminal nature. The results of the current study are consistent with research findings from Rhodes (1979), Holsinger (1999), and Losel (2003) who demonstrated that socialization in criminal environments, such as prisons, can lead to the acquisition and intensification of criminal attitudes.

As with any research endeavour there were a number of limitations associated with this study which should be considered. A primary limitation concerns the use of self-report measures and rating scales with a specific sample of participants who had a short attention span and a less than complete command of the English language. Although these measures allowed a sufficient number of participants to be sampled in a relatively short period of time, however, what is uncertain is the extent to which participants were able to fully understand the various items included in the questionnaire.

Psychoticism, association with criminal peers, and recidivism levels accounted for 71% of variance in the prediction of criminal attitudes, which constitutes a very effective explanatory model. However, it must be noted that the amount of variance explained in criminal attitudes may be inflated due to the relatively small sample size and future research would preferably consider a larger sample. Furthermore, future studies should preferably employ a longitudinal research design in order to determine whether the variables under investigation in this study can explain the development of, rather than simply the presence of, criminal attitudes.

Although there have been numerous studies carried out which have examined the relationship between personality traits and criminal *behaviour*, no previous study has investigated the role of personality in the prediction of criminal *attitudes*. This study constitutes the first piece of empirical evidence demonstrating a predictive relationship between antisocial personality traits, as defined by Eysenck, and criminal attitudes. These results lead to a better understanding of the underlying sociological and psychological mechanisms of criminal attitudes and indicate that future research regarding the nature and development of criminal attitudes should consider the role of personality, associations with criminal friends, and recidivistic behaviour.

References

- Agnew R (1995). Testing the leading crime theories: An alternative strategy focusing on motivational processes. *Journal of Research in Crime and Delinquency* 32: 363-398.
- Akers R (1985). *Deviant Behavior: A Social Learning Approach*. Belmont: Wadsworth.
- Akers R, Krohn M, Lanze-Kaduce M, Radosevich M (1979). Social Learning and Deviant Behavior: A Test of General Theory. *American Sociological Review* 44: 636-55.
- Andrews DA, Bonta J (1994). *The psychology of criminal conduct*. Cincinnati: Anderson.
- Andrews KH, Kandel DB (1979). Attitude and behavior: A specification of the contingent consistency hypothesis. *American Sociological Review* 44: 298-310.
- Bagozzi RP, Burnkrant RE (1979). Attitude organization and the attitude-behavior relationship. *Journal of Personality and Social Psychology* 37: 913-929.
- Bulten E, Nijman H, van der Staak C (2009). Measuring criminal thinking style: The construct validity and utility of the PICTS in a Dutch prison sample. *Legal and Criminological Psychology* 14: 35-49.
- Cale EM (2006). A quantitative review of the relations between the “Big3” higher order personality dimensions and antisocial behaviour. *Journal of Research in Personality* 40: 250-284.
- Center DB, Jackson N, Kemp D (2005). A test of Eysenck’s antisocial behavior hypothesis employing 11-15 year old students dichotomous for PEN and L. *Personality and Individual Differences* 38: 393-402.
- Conklin JE (2003). *Criminology* (8th Ed). Needham Heights, MA: Allyn & Bacon.
- Eysenck HJ (1977). *Crime and personality*. London: Routledge and Kegan Paul.
- Eysenck HJ (1987). Personality theory and the problems of criminality. In BJ McGurk, DM Thorton, M Williams (Eds.). *Applying Psychology to Imprisonment: Theory and Practice*. London: HMSO.
- Eysenck HJ, Gudjonsson GH (1989). *The causes and cures of criminality*. New York: Plenum Press.
- Francis LJ, Brown LB, Philipchalk R (1992). The development of an abbreviated form of the Revised Eysenck Personality Questionnaire (EPQR-A): Its use among students in England, Canada, the USA and Australia. *Personality and Individual Differences* 13: 443-449.
- Gendreau P, Little T, Goggin C (1996). A meta-analysis of the predictors of adult offender recidivism: What works! *Criminology* 34: 575-607.
- Heaven PCL, Newbury K, Wilson V (2004). The Eysenck psychoticism dimension and delinquent behaviours among non-criminals: Changes across the lifespan? *Personality and Individual Differences* 36: 1817-1825.
- Holsinger AM (1999). Assessing criminal thinking: Attitudes and orientations influence behaviour. *Corrections Today* 61: 22-25.
- Jessor R, Donovan JE, Costa FM (1991). *Beyond Adolescence: Problem Behaviour and Young Adult Development*. Cambridge: Cambridge University Press.
- Kemp DE, Center DB (2003). An investigation of Eysenck’s antisocial behavior hypothesis in general education students with behavior disorders. *Personality and Individual Differences* 35: 1359-1371.
- Levine SA, Jackson CJ (2004). Eysenck’s theory of crime revisited: Factors or primary scales? *Journal of Legal and Criminological Psychology* 9: 135-152
- Losel F (2003). The development of delinquent behaviour. In D Carson, R Bull (Eds) *Handbook of Psychology in Legal Context* (2nd Ed). England: John Wiley and Sons, Ltd.

- Mills JF (2000). Criminal attitudes: Assessment and the relationship with psychopathy and response latencies. Unpublished doctoral dissertation, Carleton University, Ottawa, Canada.
- Mills JF, Kroner DG (1999). Measures of criminal attitudes and associates. Unpublished User Guide.
- Mills JF, Kroner DG, Forth AE (2002). Measures of Criminal Attitudes and Associates (MCAA): Development, factor structure, reliability, and validity. *Assessment* 9: 240-253.
- Mills JF, Kroner DG, Hemmati T (2004). The Measures of Criminal Attitudes and Associates (MCAA): The prediction of general and violent recidivism. *Criminal Justice and Behavior* 31: 717-733.
- Nesdale D, Maass A, Kiesner J, Durkin K, Griffiths J, James B (2009). Effects of peer group rejection and a new group's norms on children's intergroup attitudes. *British Journal of Developmental Psychology* 27: 799-814.
- Rhodes ML (1979). The impact of social anchorage on prisonization. *Dissertation Abstracts International* 40: 1694A. (UMI No. 79-19, 101).
- Simourd DJ (1999). Assessment of criminal attitudes: Criterion-related validity of the Criminal Sentiments Scale-Modified and Pride in Delinquency scale. *Criminal Justice and Behavior* 26: 90-106.
- Sutherland EH, Cressey DR, Luckenbill DF (1992). *Principles of criminology*. Dix Hills, N.Y.: General Hall.
- Tabachnick BG, Fidell LS (2007). *Using Multivariate statistics*. Boston: Pearson Education.
- Van Dam C, Janssens JMAM, De Bruyn EEJ (2005). PEN, Big Five, juvenile delinquency and criminal recidivism. *Personality and Individual Differences* 39: 7-19.
- Walker JS, Gudjonsson GH (2006). The Maudsley Violence Questionnaire: Relationship to personality and self-reported offending. *Personality and Individual Differences* 40: 795-806.
- Walters GD (2006). Appraising, researching and conceptualizing criminal thinking: a personal view. *Criminal Behaviour and Mental Health* 16: 87-99.
- Yochelson S, Samenow SE (1976). *The Criminal Personality (Vol. 1): A Profile for Change*. New York: Jason Aronson.

Table 1.
Demographic characteristics of the sample

Variable	Frequencies (N=64)	% (N=64)
Marital status		
Single	35	54.7
Married	20	31.3
Divorced/Separated	9	14
Number of children		
None	36	56.3
One	7	10.9
Two to four	19	29.7
Five or more	2	3.1
Education		
Primary school	35	57.7
Secondary school	18	28.1
College/University	8	14.2
Location		
Urban	40	62.5
Rural	24	37.5

Table 2.
Descriptive statistics for the measures involved in the study

Variables	M	SD	Range	Possible Range
Criminal Friends	4.84	6.34	0 - 27	0 - 64
Recidivism	1.37	.65	1 - 3	1 - 3
Criminal Attitudes	18.86	9.10	1 - 35	0 - 46
Extraversion	3.66	2.14	0 - 6	0 - 6
Neuroticism	2.56	1.48	0 - 6	0 - 6
Psychoticism	2.20	1.76	0 - 6	0 - 6

Table 3.
Correlations among variables included in the study.

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Criminal attitudes	-										
2. Age	.08	-									
3. Education	-.68**	-.27*	-								
4. Marital Status	.03	.63**	-.24	-							
5. No. of Children	-.01	.67**	-.18	.80**	-						
6. Location	-.11	.16	-.03	.08	.14	-					
7. Recidivism	.68**	.33**	-.73**	.29*	.28*	.15	-				
8. Criminal Friends	.71**	.03	-.66*	.05	-.06	.04	.62**	-			
9. Neuroticism	.27*	-.23	-.27*	-.12	-.07	-.16	.29*	.25	-		
10. Extraversion	.38**	.16	-.32*	.20	.23	-.04	.34**	.46**	.18	-	
11. Psychoticism	.59**	-.20	-.35*	-.29*	-.30*	-.09	.28*	.31*	.01	-.02	-

Note: ** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

Table 4.
Regression coefficients and results of significance tests for final regression model of criminal thinking style.

	R	R ²	adjR ²	β	t	p value
Final Model	.85	.73	.71			
Education				-.11	-1.01	.32
Recidivism				.26	2.51	.02*
Criminal Friends				.28	2.77	.01*
Psychoticism				.41	5.51	.00*
Extraversion				.13	1.70	.10
Neuroticism				.08	1.14	.26

Note: * significant at .05 level