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Immoral Judgement, Extraversion, Neuroticism, and Criminal Behaviour*

Moshe Addad
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Abstract: *The present article examines delinquent behaviour by integrating two approaches which have heretofore been employed separately—Eysenck's theory linking delinquency to extraversion and neuroticism and Kohlberg's theory of moral development and its connection to moral behaviour. It analyses the relations between extraversion, neuroticism and moral judgement—as well as their independent and/or interactive effect upon the development of anti-social behaviour. The relationships are tested via retrospective measurements of personality traits and moral judgement in three groups: delinquency (N = 203), control (N = 82) and comparative (N = 407) groups.*

Findings indicate that criminals are higher than control subjects on neuroticism and immoral judgement but not on extraversion. Similar relationships were found between criminals and the comparative group. The implications of these results for the differential development of anti-social behaviour is discussed.

INTRODUCTION

Of the varied approaches employed in psychological research to explain delinquent behaviour, two are central: Eysenck's theory linking delinquency to personality types such as extraversion and neuroticism (Eysenck, 1977), and Kohlberg's theory of moral development and its connection to moral behaviour (Kohlberg, 1984; Rest, 1979; Blasi, 1980). Heretofore these two approaches have been investigated separately; the present study aims to integrate them, and to investigate their common relationship to delinquency. In doing so, both types of variables are included in a single predictive model. The interrelationships between the variables are tested by retrospective measurements of personality types and moral judgement in three groups: a delinquency, control and comparative group.

MORAL JUDGEMENT

Most of the studies on moral reasoning and delinquent behaviour have reported some relationship between the two variables (Blasi, 1980; Arbuthnot, Gordon and Jurkovic, 1987). These findings, however, are not unequivocal. Although, many of the delinquents are pre-conventional in moral orientation, a

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sizable proportion are at the conventional level of judgement. In other words, it can be said, that the relationship between the two variables is statistically significant, but the predictive power of moral reasoning seems quite weak. Consequently, Jennings and his colleagues (Jennings, Kilkenney and Kohlberg, 1983) conclude that immature moral reasoning is probably not the root cause of delinquency, but rather, reaching the conventional level of judgement has an insulating effect against delinquency.

This attempt to define the exact (and maybe modest) role of moral reasoning in the etiology of delinquency is in accordance with the new theoretical approaches that view moral reasoning as part of a more complex explanatory models of moral action (Blasi, 1983; Kohlberg and Candee, 1984; Rest, 1984). These models consider moral reasoning as an antecedent cause that affects behavior indirectly through moral judgement and decision-making. These mediating components of morality (Rest, 1984) are shaped by motivational and emotional as well as structural-cognitive processes and might be affected by, or interact with, personality traits or types (Eysenck and Eysenck, 1985) in producing moral (or immoral) action.

In contrast to the cognitive-structural approach which stresses the importance of logic and reasoning in the establishing of moral judgement, it is suggested that moral judgement and decision-making incorporates processes to which the individual has adapted through his or her development, conditioning and imitation (Baruk, 1972; Addad and Benezech, 1987). This approach which takes moral content as well as moral structure into consideration (Nisan, 1984) may provide a better prediction of behaviour than a moral reasoning one.

In constructing a personal profile of moral judgement, Baruk's (1972, 1982) five categories are particularly useful. They may be succinctly described as follows:

Self-interest judgement is representative of egocentric judgement based upon calculations directed by the individual's narrow needs. To achieve one's goals, all means are perceived as fair. This class of judgement corresponds to Kohlberg's (1984) pre-conventional stage, and the heteronomous level described by Bull (1969) in which fear leads to obedience.

Normative judgement is dictated by the individual's needs, and directed by society's immediate commands. The individual who is guided by such a thought process firmly believes the needs and demands of society (e.g. social norms) are expressed primary in moral judgement. This represents a socially based egotism, in contrast to the personal egotism which directs judgement motivated by self-interest. This class of judgement corresponds Kohlberg's (1984) conventional stage and Bull's (1969) socionomous level.

Humane judgement is based on the view that man is the centre of group existence and that justice is superior to all other values. Baruk (1972) claims that this type of judgement is based on a feeling for universal humanity, that is, very human being is entitled to just treatment, regardless of age, race, religion and so forth. This type of judgement is directed "by the deep feeling that the social order is meant to serve the individual in society." Right, loyalty, justice and mercy unite and direct the process of judgement. Such judgement is in accord

with Kohlberg's (1984) postconventional stage, and Bull's (1969) autonomous judgement level.

Ambivalent judgement incorporates a conflict between the humanistic judgement and the two classes of egoistic judgement above. In this mode, an array of personal and group needs is pitted against the value of justice, with no clear cut decision forthcoming.

Absence of judgement refers to the lack of a personal judgement. The individual does not choose one of the above four judgements, but rather responds with a simple confirmation of the facts. He or she is unaware of the existence of an internal confrontation of values or human needs. Such judgement is devoid of personal vitality, and is directed by rituals of thought and behaviour. Generally, such judgement is indicative of alienation from one's environment or of a pathological trait in the individual's judgemental process.

A person's judgement profile may be determined by assessing the relative frequency of the classes of judgement he or she chooses in response to a variety of moral dilemmas. We assume that the most relevant profile to the study of delinquent behaviour entails the combined weight of the three 'immoral' judgements, namely, self-interest, normative judgement and absence of judgement. Of the above five classes of moral judgement, these three lack any humanistic consideration in their argument. Hence, a high frequency of these three classes of judgement with respect to a variety of moral dilemmas can be said to indicate immoral judgement.

EXTRAVERSION AND NEUROTICISM

The basic tenets of Eysenck's theory of criminality (1977) relate to the physiologically determined higher-order personality factors of extraversion and neuroticism. According to this theory, extrovert subjects condition less well than introverts and thus fail to develop social responses which will serve to contain the universally present propensity to crime. Moreover, this propensity for criminal behaviour is said to be reinforced by a high degree of neuroticism, which strongly enhances the drive to satisfy anti-social urges.

The studies that have tested Eysenck's theory can be divided into two types: those that compared delinquents or criminals with a control group, and those that tested a 'normal' population for covariance between anti-social behaviour and personality measures. Findings in the former type of research sometime contradicted Eysenck's theory, especially with regard to the relationship between extraversion and delinquency (Eysenck and Eysenck, 1973). On the other hand, the studies of 'normal' populations have pointed to a lack of relation between delinquency and neuroticism, while the link between delinquency and extraversion has been strong (Rushton and Chrisjohn, 1981).

While it is possible that Eysenck's hypotheses are not sufficiently specific with respect to his predictions, several additional explanations may be offered for these contradictory results. First, there are certain differences between the populations investigated in the two types of studies. The neuroticism score is

rather moderate in the 'normal' population; hence, it may not reach a critical point where its influence first becomes apparent. Eysenck's own hypothesis is that neuroticism is simply less important during the early stages of the development of anti-social tendencies. Once anxiety becomes habitual (i.e., in adulthood), it amplifies criminal activity. This may explain why neuroticism was found to be much stronger than extraversion among incarcerated adults.

Second, the contradictory findings have been attributed to differences in personality types within the criminal population. Thus, it is suggested that a better test of Eysenck's theory may be obtained by revealing these types. For example, Burgess (1972) found that whereas extraversion or neuroticism in isolation did not predict anti-social behaviour, the interaction between them did differentiate between criminals and controls. Indeed, the pattern of high extraversion and high neuroticism has been found much more frequently among criminals than non-criminals (McGurk and McDougall, 1981; McEwan, 1983).

THE RELATIONSHIPS BETWEEN EXTRAVERSION, NEUROTICISM, MORAL JUDGEMENT AND ANTI-SOCIAL BEHAVIOUR

While Eysenck's theory implies a relation between extraversion and immoral judgement, as it contends that it is more difficult to socialize extroverts to adopt normative behaviour, their interrelated effect on delinquency may take different forms. The most plausible model is one where moral judgement mediates some or all the effect of extraversion on delinquency. As opposed to this hypothesis one could argue that without knowledge of the nature of the socialization the subject receives, it may be difficult to pinpoint the relationship between moral judgement and extraversion. The categories of moral judgement with which we deal are not dictated entirely by common social norms or by the conventional rules of law and order, but rather may reflect a much higher degree of autonomic judgement into which not every person in the society is socialized. Thus, for similar extraversion levels, differences in socializations may lead to different profiles of moral judgement. Consequently, extraversion and moral judgement may show independent additive effects on delinquency or even no effect at all on the part of extraversion. The links between these variables may be revealed by taking both extraversion and moral judgement into account when examining delinquent behaviour.

As for neuroticism, according to Eysenck's theory, it should serve merely as a reinforcer; hence, one would not expect a link between it and moral judgement. Nevertheless, it may play an important role as a reinforcer among those who have abandoned or failed to acquire rules of moral behaviour. Hence, there may be an interaction effect of neuroticism and moral judgement upon anti-social behaviour; that is, the relationship between delinquency and neuroticism is expected to be stronger among subjects with high scores of immoral judgement than among those with low ones.

METHOD

SUBJECTS

In the present study 692 subjects were examined. They consisted of three groups: (1) a delinquent group of 203 male incarcerated criminals, of whom 100 were adults (mean age = 30.5, SD = 1.34) and 103 were adolescents between the ages of 16 and 21 (mean age = 18.1, SD = 1.23); (2) a control group of 82 non-delinquents similar to the criminal group on sex (males only), ethnic and socioeconomic origin, education and size of family of origin (the mean age of the control group was slightly lower than that of the criminals, but as a subsequent analysis has shown, had no effect on the results); and (3) a comparative group consisting of 407 students and teachers.

MEASURES

Two questionnaires were employed: a Hebrew version of Eysenck's and Eysenck's (1969) MPI to assess extraversion and neuroticism¹ and a questionnaire based on Baruk's (1972) theory of moral judgement.

The MPI consists of 48 items, half of which relate to extraversion (E), and half to neuroticism (N). Possible E and N scores range from 0 (low) to 48 (high). For the purpose of the present study, we divided the subjects into two E and N groups as follows: low E (0-36) and high E (37-48); low N (0-28) and high N (29-48). The cut-off point was chosen so as to arrive at a group with a comparatively high level of either variable that included enough criminal subjects to perform a significant statistical analysis.

The moral judgement questionnaire employed consisted of a set of 16 situations involving moral dilemmas. The original dilemmas were modified so as to be relevant to modern Israeli society, and their reliability was pre-tested. Each moral dilemma was followed by five possible solutions (corresponding to Baruk's five classes of moral judgement, as detailed above) plus a sixth open alternative. Subjects were asked to choose between the listed solutions, and, where all of these were perceived as inappropriate, to offer his or her personal opinion. The open-ended answer was assigned by three raters to one of the five modes of judgement. In cases where the raters disagreed, the data were not included in the analysis. The following is a sample question:

Reuben is walking along the road when he notices his enemy Simon lying injured on the pavement. Simon cries for help. Reuben refuses to give assistance and makes no effort to get him to a hospital, on the grounds that this is his opportunity to take revenge on his enemy. What is your view of Reuben's conduct?

Choose one of the following opinions only after having read all of them. Or, if you wish, you may express your view in your own words.

a. Reuben's behaviour was shameful. An injured person should be given help no matter what the circumstances, even if he is one's enemy [humane judgement].

- b. Reuben was incapable of extending help to Simon, since he was no longer his friend. This is the way people think, speak and act. That's the way it is with people [normative judgement].
- c. What Reuben did was right. It was good that he gave no help to his enemy and in this way got rid of him [self-interest judgement].
- d. So, that is the way Reuben acted and took revenge on his enemy, Simon [absence of judgement].
- e. It all depends on what Simon had done to Reuben. Maybe Simon killed Reuben's wife or had a hand in causing her death, so that Reuben was right in not helping him. However, if the hostility between them is the result of an old debt or the like, then Reuben's behaviour is not right. Nevertheless, it must be kept in mind that there are two sides to the story [ambivalent judgement].
- f. If none of the above categories seem appropriate, note your personal opinion.

A score for each subject with respect to each judgement class was calculated by dividing all responses corresponding to that class by the total number of answers given. For example, if a given subject gave a humane judgement in 12 out of 16 dilemmas, his or her humane judgement score would be $12/16 = 0.75$. A score for each subject's total immoral judgement was obtained by adding the scores of his or her three immoral judgement (self-interest, normative judgement and absence of judgement).

PROCEDURE

All three questionnaires were administered together. Subjects responded individually without assistance, except for the general instructions given verbally at the beginning of the interview which reappeared in the questionnaires themselves. Subjects were told that they were selected as members of a random sample, and that the purpose of the questionnaire was to examine their attitudes, feelings and thoughts. They were assured of anonymity, and were permitted to place the completed questionnaires in a pile in any order they chose. The questionnaires were administered to incarcerated subjects either in a private interview with one of the authors or one of three assistants, or in a group setting in which each subject answered individually. The questionnaires were administered to the non-criminals in small groups of four or five subjects.

DATA ANALYSIS

T-tests were performed upon the mean scores of extraversion, neuroticism and immoral judgement for testing differences among the investigated groups. A log-linear analysis suitable for testing multivariate relationships between nominal or ordinal variables (Goodman, 1972) was then employed to test for independent relationships between delinquency and each of these variables as well as for interaction effects. This analysis was performed separately for two groups, one consisting of criminals and control subjects (criminals-control), and the other consisting of criminals and comparative subjects (criminals-

comparative). The log-linear approach allowed us to choose the most parsimonious model with the best fit from all possible relationships between the variables. A simple model is considered best when it best fits the data, as indicated by its likelihood-ratio χ^2 (L^2) goodness-of-fit test ($p > .05$), and when there are no more complicated models that significantly improve the fit. Where a complicated model significantly improves the fit of the simple model, it is considered the best model. To avoid the problem of empty cells, we analysed three-variable models. A four-variable model is examined only if a significant interaction between immoral judgement and either neuroticism or extraversion is found for delinquency.

Finally, we examined the direction and power of the relationship between delinquency and the other variables by calculating the ratio, in a given cell i, j (i and j being categories of variables x and y , respectively) of the observed proportion of delinquents ([no. criminals in cell]/[no. subjects in cell]) to their expected proportion ([total criminals in sample]/[total sample]). A ratio of 1.0, indicating an identical proportion of delinquents in the cell as in the entire sample, signifies a lack of relationship between categories i and j and delinquency. Any other ratio indicates that a relationship exists between them.

RESULTS

Table I presents means and standard deviations of extraversion, neuroticism, and immoral judgement for the three groups of subjects. The means show significantly higher scores for the criminals than the control group on both neuroticism, ($t = 3.75$, $p < .001$) and immoral judgement ($t = 4.40$, $p < .001$), which on extraversion the control group's score is higher than the criminals' one ($t = -4.47$, $p < .001$). The criminals have significantly higher scores than the comparative group in neuroticism ($t = 18.36$, $p < .001$) and immoral judgement ($t = 10.63$, $p < .001$) but not in extraversion ($t = 1.43$, $p > .150$).

TABLE I
MEANS AND STANDARD DEVIATIONS
OF EXTRAVERSION, NEUROTICISM AND
IMMORAL JUDGEMENT FOR CRIMINAL,
CONTROL AND COMPARATIVE GROUPS

Traits	Groups		
	Criminal	Control	Comparative
Extraversion	25.88 (6.43)	28.92 (4.60)	26.73 (7.62)
Neuroticism	35.63 (8.46)	31.77 (5.37)	21.13 (10.11)
Immoral Judgement	0.28 (0.18)	0.19 (0.11)	0.14 (0.13)

TABLE II
LOG-LINEAR MODELS FOR RELATIONS BETWEEN DELINQUENCY (D), EXTRAVERSION (E), NEUROTICISM (N) AND IMMORAL JUDGEMENT (I)

(a)	Models for D N E	criminal/control			criminal/comparative		
		L ²	df	P	L ²	df	P
M1	[D] [N] [E]	18.17	4	.001	222.61	4	.000
M2	[DN] [E]	10.01	3	.018	6.57	3	.087
M3	[DE] [N]	9.22	3	.026	222.15	3	.000
M4	[NE] [D]	15.88	3	.001	216.94	3	.000
M5	[DN] [DE]	1.07	2	.587	6.11	2	.047
M6	[DN] [NE]	7.73	2	.021	.90	2	.638
M7	[DE] [NE]	6.93	2	.031	216.49	2	.000
M8	[DN] [DE] [NE]	.01	1	.925	.31	1	.578
(b)	Models for D I E	L ²	df	P	L ²	df	P
M1	[D] [I] [E]	31.58	7	.000	67.11	7	.000
M2	[DI] [E]	11.44	5	.043	1.03	5	.960
M3	[DE] [I]	22.28	6	.001	66.46	6	.000
M4	[IE] [D]	29.65	5	.000	66.82	5	.000
M5	[DI] [DE]	2.14	4	.710	.38	4	.984
M6	[DI] [IE]	9.51	3	.023	.74	3	.865
M7	[DE] [IE]	20.36	4	.000	66.16	4	.000
M8	[DI] [DE] [IE]	1.51	2	.469	.23	2	.892
(c)	Models for D N I	L ²	df	P	L ²	df	P
M1	[D] [N] [I]	33.85	7	.000	281.96	7	.000
M2	[DN] [I]	21.96	6	.001	69.61	6	.000
M3	[DI] [N]	13.97	5	.016	214.53	5	.000
M4	[NI] [D]	29.67	5	.000	247.50	5	.000
M5	[DN] [DI]	2.08	4	.722	2.19	4	.701
M6	[DN] [NI]	17.78	4	.001	35.15	4	.000
M7	[DI] [NI]	9.79	3	.020	180.07	3	.000
M8	[DN] [DI] [NI]	.39	2	.823	.05	2	.975

Examining the relationships between delinquency (D), neuroticism (N) and extroversion (E), we find model M5 to be the best one to fit the data for the criminals-control group (Table IIa). This means that two out of the three simple relations among the variables are statistically significant; D is linked to N and E, but the latter two variables are not linked to each other. The observed/expected ratios of criminals for the same variables (E and N) and group (criminals-control) indicates that, regardless of N level, there are more criminals in the low than in the high level of E (Table IIIa). Conversely, regardless of E level, there are more criminals in the high than the low level of N. The picture is somewhat different for the criminals-comparative group. The model that fits the data best is M6 (Table IIa), indicating that N is related to D and E, but E is not related to D.

TABLE III
RATIOS OF OBSERVED/EXPECTED CRIMINALS FOR DIFFERENT
LEVELS OF EXTRAVERSION, NEUROTICISM AND
IMMORAL JUDGEMENT

(a) Extraversion and Neuroticism						
Neuroticism	Criminals-Control			Criminals-Comparative		
	Extraversion			Extraversion		
	Low	High	Total	Low	High	Total
Low	0.79	0.35	0.51	0.21	0.21	0.21
High	1.74	0.83	1.23	3.09	3.91	3.34
Total	1.48	0.66		1.04	.094	

(b) Extraversion and Immoral Judgement						
Immoral Judgement	Criminals-Control			Criminals-Comparative		
	Extraversion			Extraversion		
	Low	High	Total	Low	High	Total
Low	1.02	0.43	0.66	0.64	0.56	0.62
Medium	2.15	1.03	1.50	2.20	2.08	2.14
High	7.03	—	10.55	7.20	4.50	6.00
Total	1.49	0.65		1.06	.092	

(c) Neuroticism and Immoral Judgement						
Immoral Judgement	Criminals-Control			Criminals-Comparative		
	Neuroticism			Neuroticism		
	Low	High	Total	Low	High	Total
Low	0.31	0.85	0.67	0.13	2.13	0.62
Medium	0.65	1.89	1.50	0.41	6.63	2.15
High	—	9.77	10.55	0.80	16.67	6.75
Total	0.42	2.13		0.18	3.42	

With respect to the ratios (Table IIIa), more criminals than expected are concentrated in the high levels of N, but they are almost proportionally represented in the cells of high and low levels of E.

Looking at the relationship between delinquency (D), immoral judgement (I) and extraversion (E), M5 is found to be the best model for the criminals-control group since no more complicated model gives a significantly better fit (Table IIb). This finding indicates that there are significant relationships between D and I and D and E, while however, the former relationships are in the expected direction (the higher the level of I, the higher the ratios of criminals; Table IIIb), the latter one is in the opposite direction (the higher the level of E the lower the ratios of criminals). As for the criminals-comparative group, the log-linear analysis indicates significant simple relationships between D and I only (model M2 in Table IIb). And as expected, the higher the level of I, the higher the ratios of criminals (Table IIIb).

Finally, we examine the relationship between delinquency (D), immoral judgement (I) and neuroticism (N). The log-linear analysis for both the criminals-control and criminal-comparative groups shows significant relationships between D and N and between D and I but no interaction effect (model M5 in Table IIc). For both groups the ratio of criminals increases as N and I levels increase (Table IIIc).

Summarizing the findings for the criminals-control group, E is related to D when controlled for N or for I, but its effect is contrary to what is expected. Thus, only neuroticism and immoral judgement show consistent significant simple relations with delinquency and in the expected direction—criminals are higher on these two variables than control subjects. Similar relationships between D and N and between D and I were found for the criminals-comparative group. However, for this group, E, controlled for N or I is not related to D. In addition, the results yield significant relations between E and N, but not between E and I or N and I.

DISCUSSION

Examining the interrelationships between extraversion, neuroticism, immoral judgement and delinquency, we found that immoral judgement is positively related to delinquent behaviour—criminals have higher immoral judgement scores than non-criminals. Blasi (1980), in his conclusion, stated that objective moral judgement measures usually failed to differentiate significantly between delinquents and nondelinquents, and since then subsequent use of these measures has not resulted in any significant improvement in predicting delinquent behavior. The present study has demonstrated that our method of measuring moral judgement, while it is easy to employ and to analyse in large scale studies, may yield a significant expected relationship between moral judgement and delinquent behavior.

Most of the studies relating moral judgement to delinquency employed age, education, I.Q. and various socioeconomic indicators as control variables. It's very rare, however, to find the inclusion of personality variables together with moral judgement in the same equation. By including together in one statistical model all these variables, we were able to support the hypothesis that predicts positive relation between immoral judgement and delinquency while controlling the effects of extraversion and neuroticism.

As for the personality variables, neuroticism was found to be linked to delinquency; however the expected relation between extraversion and delinquent behaviour was not found. Since our subjects were mostly adults, this finding is consistent with Eysenck and Eysenck (1977) findings that neuroticism is more important during the latter than the earlier stages of the development of anti-social behaviour.

The unexpected relationships found between extraversion, immoral judgement, and delinquency in the criminal-control group may offer some clues as to how the three variables are related to anti-social behaviour. It has been argued that introverted individuals learn a new response in fewer experiences than

extroverts, and that the latter are therefore more likely to have a deficit of conditioned socialized responses. According to this argument, extraversion is not related directly to anti-social behaviour, but is rather a predisposition that makes it difficult to condition a person to socialized behaviour. The fact that the control group in our sample scored highest for extraversion may indicate that they are more prone to anti-social behaviour but not that they will automatically adopt such behaviour. It may be argued that the social environment plays an important role in directing extroverts to different paths of behaviour. Although this study was not designed to reveal such differential socialization, it may be speculated that, despite conditioning difficulties, the socialization of the control group was more successful than that of the criminals. Such a claim is supported by the significant differences in immoral judgement between the two groups. Thus, although extraversion cannot be dismissed as altogether irrelevant to the study of crime, it is not always sufficient for explaining delinquent behaviour. The mechanism which creates such a behaviour is complicated and probably includes social and behavioural factors (such as moral development and education), in addition to individual differences (Lane, 1987).

CONCLUSION

This study is cross-sectional and therefore suffers from well known methodological problems which requires the qualification of any causal conclusion. For example, it is impossible to know whether higher levels of immoral judgement or neuroticism are causes of anti-social behaviour or are the effects of the individual's criminal environment, his incarceration or other circumstances that followed the committing of criminal acts. However, we have some indications that immoral judgement may precede anti-social behaviour rather than succeeding it. If immoral judgement is a function of the time a person spends in prison or in other criminal environments, it seems plausible that younger delinquents will obtain a lower level of immoral judgement than older ones. Our data does not show any significant difference in immoral judgement among the criminals' age-groups. Thus, we believe that immoral judgement is a cognitive-emotional development that precedes the criminal act.

It is obviously rather simplistic to treat criminals as one homogeneous group. Findings show that criminals divided into subgroups on the basis of the nature, seriousness, and motivation of their anti-social acts, differ in terms of personality (Eysenck, 1986) and moral reasoning (Arbuthnot, Gordon and Jurkovic, 1987). Hence, the hypotheses that were rejected in our study might be verified when applied to specific types of anti-social behaviour. This possibility should be taken into consideration in future research.

NOTES

¹Extraversion and neuroticism have been measured, for quite a long time, by EPQ (Eysenck Personality Questionnaire) and not by MPI (Maudsley Personality Inventory). The main differences between these personality inventories is that the former includes

dissimulation and psychoticism scales in addition to extraversion and neuroticism (Eysenck and Eysenck, 1985). The items that compose the extraversion and neuroticism measures in the two personality inventories are not identical. Thus, we tested the correlations between MPI and EPQ for each of the two measures on a sample of about 100 students. For both extraversion and neuroticism Pearson's correlation coefficients were close to .90. These findings indicate that our results are not affected by the measure used, and employing EPQ instead of MPI would not produce substantially different extraversion and neuroticism scores.

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