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## Personality prototypes based on dimensions of the revised reinforcement sensitivity theory among prisoners and non-prisoners



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### ABSTRACT

The aims of this study are to identify personality types based on the constructs of the revised reinforcement sensitivity theory, and to examine the relations between personality types, violent behavior and attitudes toward violence in prison and non-prison samples. The study was conducted on a sample of 716 males (including 107 prison inmates). The clusters named *approaching*, *avoidant* and *controlled* were extracted. Cluster solutions obtained in prison and non-prison samples showed great similarity. Differences between clusters with regard to violent behaviors and attitudes toward violence were examined in each of the sub-samples separately. In the non-prison sample, the clusters differ with regard to all indicators of violence, except for violence toward parents, while in the prison sample the clusters do not differ with regard to violence toward partner and unknown people. In prison sample, participants with multiple prison sentences are most frequent in the approaching cluster.

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## 1. Introduction

### 1.1. Personality and criminal behavior: Variable-centered vs. person-centered approach

Relations between personality and delinquent behavior have been investigated both in variable-centered and person-centered approaches. While variable-centered studies are focused on partial contributions of personality traits to antisocial behavior, the person-centered studies examine the contributions of distinctive personality prototypes. It appears that, within person-centered approach, the interest in delinquent behavior is twofold. The first important issue is whether personality types (extracted in general population) differ with regard to indicators of anti-social and delinquent conduct. Thus, in this context the indicators of criminal behavior may be regarded as important criteria for cluster validation (Dubas, Gerris, Janssens, & Vermulst, 2002; Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996). The second crucial issue is whether distinctive clusters of criminal offenders can be identified by using models of personality as framework (Herzberg & Hoyer, 2008; Herzberg & Roth, 2006). Such studies may show whether clusters of criminal offenders resemble the clusters extracted in

the general population, and therefore provide valuable information on replicability of broad personality prototypes.

### 1.2. Personality prototypes

Most studies have confirmed the existence of three robust personality prototypes: resilient, overcontrolled, and undercontrolled (Asendorpf, Borkenau, Ostendorf, & van Aken, 2001; Chapman & Goldberg, 2011; Hart, Burock, London, Atkins, & Bonilla-Santiago, 2005; Robins et al., 1996). Resilient persons usually show a profile with below average neuroticism and above average scores on the remaining four dimensions. They are socially well-adjusted. The overcontrolled individuals score high on neuroticism and low on extraversion, and show vulnerability to internalizing problems. The undercontrolled individuals score low on conscientiousness and agreeableness. They are impulsive and at greater risk for comorbid internalizing and externalizing problems (Asendorpf et al., 2001; Hart et al., 2005). It has been shown that personality prototypes differ with respect to juvenile delinquency (Robins et al., 1996), vandalism and drug use in adolescence (Dubas et al., 2002), and self-reported aggressiveness (Grumm & von Collani, 2009).

Some studies have shown the usefulness of the five-factor model (FFM)-based typological approach for studying offenders by showing that prisoner prototypes significantly differed with respect to childhood delinquency, sentence length, prevalence of Ecstasy and LSD use, and social support (Herzberg & Hoyer,

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2008; Herzberg & Roth, 2006). However, these studies have showed that optimal number of prototypes based on FFM is five (Herzberg & Hoyer, 2008; Herzberg & Roth, 2006), with two additional prototypes named confident and reserved. FFM has been most frequently used framework for research in this area. However, the results from the variable-centered approach suggest that psychobiological models may also be considered as the framework for person-centered studies, particularly if such studies are focused on relations between personality prototypes and delinquent behavior (Cale, 2006).

### 1.3. Reinforcement sensitivity theory and personality prototypes

In recent years, the reinforcement sensitivity theory (RST) (Gray, 1982; Gray & McNaughton, 2000), as one of the most important theoretical frameworks in the psychobiological paradigm, has come up as a useful model in explaining different types of behavior, including the antisocial behavior. The original RST (Gray, 1982) implies the existence of three behavioral systems with an important biological basis. The first one is the Behavioral Approach System (BAS), which regulates the approach and sensitivity to conditioned signals of reward, as well as relief of avoided punishment. The second system is the Behavioral Inhibition System (BIS), which regulates passive avoidance and sensitivity to conditioned signals of punishment, as well as frustration due to absence of reward. The third is the fight–freeze System (FFS), which regulates defensive behavior provoked by unconditioned aversive stimuli and corresponds to fear-related behavior or defensive aggression.

Although typologies based on original RST are rare, some authors (Knyazev & Slobodskaya, 2006) have shown that essentially the same personality prototypes as those previously recognized by the use of FFM, could also be identified using RST dimensions. For example, overcontrolled individuals were characterized by high behavioral inhibition, undercontrolled by high behavioral activation, and the resilient scored low on both dimensions (Knyazev & Slobodskaya, 2006). The use of different measures of RST constructs yielded very similar results. Some findings showed that the disinhibitory trait profile in a non-clinical sample is associated to high levels of illicit drug problems and antisocial PD symptoms (Taylor, Reeves, James, & Bobadilla, 2006). The most important conclusion drawn from these results was that such a profile exists in the population and might provide vulnerability toward disinhibitory disorders (Taylor et al., 2006).

The revision of the RST has been influenced by the recent findings in the field of neuropsychology (Gray & McNaughton, 2000). In the revised RST (rRST), the BIS system comprises functions of detection and resolution of conflicts between appetitive and aversive stimuli, as well as between two appetitive and two aversive stimuli (Gray & McNaughton, 2000). Therefore the BIS recognizes conflicts within or between the other two systems (BAS–FFFS, BAS–BAS and FFFS–FFFS conflicts) and aims to resolve these conflicts through the process of risk assessment, as well as memory and environmental scanning. In the rRST, BAS is treated as a system responsible for reacting to all appetitive stimuli-conditioned and unconditioned-bringing the organism into state of anticipating reward. The fight/freeze/freeze System is a reactive system which is responsible for behavior in fear-related situations, where a person experiences threat (McNaughton & Corr, 2004). Depending on the nature of threat, as well as on its distance, a person can react actively (which reflects fight system activation), by escaping (which underlies flight), or without any overt behavior (as a consequence of activation of freeze) (McNaughton & Corr, 2004).

Although the revised Gray's model may serve as a plausible framework for person-centered studies, there are virtually no studies examining personality prototypes based on the constructs of the rRST.

### 1.4. Current study

The current study has two main objectives, which correspond to the objectives of person-centered studies conducted in general and non-prison populations. The first objective of the current study is to identify the optimal number of clusters based on rRST dimensions. Although previous studies have shown similarities between the prototypes based on the RST and FFM, dimensions of rRST have not yet been used in a person-centered study. The stability of the obtained solutions will be tested by conducting the analyses separately in samples of prisoners and non-prisoners. Besides examining the stability of cluster solutions, these results could provide information on possible structural differences of personality prototypes in prison and general populations. The second objective of the research is external validation of prototypes obtained on the sample of the general population and the sample of prisoners. Criteria for external validation will be age, the tendency toward violent behavior, and attitudes toward violence. In a sample of offenders, additional criterion will be the number of previous prison sentences. The results of several studies (Dubas et al., 2002; Grumm & von Collani, 2009; Robins et al., 1996) justify the use of variables related to antisocial and violent behavior as criteria for external validation of clusters.

## 2. Method

### 2.1. Participants and procedure

#### 2.1.1. Sample 1

The sample comprised 107 male prisoners detained in the Detention and rehabilitation centre (high security correctional facility for male offenders) in Sremska Mitrovica, Serbia. The criteria for inclusion in the study (besides the complete sets of questionnaires) were absence of severe mental disorders (i.e. schizophrenia, bipolar I), or mental retardation. Age ranged between 23 and 64 ( $M = 37.16$ ;  $SD = 11.21$ ), the majority were single (75.5%), with high school degree (50.5%). Fifteen percent of respondents were sentenced for homicide, 56% for other violent offences, and 29% for a non-violent offence. Sentence duration ranged from 6 months to 40 years ( $M = 8.96$  years;  $SD = 8.28$ ). Informed written consent was obtained from all participants. Confidentiality was guaranteed in the consent form which the participants signed.

#### 2.1.2. Sample 2

The general population sample was composed of 609 males. Their mean age was 37.05 ( $SD = 12.85$ ). Age ranged from 18 to 66 years. Nearly half of the participants were married (47.5%). Part of this sample consisted of university students (16.9%) who collected the data to fulfill a course requirement. The rest of the sample were men from general population, who were recruited by students by means of "snowball" sampling strategy. All participants provided oral informed consent. Confidentiality was guaranteed in the consent form which the participants signed. Participants did not receive financial compensation for participation in the study.

### 2.2. Instruments

#### 2.2.1. The Reinforcement Sensitivity Questionnaire (RSQ; Smederevac, Mitrović, Čolović, & Nikolašević, 2014)

The RSQ is a measure of rRST constructs. The RSQ contains 29 items, which are rated on a four-point Likert scale, ranging from "strongly disagree" to "strongly agree". The items are grouped in five scales: Behavioral Inhibition System (BIS) (7 items,  $\alpha = .78$ ; example item: "When I have to 'choose between two evils', I get

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