Construct validity of the Polish version of the reinforcement sensitivity theory-personality questionnaire

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A B S T R A C T

The revised reinforcement sensitivity theory-personality questionnaire (RST-PQ), developed by Corr and Cooper, is a new questionnaire that corresponds with the revised version of the reinforcement sensitivity theory. The aim of this article is to present an extended analysis of the construct validity of RST-PQ’s Polish adaptation. Two studies were conducted: the first was to establish construct validity, and the second to test stability over a five-week period. The results showed that the internal consistency of all the scales is satisfactory, comparable to or even higher than for the original version. Examining construct validity with other personality measures (EPQ-R, STAI, BIS/BAS, SPSRQ-s, PANAS-X, FCB-TI) showed that the Polish version of the RST provides an adequate measure of the theoretical constructs differentiated in the revised RST. Moreover, the results showed that RST-PQ is a sensitive measure that makes it possible to accurately detect clinical form of depression. The factor structure of the Polish version generally replicated the original one, albeit with slightly weaker parameters. Test-retest reliability was found to be generally acceptable.

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1. Introduction

The reinforcement sensitivity theory (RST), originally developed by Jeffrey Gray, is an attempt to describe human personality in terms of differences in the sensitivity of three very basic, biologically-rooted systems. Although Gray distinguished three systems – Fight and Flight System (FFS), Behavioural Approach System (BAS), and Behavioural Inhibition System (BIS) – he initially emphasized only two of them: BIS and BAS. Those systems regulate behaviour by translating the environmental signals of punishment and reward into motivational and emotional reactions. Individual differences in BIS sensitivity were expressed in the personality trait of anxiety, while impulsivity indicated differences in BAS sensitivity (BAS-related personality trait; see discussion in Pickering & Gray, 2001). Gray and McNaughton (2000) introduced some essential changes to RST, mainly related to the FFS and BIS.

1.1. FFFS and BIS within revised RST

The major modification within the revised version of RST considers the FFS and BIS (Corr, 2008; Gray & McNaughton, 2000; for a review see Corr (2008)). The revised FFS now embraces all forms of avoidance and escape behaviours that are activated by all aversive stimuli, unconditioned as well as conditioned – namely, Fight-Flight-Freeze System (FFFS). Therefore, FFFS facilitates the learning of active avoidance. When escaping from danger is impossible, the reactions of freeze or defensive fight come into play. Hyper-activation of the FFFS might result in the development of panic or phobias.

The revised function of the BIS is designed to detect and resolve any goal conflicts, which can be of a motivational nature (e.g., avoidance–approach, approach–approach, and avoidance–avoidance). Conflict detection generates a BIS-related emotional state of anxiety and several other behavioural and cognitive processes that stimulate conflict resolution (for a more detailed description, see Corr (2008)). Clinically, hyper-activation of the BIS might lead to the development of generalized anxiety or obsessive-compulsive (OCD) disorders (risk aversion), whereas hypo-activation of the BIS might be related to psychopathy (risk proneness).

The FFFS and BIS comprise the punishment axis and both are sensitive to the negative value of stimuli; however, they are thought to be essentially different according to defence direction (Corr, 2008).
FFFS/fear regulates movement away from the threat (active avoidance and escape), BIS/anxiety regulates movement toward the threat (approach and risk assessment or passive avoidance). Neuropharmacological data show that FFFS/fear regulated behaviours are sensitive to panicolytics drugs, but not anxiolytics; whereas the BIS/anxiety is sensitive to anxiolytics and much less so to panicolytics (e.g., Perkins et al., 2009). In support of this defensive direction differentiation, Perkins, Inchlery-Mort, Pickering, Corr, and Burgess (2012) showed that different facial expressions are generated by FFFS/fear related scenarios and BIS/anxiety related scenarios.

1.2. BAS within revised RST

The theoretical understanding of the BAS has been relatively unchanged. In its revised form, the BAS is seen as a mediator of responses to conditioned and unconditioned signals of reward and relieving non-punishment (Pickering & Smillie, 2008) – in the unrevised version, the BAS was related to conditioned stimuli only. Individual differences in BAS sensitivity are reflected in the strength of response to signals that activate the BAS.

1.3. Revised RST represented in reinforcement sensitivity theory personality questionnaire (RST-PQ)

Corr (2016) describes all of the available questionnaires to assess both the old and revised versions of RST, and delineates their advantages and disadvantages. The overview clearly demonstrates that none of the analysed questionnaires are free of the methodological or theoretical weaknesses. However, to conduct further RST research, we need to use measures that allow for the revised constructs to be properly conceptualised and measured. Although we are aware of some potential weak points of the RST-PQ, such as the one-dimensional BIS scale and the lack of representation of all of the aspects of FFFS in the FFFS scale none of the other RST questionnaires offers multidimensional measure of the BIS construct and some of other new measures are faced with the same challenge of FFFS (e.g., positive correlation between BAS and FFFS) – significantly, apart from the RST-PQ, all revised RST measures assume unidimensionality of the BAS. Therefore, we decided to prepare a Polish adaptation of RST-PQ since, comparing this to other new measures, it shares the same weakness (one-dimensional BIS and not fully represented FFFS) but it represents some of the introduced changes better than others (e.g., the multidimensionality of BAS).

The RST-PQ (Corr & Cooper, 2016) aims to provide an adequate measure of the revised constructs within RST. Initially, it was proposed the FFFS consist of three subscales that fully represent the theoretically related processes of Defensive Fight, Freeze, and Flight. An attempt to reflect the defensive fight aspect of the FFFS in the RST-PQ failed (Corr & Cooper, 2016; for a detailed discussion, see Corr (2016)). Finally, the FFFS is represented in the instrument as a one-dimensional construct that embraces the freeze and flight responses (and also contains avoidance items). When the danger is avoidable then either avoidance is introduced when the perceived distance to avoidable aversive stimuli is long, or flight appears when the perceived distance is short. Additionally, freeze exemplifies responses to unavoidable aversive stimuli.

The BIS subscales represent cognitive and behavioural processes that operate after the BIS activation. Initially, the BIS scales consisted of four distinct subscales: Motor Planning Interruption, Worry, Obsessional Thoughts, and Behavioural Disengagement. However, in the final questionnaire BIS is presented as a one-dimensional scale that encompasses responses related to the above-mentioned processes.

The development of the BAS subscales was based mainly on empirical evidence suggesting that BAS is multidimensional rather than one-dimensional (Carver & White, 1994). Corr and Cooper (2016) postulated four dimensions representing sub-processes that pull together to get a reward: Reward Interest, Goal-Drive Persistence, Reward Reactivity, and Impulsivity. The Reward Interest subscale refers to processes that are related to being open to new experiences and opportunities that might at least potentially provide a reward. The Goal-Drive Persistence subscale reflects high motivation and the maintenance of motivation to attain long-term goals. The Reward Reactivity subscale reflects positive emotional responses to an attained reward, which positively reinforces BAS-related behaviours. Finally, the Impulsivity subscale reflects the processes that enable an individual to quickly and spontaneously change their behaviour to get a reward. At first glance it could seem that Impulsivity and Goal-Drive Persistence are contradictory facets of the BAS, but they represent, rather, the complex and flexible repertoire of reactions that facilitate reward attainment.

The multidimensionality of the BAS is also supported by its relation to the wide range of motives routed in approach motivation. Krupić, Gračanin and Corr (2016) tested these relations and proved, for example, that BAS Sensitivity to Reward (BAS SR) subscale is positively related to the motives that facilitate competition for resources and mates, while BAS Goal Drive-Persistence (BAS GDP) and BAS Reward Reactivity are not related to those motives at all. High scores on BAS GDP facilities social cooperation while high scores on BAS SR hinder it.

1.4. General aim of the study

Being aware of some potential weak points of the RST-PQ, we decided to prepare a Polish version, since among other new measures it seems to be closest to the theoretical changes that were introduced into the revised RST. The aim of the presented studies was to test the construct validity of the Polish version of the RST-PQ, including new personality and affectivity measures that were not analysed in the original study (Corr & Cooper, 2016), namely temperament measures of formal characteristic of behaviour (Strelau & Zawadzki, 1995) and an affective measure (PANAS-X; Watson & Clark, 1994). We also added the short form of the questionnaire measuring reward and punishment sensitivity (Cooper & Gomez, 2008). Additionally, we wanted to examine whether the emotional-motivational symptoms of depression are reflected in the Polish version of the RST-PQ scales; thus, the results of depressive and healthy groups were compared.

Before the construct validity was tested, the Polish language version of the RST-PQ was prepared following the guidelines of the chapter on adaptation from the Cross-Cultural Survey Guidelines (Harkness, Villar, & Edwards, 2010). The examination of the Polish RST-PQ’s construct validity consisted of the following steps: (1) checking the internal consistency, (2) analysing sex differences, (3) inspecting its factor structure, (4) testing the relations between the Polish version of the RST-PQ and other well-recognized personality measures. Finally, an investigation of its test-retest reliability was conducted.

2. Study 1. Construct validity

The evaluation of the factor structure and internal consistency of the Polish RST-PQ is presented below.

2.1. Method

2.1.1. Participants

A total of 1512 participants (53.8% females, age range: 18–65 years, \( M = 39.41, SD = 13.16 \)) took part in the online study. All participants were recruited by the panel Ariadna, which is a nationwide research panel that supports data collection on representative samples. In terms of education, 37% of the participants had completed a university degree, 60% had completed high school, and 3% had completed vocational school. In terms of residence, 45.7% declared that they were residing in a rural area and 54.3% that they were from an urban area.
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