Risk as reward: Reinforcement sensitivity theory and psychopathic personality perspectives on everyday risk-taking

Liam P. Satchell\textsuperscript{a,b,*}, Alison M. Bacon\textsuperscript{b}, Jennifer L. Firth\textsuperscript{c}, Philip J. Corr\textsuperscript{d}

\textsuperscript{a} School of Law and Criminology, University of West London, United Kingdom
\textsuperscript{b} School of Psychology, Plymouth University, United Kingdom
\textsuperscript{c} School of Law and Criminology, University of West London, United Kingdom
\textsuperscript{d} Department of Psychology, City, University of London, United Kingdom

\section*{A R T I C L E   I N F O}

Keywords:
Personality
Reinforcement Sensitivity Theory
Psychopathy
Callous-unemotional traits
Risk-taking

\section*{A B S T R A C T}

This study updates and synthesises research on the extent to which impulsive and antisocial disposition predicts everyday pro- and antisocial risk-taking behaviour. We use the Reinforcement Sensitivity Theory (RST) of personality to measure approach, avoidance, and inhibition dispositions, as well as measures of Callous-Unemotional and psychopathic personalities. In an international sample of 454 respondents, results showed that RST, psychopathic personality, and callous-unemotional measures accounted for different aspects of risk-taking behaviour. Specifically, traits associated with ‘fearlessness’ related more to ‘prosocial’ (recreational and social) risk-taking, whilst traits associated with ‘impulsivity’ related more to ‘antisocial’ (ethical and health) risk-taking. Further, we demonstrate that psychopathic personality may be demonstrated by combining the RST and callous-unemotional traits (high impulsivity, callousness, and low fear). Overall this study showed how impulsive, fearless and antisocial traits can be used in combination to identify pro- and anti-social risk-taking behaviours; suggestions for future research are indicated.

\section{1. Introduction}

Individuals prone to high risk-taking behaviour create problems for themselves and society (Wilson & Daly, 1985). Research into early indicators of antisocial behaviour has highlighted the importance of impulsivity (Bacon, Corr, & Satchell, 2018; Carroll et al., 2006; Loeber et al., 2012; Lynam et al., 2000), sensation seeking (Mann et al., 2017; Pérez & Torrubia, 1985; Simó & Pérez, 1991), and poor social understanding (Hepper, Hart, Meek, Cisek, & Sedikides, 2013). All three of these traits are relevant for explaining youth (e.g., Sitney, Caldwell, & Caldwell, 2016) and adult (e.g. Krstic et al., 2017; Shepherd, Campbell, & Ogloff, 2016) offending behaviour. However, not all societal problems are criminal in nature and risk-taking in financial, health and recreational domains may also lead to negative social consequences. There has been caution regarding the application of the trait models of personality to state and domain dependent risk-taking (Blais & Weber, 2006); however, contemporary personality theorising has highlighted the importance of impulsivity and fearlessness (see Corr, 2016). Both of which are, theoretically, antecedents to risk-taking behaviour. This study investigated the extent to which personality theories can account for, and possibly help to explain, risk-taking across multiple domains of pro- and antisocial behaviour.

The traits of impulsivity, risk-taking and antisociality are similar to those used to characterise psychopathic personality (Lilienfeld, Lutzman, Watts, Smith, & Dutton, 2014; Patrick, Fowles, & Krueger, 2009). The terminology used by different groups of psychopathy researchers may diverge, but there is general consistency in a three trait model. For example, the Psychopathic Personality Inventory may be considered in terms of three higher-order factors: Fearless Dominance (social influence and low stress), Self-Centre Impulsivity (non-planful behaviour and rebelliousness) and Coldhearted disconnection from other people (Lilienfeld et al., 2014; Lilienfeld & Widows, 2005). In a similar manner, Patrick et al. (2009) consider a triarchic model of psychopathic personality containing Boldness (“a tolerance for unfamiliarity and danger”), Disinhibition (“propensity towards impulsive control problems”), and Meaness (“deficient empathy and ‘callousness’”). It is important to note that there are differences in the detail of these three-part solutions (e.g., the social dominance of Patrick et al.’s Meaness is explicitly separated out in Lilienfeld & Widows’, 2005 measure). The popular Psychopathy Checklist (PCL-R, Hare, 2003) points to the existence of four factors: Interpersonal (‘grandiose self-worth’), Lifestyle (impulsivity and irresponsibility), Antisocial (poor

\* Corresponding author at: University of West London, St Mary’s Road, Ealing, London W5 5RF, United Kingdom.

E-mail addresses: liam.satchell@uwcl.ac.uk (L.P. Satchell), A.M.Bacon@plymouth.ac.uk (A.M. Bacon), jennifer.firth2016@my.ntu.ac.uk (J.L. Firth), Philip.Corr.1@city.ac.uk (P.J. Corr).

https://doi.org/10.1016/j.paid.2018.02.039
Received 17 October 2017; Received in revised form 21 February 2018; Accepted 23 February 2018
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behavioural controls and adolescent antisocial behaviour) and Affective (shallow affect and lack of empathy) deficits. There are conceptual (Patrick et al., 2009) and statistical (notable intercorrelations between factors; Neumann, Hare, & Pardini, 2015) reasons to be circumspect of the four-part solution to the PCL-R; in fact, “the PCL-R interpersonal facet overlaps with the PCL-R’s Affective, Lifestyle andAntisocial facets” (Patrick et al., 2009, p. 927). For example, the PCL-R facet on Lifestyle includes impulsivity as a criteria and the Antisocial facet includes the highly similar ‘poor behavioural control’. As others have argued (Patrick et al., 2009), it is possible to consider the widely-used PCL-R in terms of the three facets described by others. As a generalisation these explanations of psychopathic personality describe: (1) low fear or stress; (2) impulsive or nonplannful behaviour; and (3) antisocial or socially manipulative disposition (Drislane, Patrick, & Arsal, 2014; Patrick et al., 2009, for a review). These three traits can be observed in the population at large and are distinct from clinical diagnoses of psychopathy (Hall & Benning, 2006; Levenson, Kiehl, & Fitzpatrick, 1995; Skeith, Poythress, Edens, Lilienfeld, & Cale, 2003).

General models of personality have been related to psychopathic disposition. One such model, which addresses impulsivity and risk sensitivity, is the Reinforcement Sensitivity Theory (RST) of personality (Corr, 2004, 2016). RST may be seen as complementary to theories of psychopathic personality as both focus on reward and punishment (RST: Corr, 2016; Psychopathy: Patrick & Bernat, 2009) and have a neuropsychological explanation (RST: Corr, 2004; Psychopathy: Wahlund & Kristiansson, 2009). To contribute to the growing body of work on normative (as opposed to clinical) explanations of high risk behaviour, the current study brings together contemporary measures of RST with measures of callous-unemotionality to predict psychopathic personality and everyday risk-taking.

RST considers three main traits that attempt to account for personality factors that are sensitive to contingencies in the environment. The tendency to avoid potential harm and react to aversive stimuli is mediated by the Fight/Flight/Freeze System (FFFS) - an individual who has a strong FFFS disposition is more likely to be phobic and overly avoid potential risks (Corr, 2008). The Behavioural Approach System (BAS) manages the seeking and control of appetitive rewards in the world - an individual whose personality is strongly influenced by the BAS is likely to be impulsive, sensitive to novelty and more diligent in pursuing rewards (Corr & Cooper, 2016). These two personality factors are moderated by a Behavioural Inhibition System (BIS), which is activated upon detection of significant goal conflict (e.g., FFFS and BAS co-activation). A BIS individual is oriented towards hesitancy and rumination, during which time the eliciting conflicting goal stimuli are subjected to cognitive appraisal. The outcome is that stimuli are either classified as appetitive or aversive - or, in more general terms, an attractor or repulsor (Corr & Naughton, 2012) - or neither, in which case control reverts to a ‘just checking’ neutral mode. A dominant BIS personality trait is likely to lead to more everyday hesitancy, anxiety and worry (Corr, 2008). Although there is a well-developed and growing RST literature, there is still limited evidence on its explanatory utility to predict everyday behaviours. There has been some work along these lines, including educational outcomes (Satchell, Hoskins, Corr, & Moore, 2017), antisocial behaviour (Bacon et al., 2018) and organisational behaviour (Corr et al., 2016), but little else. Indeed, RST has not been widely used to explore everyday risk in any great detail, whilst other models (psychopathic personality research) often explicitly focus on the broad behavioural outcome of risk-taking. Theoretically, RST is well suited to describing risk-taking behaviour. The BAS tendencies to be impulsive and novelty seeking should be expected to lead to more risk-taking, whereas the defensive nature of high trait FFFS individuals and the cautiousness of high BIS individuals should lead to less risky behaviour.

There is evidence to suggest an overlap between RST and psychopathic personality traits. There are key papers that define psychopathy in RST terms, such as Corr’s (2010) work on identifying ‘primary’ psychopathy in terms of low functioning FFFS and BAS and ‘secondary’ psychopathy with high functioning BAS. The widely used Carver and White (1994) RST tool has previously been related to measures of the triarchic model of psychopathy (Sellbom & Phillips, 2013) and Levenson’s et al. (1995) primary and secondary psychopathy (Hughes, Moore, Morris, & Corr, 2012). However, the Carver and White (1994) measure was designed for the original version of RST which did not differentiate FFFS and BAS processes and, even with revisions to the analysis of the Carver and White tool (Heym, Ferguson, & Lawrence, 2008), it still does not capture fully the contemporary understanding of RST (Corr, 2016; Corr & Cooper, 2016). Our current study updates the literature relating RST to psychopathic personality traits, but by using a more comprehensive measure of RST (Corr & Cooper, 2016) and a measure of psychopathic personality (Lilienfeld et al., 2014).

Unlike many personality models, such as the Big Five (see Soto & John, 2009), HEXACO (Lee & Ashton, 2004) and the MMPI (Greene, 2000), the RST of personality does not have an explicit focus on social and interpersonal interests. It has been shown that social behaviours are ‘rewarding’, in both neuroendocrine (Dunbar & Shultz, 2007) and cognitive (Clark, 1993) terms, and sociality could be expected to be associated with high reward seeking (BAS) and low fear (FFFS) and anxiety (BIS) behavioural patterns. So, whilst RST has the potential to explore some facets of psychopathy in more detail, it lacks the essential antisocial components to take the place of psychopathy.

A subset of psychopathic personality research has focused on, and refined, measures of antisocial disposition. Measures of callous and unemotional traits were developed to explore lack of empathy and coldheartedness in more detail (Frick, 2004; Essau, Sasagawa & Frick, 2006). Given the shared lineage, it is unsurprising that the callous-unemotional trait measures correlate highly with psychopathic personality (Kimonis, Branch, Hagman, Graham, & Miller, 2013) and lowly with anxiety (uncaring: Byrd, Kahn, & Pardini, 2013). Recently, it has also been demonstrated that the original three callous-unemotional traits are best represented by a core antisocial trait (Ray, Frick, Thornton, Steinberg & Cauce, 2016). This well-developed measure of antisocial tendencies provides a strong framework to examine the extent to which callous-unemotional disposition relates to different domains of risk-taking.

Callous-unemotional traits lack the impulsivity and fearlessness aspects of a complete psychopathic personality profile. There has been some previous research relating callous-unemotional traits to RST in adolescents (Roose, Bitttebier, Claes, & Lilienfeld, 2011); but this study, once again, used the less-than-comprehensive Carver and White (1994) psychometric measures of RST. Roose et al. (2011) reported that the callous-unemotional factor of the youth Psychopathic Traits Inventory (Andershed, Kerr, Stattin & Levander, 2002) was negatively correlated with FFFS, BIS, and BAS reward responsiveness. With callous-unemotional traits addressing the social tendencies that are lacking in assessments of RST personality, it could be the case that combining these two models produces an effective proxy of psychopathic personality, and one based in normally distributed personality traits and processes. Furthermore, this research strategy allows us to explore the relationship between antisocial traits and RST, using updated tools that have more psychometrically robust trait measures (Corr & Cooper, 2016; Ray et al., 2016), than those used in Roose et al.’s (2011) previous work.

This study has two principal aims. First, to demonstrate the expected overlap between measures of psychopathic, RST and callous-unemotional personality traits. Secondly, to explore the extent to which these three popular tools can predict everyday risk-taking in non-criminal domains.

We hypothesised the following. (1) Variance in psychopathic personality traits can be explained by antisocial (callous-unemotional), fear and impulsivity (RST) traits - this effect would largely be a replication of known effects and a synthesis of previous literature using contemporary tools. (2) Risk-taking should be predicted by high RST impulsivity (BAS) and low FFFS. (3) High fearless and impulsive
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