



# Individual differences in adult attachment and reinforcement sensitivity



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## ARTICLE INFO

### Article history:

Received 31 December 2013  
Received in revised form 16 April 2014  
Accepted 20 April 2014  
Available online 23 May 2014

### Keywords:

Reinforcement Sensitivity Theory  
Attachment style  
Motivation  
Behavioural Approach System  
Fight-Flight-Freeze System  
Behavioural Inhibition System

## ABSTRACT

This study examined the nature of the relationship between adult attachment and sensitivities of the Behavioural Approach System (BAS), Fight-Flight-Freeze System (FFFS), and the Behavioural Inhibition System (BIS) as defined by Gray and McNaughton's (2000) revised Reinforcement Sensitivity Theory (r-RST). A total of 225 first year psychology students completed the Experiences in Close Relationships-Revised scale (ECR-R) as an index of adult attachment; along with Carver and White's (1994) BAS scale (CW-BAS), Fear Survey Schedule (FSS), State-Trait Anxiety Inventory (STAI), and Reinforcement Sensitivity Theory Personality Questionnaire (RST-PQ) as indices of reinforcement sensitivity. Hierarchical multiple regressions revealed that both attachment dimensions are significantly related to BIS sensitivity, which suggests that motivational ambivalence is a central feature of attachment insecurity. This study contributes to the understanding of adult attachment behaviour in relationship to more fundamental motivational systems.

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## 1. Introduction

Although attachment theory postulates that individuals normally seek close others when distressed, there are well-established individual differences in the degree a person approaches or even avoids their attachment figure (Bowlby, 1969/1982; Mikulincer & Shaver, 2007). One biological theory of personality that may further our understanding of these individual differences is the revised Reinforcement Sensitivity Theory (r-RST), which describes behavioural systems that mediate appetitive and aversive behaviour (Gray & McNaughton, 2000). This paper investigates the nature of the relations between self-reported individual differences in adult romantic attachment and sensitivities of the r-RST motivational systems.

When a child or adult is distressed, the attachment behavioural system is argued to prompt proximity-seeking and/or mental representations of one's attachment figure, who may be a caregiver, romantic partner or other familiar person (Bowlby, 1969/1982; Mikulincer & Shaver, 2007). Alleviation of distress is obtained from the sense of security provided by the attachment figure, but compounded distress may result if the attachment figure is unavailable and/or unresponsive (Shaver & Mikulincer, 2002). Over time, these repeated attachment experiences are

argued to produce stable trait-like expectations and behaviours within close relationships. Individual differences in adult attachment are commonly described by the orthogonal dimensions of *attachment anxiety*, which refers to the degree of worry over one's attachment figure's availability, and *attachment avoidance*, which refers to the degree of discomfort with intimacy (Brennan, Clark, & Shaver, 1998).

At the more general level of behavioural regulation, the r-RST proposes three largely independent, though interacting, neurobiologically-based motivational systems (Gray & McNaughton, 2000). They include the Behavioural Approach System (BAS), which mediates anticipatory approach to appetitive stimuli; the Fight-Flight-Freeze System (FFFS), which mediates fearful avoidance of aversive stimuli; and the Behavioural Inhibition System (BIS), which prompts anxiety and is involved in motivational conflict resolution.

Both attachment theory and r-RST are proposed to be theories of motivation, have their origins in ethological research, and describe biologically-based behavioural systems that have been evolved for survival. Furthermore, intrinsic to both accounts of behaviour are approach and avoidance motivational dynamics. Bowlby (1969/1982) described that avoiding threat and approaching the attachment figure as the "twin processes of survival" (p. 151), and variations in this behavioural pattern characterise individual differences in attachment behaviour. Therefore, an integrative study may provide a better understanding of the underlying motivational mechanisms of adult attachment orientations.

Attachment dimensions have been generally related to threat appraisal and motivational processes. In one study, MacDonald

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and Kingsbury (2006) found that attachment anxiety was linked to higher levels of self-reported pain affect, suggestive of greater FFFS sensitivity. Moreover, Karantzas, Kambouropoulos, and Ure (2010) found that both attachment anxiety and avoidance were associated with heightened response to threatening stimuli, which converges with research that has linked both attachment dimensions to stronger defensive motivation (Ein-Dor, Mikulincer, & Shaver, 2011a, 2011b). Finally, both attachment dimensions have been associated with motivational ambivalence, in terms of conflicting approach-avoidance behaviour and threat and reward appraisals toward the attachment figure (e.g., MacDonald, Locke, Spielmann, & Joel, 2013; Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010), as well as higher levels of trait anxiety (see Mikulincer & Shaver, 2007, for a review), which may be indicative of a more sensitive BIS.

However, very few empirical studies have directly examined the nature of the relations between attachment orientations and reinforcement sensitivity. Evidence suggests that attachment avoidance is inversely correlated with BAS sensitivity (Carnelley & Story, 2008; Meyer, Olivier, & Roth, 2005; Mikulincer & Shaver, 2007). These same studies have found attachment anxiety to be positively correlated with scores on Carver and White's (1994) BIS scale. However, this scale, which is based on the original conceptualisation of the RST (Gray, 1982), has been found to contain items that assess both FFFS and BIS sensitivities as defined by the r-RST (Heym, Ferguson, & Lawrence, 2008). Therefore, in these studies, it is unclear whether attachment anxiety is related to FFFS-mediated avoidance, BIS-mediated conflict resolution, or both. Two other studies suggest that attachment anxiety is related to greater FFFS sensitivity (Harnett & Penn, 2012; Karantzas et al., 2010), although both of these studies employed scales from the Jackson-5 (Jackson, 2009) measure of r-RST and reported modest internal reliabilities (e.g., Cronbach's alpha of .58 for the FFFS-Freeze scale; Karantzas et al., 2010).

Given the conceptual and psychometric limitations in operationalising r-RST in previous studies, the present research aimed to further investigate the nature of the relations between individual differences in adult romantic attachment and reinforcement sensitivity by using a number of self-report measures of the latter construct that are conceptually more consistent with the revised theory. Furthermore, whereas previous studies tended to focus on one or two motivational systems, this study examined links with all three r-RST motivational systems. It was hypothesised that (a) BAS sensitivity would be inversely related to attachment avoidance, (b) FFFS sensitivity would be positively related to attachment anxiety, and (c) greater BIS sensitivity would be positively associated with both attachment dimensions.

## 2. Method

### 2.1. Participants

The sample comprised of 225 first-year psychology undergraduates (153 females; 68%) at the University of Sydney who participated in exchange for course credit. Age ranged from 17 to 41 ( $M = 19.52$ ,  $SD = 3.44$ ). The majority were Australian residents (95.1%), with 88 (39.1%) endorsing Asian as their ethnicity, 66 (29.3%) as European, 54 (24%) as Oceanian, 13 (5.8%) as African or Middle Eastern and 4 (1.8%) as American. The relationship status of 131 participants (58.2%) was single, 85 (37.8%) dating, 4 (1.8%) engaged, 4 (1.8%) married or cohabitating, and 1 (0.4%) divorced. Average current relationship length was 19.44 months ( $SD = 21.42$ , range = 2–138 months).

### 2.2. Measures

Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller, & Brennan, 2000). This well-established dimensional

measure of adult attachment consists of an attachment-related anxiety scale (18 items) and an attachment-related avoidance scale (18 items), with each item assessed on a 7-point Likert-type rating (1 = strongly disagree; 7 = strongly agree). Both scales demonstrate high Cronbach's alphas that tend to exceed .90, and validity in predicting attachment representations during daily social interactions with romantic partners and not with non-attachment figures such as close friends (Sibley & Liu, 2004).

BAS scale from the BIS/BAS scales (CW-BAS; Carver & White, 1994). Comprising of three scales, this self-report measure assesses Drive (four items), Fun Seeking (four items), and Reward Responsiveness (five items). Items were rated on a 4-point scale (1 = very false; 4 = very true for me), and scores across the scales were also summed to produce an overall index of BAS sensitivity. The reported Cronbach's alphas range from .66–.73, and all three BAS scales demonstrate convergent validity with measures of extraversion and positive affect, as well as predictive validity to happiness in anticipation of reward (Carver & White, 1994). The BIS scale from Carver and White's (1994) measure was not used as it conflates BIS and FFFS according to the r-RST (Heym et al., 2008).

Fear Survey Schedule II (FSS-II; Geer, 1965). This version of the phobic checklist was devised for research purposes to assess trait fearfulness, and was used in this study as a proxy index of FFFS sensitivity. It consists of 51 items that represent a broad range of specific and potentially threatening stimuli, which are rated on a 7-point scale (1 = none; 7 = terror). The reported KR.20 internal consistency reliability was .94 (Geer, 1965). Trait fearfulness, as assessed by various versions of the FSS, has been shown to be psychometrically separable to trait anxiety and neuroticism, and serves as a better proxy index of FFFS than Eysenck's personality constructs in predicting military performance (Perkins, Kemp, & Corr, 2007).

Y2 trait scale from the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The trait version of the STAI assesses pervasive feelings of anxiety. The r-RST proposes that motivational conflict is marked by anxiety (contrary to fear for the FFFS), and thus the STAI has been previously employed as a proxy index of BIS sensitivity (e.g., Perkins et al., 2007). It presents 20 statements that describe general experiences of apprehension, tension, nervousness, and worry, which were rated on a 4-point scale (1 = almost never; 4 = almost always). Cronbach's alphas have ranged from .86 to .95 (Spielberger et al., 1983).

Reinforcement Sensitivity Theory Personality Questionnaire (RST-PQ; Corr & Cooper, in preparation). This is a recently developed 79-item instrument specifically designed to assess r-RST motivations. It comprises of four scales measuring BAS sensitivity: Reward Interest (7 items), Goal-Drive Persistence (7 items), Reward Reactivity (10 items), and Impulsivity (8 items). Additionally, there is a 10-item FFFS scale, a 23-item BIS scale, a 6-item Panic scale (which loads highly on both FFFS and BIS), and an 8-item Defensive Fight scale (which loads highly on BAS). Responses were recorded on a 4-point scale (1 = not at all, 4 = highly). Ratings on the four BAS scales were also summed to provide an overall index of BAS sensitivity. The eight scales possess recoverable factor structure across different samples, and very acceptable psychometric properties, although published reports of normative reliabilities are not yet available (P. Corr, personal communication, September 24, 2012).

### 2.3. Procedure

The measures were administered online and completed in a self-paced fashion, taking on average 45 min to complete. Participants were instructed to take a break midway through the study. The questionnaires were counterbalanced, with demographic

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