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Personality and defensive behaviour: A factor analytic approach to threat scenario choices

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ABSTRACT

Although people tend to react in specific ways in threatening situations, research points to the importance of individual differences in these defensive behaviours. From the perspective of reinforcement sensitivity theory (RST), this study examined the role of personality traits in defensive behaviours. Four RST questionnaires and Blanchards' threat scenarios were used, with a total of 1019 participants. The threat scenarios were modified and examined by exploratory factor analysis (EFA), while their relationship with the RST questionnaires was explored by correlational and regression analyses. The EFA revealed an orthogonal two-dimensional structure of defensive direction: defensive direction towards threat and defensive direction away from threat, while defensive intensity was not separately extracted. The results revealed that different operationalizations of the BAS, BIS and FFFS, from the various RST questionnaires, produced different associations with Blanchards' threat scenarios. In general, the BIS, Flight and Freezing scales predicted tendencies to move away from the threat, while Fight and some BAS Scales predicted tendencies to move towards the threat, in dangerous situations. These findings challenge some aspects of RST, especially their lack of association between the BIS and defensive direction towards threat. Directions for further research are indicated.

Imagine you are walking alone in the street. Suddenly a man with a knife starts running in your direction. How will you react? Would you fight or flee? If there are no individual differences in defensive behaviour, all people should behave in the same manner in such a life-threatening situation. Certainly, when the influences of situations and traits are compared, the situation has the greater impact at the behavioural level (Ein-Dor & Perry-Paldi, 2014). Still, people differ in their levels of fear and anxiety, and, as shown below, these differences should be expected to relate to differences in defensive reactions. For example, in occupational life some people have a preference for being soldiers and fire-fighters, and during leisure activities some have a preference towards dangerous hobbies such as free climbing and paragliding. Other people would not dream of engaging in these occupations or activities. In the clinical domain, people who suffer from phobic disorders can perceive even walking in a neighbourhood as a life-threatening activity. Hence it seems that, indeed, people do differ in the way they perceive and behave in potentially threatening situations.

Currently, RST is the most prominent theory explaining the role of individual differences in fear- and anxiety-related behaviours, and also approach-related behaviours. It is a neuropsychological theory of personality that assumes the existence of three emotion-motivation systems: one approach system (Behavioural Approach System, BAS); and two avoidance systems (Behavioural Inhibition System, BIS; and Fight, Flight, Freezing System, FFFS). The most distinctive features of the two avoidance systems are emotional output and defensive direction: the BIS activates behavioural repertoire when moving *towards* a threat, eliciting the emotional state of anxiety; while the FFFS activates behaviour that moves the individual *away* from the threat and elicits the emotional state of fear (Corr, 2008, 2011, 2013; Gray & McNaughton, 2000; McNaughton & Corr, 2004).

FFFS-related fear should occur in the context of much clearer danger, eliciting avoidance and escape behaviours, whereas BIS-related anxiety should occur in ambiguous threat situations, leading to risk assessment (checking out, exploration, investigation) (Blanchard, Hynd, Minke, Minemoto, & Blanchard, 2001). In the prediction of specific defensive behaviour, situational factors need to be taken into account. When a place of concealment/protection is present in a clearly dangerous situation, hiding is elicited; but, in the context of inescapable dangerous situations, two distinct defensive behaviours could be elicited: freezing or attack (defensive fight). If the source of threat is in the near spatio-temporal distance, and escape is not possible, then freezing ('playing dead') is an adaptive form of immobilization in order to evade detection. However, if spotted by the threat, then the only viable behavioural reaction is to attack the source of threat in order (a) to protect oneself and (b) escape the situation. There are now extensive experimental

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animal studies supporting these statements (Blanchard et al., 2001; Blanchard, Griebel, Pobbe, & Blanchard, 2011; Corr & McNaughton, 2008; Shuhama, Del-Ben, Loureiro, & Graeff, 2007).

In marked contrast to animal studies, examination of human defensive behaviour typically relies on self-report data, which is reasonable from the points of view of ethics and convenience. Although self-report methodology has limitations, it still provides an invaluable source of information (Pappens et al., 2013). However, issues are raised concerning the compatibility of behavioural and questionnaire data, and how each set of data relates to findings from experimental animals.

The best-known self-report instrument for measuring defensive behavioural repertoire in humans was developed by Blanchard et al. (2001) on the basis of their extensive rodent studies. Twelve scenarios, presenting different threatening situations, are modelled on distance to threat and situational factors of avoidance/escapability. Additionally, ten behaviours are provided from which participants must choose to match the 12 threat scenarios: hide; freeze, immobilization; run away, try to escape; threaten to scream or call for help; yell, scream, or call for help; threaten to attack; attack or struggle; check out, approach, or investigate; look for something to use as a weapon; and beg, plead for mercy, or negotiate. Studies have indicated that threat scenarios can predict (Erber, Szuchman, & Prager, 2001) or even elicit emotional and physiological reactions (Bernat, Calhoun, & Adams, 1999; Conklin, Tiffany, & Vrana, 2000). Hence, findings suggest that they can be used as a roughly fair measure of defensive behavioural repertoire.

Previous data indicate that personality explains a significant portion of individual variances in Blanchards' threat scenarios. Perkins and Corr (2006) developed a coding system to assess *defensive direction* and *defensive intensity* (see Fig. 1). These constructs present an important way to understand individual differences in defensive behaviours (Corr & McNaughton, 2012; Gray & McNaughton, 2000; McNaughton & Corr, 2004). Defensive intensity presents a perceived spatio-temporal distance of the threat, while defensive direction presents behavioural tendencies that can be divided into direction *towards* or direction *away from* the threat. Studies have shown that anxious and fear-prone individuals have shorter defensive distance (i.e., they experience threatening stimuli as being more intense than others). In relation to personality, Spielberger's trait anxiety is associated with a tendency to orientate towards the threat (Perkins & Corr, 2006); psychoticism (tough-mindedness) negatively relates to defensive intensity; while the BIS scale positively correlates with both defensive intensity and direction (Perkins, Cooper, Abdelall, Smillie, & Corr, 2010; Perkins & Corr, 2006).

Studies showing the importance of personality in these threat scenarios pose some methodological problems and unresolved issues. First, threat scenarios provide responses at a nominal measurement level, which limits the possible range of available statistical procedures to analyse defensive behaviours. The first attempt to calculate total scores from threat scenarios came from Perkins and Corr (2006). They developed a coding system for defensive direction and distance upon theoretical assumptions of RST, but it has not yet been empirically tested by means of exploratory factor analysis (EFA). Secondly, a recent study suggests differences in operationalization of the BIS and FFFS scales between various RST purpose-built questionnaires (Krupić, Križanić, Ručević, Gračanin, & Corr, submitted for publication). Hence, both the threat scenarios and personality questionnaires deserve further empirical examination, before a relation between personality and threat scenarios can be firmly established.

The aim of this study is to test the relevance of personality traits in threat scenarios. Bearing in mind these methodological problems, the coding system will be examined, and several RST questionnaires that contain separate BIS and FFFS scales will be compared.

Psychometric examination of the coding system requires a slight methodological modification of the threat scenarios. In addition to the original procedure for the threat scenarios, five-point rating scales are provided for each of the 10 defensive behaviours for the 12 threat scenarios. This modification in procedure allows the computing of total scores for the 10 defensive behaviours across the 12 threat situations, which in addition allows closer examination by exploratory factor analysis (EFA). These results may support or suggest modifications to the operationalization of defensive intensity and defensive direction. Furthermore, administering four RST questionnaires alongside the threat scenarios allows detection of operational differences between competing questionnaires in relation to the statistically derived factors of defensive behaviour.

On the basis of previous studies, we expected to replicate past findings: (a) the BIS and FFFS correlate with defensive intensity, reflecting greater overall threat sensitivity; (b) the FFFS positively correlates with defensive direction (moving away from the source of threat); and (c) the BIS negatively correlates with defensive direction (moving towards the source of threat).

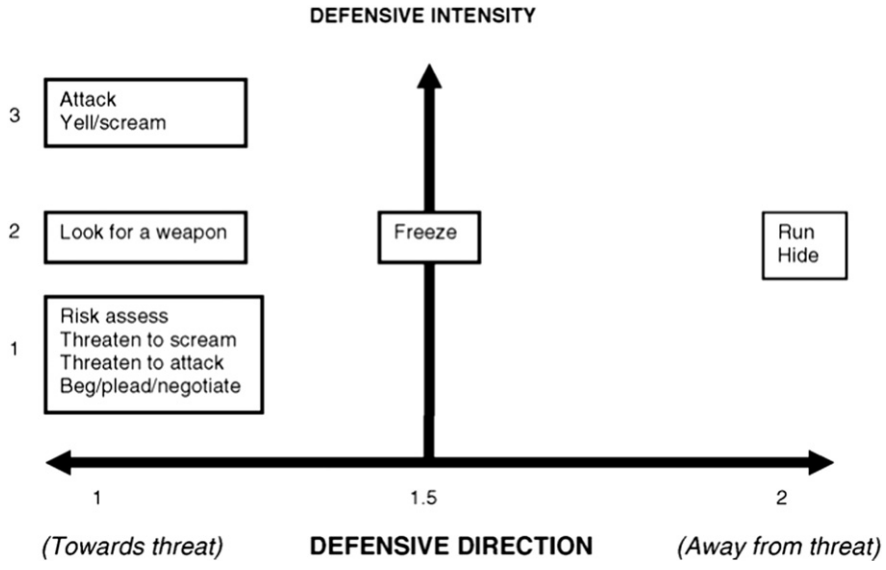

Fig. 1. Threat-scenario response choices coded for defensive intensity and defensive direction (Perkins & Corr, 2006).