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The prospective role of defeat and entrapment in depression and anxiety: A 12-month longitudinal study

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ABSTRACT

The concepts of "defeat" (representing failed social struggle) and "entrapment" (representing an inability to escape from a situation) have emerged from the animal literature, providing insight into the health consequences of low social rank. Evolutionary models suggest that these constructs co-occur and can lead to the development of mental disorders, although there is limited empirical evidence supporting these predictions. Participants ($N=172$) were recruited from economically deprived areas in North England. Over half of participants (58%) met clinical cut-offs for depression and anxiety, therefore we conducted analyses to establish whether participant outcomes were dependent on baseline defeat and entrapment levels. Participants completed measures of defeat, entrapment, depression and anxiety at two time-points twelve months apart. Factor analysis demonstrated that defeat and entrapment were best defined as one factor, suggesting that the experiences co-occurred. Regression analyses demonstrated that changes in depression and anxiety between T1 and T2 were predicted from baseline levels of defeat and entrapment; however, changes in defeat and entrapment were also predicted from baseline depression and anxiety. There are implications for targeting perceptions of defeat and entrapment within psychological interventions for people experiencing anxiety and depression and screening individuals to identify those at risk of developing psychopathology.

1. Introduction

Amongst group living animals, social hierarchies regulate access to resources, thereby preventing excessive competitive behaviour between group members (Gilbert, 1992). The hierarchy provides each animal with a social rank position in the group, which influences their behaviour; for example, knowing when it is adaptive to compete with others for resources and when to withdraw to be protected from injury. When animals experience social defeat and lose rank position within the hierarchy, they are likely to experience behaviours that mirror those of psychopathology in humans (Price et al., 1994). Psychobiological theories have attempted to understand mental health difficulties in terms of the dysregulation of basic processes that were once adaptive for humans in their evolutionary past (Gilbert, 2001). This has suggested a central role for defeat, representing a sense of failed social struggle, and entrapment, representing perceptions of there being no way out of an aversive situation in the development of psychopathology in humans (Taylor et al., 2011). This paper provides an exploration of the structure of defeat and entrapment, and the first test of whether defeat and entrapment prospectively predict higher levels of depression and anxiety twelve months later.

Defeat and entrapment were originally identified as two constructs based on evolutionary theories of depression (Price et al., 1994) through animal observation showing that socially defeated animals engaged in short term self-protective strategies, including social withdrawal, decreased sleep and feeding, and hypervigilance (Sloman et al., 2000). These behaviours are adaptive for animals as a short-term protective strategy in reaction to dangerous situations. This has been termed the Involuntary Defeat Syndrome (IDS) and occurs following a defeat to protect the animal from experiencing further harm (Sloman, 2000). As an adaptive strategy, the IDS should deactivate once the animal escapes from the defeating situation. However when a strong motivation to take flight from the aversive situation is blocked and animals cannot physically escape, animals engage in a defensive strategy known as 'arrested flight' (Dixon et al., 1989). In this situation, animals display submissive behaviours to 'cut-off' from

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the environment (Dixon, 1998), behaviours that mirror psychopathological responses in humans (Price et al., 1994).

1.1. Models considering the structure of defeat and entrapment

Based on animal evidence from the IDS, experiencing defeat and entrapment may be seen as a process that precedes psychopathology in humans. However, it is unclear whether defeat and entrapment should be conceptualised as a single construct. O'Connor (2003) suggested that defeat and entrapment are separate constructs and occur independently as responses to stressful situations dependent on whether individuals can escape from a situation. In this model, an individual only experiences entrapment if they cannot escape from a stressful and defeating situation. An updated model suggested that entrapment is a consequence of defeat if a stressful situation cannot be escaped from, and therefore the two may be interdependent (Rasmussen et al., 2010). Supporting these theories, research has demonstrated that focusing on being trapped in a situation leads to increases in feelings of defeat, suggesting that the two constructs influence each other (Price et al., 2004) and defeat consistently leads to entrapment if individuals cannot resolve the defeating situation (Sloman et al., 2003). Although each of these perspectives specifies conditions under which perceptions of defeat and entrapment influence the experience of the other, the constructs are seen as being fundamentally distinct.

In contrast, some models propose that defeat and entrapment are a single factor that captures feelings of failure without any means of escape (Taylor et al., 2009). In the "depressogenic loop" model, defeat and entrapment emerge from a single event and co-occur to such an extent that they form a single factor and are effectively undistinguishable (Taylor et al., 2011). In this model, defeat and entrapment are initially distinct reactions to an aversive experience, but then form a self-reinforcing loop in which defeat leads to perceptions of entrapment, which in turn leads to further defeat and perpetuates the cycle. Furthermore, an earlier model proposed that defeat and entrapment involve identical themes of lack of escape or available solutions available to an individual, and result from the same biased appraisal of a situation (Johnson et al., 2008). Whether feelings of defeat and entrapment form a single factor seems integral to understanding these constructs. The first aim of this study is to explore the structure of defeat and entrapment and examine whether the constructs co-occur equally (as would be implied by a one factor structure) or occur separately (suggesting a multiple factor structure). Previous evidence suggests that a one-factor or two-factor model would be expected, however we conducted an exploratory factor analysis to identify the structure, as it has not previously been tested within the population studied here.

1.2. Defeat and entrapment as prospective predictors of depression and anxiety

Similarities have been noted between the behaviours of animals experiencing IDS and those of humans experiencing mood disorders (Gilbert and Allan, 1998). This has led to the prediction that excessive IDS activation in humans may partly account for the development of psychopathology. This relationship is likely to be pronounced in contexts where an individual is caught in a low social rank position (Price et al., 1994). Therefore perceptions of defeat and entrapment, which signal excessive IDS activation, are expected to increase anxiety and depression over time, as they theoretically precede psychopathology. The second aim of the current study was to provide an empirical test of this expectation. Research has demonstrated cross-sectional relationships between defeat, entrapment and depression in clinical and non-clinical settings. Higher levels of defeat have been associated with depression in students (Gilbert and Allan, 1998; Wyatt and Gilbert, 1998; Sturman et al., in press) and psychiatric inpatients (Gilbert et al., 2001b), anxiety in students and psychiatric inpatients (Gilbert et al., 2001a) and anxiety and depression in patients with chronic pain (Tang et al., 2007; Tang et al., 2010). Entrapment has been associated with depression in people diagnosed with schizophrenia (Gilbert et al., 2002; Birchwood et al., 2005; White et al., 2007), informal caregivers (Martin et al., 2006), formerly depressed students (Sturman and Mongrain, 2005) and people experiencing psychoses (Clare and Singh, 1994). Higher levels of entrapment prospectively predicted depression in patients with schizophrenia (Rooke and Birchwood, 1998; Iqbal et al., 2000), the recurrence of major depression after 16 months amongst students (Sturman and Mongrain, 2008) and episodes of combined depression and anxiety within a community sample (Kendler et al., 2003). Perceived entrapment has also been associated with social anxiety in people diagnosed with schizophrenia (Birchwood et al., 2006). However, entrapment and anxiety were not associated in a sample of formerly depressed students (Sturman and Mongrain, 2005), and when controlling for depression, the relationship between defeat, entrapment and anxiety was not observed (Gilbert et al., 2001).

Taylor et al. (2011) conducted a review of research studying the relationship between defeat, entrapment and psychopathology, and emphasised the need for longitudinal research. Of the studies measuring depression, 79% were cross-sectional, and of studies investigating anxiety, all but one were cross-sectional. No longitudinal studies have investigated whether defeat and entrapment predict anxiety and depression, except in the context of a co-morbid psychiatric disorder, which cannot be generalised to non-clinical settings (Rooke and Birchwood, 1998). Furthermore, within the limited longitudinal research that has been conducted, no studies have considered the impact of depression and anxiety on perceptions of defeat and entrapment. Therefore the current study examined the key predictions of defeat and entrapment models within a community sample, specifically individuals with difficult life conditions, to establish how the relationship between defeat, entrapment and psychopathology functions within the general population.

Defeat and entrapment are expected to predict increased depression and anxiety over time, as these variables are associated with poorer psychosocial functioning and chronic IDS activation. The negative effects associated with a situation of perceived inescapable defeat have been attributed chronic IDS activation leading to increased frustration and stress, which can develop into depression (Gilbert, 2000). When the IDS is responded to with inhibition of exploratory behaviours this can lead to a limited capacity to engage with and act upon social opportunities that could improve an individual's situation (Gilbert, 2000). Individuals facing socioeconomic deprivation are particularly vulnerable to feeling defeated and trapped, as they are caught in an aversive, low social rank situation that can be very difficult to escape. For example, deprivation is related to fewer education and work opportunities (Department for Communities and Local Government, 2011). Likewise, poor general health experienced by this population may prevent individuals from entering employment, leaving them with a lower income and therefore fewer opportunities to access resources, making these circumstances difficult to escape from (Eisemann, 1986; Adler et al., 1994). These individuals also face higher rates of morbidity and mortality (Department of Health and Social Security, 1980), elevated levels of stress and frustration that are associated with socioeconomic deprivation (Adams et al., 2004) and a perceived lack of control (Ross et al., 1990), which often precede mental disorders including depression (Dixon et al., 1989). Consequently socioeconomically deprived