THE PREDICTIVE VALUE OF PSYCHOLOGICAL DEFEAT AND ENTRAPMENT

A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy in the Faculty of Medical and Human Sciences

2014

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Word Count: 67,394

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LIST OF COMMON ABBREVIATIONS

BDI = Beck Depression Inventory

BMAC = Broad-Minded and Affective Coping

CES-D = Centre for Epidemiological Studies Depression Scale

CoP = Cry of Pain

CBT = Cognitive Behavioural Therapy

CFA = Confirmatory Factor Analysis

CFT = Compassion Focused Therapy

EFA = Exploratory Factor Analysis

GAD-7 = Generalized Anxiety Disorder Scale 7-item

IDS = Involuntary Defeat Strategy

IGT = Iowa Gambling Task

IMV = Integrated Motivational-Volitional Model of self-harm and suicidal behaviour

PBIQ = Personal Beliefs about Illness Questionnaire

PSPS = Pain Self Perceptions Scale

PTSD = Post Traumatic Stress Disorder

SAMS = Schematic Appraisals Model of Suicide

SDES = Short Defeat and Entrapment Scale

SES = Socioeconomic status

STAI = State-Trait Anxiety Inventory

ZBI = Zarit Burden Interview

ABSTRACT

A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy in the Faculty of Medical and Human Sciences in September 2014.
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Title: The Predictive Value of Psychological Defeat and Entrapment

This thesis investigated the longitudinal role of defeat and entrapment in populations where these factors were expected to be particularly relevant (a sample of individuals from areas of socioeconomic deprivation and a sample of formal caregivers). The thesis then considered whether defeat and entrapment influenced reward sensitivity on a gambling task and lastly, designed a short scale measuring defeat and entrapment suitable for use in clinical populations. The research incorporated a review of the literature, two longitudinal studies, a behavioural study and the development of a scale. The literature review presented in Chapter 1 provided evidence of a well-established link between defeat, entrapment and poor mental health, suggesting that defeat and entrapment may act as a transdiagnostic process; contributing to the development and maintenance of a range of mental disorders. However, the review also demonstrated that defeat and entrapment relate to the same experiences, suggesting that logically these constructs may equally co-occur, although the structure of the constructs is currently debated. The studies presented in Chapters 3 and 4 demonstrated that perceptions of defeat and entrapment predicted poor mental health (depression and anxiety, and depression and caregiver burden) at a second time point, 12 months later. These chapters presented the first longitudinal evidence for samples recruited from the general population and occupational settings. Furthermore, these chapters provided evidence that the relationship between defeat, entrapment and poor mental health operates in a bidirectional way within a sample recruited from community settings, but a linear way within a sample of formal caregivers, suggesting that further research is needed to confirm the direction of this relationship. The research presented in Chapter 5 found a non-significant relationship between defeat and entrapment and reward sensitivity among a sample of undergraduate students. This may have arisen due to the generally low levels of defeat and entrapment within the sample despite highly varied performance on the task. Replication of this research within a sample where a wider range of defeat and entrapment experiences would be expected might be beneficial. Additionally, this thesis aimed to confirm the factor structure of defeat and entrapment amongst various populations. Exploratory and confirmatory factor analysis demonstrated that defeat and entrapment are best conceptualised as a single psychological construct (Chapters 3 and 6), supporting one-factor theories of defeat and entrapment (e.g. Taylor et al., 2011a). During the course of conducting research for this thesis, it became apparent that the length of existing scales used to measure defeat and entrapment were not suitable for use with clinical populations. Despite evidence that defeat and entrapment may reduce symptoms of mental health problems, their measurement has not yet translated to clinical practice. Although several reasons underlie this, a lack of short measurement tool is a major factor. To address this, an eight-item scale was developed, which demonstrated good psychometric properties across four samples from clinical and non-clinical settings. The current research was supported by a discussion of the clinical implications of the work, specifically identifying how defeat and entrapment could be implemented within therapeutic interventions for mental health problems. The current thesis represents a significant contribution to original research considering defeat and entrapment as predictors of mental health problems. The thesis presents the first longitudinal evidence that defeat and entrapment impact on mental health problems for individuals recruited from community and occupational settings and first application of defeat and entrapment to a behavioural task. Through development of a short scale, the thesis also presents a potential avenue to increase the measurement of defeat and entrapment in clinical settings.

DECLARATION

The work submitted within this thesis is substantially different from any work that has been submitted for any degree at this or any other institution.

The research presented in the current thesis was designed, analysed and written by the author. The data analysed in Chapter 3 was collected by Dr. John Maltby at the University of Leicester and had not previously been analysed. A portion of the data used in Chapter 6 was collected in support of Philosophical Doctoral degrees (PhD) by Dr. Peter Taylor and Dr. Maria Panagioti, both at the University of Manchester. The work submitted within this thesis addresses novel research questions and utilises different approaches to analysis from the publications within which this data has previously been used.

The current thesis has been prepared in alternative format, and is presented in the form of empirical papers. The study presented in Chapter 3 has been published in *Psychiatry Research*. The study presented in Chapter 4 is in preparation for submission. The study presented in Chapter 5 has not been submitted for publication. The study presented in Chapter 6 is currently in press at *Psychological Assessment*.

The work in this thesis was completed in collaboration with several individuals. The author's supervisors, Dr. Sara Tai and Professor Alex Wood, have overseen the design, conduct and write-up for each of the papers within the current thesis. They are therefore listed as co-authors on each of the papers outlined above. In addition, Dr Peter Taylor, Dr John Maltby and Dr Maria Panagioti have commented on the write-up of specific papers, and in some cases contributed data as noted above, and as such have been listed as co-authors on the relevant papers.

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DEDICATION

To Scott: the Holmes to my Watson.

‘O, cadw ni rhag collir hud,
Sydd heddiw'n crwydro drwy'r holl fyd.’

ACKNOWLEDGEMENTS

Firstly, thank you to my supervisors Dr. Sara Tai and Professor Alex Wood for their invaluable advice, guidance, encouragement and enthusiasm. Thanks also for supporting me in so many ways to complete this thesis (and stay away from caffeine). I am so grateful for the opportunities you have given me, thank you for investing your time and effort in me. Thank you to my advisor Professor Alison Wearden for always being able to find the positivity I needed at exactly the right time.

Thanks to Dr. Peter Taylor, who answered my never-ending questions and Dr. John Maltby, whose thoughtfulness, generosity with time and willingness to share ideas are an example to go by. Dr. Caroline Bowman, thank you for sparking my curiosity.

Thank you to Mario Kreft MBE, Gill Kreft and all the staff and residents of Pendine Park Care Organisation for providing not only financial support for the completion of this research, but also a wonderful, uplifting setting to work in. You inspire me.

I would like to thank my colleagues and friends from Coupland 1 (especially H27) for the chocolate, conversation, laughter, advice, proof reading, crises and distractions; it's been brilliant to have been around such a wonderful bunch of people! Thanks to Becky Band, my PhD 'big sister' - I would never have managed to get anything in the right format or handed in at the right time without you.

A big 'diolch' to my family for never letting me give up, proof reading absolutely everything, always knowing the right things to say and for providing unconditional support and smiles. Without you I would have never even come close to having a guilt-free weekend or an actual, wholesome meal at the correct time of day. Thank you for believing in me, I am so blessed to have the most wonderful family in the world.

To MALGHaN and my friends who made the mistake of asking how it was going, I'm sorry. I am sincerely grateful to everyone who has listened, cared, encouraged me or tentatively suggested it might be a good idea to have a break. I am incredibly lucky to have such amazing friends. Also the supportive writing group of JAN-DK, there are no words!

Finally, thanks to my best friend, soul mate and fiancé Scott. Sometimes you meet someone that just makes you want to be your best self possible and I'm grateful every day that I've found my someone. Thanks for overlooking the fact that I've insisted on leaving my work in piles of 'mess' all around the house – I promise I'll tidy them up now!

CHAPTER 1

1. Introduction

The introductory chapter will provide an overview of the background and aims of the thesis. This chapter will begin by defining defeat and entrapment as constructs and discussing the evolutionary and biological processes thought to underlie their development and maintenance. The influence that defeat and entrapment have on poor mental health outcomes for individuals will then be discussed in the context of the current literature, specifically focusing on the populations that these constructs have been applied to, as well as the methodologies that have been used in the existing literature. This will identify several population and methodological gaps within the literature that the current thesis aims to focus on. The research within this thesis aims to provide the first demonstration of a longitudinal relationship between defeat, entrapment and mental health outcomes in samples from populations where defeat and entrapment are expected to be particularly relevant. This research also aims to provide confirmation of whether defeat and entrapment should be considered a single factor, an issue currently being debated within the literature.

1.1 Social rank and behaviour

Many evolutionary processes that determine the behaviour and responses of animals to certain situations are thought to have parallels within human behaviours and responses (Price, Sloman, Gardner, Gilbert, & Rohde, 1994). Identification of evolutionary processes can be used as a basis for increasing understanding of why maladaptive behaviours and mental health problems might develop amongst humans (Price et al., 1994; Taylor, Gooding, Wood, & Tarrier, 2011a). Central to evolutionary theory is that adaptations exist, which are characteristics with reproductive and survival benefits for individuals (Brandon, 1978). It is now thought that psychological traits can be understood as adaptations that aid humans to survive (Siddaway, 2013). On this basis, the experience of mental health problems and mental well-being can be seen as

inter-related processes that are present in all humans (Keyes, 2002) and can be understood as a 'psycho-biological response pattern' that was inherited by all humans (Price et al., 1994). This suggests that in our evolutionary history, the symptoms of mental health problems must have served a function that increased the likelihood of survival of animals in which they were present, at the expense of others (Price et al., 1994; Gilbert, 2001).

Amongst group living animals, social hierarchies exist to regulate access to resources, such as mates and food, thereby preventing excessive competitive behaviour between group members (Gilbert, 1992). These hierarchies provide 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 associated with a conflict loss. Attaining rank position is a key biosocial goal (Gilbert, 1992) and demonstrates to others an animal's overall success in social competition with other members of the group. High-ranking animals are likely to win more conflicts with other members of the social hierarchy, are more successful at obtaining resources and have health and reproductive benefits (Gesquiere et al., 2011), therefore animals have evolved to seek the highest rank position possible. When animals experience social defeat and lose rank position within the hierarchy, they are likely to exhibit behaviours that are similar to those associated with depression and anxiety in humans (Price et al., 1994), such as engaging in submissive behaviours. For example, such individuals may back down quickly if confronted, avoiding eye contact, not confidently advertise oneself and not make confident attempts at obtaining resources (Gilbert, 2000a). This suggests that these submissive behaviours are functional and aim to promote voluntary yielding, however when this is not possible and the pattern is maintained, this can become problematic (Price et al., 1994).

Based on observations of socially defeated animals, psychobiological theories have attempted to understand mental health difficulties in terms of the dysregulation of

basic processes such as these, which were once adaptive mechanisms for humans in their evolutionary past and may still serve a function in ensuring that individuals identify and respond appropriately to threats in their environment (Gilbert, 2001). Although small amounts depression and anxiety can be viewed as adaptive as ways of disengaging from unobtainable resources (Klinger, 1975), when they lead to excessive use of defensive submissive behaviours and social avoidance, this can become maladaptive and precede a lack of control over social status (Gilbert, 2000a). Within such theories, the concepts of defeat and entrapment have been identified factors that have a central role in the both the onset and maintenance of depression (Gilbert & Allan, 1998).

1.2 Defining defeat and entrapment

1.2.1 Defeat

Defeat has been conceptualised as a submissive defensive behaviour that involves perceptions of failed social struggle and powerlessness that results from a lack of ability of obtain individualised goals and is associated with a loss of social status or hierarchy position (Gilbert, 2000a; Gilbert & Allan, 1998). Defeat can arise from external circumstances, such as dysfunctional relationships or being unemployed, or an inner unrest that is uncontrollable (Williams & Pollock, 2001). Gilbert (2000b) proposed that there are three main classes of events that have potential to induce perceptions of defeat in individuals. Firstly, a failure to attain resources or a loss of valued resources, for example being in situations of financial instability (Sloman, Gilbert, & Hasey, 2003) and poverty (Gilbert, Gilbert, & Irons, 2004a), may precede such perceptions. Alternatively, perceptions of social put-downs or being attacked by others, or perceptions of attacks from internal sources such as unachievable goals or unfavourable comparisons with others can lead to perceptions of defeat (Gilbert, 2000b); for example being the target of racism can entrap individuals in aversive situations (Gilbert et al., 2004a). An important component

of the construct is that an individual feels that they have struggled against one or more triggering experiences (Siddaway, 2013; Taylor et al., 2011a) that is relevant to an important area of their life (Williams & Pollock, 2001), as defeat has been differentiated from failure of loss, which do not involve a perceived struggle.

1.2.2 Entrapment

Entrapment has been defined as the blocking of a powerful motivation to escape from a stressful or threatening situation, due to a lack of escape possibilities or likelihood of rescue from others (Gilbert & Allan, 1998), and has been derived from the concept of 'arrested flight' (Dixon, Fisch, Huber, & Walser, 1989). Perceptions of entrapment may be preceded by, triggered and maintained by internal feelings and thoughts, known as internal entrapment, or by external circumstances and events such as social situations, known as external entrapment (Taylor et al., 2011a). It has been proposed that entrapment can be operationalised as a deficiency in problem solving skills as a response to negative circumstances (Williams & Pollock, 2001). Animals who experience social defeats are likely to engage in self-protective behaviours such as withdrawal in short term self-protective strategies, including social withdrawal, decreased sleep and feeding, and hypervigilance (Sloman et al., 2003), that are thought to prevent further physical danger that could occur through further conflicts and signal a 'no-threat' status (Price & Sloman, 1987). These submissive behaviours aim to 'cut-off' the animal from the environment (Dixon, 1998) and are adaptive as a short-term response in reaction to dangerous situations and therefore can be seen to serve a specific function, as a strategy to protect the animal. However, when these submissive behaviours fail to disengage, this can lead to maladaptive outcomes. Entrapment has been differentiated from hopelessness, as definitions of hopelessness focus only on the likelihood of future events occurring, rather than considering the presence of motivation to escape from the situation and the effects of thwarted motivation to escape (Gilbert & Allan, 1998).This is supported by research demonstrating that hopelessness no longer

predicted suicidal behaviour when entrapment was controlled for (O'Connor, Smyth, Ferguson, Ryan, & Williams, 2013), suggesting that the two constructs are distinct from one another. Furthermore, Lester (2012) demonstrated a low correlation between entrapment and hopelessness (r = .28 - .34; internal and external entrapment assessed separately). Lester (2012) suggested that entrapment and hopelessness are similar as they both manifest in mental health problems, but arise from different theoretical bases and therefore should be considered as distinct constructs.

1.3 The evolution of defeat and entrapment as constructs

As the conceptualisation of defeat and entrapment evolved from observations within the animal literature, it is not yet clear whether they represent a core psychological process present in all humans, or whether defeat and entrapment are factors that are only seen amongst individuals within clinical populations with mental health problems. There are competing perspectives about this, with some theories viewing defeat and entrapment as specific responses to stressful situations (e.g. O'Connor, 2003), whilst other theories view defeat and entrapment as a functional process with evolutionary bases that is present in all individuals that in certain situations or circumstances can become problematic by operating for prolonged periods of time (e.g. Gilbert, 2001). The following section will discuss how perceptions of defeat and entrapment may develop and influence negative outcomes for animals and humans, and also consider the optimal way to measure defeat and entrapment.

1.3.1 The Involuntary Defeat Strategy in animals

When animals engage in social competition and experience a defeat they are likely to react using involuntary responses of yielding mechanisms that leave them physically incapable of fighting (Price et al., 1994). By yielding, the animal signals to other animals that they are willing to submit, thus reducing the chance of them being

injured (Sloman, 2000). This is known as the Involuntary Defeat Strategy (IDS), a short-term and genetically pre-programmed protective strategy that aims to protect the animal from experiencing further harm (Sloman, 2000). This strategy is activated automatically as a damage-limitation strategy in response to a social defeat (Gilbert, 1992) and is thought to be primitive, threat-defense response to defeat perceptions (Sloman, 2000). The strategy prevents animals from pursuing goals that are unobtainable and would decrease their survival ability (Gilbert, 1998a). As an adaptive strategy, the IDS should deactivate once the animal escapes from the defeating situation and accepts that the specific defeat has occurred leading them to pursue new goals (Nesse, 1998). However when a strong motivation to take flight from the aversive situation is blocked and animals cannot physically escape, due to low likelihood of escape or being rescued by others, animals engage in a defensive strategy known as 'arrested flight' (Dixon, et al., 1989; Gilbert & Allan, 1998). When the strategy fails to disengage, it becomes problematic for the animal and can precede poor outcomes. Some forms of behaviour seen in animals that result from an IDS that fails to disengage, such as withdrawal and hypervigilance, are thought to be representative of the symptoms of mental health problems in humans (Wood, Boyce, Moore, & Brown, 2012). It is thought that the IDS may contribute to perceptions of entrapment, dependent on the individual's perceptions of escapability from the situation (Siddaway, Taylor, Wood, & Schulz, in press). Parallels have been drawn between the behaviours that arise as a result of prolonged IDS amongst group living animals with some behaviours that are associated with humans experiencing specific mental health problems (Wood et al., 2012).

1.3.2 The Involuntary Defeat Strategy in humans

Whilst social rank is clearly a priority for group living animals, where being low rank has adverse consequences, humans do not live or interact with a group in this way.

However, it is known that rank in comparison to others is important to humans, particularly when selecting a mate, as individuals of higher rank have access to more resources for potential offspring, and are therefore seen as more desirable than those of low rank (Brown, Gardner, Oswald, & Qian, 2008). It is thought that whilst amongst animals the social threats that trigger submissive behaviour are focused on aggression; amongst humans, these threats are focused on loss of approval or acceptance, through unfavourable social comparisons with others (Gilbert, 2000a). Therefore, humans may be seen to be competing with others not only for resources, but also to become more socially attractive to others (Sloman et al., 2003). Acknowledging the importance of social rank to humans may help to understand the high prevalence of poor physical and mental health amongst individuals of low socioeconomic status (Taylor, Wood, Gooding, Johnson, & Tarrier, 2009). The IDS response is thought to be an evolved, innate and adaptive response to defeat situations. Therefore, following a defeat situation, humans are also thought to experience an IDS, which when it fails to disengage can precede mental health problems such as depression and anxiety disorders. Examples of situations involving defeat that have been cited as common sources that lead to increased vulnerability for depression include physical and sexual abuse, and workplace or school bullying (Bifluco & Moran, 1998). In the context of such experiences, an adaptive IDS response would be expected to deactivate when individuals were able to escape from the situation, by accepting the defeat, obtaining help from others and beginning to pursue new goals (Sloman, 2000). Accepting defeat is a crucial variable in whether involuntary subordination becomes prolonged and manifests in depressive symptoms (Sturman, Rose, McKeighan, Burch, & Evanico, in press). If an individual is unable to accept a defeat they become confined within a struggle that they are unable to overcome and are likely to continue to experience general dysphoria and increasing frustration that culminates in depressive symptoms (Sloman, 2000). Examples of accepting a defeat would be ending an abusive

relationship or obtaining help from others (Siddaway et al., in press). Although, issues exist concerning individual differences in responses to the IDS, and vulnerability towards subsequent mental health problems. For example, accepting a social rank position is thought to terminate an IDS; however, not all individuals are able to achieve this in all situations (Swallow, 2000).

It has been proposed that socioeconomic status reflects the social rank position of humans. For social living animals, rank position is based on the outcome of competitions with others; whereas amongst humans, rank position is determined by the attention and social status they hold, gained from interactions with others (Gilbert, 1992). Typically, gaining rank is associated with positive affect (e.g. increased self-esteem) and loss of rank associated with negative affect (Gilbert, 1990). Specifically, a fall in social rank has been associated with symptoms associated with depression and a self-reported desire to increase one's rank position (Brewer & Oliver, 2014). Furthermore, people have been shown to react differently to an individual dependent on whether they perceive themselves to be higher or lower ranking than them (Gilbert, 1992), a strategy that is evaluated through social comparison with similar others.

Amongst group living animals, rank position is gained from success of socially related goals that result in obtaining resources, for example winning conflicts with other members of the social hierarchy. Similar goals are seen in humans, for example gaining love and attention from others. Such goals are associated with increased levels of well-being in humans and the desire to be a high ranking individual could be the motivation to achieve these goals (Nesse, 1990). Furthermore, humans can increase their rank by improving their socioeconomic status through the obtaining of resources, for example seeking employment in a job with a higher income. However, within a society or social group some individuals must initially be low ranking in order for a hierarchy to exist. In humans, one's position in society is recognised by socioeconomic status (SES). This is a reflection of an individual's ability to gain access to collectively desired resources, for

example money, education and relationships (Oakes & Rossi, 2003), as access to such resources allows individuals to succeed within society. SES is commonly measured using individual's income, education level and occupation and demonstrates their social position within society. Much research has demonstrated a link between being of low SES and an elevated risk for poor physical and mental health well-being over time. For example, research has shown that across 50 years, SES predicted general physical health, depression, chronic conditions such as diabetes or heart disease, and cognitive functioning in a sample of almost 20,000 participants (Luo & Waite, 2005). An alternative conceptualisation of this is that individuals in social isolation and with lower perceived control over their home and work life are more likely to experience poor mental and physical health (Wilkinson & Marmot, 2003). Research has demonstrated that a perceived lack of control predicted depression amongst family caregivers of individuals with dementia (Pagel, Becker, & Copper, 1985). This is further evidenced by research demonstrating that amongst a sample of 30,000 people, how individuals' income compared to others within a comparison group, rather than their actual income itself, was predictive of poor mental health (Wood et al., 2012). Therefore individuals who perceive that they have low social rank based on comparisons to others may be more likely to experience poorer mental health, and this could operate through activation of the IDS (Wood et al., 2012). Overall this evidence suggests that a link exists between having low SES and being low rank, and subsequently experiencing poorer physical and mental health than those with high SES.

Experiencing perceptions of defeat and entrapment has been linked to four major psychological problems; depression, anxiety disorders, post-traumatic stress disorder (PTSD) and suicidality. The IDS response is thought to directly influence the experience of depression; as depression is known to be common amongst individuals who are pursuing unattainable goals (Bibring, 1953). Furthermore, mental health problems such as anxiety and PTSD are thought to arise due to biases and consequences

that result from IDS activation (Siddaway et al., in press). For example, IDS activation is thought to bias perceptions of future threats that may increase the likelihood of individuals developing anxiety problems (Taylor et al., 2011a; Sloman, 2000). These biases are likely to lead individuals to develop self-beliefs that result in perceptions of being subordinate and inferior in comparison to others (Taylor et al., 2011a). Self-beliefs around subordination and inferiority may increase the likelihood of individuals appraising social situations that may require evaluation, such as being introduced to new people, as a direct threat to their social status (Michail & Birchwood, 2013).

However, defeat does not necessarily need to refer to a single life event (Sturman & Mongrain, 2008a) and may instead represent feelings of being trapped in an on-going and enduring aversive situation, for example being of low socioeconomic status or living in socioeconomic deprivation (Wood et al., 2012; Perkins & Rinaldi, 2002). In such situations, as the IDS evolved as a short-term response to defeat when an individual's low social rank position becomes enduring, leading to chronic IDS activation, individuals are likely to experience poor mental health outcomes such as depression (Sloman et al., 2003).

1.3.3 Defeat and entrapment as an inter-related process

As the Involuntary Defeat Strategy is thought to be an evolved process, defeat and entrapment should be a common process across all humans following a defeat situation, rather than being a process specific to individuals experiencing mental health problems. Suggestions of events that may induce defeat are far broader than the circumstances of direct conflicts with others that are predictive of feelings of defeat within the animal literature (Price et al., 1994). This includes suggestions that perceptions of defeat may not be associated with a specific objective event, but may be internal to the individual (Gilbert, 2000b) and do not necessarily derive from social situations (Taylor et al., 2011a). For example, being rejected as a friend or a potential

employee, feeling inadequate in a role or a lack of contentment with personal qualities such as weight could all be perceived as defeating situations (Carvalho et al., 2013). Furthermore, perceptions of defeat and entrapment may be influenced by cognitive biases such as impairment of problem-solving abilities and negative memory schemas, which are thought to represent unyielding negative perceptions of the self and predict negative outcomes for individuals (Johnson, Gooding, & Tarrier, 2008a). Hacıoğlu, Fisticki, Yosmağlu, Keyvan and Yildirim (2013) discussed the impact of mental mechanisms that have evolved to facilitate social functioning and enable individuals to act in a dominant or submissive way, dependent on the situation. When individuals have 'submissive mental mechanisms' which include negative self-directed thoughts, this may be predictive of both depressive and psychotic symptoms amongst individuals diagnosed with schizophrenia (Hacıoğlu et al., 2013). It has been suggested that patients with depression may behave in a submissive way and feel defeated whilst wishing to escape from negative self-directed thoughts, whereas patients with schizophrenia may feel that auditory hallucinations that they experience are dominant and controlling over them (Gilbert, 2001), and feel powerless and subordinate to their voices (Birchwood et al., 2004; Birchwood, Iqbal, Chadwick, & Trower, 2000). Furthermore, loss of social status and perceptions of defeat and entrapment have been associated with depression in patients with schizophrenia (Rooke & Birchwood, 1998). Gilbert (1992) proposed that depression also occurs in certain situations when an individual holds a low social rank position, or perceives himself or herself to be low ranking within the social hierarchy, regardless of whether there is competition over resources. This may be particularly prominent in situations where individuals feel that they do not have control over resources and do not have acceptable amounts of social support available (Gilbert, 1992). Similarities have also been identified between the biological states of socially defeated animals and humans experiencing depression (Toates, 1995), which has been supported by suggestions that depression can be seen as a specific form of submissive

behaviour (Willner & Goldstein, 2001). Additionally, it is thought that low energy and motivation, which are characteristics of depression, might interfere with individuals' ability to escape from situations that may be potentially dangerous, such as a violent relationship (Breslau, Davis, Andreski, Peterson, & Schultz, 1997; Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009). Furthermore, individuals with depression have been shown to make negative judgments about their relative rank position, for example perceiving their power within the social group and attractiveness as lower than they actually are (Allan & Gilbert, 1995) and also perceiving themselves as inferior in comparison to others (Gilbert & Allan, 1998). In certain situations, such negative social comparisons may prime an individual towards submissive behaviour, which in turn increases their disposition for seeking escape from conflict situations and may precede symptoms associated with mental health problems, if such escape is not possible (Gilbert, 2000b). Furthermore, it would be expected that individuals who are engaging in submissive behaviour would also fear others and be more willing to submit to others, which are behaviours associated with social anxiety (Sturman, 2011). This may have an influence on the likelihood of mental health problems developing, as individuals who have learned over time that behaving in a submissive manner is the optimal strategy for them are likely to experience long-term biological and chemical changes (Williams, 1997).

However, such experiences and behaviours may not be exclusive to individuals experiencing symptoms associated with mental health problems. Allan and Gilbert (1997) suggested that individuals with low social-rank, conceptualised as having low self-assertiveness, might be generally more vulnerable to the experience of psychological problems than those of high social-rank. In summary, perceptions of defeat and entrapment do not necessarily result from stressors arising from social situations. Rather, the existing literature suggests that any feelings or situations that signal to an individual that they have failed to achieve a specific goal or aim that they

set may precede perceptions of defeat. Therefore, although there is a large evidence basis for the role of defeat and entrapment in mental health problems for individuals with specific diagnoses, there is very limited research on whether defeat and entrapment play a role in the mental health of individuals in community settings. Such research needs to be conducted in order to establish whether defeat and entrapment are present in all humans, and under specific aversive situations operate as a 'psycho-biological response pattern' (Price et al., 1994) and can influence subsequent mental health.

1.3.4 Conceptualising defeat and entrapment

The conceptual relationship between defeat and entrapment has been the subject of debate within the literature (Siddaway, 2013). When humans experience feelings of defeat or entrapment in response to stressful situations, it is not yet clear whether the two constructs operate as separate but interacting constructs, or whether a single factor underlies both defeat and entrapment. Several theories have been proposed considering the structure and interrelation of defeat and entrapment; whether they should be considered as distinct constructs or as a single factor that encompasses feelings of failure and inability to escape. Questions remain around the structure of defeat and entrapment, which have implications for their measurement in research and their implementation into therapeutic interventions. The following section will present an overview of four key models that have a focus on the structure of defeat and entrapment. Theories that consider defeat an entrapment as two factors will be discussed first, as one of these theories in particular influenced the later development of a one-factor theory.

1.3.4.1 Two-factor theories

Two-factor theories have considered defeat and entrapment to be conceptually distinct constructs in the development and maintenance of mental health problems, although there are suggestions that the factors are related in some specific ways.

Although developed as a model of suicide rather than being a specific model

related to the experience of perceptions of defeat and entrapment, the Cry of Pain model (CoP; Williams, 1997), proposes that appraising events and situations as defeating and entrapping influences can precede suicidal ideation and behaviour (see Figure 1). The CoP model states that suicidal behaviour can be conceptualised as a behavioural response to situations of high stress, which can be identified by three components: defeat, lack of escape or escape potential (entrapment or "arrested flight") and lack of rescue (Williams, 1997). When the above three criteria are met, a biologicially mediated 'mental helplessness script' is activated (Williams & Pollock, 2001). This is thought to arise as a result of persistent negative appraisals that generate perceptions of defeat and entrapment (Malhi, Bargh, Kuiper, Coulston, & Das, 2013). Situations of high stress can be environmental factors, for example living in a prison setting, or experiencing negative life events, for example becoming imprisoned (Slade, Edelmann, Worrall, & Bray, 2014). In this model, a situation of high stress, alongside perceptions of humiliation or a loss of social rank position, results in perceived defeat. An individual then appraises their situation for escape and rescue potential, during which they may attempt to resolve their current negative situation (Slade et al., 2014). If neither escape nor rescue is available, for example rescue through social support (O'Connor, 2003), the individual is likely to become entrapped within a situation. Therefore, individual's perceptions of entrapment are a central and predominant component of depression and suicidal behavior (Williams & Pollock, 2001), and can arise from a biased perspective of past experiences, which are viewed in the context of either actual or threatened losses such as defeat events. However, recently it has been proposed that entrapment holds a mediating role for the relationship between defeat and suicidal behaviour (Rasmussen et al., 2010), rather than occurring alongside defeat following a stressful situation. Perceptions of defeat and entrapment are thought to result from hypersensitivity towards cues in the environment, such as signals of social failures and social losses (O'Connor et al., 2013). These perceptions are thought to contribute to an on-going biological and social process that influences suicidal feelings and behaviour

(Williams, 1997), and have since been identified as the "setting conditions" for suicidal behaviour that results from stressful life events or appraisals of such events (O'Connor, 2011). This theory is supported by high rates of suicide in situations such as prison, where the chance of escape from the environment or dominant individuals within the environment is particularly limited (Williams, 1997), in comparison to rates of suicide amongst the general population. Additionally, suggestions have been made that individuals who are at high risk of suicide frequently interpret stressful situations as defeating or entrapping (Bolton, Gooding, Kapur, Barraclough, & Tarrier, 2007). Furthermore, researchers have applied the CoP model to deliberate self-harm and demonstrated that both defeat and entrapment were predictive of the likelihood of engagement in future self-harm by young males in prison settings (Slade et al., 2014).

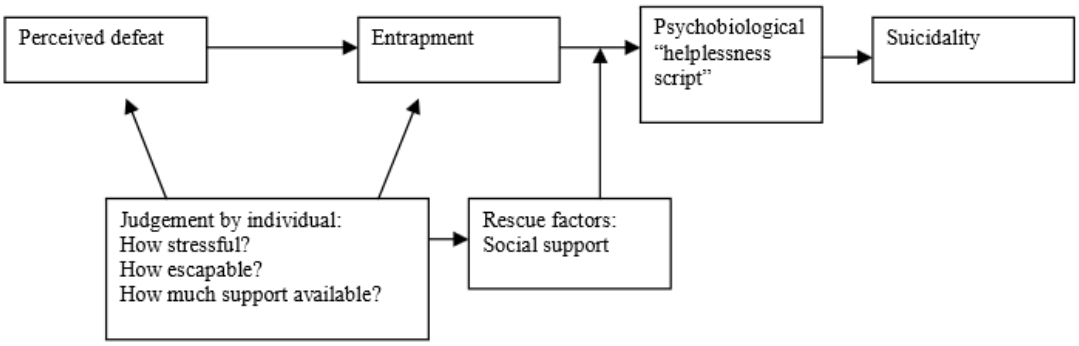


Figure 1. Digrammatic overview of the Cry of Pain model, adapted from Williams (1997).

A further model, the Integrated Motivational-Volitional model of self-harm and suicidal behaviour consists of three phases that explore the relationship between existing background factors, such as social deprivation, and triggering events, such as a relationship crisis (IMV; O'Connor, 2011, see Figure 2). The model also draws from the COP model (Williams, 1997) and suggests that when a stressful life event (either acute or chronic) is perceived as being defeating, this triggers feelings of entrapment that increase the risk of suicidal ideation and behaviour. The progression from feeling defeated to feeling entrapped is moderated by specific factors such as rumination and use of poor coping strategies

(O'Connor, 2011). These moderating factors are either 'motivational', conceptualised as factors that influence the likelihood of suicidal thoughts being developed, or volitional, conceptualised as factors that influence whether suicidal thoughts subsequently lead to suicidal behaviour (O'Connor et al., 2013). Individuals are thought to search for solutions that would allow them to escape from their situation of defeat, and it is when no solutions can be found that perceptions of entrapment increase and suicide is viewed as the only route of escape from feelings of entrapment (O'Connor et al., 2013). This supports an earlier version of this model, which suggested that defeat and entrapment are independent responses to situations of stress. Activation of entrapment only occurs if a situation cannot be escaped from, after an individual has evaluated the potential for escape or rescue from a situation, whereas defeat is an immediate response to a stressful situation (O'Connor, 2003). Although, an earlier model suggested that situations exist where defeat and entrapment may interact, for example when a previously escapable situation becomes entrapping and individuals are unable to escape. In such situations both constructs may occur simultaneously (O'Connor, 2003).

The IMV model has been supported by evidence that difficulty in reengaging goals following an unobtainable goal is predictive of suicidal behaviour over two years (O'Connor, O'Carroll, Ryan, & Smyth, 2012). Additionally, Rasmussen et al. (2010) demonstrated that entrapment acts as a mediating factor in the relationship between defeat and suicidal behaviour, demonstrating that suicidal behaviour only results following a defeat if the individual also perceives that they are in some way entrapped. Furthermore, impaired positive thinking about the future was shown to be a moderating factor ('motivating moderator') in the relationship between entrapment and suicidal ideation (Rasmussen et al., (2010).

Further suggestions have also been made that defeat and entrapment are temporally distinct alongside the development of specific models. Defeat is thought to consistently occur as a response to the appraisal of stressful situations, whereas perceptions of

entrapment follow when individuals cannot resolve the defeating situation and become unable to escape (Sloman et al., 2003). This suggests that when stressors lead to defeat situations that can be escaped, entrapment will not be experienced and that the two constructs operate in a linear way.

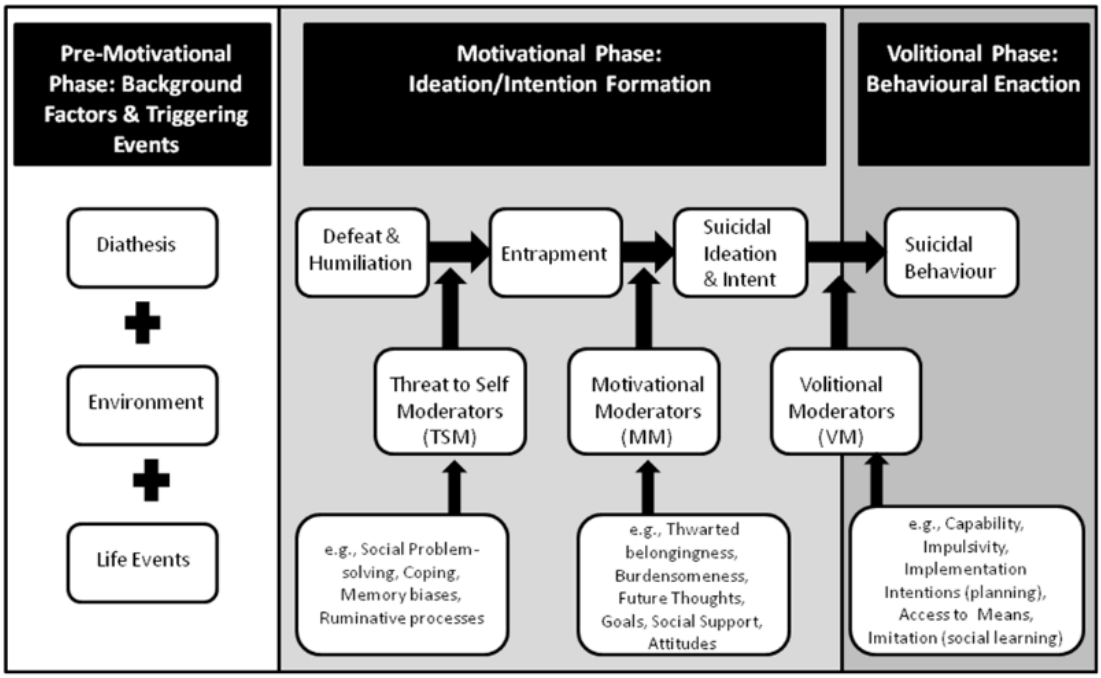


Figure 2. Diagrammatic overview of the integrated motivational-volitional model of self-harm and suicide behaviour, adapted from O'Connor (2011).

1.3.4.2 One-factor theories

Although defeat and entrapment were initially viewed as two distinct concepts, recently it has been argued that both concepts should be conceptualised as a single factor with central appraisals of being powerless, lacking the power to implement or affect change, and a lack of ability to move on from an aversive event or status (Taylor et al., 2009; Johnson, Gooding, & Tarrier, 2008b). Despite there being different underlying judgments and processes that contribute to the experience of defeat and entrapment, it has been argued that these processes overlap and influence each other; thus defeat and entrapment cannot be divided into distinct constructs (Taylor et al., 2009). Furthermore, definitions of defeat often suggest that it encompasses there being a lack of solutions

available to an individual or way out of their situation, both of which are elements associated with entrapment (Rooke & Birchwood, 1998).

Taylor et al. (2009) proposed a model for the structure of defeat and entrapment known as the 'depressogenic loop' (see Figure 3). This model suggests that mental health problems, in particular depression, result as a direct consequence of an individual perceiving that they are defeated and entrapped. Defeat, entrapment and IDS activation are thought to operate in a mutually reinforcing feedback loop, whereby the experience of one influences and increases the likelihood of occurrence of the others. When an individual experiences a defeating situation, this is immediately associated with an increased desire to escape, alongside perceptions of entrapment if the individual feels they are unable to escape or resolve the situation. An individual's judgment of their ability to escape directly influences the sense of failed struggle associated with being defeated that they would be expected to experience (Taylor et al., 2009). Feelings of entrapment then further reinforce the initial defeat perception and the two experiences continue to co-occur, with each reinforcing the other. This leads to a situation of continuous reinforcement of defeat and entrapment, from which the individual is unable to escape. The "depressogenic loop" is potentially initiated by being of low rank or a social defeat and leads to poor outcomes for the individual such as depression and anxiety (Taylor et al., 2011a). This theory has been supported by research demonstrating that defeat and entrapment were best defined in an exploratory factor analysis as one construct that encompasses a situation of failure with no escape route or solution (Taylor et al., 2009). Since the development of this model, a modification has been suggested which places defeat and entrapment within a single oval labelled as 'failed struggle', into which judgment of escapability feeds directly (Taylor, 2010). The model has been supported by qualitative research considering entrapment, in which individuals have consistently mentioned perceptions of being trapped within a subordinate role (Gilbert & Gilbert, 2003); a factor that is conceptualised as being a component of defeat (Gilbert & Allan, 1998). This has been supported by research

evidence that defeat and entrapment, alongside submissive behaviour and negative self-comparison all loaded onto a single latent factor conceptualised as 'involuntary subordination' (Sturman, 2011). Furthermore, recently some research has measured defeat and entrapment using a single, combined score (e.g. Griffiths, Wood, Maltby, Taylor, & Tai, 2014, Panagioti, Gooding, & Tarrier, 2012a). However, as outlined by Taylor et al. (2011a), further research considering the factor structure of defeat and entrapment is required to support single factor models.

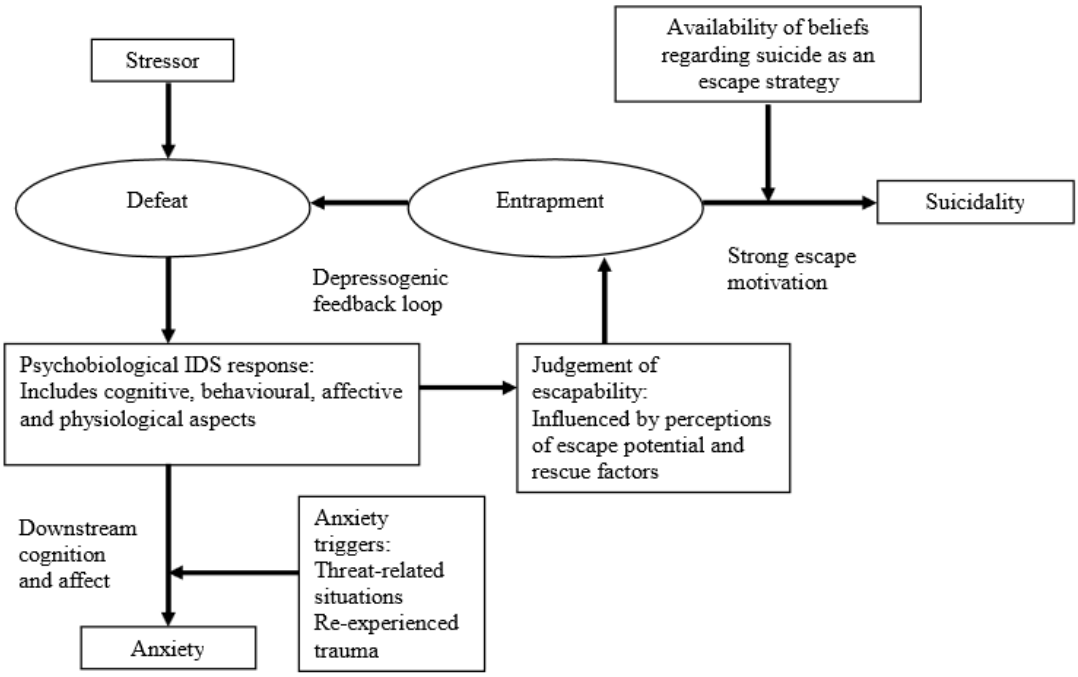


Figure 3. Diagrammatic overview of the depressogenic loop model, adapted from Taylor et al. (2009).

An additional model that considers defeat and entrapment as a single factor is the Schematic Appraisal Model of Suicide (SAMS; Johnson et al. 2008b). The SAMS model was originally developed built on the strengths of the COP model and proposed that the psychological processes of defeat and entrapment are key factors that underlie the development of suicidal thoughts. This occurs when individuals make appraisals that they are unable to resolve a defeating situation and have no available escape options, and

therefore use suicidal behaviour as a route of escape (Johnson et al., 2010; Taylor et al. 2011a). This model extends the CoP model, which sees entrapment to be the direct result of internal perceptions of suffering or uncontrollable external defeating circumstances (Williams, 1997) rather than an inter-related process. Within the model, defeat and entrapment are relevant to within 'self-appraisal' and 'appraisal system' (see Figure 4). Defeat and entrapment are placed within these sections as the largest difference between the COP and SAMS models is the reconceptualisation of the structure of defeat and entrapment, as the SAMS model proposes that defeat and entrapment should be viewed as a single factor. This models suggests that perceptions of a combined defeat and entrapment factor arise from both self-appraisals and an individual's appraisals of their current situation, future expectations and previous experiences (Johnson et al., 2008a). Whereas, within the COP model, defeat is identified as a specific factor that influences the experience of entrapment (Rasmussen et al., 2010). The SAMS theory is supported by evidence that specific life experiences influence the likelihood of individuals perceiving defeat and entrapment (Brown, Harris, & Hepworth, 1995).

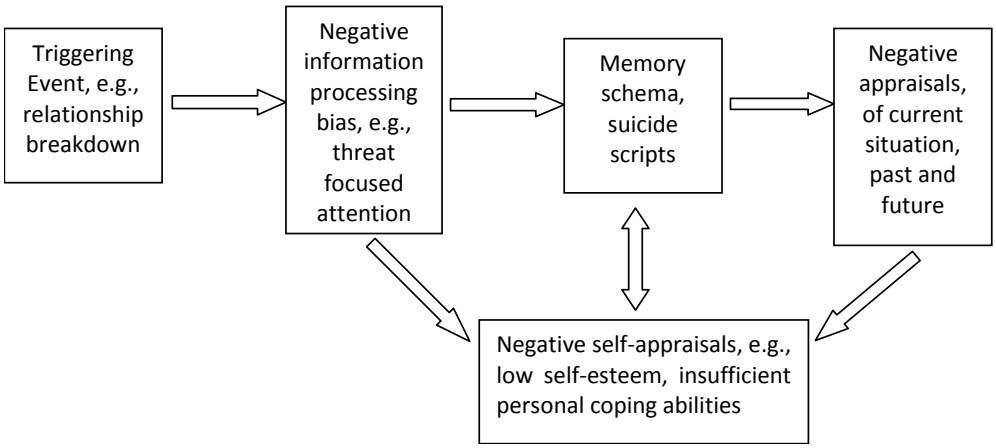


Figure 4. Diagrammatic overview of the Schematic Appraisals Model of Suicide (SAMS), adapted from Johnson et al. (2008).

One-factor theories have been supported by a factor analysis that demonstrated that defeat and entrapment were best conceptualised as a single factor (Taylor et al., 2009) and

form a component of a larger IDS latent variable (Sturman, 2011). Furthermore, there is evidence that defeat and entrapment correlate too highly to be considered as distinct (e.g. *r* = .83, Panagioti et al., 2012a). Additionally, research has demonstrated that a combined defeat and entrapment factor is associated with depression and anxiety (e.g. Sturman, 2011) and suicidal behaviour (e.g. Panagioti et al., 2012a).

1.4 The role of defeat and entrapment in mental health problems

Regardless of the structure of defeat and entrapment, there is evidence that defeat and entrapment act as common processes across a range of mental disorders (Taylor et al., 2011a) and have been implicated as strong predictors of mental health problems (Siddaway et al., in press). Allan and Gilbert (1995) proposed that social comparison is a key process that is potentially involved in the onset and maintenance of anxiety and depression, as people who experience an IDS as the result of aversive circumstances are more likely to make social comparisons that negatively reflect themselves than people who are not experiencing an IDS. For example, individuals acknowledging that they fare poorly in comparison to others, or perceiving low control over their situation is associated with distress and mental health problems (e.g. Paget et al., 1985; Wood et al., 2012). This is supported by suggestions that there is substantial overlap between the characteristics of depression and anxiety, resulting from shared evolutionary origins, which is reflected in the high comorbidity and overlap in symptomology between the disorders (Nesse, 2000). Therefore, symptoms associated with the two disorders may result from the same biased comparisons. Furthermore, defeat has been conceptualised as a particularly depressogenic response to an individual's perceptions of low rank (Gilbert, 2001), that occurs as a result of social comparison. This suggests that negative social comparisons may pre-empt situations of defeat that can result in depression and other forms of mental health problems. However, this may not be operate in a standardised way across all mental health problems as, for example, defeat and entrapment may affect anxiety and depression in

different ways, as individuals experiencing symptoms associated with anxiety are likely to experience biased perceptions of future threats as opposed to having biased perceptions of past defeats, as is thought to be associated with depression (Sturman & Mongrain, 2005).

Furthermore, defeat and entrapment have been outlined as specific constructs that require greater clinical and research attention, as they may be transdiagnostic processes (Harvey, Watkins, Mansell, & Shafran, 2004). The following section will provide an overview of the existing literature that included depression and/or anxiety as outcomes in the research. However, as a review and meta-analysis of the literature have recently been conducted (Taylor et al., 2011a; Siddaway et al., in press), here the literature will be considered with regards to sample selection and study design, and will include research conducted since the publication of the review and meta-analysis alongside studies that did not include depression or anxiety as the primary outcome of the research.

1.4.1 Empirical support for the role of defeat and entrapment in mental health

Defeat and entrapment have been associated with mental health problems in samples recruited from university settings and clinical settings. As there is on-going debate concerning the most appropriate way to conceptualise and measure defeat and entrapment, there are inconsistencies within the literature in the measurement of these factors. The majority of research has only considered defeat or entrapment, whilst other studies have measured both defeat and entrapment as separate constructs. More recently, some studies have measured defeat and entrapment as a single construct. Furthermore, a very small amount of studies have measured defeat and entrapment as separate predictors and a single predictor, which provides the most comprehensive form of measurement and allows comparisons to be made about the relative impact of defeat and entrapment on the outcomes measured.

Perceptions of defeat have been associated with depression amongst undergraduate students in several cross-sectional studies (Allan & Gilbert, 2002; Gilbert & Allan, 1998; Gilbert, Cheung, Irons, & McEwan, 2005; Goldstein & Willner, 2002; Lester, 2013; Sturman et al., in press; Wyatt & Gilbert, 1998), however only three of these studies also demonstrated that entrapment was associated with depression (Gilbert & Allan, 1998; Gilbert et al., 2005; Lester, 2013). Cheon (2012) demonstrated gender differences for the impact of defeat and entrapment on depression amongst undergraduate students. Internal entrapment was a significant predictor of depression for male students, whilst both internal entrapment and external entrapment were significant predictors of depression for female students. However, no analyses were conducted using an overall entrapment score, as has been calculated in other studies, therefore it is unclear whether this gender difference is specific to the study or masked by the calculation of overall entrapment scores. Contrasting this, Lester (2013) found that the relationship between entrapment and depression remained even after controlling for gender, when internal and external entrapment were calculated separately and also when an overall entrapment score was calculated, demonstrating that calculating an overall entrapment score does not mask gender differences in the predictive value of entrapment.

Considering a wider construct than defeat and entrapment, Lester (2012) compared defeat and entrapment to hopelessness and helplessness amongst undergraduate students. This research demonstrated that combined defeat and entrapment was more strongly associated with depression than hopelessness and helplessness, although it was concluded that there is significant overlap between the constructs as they may result from an individual cognitive mind set (Lester, 2012), which may represent the IDS. Sturman and Mongrain (2005, 2008a, 2008b) also measured a broader construct, by creating a single variable to measure the IDS that consisted of entrapment and social comparison. Sturman and Mongrain (2008b) demonstrated a retrospective relationship between the latent IDS variable and depressive episodes among undergraduate students. This has recently been

supported by research demonstrating that an 'involuntary subordination' variable consisting of defeat, entrapment, submissive behaviour and social comparison predicted levels of depression in undergraduate students nine weeks after baseline measures were collected (Sturman, 2011). However, it has since been found that the relationship between involuntary subordination and depression is partially mediated by the experience of defeating events (Sturman et al., in press). This suggests that perceptions of defeat and entrapment can be influenced by specific events.

Supporting the research conducted with student populations, a small amount of research in this area has been conducted to community and occupational settings. Entrapment has been associated with depression in a community sample (Trachsel, Krieger, Gilbert, & Holtforth, 2010). Entrapment has also been associated with the onset of depression on a retrospective basis within a female community sample. This study demonstrated that entrapping life events were associated with a greater risk for the onset of depression, in comparison to life events involving loss or danger only (Brown et al., 1995). This supports theories that there are environmental and biological risks that may render an individual vulnerable to the experience of defeat and entrapment, through heightened sensitivity to and responses to environmental cues (O'Connor, 2011; O'Connor et al., 2013). An association between defeat and depression was also observed within a community sample of individuals who were full-time workers from a variety of fields (Dunn, Whelton, & Sharp, 2012). This was corroborated by a further research demonstrating a link between defeat, entrapment and depression in a sample of female office workers (Troop & Baker, 2008) and a study involving two samples consisting of full-time workers and patients with depression (Carvhalo et al., 2013). This study provided the first evidence that defeat and entrapment are associated with depression in clinical and non-clinical matched samples, although individuals from the clinical sample experienced significantly higher levels of defeat, entrapment and depression. However, as this study was cross-sectional, conclusions can only be made that defeat and entrapment are

associated with depression regardless of the levels at which this is experienced. No conclusions can be drawn about whether this relationship operates differently over time dependent on whether individuals are experiencing clinically relevant levels of depression.

Research has also been conducted to investigate perceptions of defeat and entrapment for caregivers and parents of individuals with special care requirements. Entrapment has been associated with depression levels in family caregivers for adults with dementia (LeBlanc, Driscoll, & Pearlin, 2004; Martin, Gilbert, McEwan, & Irons, 2006) and mothers of children with special educational needs (Willner & Goldstein, 2001). The sample of mothers was chosen explicitly as individuals from this group were expected to be experiencing high stress levels in comparison to the general population (Willner & Goldstein, 2001). Although this is not explicitly a caregiver sample, the stress of caring for a child with special education needs has been associated with an increased risk for depression (Mash & Johnson, 1983). The caregiving population may be expected to experience particularly high levels of defeat and entrapment as they are likely to be in an ongoing situation which has potential to become increasingly entrapping and subsequently depressing (Martin et al., 2006), as there is limited opportunity for improvement or escape from their situation (Willner & Goldstein, 2001).

Defeat and entrapment have also been associated with depression among different patient populations. Research has demonstrated an association between defeat and depression in samples of patients with chronic pain conditions, (Garcia-Campayo et al., 2010; Tang, Goodchild, Hester, & Salkvoskis, 2010) who experienced elevated levels of defeat in comparison to controls and acute pain patients (Tang, Salkovskis, & Hanna, 2007) and a sample of patients with anorexia and bulimia (Troop, Andrews, Hiskey, & Treasure, 2013). Defeat and entrapment have also been associated with depression and probability of suicide in individuals who had previously attempted suicide (Rasmussen et al., 2010). Additionally, defeat and entrapment have been shown as separate predictors to be associated with the presence of depression at a second time point four years later within

a sample of individuals who were hospitalised following a suicide attempt (O'Connor et al., 2013). Several studies have demonstrated a cross-sectional relationship between entrapment and depression in patients with schizophrenia spectrum disorders and mixed patient samples (Birchwood, Mason, MacMillan, & Healy, 1993; Birchwood, Jackson, Brunet, Holden, & Barton, 2012; Clare & Singh, 1994; White, McCleery, Gumley, & Mulholland, 2007) and psychiatric inpatients (Gilbert, Allan, Brough, Melley, & Miles, 2002). This has been supported by recent evidence that individuals experiencing first episode psychosis who reported depressive symptoms were experiencing more perceptions of entrapment than those who did not report depressive symptoms (Upthegrove, Ross, Brunet, McCollum, & Jones, 2014). However, a study that specifically investigated how individuals appraised their auditory verbal hallucinations and found that the perception of such hallucinations as entrapping was not associated with depressive symptoms, whilst the power that individuals attributed to the hallucinations was the largest predictor of depression (Gilbert et al., 2001). This suggests a potential role for defeat due to the subordinate role taken on by perceiving a hallucination as powerful (Taylor et al., 2011a). The cross-sectional research in this area has been extended by research that has demonstrated a prospective relationship between entrapment and depression. The first study found that baseline levels of entrapment predicted depression at a 30 month follow-up (Rooke & Birchwood, 1998) and the second study demonstrated that entrapment was associated with depression at 4, 8 and 12 months following an acute psychotic episode in patients with a schizophrenia spectrum disorder (Iqbal, Birchwood, Chadwick, & Trower, 2000). Furthermore, perceptions of entrapment were shown to reduce significantly alongside a decrease of positive and negative psychotic symptoms and depression, amongst individuals experiencing first episode psychosis (Upthegrove et al., 2014). However, the predictive value of entrapment in the experience of depressive and positive and negative psychotic symptoms was not explicitly tested. These studies provided the first evidence for the longitudinal role of entrapment in depression, however as they were conducted with

samples of individuals from specific patient groups, these results may be specific to this population and cannot infer whether entrapment operates in this way within non-clinical samples.

Gilbert and Allan (1998) demonstrated a cross-sectional relationship between defeat, entrapment and depression amongst patients with depression using self-report measures. Sturman and Mongrain (2005) supported this within a non-clinical population, who demonstrated that a combined predictor of social comparison and entrapment was associated with previous depressive episodes in formerly depressed students. However, this effect was not found to replicate with the experience of either current or previous anxiety disorders. The authors concluded that social comparison and entrapment variables appear to be relevant specifically to depression outcomes (Sturman & Mongrain, 2005). However, as outlined below, several studies have demonstrated significant relationships between defeat, entrapment and anxiety, therefore these conclusions appear to overstate the findings of a single study. These findings have also been supported by a study that considered the role of defeat and entrapment in depression and subsequent suicidal behaviour in a sample of patients who had experienced a severe life trauma event. Panagioti et al. (2012a) demonstrated that defeat, entrapment, and a combined predictor of defeat and entrapment were all associated with depression in patients with PTSD, suggesting that this may represent a maladaptive psychological coping strategy that may influence suicidal behaviour. These suggestions have since been supported by a study that demonstrated that combined defeat and entrapment predicted depression and changes in suicidal ideation amongst individuals with PTSD diagnoses at a follow-up between 13 and 15 months later (Panagioti, Gooding, & Tarrier, in press).

Although generally within the literature there has been a reliance on self-report measures, potentially due to the subjective nature of defeat and entrapment (Siddaway et al., in press), research has been extended from self-report measures to interviews with patients with depression (Gilbert, Gilbert, & Irons, 2004a). This study demonstrated that

88% of patients reported a current motivation to escape from situations in their life. Furthermore, less than half of patients (39%) reported that they felt entrapped before they became depressed, suggesting that perceptions of entrapment may not precede symptoms of depression for the majority of patients but may arise following the onset of depression and may play a maintenance role rather than etiological role (Taylor et al., 2011a). Whilst a high percentage of patients reported escape motivation, overall there were low scores on a self-report measure for making plans to escape. The authors suggest that factors such as predictions that situations will not improve, guilt associated with potential escape and fear of the perceptions of others may influence the lack of escape within this population (Gilbert et al., 2004a).

Although defeat and entrapment have been studied more frequently in relation to depression than anxiety (Taylor et al., 2011a), several studies have measured symptoms associated with anxiety as an outcome. Cross-sectional relationships have been demonstrated between defeat and anxiety for psychiatric inpatients and undergraduate students (Gilbert et al., 2002). Defeat has also been associated with anxiety symptom severity in a sample of patients with chronic pain when measured using a specific scale measuring defeat in relation to chronic pain (Tang et al., 2007) and this relationship remained when pain intensity was controlled for (Tang et al., 2010). Sturman (2011) found a longitudinal relationship between an 'involuntary subordination' variable, comprising of defeat, entrapment, social comparison and submissive behaviour and levels of social anxiety, measured at two time points nine weeks apart. Although Grant and Beck (2009) found that no relationship existed between defeatist beliefs and the presence of symptoms associated with anxiety.

However, the relationship between entrapment and anxiety has not been consistently supported. Cheon (2012) found that entrapment was significantly associated with anxiety amongst undergraduate students whilst Sturman and Mongrain (2005) found that no relationship existed between entrapment and the presence of current or previous

anxiety disorders among a sample of formerly depressed undergraduate students. Two studies demonstrated that entrapment levels were higher amongst socially anxious individuals from a sample of patients with schizophrenia spectrum disorders (Birchwood et al., 2006; Gumley, O'Grady, Power, & Schwannauer, 2004). Furthermore, Michail and Birchwood (2013) found 'significantly elevated levels' of entrapment within a sample of patients with psychosis. They demonstrated that these high levels of entrapment were associated with the experience of a comorbid anxiety disorder. The authors suggested that people with psychosis might feel entrapped by having a stigmatised illness and the impact that this has on their identity, which in certain situations, particularly those of a social nature, may trigger the experience of symptoms associated with anxiety (Michail & Birchwood, 2013).

Within the existing literature, only one study investigating anxiety as an outcome variable has measured defeat using the *Defeat Scale* (Gilbert et al., 2002) and two studies have measured entrapment using the *Entrapment Scale* (Gilbert et al., 2002; Sturman & Mongrain, 2005). The variance in measurement tools used, combined with the specific samples recruited for the majority of the studies (i.e. patients with schizophrenia spectrum disorder; Birchwood et al., 2006, Gumley et al., 2004), has led to mixed findings that are difficult to make comparisons between. Furthermore, there are conflicting results concerning the relationship between entrapment and anxiety. The majority of studies have reported a relationship between entrapment and anxiety, and some have reported that this relationship remained when controlling for depression (e.g. Gumley et al., 2004). However, other studies found the initial relationship to no longer be significant when controlling for depression (e.g. Gilbert et al., 2002), whereas other studies found no relationship to exist at all (e.g. Sturman & Mongrain, 2005).

Whilst several studies have demonstrated different relationships between defeat and entrapment with anxiety and depression, providing support for the overlapping symptomology of depression and anxiety (e.g. Nesse, 2000), comorbid depression and

anxiety has also been examined as an outcome. Only two studies have measured anxiety and depression in this way and both have measured entrapment as a predictor but not defeat. A retrospective relationship was demonstrated between perceptions of entrapping events and subsequent comorbid anxiety and depression measured at one month following the event amongst a sample of adult twins (Kendler, Hettema, Butera, Gardner, & Prescott, 2003). Providing support for this in a clinical setting, Karatzias, Gumley, Power and O'Grady (2007) demonstrated that higher scores for entrapment were associated with comorbid anxiety or affective disorders within a sample of people with schizophrenia spectrum diagnoses. Whilst these individuals may not have experienced symptoms associated with both anxiety and depression, the regression analyses conducted only considered whether or not they had a comorbid disorder. Therefore it cannot be established whether entrapment impacted on comorbid anxiety and depression in the same way.

Furthermore, in studies measuring only anxiety as an outcome, there have been inconsistencies in controlling for symptoms associated with depression. Michail and Birchwood (2013) stated that it would not been appropriate to control for depressive symptoms within their sample of patients with psychosis due to the significant level of overlap between the symptoms associated with anxiety and depression. Gumley et al. (2004) also studied the relationship within a sample of individuals with psychosis, and found the relationship between entrapment and social anxiety disorder to remain after depression was controlled for.

In summary, there has been a lack of consistency in controlling for depression when measuring anxiety as an outcome and variation in the measurement tools that have been used to measure defeat and entrapment may partially underlie the inconsistent findings in the relationship between defeat, entrapment and anxiety. There has also been a lack of research conducted in community settings, as the majority of studies have been conducted with patient samples or undergraduate students, suggesting that samples representing the general population should be recruited for future research.

Whilst research has considered defeat and entrapment in community and clinical settings, as outlined above, within the current literature very limited research has been conducted using a sample of caregivers, and the research that has been conducted has recruited samples of informal caregivers (e.g. LeBlanc et al., 2004; Martin et al., 2006). This limited research could be extended to formal caregivers, as working in a healthcare setting has been shown to be a situation of enduring stress that frequently leads to staff burnout (Goehring, Gallacchi, Künzi, & Bovier, 2005), therefore perceptions of defeat and entrapment may be particularly relevant to this population and may influence the high levels of staff burnout frequently seen within the population.

There are two main issues raised from the current literature. Firstly, the majority of the research conducted into defeat, entrapment and mental health problems has been cross-sectional and has only studied four major outcomes; anxiety, depression, suicidality and post-traumatic stress disorder. Taylor et al. (2011a) reviewed research that investigated the link between defeat, entrapment and mental health problems and demonstrated that in research considering depression, anxiety or both, 79% of studies (22 of 29) were cross-sectional. Furthermore, of research investigating the prospective relationship between these factors, only one study sampled individuals who were not experiencing psychosis. The limited longitudinal research has suggested that there may be a bidirectional relationship between defeat and entrapment and the onset and maintenance of psychological problems (Siddaway et al., in press). However, this has only been examined in three studies, two of which have supported the theory that a bidirectional relationship exists (O'Connor et al., 2013; Taylor, Gooding, Wood, Johnson, & Tarrier, 2011b) and one which has demonstrated that defeat and entrapment predicted negative outcomes, but that the relationship did not operate in the reverse direction (Panagioti et al., in press). Due to the limited evidence available and the overreliance of samples recruited from clinical settings, the direction of this relationship cannot be confirmed yet. Therefore, the lack of prospective research has been outlined as a problem within the literature, as there have

been several suggestions that depressive symptoms may precede or induce defeat and entrapment (Taylor et al., 2011a), however the majority of research has only examined depression as an outcome rather than a predictor. Furthermore, only one experimental study has considered the impact of inducing a negative mood on perceptions of defeat and entrapment (Goldstein & Willner, 2002) and a further two studies have induced defeat to establish the influence of this on negative mood (Johnson, Gooding, Wood, Taylor, & Tarrier, 2011; O'Connor & Williams, 2014). Johnson et al. (2011) demonstrated that failures by participants lead to increased perceptions of defeat, however the extent to which individuals perceive defeat after a failure has been shown to vary across individuals (Johnson et al., 2008a). Whereas, O'Connor and Williams (2014) found that induced defeat lead to a reduction in, or absence of, positive future thinking. Positive future thinking involves participants vocalising as many events that they are looking forward to as possible, within several time frames, i.e. next week, next month, next year, and next five to ten years (MacLeod, Pankhania, Lee, & Mitchell, 1997). Additionally, the relationship between induced defeat and reduced positive future thinking was found to be moderated by the presences of perceptions of entrapment (O'Connor & Williams, 2014). Therefore, substantial further work needs to be conducted to provide evidence on the direction of the longitudinal relationship between defeat, entrapment and mental health problems and establish whether the bidirectional relationship found within the limited research conducted to date can be generalised to other populations. Additionally, further work needs to be conducted to establish how experimentally inducing defeat affects short-term outcomes for individuals.

The second issue identified within the current literature is that the majority of research has been conducted with undergraduate students or with patients specifically recruited as experiencing the symptoms of a certain disorder, resulting in findings that cannot be generalised to the general population. Although several studies have made comparisons between two samples recruited from separate populations, these have mostly

been a student sample alongside a patient sample (e.g. Gilbert, 2000a) and a very limited amount of research has been conducted with samples recruited from community settings or occupational settings. Only one study identified within the current literature utilised a sample of patients alongside a sample recruited from a general community population (Carvalho et al., 2013), although this sample consisted exclusively of staff members from schools and private corporations (72% of staff reported having a 'middle-class profession') and therefore may not be representative of the general population. Such research would increase the understanding of how defeat and entrapment operate and identify any key differences that may exist between how these factors influence individuals in different situations.

1.4.2 Factors affecting the impact of defeat and entrapment on mental health problems

Whilst many studies have demonstrated a direct relationship between defeat, entrapment and mental health problems, several have also looked at potential moderating or mediating factors within the relationship, whereby in certain situations, defeat or entrapment can influence the experience of mental health problems, either as predictors or mediators. Selten and Cantor-Graae (2005) suggested that defeat may act as a mediator in the relationship between the risk factors associated with low social rank position, and the experience of psychopathological outcomes. Furthermore, Sturman and Mongrain (2008b) proposed that depression is not a direct consequence of defeating experiences, but that individuals who experience a social defeat become increasingly vulnerable to depression. They demonstrated that feelings of defeat and entrapment retrospectively predicted the recurrence of depression across sixteen months. This research is supported by proposals that if an individual feels defeated and they become entrapped in a situation, they become particularly vulnerable (Williams & Pollock, 2001).

It is thought that the IDS acts as a 'defensive social mentality' that individuals activate as a coping mechanism when faced with a potentially defeating situation (Gilbert,

2006). However there may be characteristics that affect the impact that the IDS has on individuals. Those who score highly for self-criticism and perfectionism experience more vulnerability towards the IDS potentially due to their focus on competition and achievements (Sturman & Mongrain, 2005). Therefore, when such individuals engage in competition they are more likely to perceive a loss as a defeat than individuals who engage in less self-criticism. Furthermore individuals high on self-criticism are less likely to be able to accept a defeat than individuals who score lower for self-criticism (Sturman & Mongrain, 2008a), suggesting that they are less likely to be able to escape from the defeating situation that may precede negative outcomes for the individual. Research conducted into the relationship between self-criticism and mental health problems has demonstrated that IDS activation (operationalized as social comparison leading to feelings of internal entrapment and measured by the *Social Comparison Scale* and *Entrapment Scale*) mediates the relationship between how frequently individuals engage in self-criticism and their previous experiences of major depression episodes (Sturman & Mongrain, 2005). Similar effects were also found for individuals who score highly for neuroticism, whilst individuals who scored highly for self-efficacy were more likely to have adaptive responses to loss and therefore experienced less IDS activation following a social defeat (Sturman & Mongrain, 2005). Furthermore, individuals with high scores for defeat and entrapment as a component of the IDS were shown to score highly for neuroticism and had low scores for self-esteem and self-efficacy (Sturman, 2011). Specifically, defeat and entrapment were shown to mediate the relationship between self-esteem and depression (Sturman, 2011). Overall, this research suggests that there may be specific personality and individual traits that influence or mediate the impact that perceptions defeat and entrapment have on mental health problems.

Another factor that may impact on perceptions of defeat and entrapment is rumination. Ruminating about perceptions of defeat and feelings of inferiority may act as a direct attack on the self, which would precede further feelings of defeat and inferiority

(Carvalho et al., 2013). In such a situation, internal feelings of failure may amplify rumination, even if an individual has successfully escaped from the initial situation of defeat (Traschel et al., 2010). Furthermore, Gilbert et al. (2004a) suggested that ruminating about perceptions of entrapment and desire to escape, when escape is not possible, could lead to the development of depression. Recent empirical evidence has demonstrated that brooding rumination, defined as passively focusing on the reasons for distress, predicted an absence of positive thoughts about the future amongst healthy young adults following a negative mood induction (O'Connor & Williams, 2014). Additionally, brooding rumination is implicated in the relationship between induced defeat and positive future thinking (O'Connor & Williams, 2014). This demonstrates that rumination may influence not only the presence of symptoms associated with mental health problems, but also individuals' perceptions about current experiences and also about their future.

The role of moderating and mediating factors within the relationship between defeat, entrapment and mental health problems has not been thoroughly examined and has been inconsistently measured within the literature. For example, the impact of defeat and entrapment on mental health outcomes is mediated by specific factors such as maladaptive schemas. For example maladaptive schemas mediated the relationship between social defeat and positive symptoms of psychosis among individuals at high risk of psychosis (Stowkowy & Addington, 2012). However, defeat and entrapment have also been shown to act as a mediator in the relationship between certain factors, such as stress and depression (Willner & Goldstein, 2001). Therefore, further research is required to establish the exact functions of the relationship between defeat, entrapment and mental health problems. Specifically, identification of whether the relationship operates differently amongst various populations would be beneficial. One factor that might be influenced by perceptions of defeat and entrapment is reward sensitivity. The experience of low mood can affect the way in which individuals process rewards and punishments, and therefore affect the decision-making process and also the value placed on different outcomes, with heightened

sensitivity towards risk (Peters & Slovic, 2000). Conversely, individuals with low social rank have been shown to be less competitive and exhibit less reward seeking behaviour (Dunn et al., 2012), which is supported by evidence that individuals with low mood exhibit risk-aversive behaviour (Allen & Badcock, 2003). As defeat and entrapment affect how individuals respond to future difficulties, feeling trapped in a situation with no available escape routes may affect individuals' risk-taking behaviour and sensitivity towards future rewards. Whether or not individuals perceive that things can get better for them affects their escape behaviour (Gilbert et al., 2004a); therefore individuals who perceive a lack of potential rewards that could improve their situation would be expected to have low sensitivity towards reward. In a study by Csulky et al. (2011), individuals with subordinate status and low social rank who were experiencing perceptions of defeat were shown to have an impaired ability to recognise happiness, suggesting that they may be experiencing anhedonia, defined as an "impaired ability to experience pleasure" (Ribot, 1896 as cited in Gilbert et al., 2002). Anhedonia has been conceptualised as an absence of reward-directed and motivated behaviour (Schlaepfer et al., 2008). It is associated with a lack of motivation to engage in the environment, which might be influenced by perceptions of defeat and entrapment. Anhedonia is thought to arise due to a breakdown within the reward system in the brain; specifically a reduced release of the neurotransmitter dopamine, which leads to limited activity in the reward circuitry (Surguladze, Keedwell, & Phillips, 2003). Stimulation to the reward circuitry within the brain has been shown to reduce the influence of these dysfunctions on the impairment of reward processing (Schlaepfer et al., 2008), suggesting a direct link between anhedonia and reward processing. Furthermore, defeat and entrapment are also thought to directly influence individuals' reward circuitry, for example by loss of interest in the acquisition of resources, and have been shown to be associated with the experience of anhedonia (Gilbert, 2000a; Gilbert et al., 2002). Research has suggested that defeat has a larger influence on the positive affect system (i.e. influencing the experience of anhedonia) than it does on the negative affect system (i.e.

influencing the experience of anxiety or depression), which is thought to operate through feelings of low rank and inferiority in comparison to others (Gilbert et al., 2002). It has also been suggested that the experience of a defeat mirrors the characteristics of anhedonia (Taylor et al., 2011a). Furthermore, Grant and Beck (2009) found that defeat beliefs about performance (for example, if you are unable to do something there is no point in trying) mediated the relationship between cognitive impairment on the domains of verbal memory attention and mental flexibility, and the general functioning of individuals with schizophrenic spectrum disorders. Therefore individuals who experience a defeating or entrapping situation would be expected to behave in a passive manner and disengage from the environment and associated rewards, to avoid engaging in an environment with low pay offs for them in terms of resource acquirement (Gilbert et al., 2000a). This would be expected to lead to decreased reward-seeking behaviour in such individuals. On the basis of this evidence, it would be expected that if defeat and entrapment have evolved to control positive and negative affect (Gilbert et al., 2002), individuals with high levels of defeat and entrapment would experience impaired reward sensitivity. However, the impact of defeat and entrapment on reward sensitivity has not yet been tested.

1.5 Measurement of defeat and entrapment

Whether defeat and entrapment are best conceptualised as a single construct or as two distinct constructs affects the optimal way for them to be measured by self-report scales. Currently, the most common scales are the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998), which consist of sixteen items per scale. These are the most commonly used scales and in a recent review (Taylor et al., 2011a) and a further literature search (using keywords of "defeat" and "entrapment" in psycINFO for studies published 2011-2014), these scales were found to have been used in 59% of published studies measuring defeat and entrapment (see Appendix I for details of included studies). Furthermore, in a recent meta-analysis of research investigating the relationship between

defeat and entrapment and four mental health problems (depression, anxiety, PTSD and suicidality), 75% of studies included in the analysis measured defeat and entrapment using the *Defeat Scale* and *Entrapment Scale* (Siddaway et al., in press).

A further scale the *Personal Beliefs about Illness Questionnaire* (PBIQ; Birchwood et al., 1993, revised version PBIQ-R; Birchwood et al., 2012) measures illness-related appraisals across five sub-scales. Although entrapment is only measured on one sub-scale of this scale (four items) and the scale does not measure defeat. Furthermore, the scale was developed to measure illness-related appraisals related specifically to psychotic illnesses and therefore is not suitable for use within the general population. However the most significant problem associated with the scale is that both the original and revised versions were developed without any form of exploratory factor analysis to ensure that the dimensions of the scale accurately measure what they are intended to (Taylor et al., 2011a, Siddaway et al., in press). There was also limited psychometric development associated with the original PBIQ scale, which is problematic as it is unknown whether the scale is valid for use. This was addressed with the development of the revised scale, which was validated within a population of individuals experiencing first episode psychosis. Although, within this study the authors identified that the scale needs further validation before it can be used to measure entrapment with samples recruited from other populations (Birchwood et al., 2012).

Sturman (2011) developed an *Involuntary Subordination Questionnaire* (ISQ), which was derived of items from the *Defeat Scale, Entrapment Scale, Social Comparison Scale* and *Submissive Behaviour Scale* (Gilbert & Allan 1998; Allan & Gilbert, 1995; Allan & Gilbert, 1997). Although this scale provides a broad overview of how individuals perceive that they to feel in comparison to others and all items loaded onto a single factor, conceptualised as involuntary subordianation, the scale does not specifically measure defeat and entrapment. Furthermore, the scale consists of 32 items and therefore has no greater clinical utility than the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998).

More recently, Sturman and colleagues (Sturman et al., in press) have also developed the *Life Defeat Scale*. This scale aims to measure how defeating individuals perceive sixty specific life events to be. Respondents are asked to report whether they have experienced any of the life events during the past two months, and rate how defeating they perceived them to be. This scale is particularly long, although it appears to provide a thorough evaluation of potential events that individuals could experience, which may induce perceptions of defeat. Furthermore, an equivalent scale for entrapment has not been developed and the *Life Defeat Scale* is yet to be validated.

The *Pain Self Perceptions Scale* (PSPS; Tang et al., 2007) has been developed to measure perceptions of defeat in the context of recent incidents of intense pain for individuals with chronic pain. It was developed using items from two existing defeat scales and consists of 24 items. However, this scale only measures defeat and was validated only amongst a sample of patients and volunteers with chronic pain conditions.

Furthermore, although a short scale has not been developed to measure defeat and entrapment, several researchers have designed and used four-item scales to measure either defeat or entrapment, which are yet to be validated (O'Connor, 2003; Gilbert et al., 2004a; Leblanc et al., 2004; O'Connor & Williams, 2014). Therefore, a validated short scale would be expected to be well utilised within such research. Existing measures have only considered either defeat or entrapment, whereas theoretical advances suggest that a single scare measuring both factors would be more appropriate (e.g. Taylor et al., 2009). Furthermore, it is problematic that each of these scales includes slightly different questions which measure outcomes differently, meaning that it is not possible to establish which scale provides the most accurate representation of the construct without further validation (Streiner & Norman, 2008).

The length of the scales designed to measure defeat and entrapment combined with the psychometric issues of several of these scales, as well as the lack of validation in populations other than the specific samples for which they were developed, may have

influenced the lack of presence of defeat and entrapment in both case formulation and therapeutic intervention for the treatment of mental health problems. As evidence has demonstrated that defeat and entrapment should be defined as a single construct, a single short scale is required to increase the utility of measurement of defeat and entrapment in clinical settings. The need for shorter and more concise measures within clinical research has lead to an increased number of short psychological assessments being developed (Mühlan, Bullinger, Power, & Schmidt, 2008). This demand is also present in clinical settings where therapeutic intervention is the focus and shorter measures reduce potential burden on patients, making such measures particularly relevant for these settings (Joyce, MacNair-Semands, Tasca, & Ogrodniczuk, 2011).

Research that has considered defeat and entrapment as a single construct has led to associations with negative outcomes (e.g. Taylor et al., 2011a, Panagioti et al., 2012a), although currently there is very limited research in this area. However it could also be important to establish the clinical utility of conceptualising defeat and entrapment as distinct constructs and might be too premature to abandon the separate measurement of defeat and entrapment until further work is conducted (Troop et al., 2013). As research is inconsistently measuring defeat and entrapment as a single construct (e.g. Taylor et al., 2011b), separate constructs (e.g. Goldstein & Willner, 2002) or as separate themes within a single construct of involuntary subordination (e.g. Sturman, 2011; Troop, Andrews, Hiskey, & Treasure, 2013), exploratory work needs to be conducted to establish how defeat and entrapment are best defined. Previously, only two analyses have been conducted with the aim of establishing the structure of defeat and entrapment. Taylor et al. (2009) demonstrated that defeat and entrapment are best defined as a single construct in an exploratory factor analysis conducted with a student sample, as one factor was shown to underlie defeat and entrapment. Sturman (2011) also demonstrated that defeat and entrapment were best defined as components of an ‘involuntary subordination’ construct, alongside social comparison, submissive behaviour and social comparison using data from

a previous study (Gilbert & Allan, 1998). This structure was confirmed by a confirmatory factor analysis and suggests that looking only at poor social comparison and entrapment may provide a too narrow view of involuntary subordination (Sturman, 2011). As this study utilised a sample of undergraduate students alongside a group of participants with depression recruited from clinical settings, it expands on the previous exploratory work conducted with a student sample. However, exploratory work still needs to be conducted with a general population sample in order to establish whether the constructs of defeat and entrapment are a core psychological process present in all humans.

Furthermore, there have been several suggestions made that defeat and entrapment could be key factors to be included in case formulation (Tarrier, 2006) and also within the treatment of mental health problems (Taylor et al., 2011a), however this is not commonly implemented. The development of a short scale measuring both defeat and entrapment has potential to increase the feasibility of defeat and entrapment being measured regularly in the formulation and treatments of mental health problems.

1.6 Defeat and entrapment as transdiagnostic processes

Recently, there has been increasing interest in the transdiagnostic approach in the treatment of mental health problems. This coincides with a general shift in mental health practice and research from exclusively considering diagnosis and the treatment of mental health problems to a more general focus on using treatments to enhance the well-being of individuals (Kinderman, Schwanneaur, Pontin, & Tai, 2013). The transdiagnostic approach suggests that there are common underlying psychological processes (i.e. certain behaviours and thinking styles) that lead to and maintain mental health problems (Harvey et al., 2004; Mansell, Carey, & Tai, 2013). These underlying processes are common across a multitude of mental health problems, contrasting the traditional ‘disorder focus’ of mental health problems, in which researchers have targeted disorders separately (Harvey et al., 2004). Therefore, psychological disorders can be understood in terms of disruption to core

processes such as recurrent negative thoughts. For example rumination is a transdiagnostic process that has been shown to predict future symptoms when controlling for current symptoms in patients with depressive disorders (Nolen-Hoeksema, 2000). Considering transdiagnostic processes is particularly relevant in cases of comorbidity, as most individuals who are referred to psychological services are experiencing symptoms related specifically to one disorder (Harvey et al., 2004). For example, lifetime comorbidity between depression and generalised anxiety disorder has been reported at 80% (Judd et al., 1998), which may suggest that such disorders are maintained by common underlying processes (Harvey et al., 2004).

As defeat and entrapment have been associated with a wide spectrum of negative outcomes, suggestions have been made that they may be transdiagnostic processes and represent a general cognitive vulnerability towards mental health problems rather than being predictors of specific mental health problems (Harvey et al., 2004). A review conducted by Taylor et al. (2011a) demonstrated that defeat and entrapment are linked with symptoms associated with depression, anxiety, PTSD and suicidality, although as the majority of this research was cross-sectional, no causal attributions can be made. This view has been supported by a recent meta-analysis of the association between defeat and entrapment and the same four mental health problems, which showed associations between defeat and entrapment and all four of these mental health problems at similar magnitudes, suggesting that defeat and entrapment may be transdiagnostic processes (Siddaway et al., in press).

1.7 Aims and objectives

The current thesis aims to investigate several gaps that have been highlighted within the existing literature. Firstly, exploratory work needs to be conducted with a sample recruited from community settings to establish whether defeat and entrapment represent a core psychological process that is present in all humans and operates

transdiagnostically where relevant. This would be demonstrated if defeat and entrapment were found to influence mental health outcomes for individuals recruited from both community and clinically relevant samples. It is expected that defeat and entrapment will be associated with mental health problems amongst a community sample recruited from areas of socioeconomic deprivation.

Secondly, the structure of defeat and entrapment requires further evaluation. Statistical evidence suggests that defeat and entrapment form a single factor and correlate too highly to be considered as distinct constructs, however this is an issue currently debated within the literature. It is expected that defeat and entrapment will form a single factor, encompassing feelings of failure and inability to escape, when measured by exploratory and confirmatory factor analyses conducted on different samples within the thesis.

Thirdly, due to the limited existing longitudinal evidence for the relationship between defeat, entrapment and mental health outcomes, the longitudinal role of defeat and entrapment needs to be established. This initially needs to be conducted on an exploratory basis within a community sample and further in samples recruited from groups known to experience high levels of enduring stress that may precede and influence feelings of defeat and entrapment. It is expected that defeat and entrapment will longitudinally predict the experience of depression and anxiety amongst a sample recruited from community settings and also caregiver burden and depression amongst a sample of formal caregivers.

Fourthly, as defeat and entrapment are associated with a range of mental health problems that are associated with disruption to psychological processes such as reward sensitivity, exploratory work needs to be conducted to consider how defeat and entrapment as a core transdiagnostic process affect reward sensitivity. It is expected that individuals experiencing high levels of defeat and entrapment will experience a lack of reward sensitivity to future outcomes, as they are likely to feel trapped in an inescapable situation and therefore will fail to learn to avoid situations that would lead to punishment.

The final aim of the current research emerged during the course of the thesis. In the earlier research conducted during the thesis, a robust single factor encompassing defeat and entrapment was emerging and this lead to the realisation that an ideal assessment tool for future work, particularly in clinical settings, based on the current thesis findings did not exist. Furthermore, whilst conducting the current research, it became clear that the 32 items measuring defeat and entrapment were a burden for participants. It was felt that there was a clear rationale for a short scale to be developed to increase the likelihood and utility of regular measurement of defeat and entrapment within clinical settings. A scale was developed and validated following the guidelines of Cabrera-Nguyen (2010), who outlined 16 general points to be considered when developing a scale. This study utilised data collected from four samples within the research group, resulting in an eight-item scale suitable for use with individuals from clinical and non-clinical populations.

CHAPTER 2

2 Methodological Considerations

The empirical studies within this thesis used a range of methodologies, including cross-sectional and longitudinal designs, and were conducted with samples from various populations. Details of participant recruitment procedures, study procedures, measures used and the subsequent statistical analyses conducted are provided within each empirical chapter of the thesis; however there are some overall methodological points to be considered in relation to the design of each of the studies.

2.1 Samples

An issue highlighted by a systematic review conducted by Taylor et al. (2011a), was that the majority of research measuring defeat and entrapment as predictors of mental health problems has been conducted with samples of undergraduate students or patients experiencing specific mental health problems. Subsequently, the current literature is biased towards such samples and lacks generalizability to the general population. In order to examine whether defeat and entrapment represent a core psychological process that is present in all humans, or a process that is specific to individuals experiencing mental health difficulties, the research within the current thesis aimed to recruit samples from populations where individuals would be expected to be have a wide range and variety of experiences in relation to defeat and entrapment. This would therefore allow comparisons to be made between individuals with high and low levels of defeat and entrapment.

2.1.1 Sample recruited from areas of social deprivation

To test the relationship between defeat, entrapment and mental health in a sample that represented an aspect of the general population not previously considered within the literature, for the first study a community sample was recruited from areas of high socio-economic deprivation where individuals generally have low socio-economic status.

Community samples have previously heavily relied on the recruitment of individuals from workplaces (e.g. Troop & Baker, 2008), whereas this sample was recruited mainly from community groups and centres via advertisements placed on noticeboards, although some advertisements were placed within workplaces. As socio-economic deprivation is associated with fewer education and work opportunities (Department for Communities and Local Government, 2011), this increases the likelihood that individuals experiencing socio-economic deprivation may feel caught in an aversive situation of low social rank that is difficult to escape from and is associated with poor mental and physical health (Adler et al., 1994). Within this sample, specifically we anticipated that individuals would have experienced a wide range of problematic circumstances associated with the development of mental health difficulties, for example high levels of unemployment (Perkins & Rinaldi, 2002). This is supported by evidence that 42.5% of the individuals within the sample were claiming benefits, in comparison to a national average of 19% (Office for National Statistics, 2011). A well-established link has been identified between low socio-economic status and an increased risk of mental health problems, which is mediated by adverse experiences such as unemployment, poverty and housing problems (Hudson, 2005). An external member of the research group recruited this sample from communities within specific areas of Sheffield, England.

2.1.2 Sample of formal care providers

For the second study, a sample of formal caregivers was recruited from a large care organisation in North Wales consisting of seven care homes. This sample was specifically selected on the basis that individuals who work within social care settings have been shown to experience high levels of risk for work and stress related illnesses, as a result of the particularly demanding requirements of the job (Testad, Mikkelsen, Ballard, & Aarsland, 2008). However, whilst there has been a large focus on the burden and stress associated with caring for older adults within a family home, in comparison very little is

understood about the burden experienced by formal caregivers working in care home settings (Duffy, Oyebode, & Allen, 2009). A cross-sectional study on the development of caregiver burden within formal care staff identified that caregivers with high levels of psychological stress are more likely to leave their place of employment (Pitfield, Shahriyarmolki, & Livingston, 2011). Therefore a greater understanding of the factors that influence the development of caregiver burden and lead to individuals being more likely to terminate their employment could help to reduce the high levels of turnover within this occupation. As this population work in situations of chronic high stress that are unlikely to change unless individuals leave the profession, formal caregivers are likely to experience feeling entrapped within their role. Furthermore, prospective research with a large sample that could possibly give indication of risk factors for caregiver burden has been outlined as a priority for research (Martin et al., 2006; Pitfield et al., 2011; Duffy et al., 2009).

2.1.3 Scale development study samples

The third study within the current thesis involved the development of a short scale for the measurement of defeat and entrapment. The scale was developed using four samples, two of which were previously collected for research conducted within the research group (Panagioti et al., 2012a; Taylor, Gooding, Wood, Johnson, Pratt, & Tarrier, 2010a), one of which was collected within the research group but was previously unused, and the fourth collected for Chapter 4 in this thesis. Participant samples recruited for the scale development study included: a general community sample, people with a diagnosis of schizophrenia spectrum disorders, a sample of patients with PTSD, and a sample of formal caregivers. These samples were selected to provide a broad overview of how defeat and entrapment operate within different populations from clinical and non-clinical settings, on a cross-sectional and longitudinal basis.

The two samples from clinical settings were selected on the basis of previous research demonstrating a specific role for defeat and entrapment within the maintenance of disorders such as schizophrenia and PTSD. For example, among patients diagnosed with

PTSD, mental defeat has been shown to predict the onset of PTSD for victims of assaults (Dunmore, Clark, & Ehlers, 2001), Furthermore, individuals with PTSD may experience distressing, repetitive and unwanted thoughts or flashbacks (Ehlers & Clark, 2000) which may influence perceptions and feelings of entrapment (Panagioti, Gooding, & Tarrier, 2012a). Therefore defeat and entrapment were thought to be particularly relevant factors for individuals within this clinical population. For people with diagnoses of schizophrenia spectrum disorders, there are well-established links between perceptions of defeat and entrapment associated with living with schizophrenia and negative outcomes for individuals such as depression and hopelessness (Iqbal et al., 2000). Defeat and entrapment have been shown to mediate the relationship between severity of psychotic symptoms and subsequent suicidal ideation (Taylor et al., 2010a). Therefore, the enduring and disruptive symptoms of schizophrenic spectrum disorders, such as suspiciousness and paranoia, may influence perceptions of defeat and entrapment (Taylor et al., 2010a).

2.1.4 Sample of undergraduate students

For the final study within this thesis, a sample of undergraduate students was recruited. This sample was considered appropriate for several reasons. Firstly, the research questions in this study were exploratory and aimed to establish whether a specific effect was observed. In such research, the use of student samples is common, to demonstrate initial evidence that can then be replicated amongst further samples recruited from specific populations. Secondly, there is an advantage to using student samples due to the high likelihood that there will be a wide variation in the experience of mental health problems amongst participants, in terms of both type of problem and severity. There have been proposals that a clear relationship between mental ill-health and mental well-being exists, specifically stating that as the risk for mental ill-health increases as well-being decreases (Keyes, 2007; Kinderman et al., 2013). Furthermore, the continua between psychological distress and well-being correlate (Massé et al., 1998) and a specific link between depression and the absence of psychological well-being has been observed (Wood, Taylor

& Joseph, 2010). Therefore exploratory research considering mental health outcomes should be conducted with a sample who are likely to experience a great deal of variation in mental health outcomes. Undergraduate student populations provide an easily accessible way to recruit such samples.

2.2 Design of studies

2.2.1 Longitudinal design

Within this thesis, longitudinal designs were used for two studies (Chapter 3 and Chapter 4). As the majority of research on the role of defeat and entrapment on mental health outcomes has been cross-sectional, there is limited understanding regarding whether a longitudinal relationship exists and suggestions have been made that longitudinal research should be a priority (Taylor et al., 2011a). The completion of this research permitted the testing of causal effects, and allowed for the testing of whether defeat and entrapment predicted long-term mental health. This was considered important as the direction of the relationship between defeat, entrapment and mental health had not been thoroughly investigated and was not yet clear.

The longitudinal studies within this thesis used questionnaire packs, administered to participants at two time points approximately 12 months apart. The questionnaires measured defeat, entrapment and aspects of mental health, relevant to the specific samples. This method was suitable due to the ease of implementation within large samples and also the reduced burden for participants in comparison to interviews. Further information regarding measures used is provided in section 2.4.

Although longitudinal research allows a greater understanding of the relationship between factors, there are also challenges associated with conducting such research. Participant attrition rates can bias the results, as there may be differences between participants who drop out and those who complete all time points (Van Belle, Fisher, Heagerty, & Lumley, 2004). This was particularly relevant within this thesis as the study conducted with a sample of formal caregivers was one of the longitudinal pieces of

research. This was potentially problematic due to the high levels of turnover associated with this population (Schaefer & Moos, 1996). Furthermore, research has suggested that those with the poorest mental health may be the most likely to terminate their employment as a formal care provider (Pitfield et al., 2011), thus dropping out of the research. However, despite the high rates of turnover and anticipated high attrition rate, this sample was selected to consider two specific outcomes. If defeat and entrapment were associated with subsequent mental health problems in caregivers who remained employed in the company, and those with the highest levels of defeat and entrapment were more likely to have left the company, this would suggest that defeat and entrapment are key factors that predict not only caregiver well-being, but also whether they continue to work as a care provider. To address this potential issue, statistical analyses were conducted to establish whether differences existed between individuals who did and did not complete questionnaire packs at the second time point.

2.2.2 Cross-sectional design

Despite the heavy reliance on cross-sectional studies within the current literature, it was necessary within this thesis to also conduct cross-sectional research alongside the longitudinal research. When conducting exploratory work, as was being conducted in Chapter 5, before longitudinal research can be conducted to establish the direction of a relationship, cross-sectional research first needs to be conducted to establish whether a relationship exists. The findings reported in Chapter 5 provide the first application of defeat and entrapment to behavioural outcomes, thus exploratory research was required on a cross-sectional basis.

2.2.3 Scale development design

For the final empirical chapter of this thesis, the Short Defeat and Entrapment Scale was developed and validated. This was completed following the guidelines of Cabrera-Nguyen (2010), who outlined 16 general points to be considered when conducting scale development. Validation of health measurement scales is necessary as it is not always

immediately clear whether a scale accurately measures the construct that it was developed to, particularly for scales related to mental health, where decisions cannot be made based on physical evaluation or observation (Streiner & Norman, 2008).

A short scale was specifically required to measure defeat and entrapment as whilst the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998) have been widely validated, and research conducted with samples of patients with mental health problems has demonstrated associations between defeat and entrapment and poor mental health outcomes (e.g. Panagioti et al., 2012a; Stowkowy & Addington, 2012), the scales are not regularly completed by individuals from clinical populations within therapeutic settings. If defeat and entrapment reliably predict poor mental health, their measurement could be a useful assessment tool in therapeutic interventions for mental health problems. The *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998) are comprised of sixteen items each and are relatively long, which could reduce the likelihood and practicality of defeat and entrapment being measured repeatedly within clinical settings. Furthermore, despite the popularity of Gilbert and Allan's (1998) scales, as research has since demonstrated that defeat and entrapment should be considered as one factor (e.g. Taylor et al., 2009), the use of separate scales may not be appropriate.

2.3 Data Collection

Within this thesis, several data collection methods were used to examine the relationship between defeat and entrapment and mental health outcomes. For the empirical studies in this thesis (Chapters 3-6), data was collected for the purpose of testing certain questions using paper-based questionnaire methods, and a computerised task was also used within one study (Chapter 5).

For the research conducted in Chapter 4, data was collected from seven care homes. At Time 1 a questionnaire pack was given to every eligible member of care staff (N = 300) and staff members were asked to return this to their Care Home Manager. To be eligible, individuals were required to be permanent full time or part time staff with a caring role (i.e.

Care Practitioner, Care Support Worker, Activities and Well-Being Coordinator, Care Home Manager, Nurse). Of the eligible staff, 65% (N = 195) returned their questionnaires. At Time 2 (12 months later), questionnaire packs were given to Care Home Managers to give to members of staff based on a participant identification number that was matched with their file number.

For the research conducted in Chapter 5, in order to gain the required sample size for scale development and a range of measures to test the validity and reliability of the newly developed scale, pre-existing datasets within the research group were used. Use of these datasets permitted analysis of the scale in relation to a wider range of samples and measures than would normally be plausible for collection within a Doctoral-level project.

2.4 Ethics

As a researcher, it is important to be mindful that when research is conducted, you are entering into the lives of individuals and therefore need to be respectful of this and adhere to a strict code of ethics (Stake, 2000). Throughout this thesis, potential ethical issues were considered prior to research being conducted. Importantly, in all studies potential participants were made aware that (1) their responses would remain anonymous, (2) they could choose not to complete the study, (3) they had the right to withdraw from the study at any point, and (4) they could choose not to answer any component of the study that they wished, prior to participation.

In all studies within the thesis, participants completed questionnaire packs. It is important that potential participants are not misled about the aims of questionnaires, both in terms of the content and the use of questionnaire data (Polgar & Thomas, 1991). For the longitudinal studies within the current thesis (Chapters 3 and 4), as responses had to be matched across time points, each participant was allocated a code. This coding could only be accessed by the main researcher. Furthermore, some of the questions within the questionnaires may have caused distress to participants as they asked about sensitive issues such as symptoms of depression, feelings of caregiver burden and feelings of defeat and

entrapment. Participants were provided with contact details for the main research, should they have any questions or concerns following participation. For participants in Chapter 4, a registered mental health nurse was available to confidentially discuss any concerns participants had. Furthermore, in all studies, participants were given a contact list of mental health organisations and help-lines if they feel they need to discuss any concerns. Additionally for participants in Chapter 5 a list of charities and helplines that provided help for individuals with gambling problems was provided, for any situations where participants felt distressed by their behaviour in the study.

Some of the participants recruited for the research in this thesis were from populations that may be considered as vulnerable. Previously, it has been found that people recruited from vulnerable populations have not always found participating in research to be a positive experience (Connolly, 2003). One reason given for this is that individuals felt that they were not informed the focus of the research. This was addressed in the current thesis through the development of comprehensive information sheets that all participants read before providing consent to participate. A second reason given for a negative experience was feeling that researchers have little concern for the well-being of participants, who are asked to revisit particularly stressful experiences without being offered support or help to deal with any distress that arises (Connolly, 2003). Within the current thesis, all participants were offered the option to speak to a researcher, an appropriately trained professional for example a mental health nurse, or provided with a list of suitable charities or helplines, if they had any concerns. A final concern of participants was that they had been assured of anonymity by researchers and that they felt that this had not been adhered to. As stated above, in the current thesis, where it was necessary to match questionnaires completed at two time points, a coding system was used to ensure that the anonymity of participants was maintained.

The research was conducted in full compliance with the Data Protection Act (1998) and the anonymity of participants was ensured. Paper data was stored separately to consent

forms within the University of Manchester. Electronic data (without personal identifiers) was stored on a password-protected computer in a lockable office within the University of Manchester. Only the main researcher had access to the raw data. No data that would enable the identification of participants, for example names and addresses, was collected.

2.5 Measures and assessment

For the data collection in each of the studies conducted within this thesis, several factors were assessed using self-report measures completed by participants. The following section will outline the rationale behind selecting each of the specific scales for use within these studies.

2.5.1 Measuring defeat and entrapment

Defeat and entrapment were measured within all empirical studies in this thesis. Several scales have been developed to measure defeat and entrapment; the most widely used and validated scales being the *Defeat Scale* and *Entrapment Scale* developed by Gilbert and Allan (1998; see Appendix II and III). These scales were employed because they are the most widely used within the current literature and have also been validated within different populations and languages. Furthermore, these measures were also developed to assess defeat and entrapment within the general population, whereas other measures, for example the *Personal Beliefs about Illness Questionnaire* (PBIQ; Birchwood et al. 1993) and the *Pain Self-Perception Scale* (PSPS; Tang et al., 2007) were developed for use within specific clinical populations and therefore have not been validated for use in community or occupational populations. Furthermore, the PSPS only assesses defeat and an equivalent scale for entrapment has not been developed. Subsequently, these scales were deemed less appropriate for use within the studies of this thesis. The Life Defeat Scale (LDS; Sturman et al., in press), was developed to measure how defeating individuals consider 60 specific life events to be, and ascertain whether respondents have experienced any of these events during the past two months. Although this scale appears to provide a

thorough evaluation of individuals' perceptions of defeat, there are potential problems with the scale. Firstly, no equivalent measure has been developed to measure entrapment and secondly, the scale has not been validated and was unpublished when the research within this thesis was conducted. Recently, measures have also been developed that aim to capture the broader construct of 'involuntary subordination' (e.g. defeat, entrapment, social comparison and submissive behaviour; Sturman, 2011). However, whilst such scales might offer a thorough understanding of behaviour and perceptions of individuals, as this thesis aimed to test the direct effects of defeat and entrapment rather than the broader construct, it seemed more appropriate to use scales specifically measuring these factors. The *Defeat Scale* and *Entrapment Scale* are evaluated in comparison to other measures in further detail within Chapter 6, as part of the development of a new scale measuring defeat and entrapment.

2.5.2 Measuring depression

Depression was also measured in each empirical study within the thesis. As samples were recruited from non-clinical populations, a specific requirement of the scale used to measure depression was that it was developed and validated for use in non-clinical settings. Although there were several scales that met these requirements, the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977) was selected. This scale was developed using items from several existing scales that measure depression within clinical settings. The scale measures common symptoms of depression as noted within the clinical literature, such as poor appetite and hopelessness. The scale was designed specifically as a screening tool for depression within the general population, to explore the relationship between depression and other factors (Radloff, 1977). In the current thesis, we planned to measure depression within longitudinal studies; therefore it was necessary that the scale selected had previously demonstrated acceptable test-retest reliability across 12 months within a general population. The CES-D has been found to have test-retest reliability of $r = .32$ (Radloff, 1977) and $r = .41$ - $.54$ (Locke & Putman, 1971) across 12

months, although no more recent test of this has been conducted within a community sample.

Within Chapter 6, participants from two samples recruited from clinical settings also completed a measure of depression. These participants completed the *Beck Depression Inventory* (BDI; Beck, Ward, Mendelson, Mock, & Edbaugh, 1961). This scale was selected as it was designed to assess the more severe cognitive and physical aspects of depression, making it appropriate for use with clinical populations. The BDI measures the presence of symptoms of depression through 21 items that assess how participants have felt during the past week on a four-point scale, for example "0 – I do not feel like a failure" to "3 – I feel I am a complete failure as a person". Higher overall scores indicate more severe depressive symptoms, and standardised norms have been established for minimal depression (0-9), mild depression (10-18), moderate depression (19-29) and severe depression (30-63) (Beck, Steer, & Garbin, 1988).

2.5.3 Measuring anxiety

Anxiety was measured within several studies in this thesis, using two different measures. For the study involving the community sample (see Chapter 3), we required a measure that is sensitive to change over time, as required for the longitudinal nature of the research, whereas in the study involving the sample of undergraduate students (see Chapter 6), a more general measure of anxiety was needed to identify the way in which anxiety affects the daily lives of participants. Within Chapter 3, anxiety was measured using the state sub-scale of the *State-Trait Anxiety Inventory* (STAI; Speilberger et al., 1970). The state sub-scale consists of 20 items measuring the current intensity of anxiety experienced by individuals as an emotional state (e.g., "I feel tense"). Participants rate the intensity of their current feelings of anxiety ("right now, at this moment") on a four-point scale, with higher scores indicating greater feelings of anxiety. The maximum score on the scale is 80, and scores above 39 are thought to represent a clinically relevant level of anxiety (Speilberger, Gorsuch, Lushene, & Vagg, 1983). This scale was selected as it measured

how individuals felt at a specific time, rather than measuring their general anxiety, and as this research was longitudinal, we were interested in the differences in scores between time-points, which would not be identified by a scale considering trait anxiety.

Secondly, anxiety was measured within Chapter 5 using the *Generalized Anxiety Disorder Scale 7-item* (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006). This scale measures how often in the past two weeks individuals have been affected by certain problems associated with anxiety, such as having "trouble relaxing", "becoming easily annoyed or irritable" and "feeling nervous, anxious, or on edge". An overall score is calculated by summing the scores for each of the seven items and the scale has been shown to accurately diagnose the presence of generalized anxiety disorder (Swinson, 2006). The maximum score on the scale is 21, with scores from 5-9 representing mild anxiety, 10-14 representing moderate anxiety and 15-21 representing severe anxiety (Spitzer et al., 2006). This scale was selected as it provides an overview of how individuals generally feel at the time of completion, which is most suitable for use within studies where data is only collected at one time point.

2.5.4 Measuring caregiver burden

Caregiver burden was first identified as a relevant construct for informal caregivers during the 1960s (Grad & Sainsbury, 1963), and has since been applied to care providers working in social care settings. Caregiver burden was measured in the study reported in Chapter 4. Although many scales have been developed for use with informal caregivers, a scale has not been developed specifically to measure burden within formal settings. However, the Zarit Burden Interview (ZBI; Zarit, Reever, & Bach-Peterson, 1980), originally developed for use with informal caregivers for patients with dementia, has been adapted specifically for use with formal care staff. In this adaptation, the word 'relative' is replaced with 'resident' (Zarit et al., 1980). The scale is thought to be the most widely used measure of caregiver burden (Bachner & O'Rourke, 2007), and items in the adapted scale

measure the health and psychological well-being of the caregiver, as well as the relationship between the caregiver and their patients. A meta-analysis demonstrated a mean test-retest reliability of r = .59 across an average of approximately 32 months (Bachner & O'Rourke, 2007). Furthermore, the original scale has also previously been used alongside the CES-D, as was done within this study, and the two scores were shown to correlate, but not have multicollinearity issues (R^2 = .57; Hérbert, Bravo, & Préville, 2000).

2.5.5 Measuring reward sensitivity

Reward sensitivity was measured in Chapter 5. This was measured using the Iowa Gambling Task, a computerised task developed to measure decision-making deficiencies in patients with ventromedial pre-frontal cortex damage (Bechara, Damasio, Damasio, & Anderson, 1994). This task was selected because it simulates decision-making in real life, through the use of unpredictable rewards and punishments (Bechara, Damasio, Tranel & Damasio, 1997). It was used to provide an indicator of individuals' sensitivity towards rewards and punishments.

To complete the IGT, participants were required to make selections from four decks of cards – A, B, C and D. The first two decks of cards were disadvantageous overall, and the second two were advantageous overall. Rewards of ten or five pence were given for every card selection, however unpredictable punishments on either 5/10 or 1/10 selections from each deck were also received. Initially on the IGT, all card selections result in rewards, making disadvantageous decks appear to be advantageous. As these decks become punishing, participants' preference must shift to the advantageous decks to gain money. This change of preference requires inhibition of responding to the disadvantageous decks, which were initially seen as highly rewarding (Bechara, Damasio & Damasio, 2000).

Experiences involving depressive mood and anxiety have been shown to affect the ability of individuals to process information effectively and systematically, as depressed individuals have demonstrated biases towards loss of rewards, whereas anxious individuals

tend to be biased towards the risk or threat in relation to decision making (Gotlib et al., 2004). Therefore, this task was selected to consider how defeat and entrapment might affect sensitivity towards reward. The current evidence for performance on the IGT for individuals with depression and anxiety is unclear with some studies suggesting that individuals with depression were risk aversive and highly sensitive to future outcomes, regardless of the rewards associated with this (Smoski et al., 2008). Other studies have demonstrated that individuals with depression are highly sensitized to reward, regardless of how this may impact future outcomes, and are not influenced by large punishments (Must et al., 2006). Conflicting results have also been found for individuals with anxiety; as one study demonstrated that individuals with Generalized Anxiety Disorder have a heightened sensitivity towards unpredictable punishments, which provides them with more realistic expectations regarding future losses, leading to improved performance on the IGT (Mueller, Nguyenm, Ray, & Borkovec, 2010). However, Miu, Heilman and Houser (2008) found that anxious individuals may focus only on the rewards within the task, rather than the uncertain punishments, demonstrating a high sensitivity towards rewards and leading to poor IGT performance.

As conflicting evidence has been found regarding the relationship between depression and anxiety and performance on the IGT, there may be underlying factors that impact on performance. Individuals who feel defeated and entrapped are likely to be desensitized towards future outcomes and punishment, as they are likely to feel trapped in an inescapable situation that is unlikely to improve. This may influence performance on the IGT by a reduced sensitivity towards reward, which would be reflected by poor performance on the task.

2.6 Data Analysis

2.6.1 Exploratory and Confirmatory Factor Analysis

Research has recently demonstrated that defeat and entrapment should be conceptualised as a single construct that encompasses perceptions of failure without any available solutions (Taylor et al., 2009). This was based on an Exploratory Factor Analysis conducted on the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998) completed by undergraduate students, which found a single factor to underlie defeat and entrapment. This has been supported by research evidence demonstrating that a combined defeat and entrapment construct is associated with different outcomes, such as depression and suicidality in patients who have previously experienced a trauma (Panagioti et al., 2012a) and suicidality in patients with schizophrenia spectrum disorders (Taylor et al., 2010a). It was also concluded that replication of the Exploratory Factor Analysis procedure within a sample who would be expected to have a wider range of experiences related to mental health problems was needed (Taylor et al., 2009), therefore conducting such an analysis, to provide further evidence of the structure of defeat and entrapment, was one of the aims of this thesis.

Exploratory Factor Analysis (EFA) is a statistical procedure used to determine the relationship between a specific set of variables (Norris & Lecavalier, 2009), which aims to increase understanding of a set of variables by establishing the number of common factors (representing distinct latent constructs) underlying the variables (Fabrigar, MacCallum, Wegener, & Strahan, 1999). EFA is based on assumptions that any measured variables within a scale are a function of common underlying factors, and it is these unobservable factors that account for correlations between variables (Fabrigar et al., 1999). This is used when there is little theoretical or empirical basis to expect a specific factor structure to emerge from the data, where by specifying a specific model several potential models may not be identified (Fabrigar et al., 1999). For example, in the development of a new scale where it is unknown whether all the items accurately measure a single construct. EFA was

considered a relevant technique to be used within this thesis due to on-going debate within the literature as to whether defeat and entrapment are best defined as a single or separate factors, and therefore there was no specific theoretical basis on which assumptions could be made. EFA technique was used to establish the relationship between defeat and entrapment in Chapter 3 and in the development the *Short Defeat and Entrapment Scale* (SDES) in Chapter 6, as an exploratory component preceding Confirmatory Factor Analysis (CFA; Jöreskog, 1969) when establishing and testing the structure of the scale developed within the chapter, following the guidelines of Cabrera-Nguyen (2010).

CFA was also used in this thesis as a component of the development of the SDES. CFA also tests the structure of a set of variables, but differs from EFA as a set number of factors are specified (Fabrigar et al., 1999) and therefore this method allows specific hypotheses about the structure of a set of data to be tested (Finch & West, 1997). For example, testing a hypothesis that a single factor of 'depression' underlies a scale designed to measure depression. Several statistical tests are conducted to determine how well the specified model fits the data, and a 'good fit' model indicates that the model is a plausible structure of the data (Schermelleh-Engel, Moosbrugger, & Müller, 2003). There has been a lack of consensus over which statistical tests should be reported, however Kline (2010) has recommended that the following tests be reported. The chi-squared test is a test of the goodness of fit of a model and demonstrates the difference between the expected model fit and the observed model fit of the data, and a non-significant value at the cut-off of $p>.05$ demonstrates a good model fit (Barrett, 2007). However, there are issues when using a chi-squared test with a large sample, as the model is almost always rejected when a large sample is used (Bentler & Bonnett, 1980), although this issue is addressed by using the Comparative Fix Index (Gatignon, 2010). The Comparative Fit Index (CFI) examines the difference between the fit of the data and the fit of the hypothesised model specified in the CFA. Larger values of CFI indicate a better fit of the data, with values of .90 (on a range from 0 to 1) or higher suggested to represent a good fit (Hu & Bentler, 1999). A further test

is the standardized root mean square residual (SRMR), which measures the square root of the difference between the residuals of the observed covariance matrix and the covariance matrix based on the hypothesised model (Hooper, Couglan, & Mullen, 2008). Values for the SRMR range from 0 to 1, and a fit of .08 or less generally indicates that the model is acceptable (Hu & Bentler, 1999), however it has been suggested that only values less than .05 demonstrate a model with good fit (Byrne, 2001), as a fit of 0 indicates a perfect fit (Hooper et al., 2008). The final test advised to be included is the root mean square error of approximation (RMSEA), a test that selects parameter estimates to establish how well the model would fit the overall population covariance matrix (Byrne, 2001). It is thought that a value close to .60 represents a good fit (Hu & Bentler, 1999).

Within the development of the SDES (see Chapter 6) EFA and CFA were used together. EFA was used first to explore the structure of the data in a general population sample, which provided the basis for the model to be tested using CFA techniques within samples from clinical populations.

2.6.2 Parallel Analysis

Parallel analysis (PA), the comparison of sample data to generated random data (Horn, 1965), was also employed within this thesis. In parallel analysis, the observed eigenvalues within the sample data are compared to the eigenvalues calculated from random datasets that is generated within the analysis, with the same number of variables and observations (participants) as the original dataset (Hayton, Allen, & Scarpello, 2004). An EFA is then conducted on each randomly generated dataset, to establish the amount of factors that would be extracted within each dataset. This statistical technique is based on the assumption that in the actual dataset, only factors with eigenvalues larger than those that emerge in less than 5% of the randomly generated datasets have not arisen due to chance variation within the dataset, and are stated to represent factors within the data. PA can therefore be used to supplement factor extraction in EFA, by providing a statistical basis for the extraction of a specific number of factors.

2.6.3 Regression Analysis

Multiple hierarchal regression analyses were conducted within several of the empirical studies reported in this thesis. For this analysis, Independent Variables (IV) were` entered into an equation in a specified order based on theoretical assumptions. This allows each IV to be assessed based on what it adds to the prediction of a Dependent Variable after controlling for the previous IVs.

There are several assumptions underlying multiple hierarchal regression that were addressed before the analyses were conducted. Firstly, suggestions have been made that the sample size must include at least 10 participants per predictor (Tabachnick & Fidell, 2007). Secondly, multicollinearity must be checked for. This occurs when high correlations exist between IVs (> r = .80), and can lead to misinterpretation of the effects of predictors (Tabachnick & Fidell, 2007). Thirdly, it is assumed that data is normally distributed. Where data was not normally distributed, the data was transformed and subsequently retested for normality before analyses were conducted.

Within the longitudinal studies, to look at differences between Time 1 and Time scores, variable scores were used rather than change scores, as these can be problematic. Calculating change scores involves subtracting the Time 2 score from the Time 1 score. However, as change scores only consider the mean at baseline, this method does not control for baseline imbalance and can lead to regression towards the mean across time points (Bland & Altman, 1994). Therefore, within the longitudinal studies, unless mean changes for all variables between Time 1 and Time 2 are identical across participants, there will be some regression towards the mean. As all participants will not experience the exact same change between time points, misleading results would be seen, as the effects of 12 months' time would affect participants differently, which may lead to misleading results (Hayes, 1988). Furthermore, recommendations have been made against the use of residual change scores unless the identification of individuals with particularly high or low residual changes is a specific aim of the research (Cronbach & Furby, 1970). There remains an on-

going debate within the literature on the use of various methodologies; however, although changes over time were being considered, variable scores were used within this these due to the current belief that this is a more reliable method.

2.6.4 Moderation Analysis

As outlined above, existing literature has only considered defeat and entrapment within clinical populations or specific non-clinical samples. Therefore one of the aims of the research in Chapter 3 was to establish whether the relationship between defeat, entrapment and mental health problems (depression and anxiety) operated in the same manner amongst individuals with clinically relevant levels of depression and anxiety, and those with lower levels of depression and anxiety. In order to establish this, moderation analysis was used. Moderation analysis establishes whether the relationship between two variables is affected or moderated by a third variable (Cohen, Cohen, Alken, & West, 2003). This occurs if the moderating variable interacts with the predicting variable to affect the outcome variable (Tang, Yu, Crits-Cristoph, & Tu., 2009). Moderation analysis involves centering variables by subtracting the mean from each value, then creating interaction terms by multiplying variables together (Weinberg & Abramowitz, 2002). A regression analysis is then conducted to establish whether an interaction exists between the predicting variable and the moderating variable (Cohen et al., 2003), judged by whether the interaction term is significant. If such an interaction exists, this demonstrates that the moderating variable affects the impact of the predicting variable on the outcome variable. Whether the moderating variable affected the relationship between the two variables studied in Chapter 3 was of interest, making this methodology appropriate.

2.6.5 Test for confounding variables

One of the aims of Chapter 4 was to establish whether combined defeat and entrapment significantly affected the relationship between depression and caregiver burden. The relationship between these factors has not been widely studied, although similarities have been suggested between depression and caregiver burden or burnout, for

example an overlap of symptoms such as fatigue and feelings of failure or reduced personal accomplishment (e.g. Maslach & Jackson, 1986). However, the distinctness between these constructs was confirmed by a Confirmatory Factor Analysis, which identified depression and burnout as separate factors (Leiter & Durup, 1994).

Testing whether a third variable influences a relationship between two variables would usually be tested using mediation analysis (MacKinnon, Krull, & Lockwood, 2000). However, in order to fulfil the criteria for mediation, each variable needs to be downstream of the preceding variable. It is known that combined defeat and entrapment is not a downstream of depression based on previous longitudinal evidence (e.g. Chapter 3 of the current thesis; Taylor et al., 2011b) therefore combined defeat and entrapment should be viewed as a confounding variable in the relationship between depression and caregiver burden. It is recommended that researchers rely on theory and evidence to inform whether a test for mediation or confounding is appropriate (MacKinnon et al., 2000). Confounding variables have been defined as a variable that is related to two factors and that influences the relationship between them (Meinert, 1986), although this relationship is not necessarily causal, as is a requirement for a mediating variable (MacKinnon et al., 2000). However, confounding variables are thought to be analogous to mediating variables (MacKinnon et al., 2000). On the basis of theoretical and research evidence that combined defeat and entrapment is not a downstream of depression, within Chapter 4, we tested for this as a confounding variable rather than a mediation variable.

2.6.6 Missing Value Analysis

Within the empirical chapters of this thesis, participants completed several measures during one or two data collection periods. This had the potential for missing or incomplete data to be present for many reasons, such as participants failing to complete all questions, participants withdrawing from longitudinal research or errors in data entry (Osborne, 2013). Missing value analysis was conducted within each empirical chapter to address the issues that result from incomplete data. If cases that have missing values vary

systematically from cases without missing values, this can lead to misleading results and can also reduce the precision of statistics as less data than was expected is analysed (IBM Corporation, 2011).

To address missing data within this thesis, first missing value analysis was conducted to establish where data was missing and if any patterns existed within the data. To establish whether imputation of missing data was necessary, the Missing Completely At Random test was used (MCAR; Little, 1998). Data is considered to be missing completely at random if the likelihood of a value being missing is as likely across all variables (Pickles, 2005). A significant value on the MCAR test indicates that the data are not missing completely at random and that imputation of missing data is necessary.

Any missing data was dealt with using Multiple Imputation (MI; Rubin, 1987). This technique is run using SPSS and creates complete data sets by generating several possible values for any missing values. Analyses are then conducted across all datasets and outputs provide estimates for each dataset about the results that would have been expected if there had been no missing values in the original dataset (Allison, 2000). These analyses demonstrate whether the presence of missing data affected the results in any way. This method was selected on the basis that it is thought to be more accurate than methods that involve single imputation, which do not allow for the additional error that is introduced by using imputation methods (Allison, 2000).

CHAPTER 3

3 The Prospective Role of Defeat and Entrapment in Depression and Anxiety: A 12-Month Longitudinal Study.

3.1 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.

Previously published as: Griffiths, A. W., Wood, A. M, Maltby, J., Taylor, P. J., & Tai, S. (2014). The prospective role of defeat and entrapment in depression and anxiety: A 12-month longitudinal study. *Psychiatry Research, 216,* 52-59.

3.2 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., 2011a). 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., 2003). 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 the environment (Dixon, 1998), behaviours that mirror psychopathological responses in humans (Price et al., 1994).

3.2.1 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 conceptualized 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 perceptions of 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., 2008b). 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.

3.2.2 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 & 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 & 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, Iqbal, & Upthegrove, 2005; White et al., 2007), informal caregivers (Martin et al., 2006), formerly depressed students (Sturman & Mongrain, 2005) and people experiencing psychoses (Clare & Singh, 1994). Higher levels of entrapment prospectively predicted depression in patients with schizophrenia (Rooke & Birchwood, 1998; Iqbal et al., 2000), the recurrence of major depression after 16 months amongst students (Sturman & 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 & Mongrain, 2005), and when controlling for depression, the relationship between defeat, entrapment and anxiety was not observed (Gilbert et al., 2002).

Taylor et al. (2011a) conducted a review of research studying the relationship between defeat, entrapment and psychopathology, and emphasized 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 & 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, 2000b). 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, 2000b). 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, Hurd, McFadden, Merill, & Ribeiro, 2004) and a perceived lack of control (Ross, Mirowsky, & Goldsteen, 1990), which often precede mental disorders including depression (Dixon et al., 1989). Consequently socioeconomically deprived individuals may feel caught in an aversive situation that they cannot escape from. The heightened risk of psychopathology in this group could be partially explained by an increase in defeat and entrapment. However, as perceptions of defeat may be continuous rather than related to a single event (Sturman & Mongrain, 2008a), when high levels of defeat and entrapment are combined with the environmental pressures that individuals are already faced with in situations of socioeconomic deprivation, such as high levels of unemployment (Perkins & Rinaldi, 2002), the hypothesized consequences of perceived defeat and entrapment would account for increases in feelings of depression and anxiety.

In the current study we investigated the longitudinal effects of defeat and entrapment on depression and anxiety within a community sample recruited from economically deprived areas. Firstly an exploratory factor analysis was conducted to

establish how defeat and entrapment were best defined, and second, we examined whether defeat and entrapment predicted increases in depression and state anxiety twelve months later. We also tested whether depression and anxiety predicted defeat and entrapment at twelve months, as no previous research has investigated the relationship in this direction.

3.3 Materials and Methods

3.3.1 Participants and Procedure

One hundred and ninety five participants (age range 18-65 years; *M* = 36.9 years, *SD* = 8.30; Male:Female = 36:64) were recruited on an opportunistic basis through advertisements in workplaces and community groups within three areas of North England. Advertisements were placed in or posted to a number of large and small workplaces, for example café and shop noticeboards, markets and workplace receptions). Additionally, posters were placed in the settings of community groups, such as religious and faith groups, and settings that were regularly used by various community groups, such as community halls. A small number of notices were also posted in living complexes, for example, the reception area of flats, or on residential streets in the area. Participants did not receive payment for participation (for baseline characteristics see Table 1). Participants were eligible to participate if they lived within these areas, were aged 18 or over and had the capacity to provide informed consent. A power analysis was conducted using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007). As no previous research has investigated the prospective relationship between defeat, entrapment, depression and anxiety, the analysis was based on research considering the prospective relationship between entrapment and depression at $r = .21$-$.23$ (Iqbal et al., 2000; Sturman and Mongrain, 2008b). Our sample of participants had power >.95 to detect effects of this size.

We recruited participants from areas ranked within the top 8.55% of economic deprivation in England, with economic deprivation comprising of income, employment, access to services, crime, health, education, and living environment deprivation

(Department for Communities and Local Government, 2010). In the areas sampled, the average percentage of individuals claiming benefits was 42.5%, compared to a national average of 19% and the average pass rate for 5 or more GCSE's (highest level of qualification taken in compulsory education with the UK) in 2010 was 23.5%, including one area with a 0% pass rate, compared to the national average of 55% (Office for National Statistics, 2011). We recruited from areas of high socioeconomic deprivation specifically to obtain a community sample with a wide range of lifetime experiences, especially more problematic life circumstances that are associated with the development of mental health difficulties.

For this study, ethical approval was obtained from the University of Leicester Research Ethics committee. Participants completed measures of defeat, entrapment, depression and anxiety, at two points approximately 12 months apart. We predicted that this timescale would be sufficient for experiences of defeat and entrapment to develop and lead to depression and anxiety. Contact details for each participant were taken at Time 1 (T1) and they were contacted up to three times at Time 2 (T2) before exclusion from the study. Twenty-two participants did not complete the measures at Time 2 (a retention rate of 88%) and were not included in analyses. Prior to analysis, one further participant's data was removed for inappropriate completion of questionnaires.

Table 1. Baseline sample characteristics

	Time 1 (n=195)
Gender	
Male	71 (36%)
Female	124 (64%)
Highest Education Level	
None	9%
GCSE	39%
A Level	37%
First Degree	10%
Postgraduate	2%
Other	3%
Employment Status	
Employed	88%
Self-Employed	4%
Unemployed	8%
Ethnicity	
White European	69%
Black African/Caribbean	18%
Other	13%
Depression Clinical Cut-off	
Above	63%
Below	37%
Anxiety Clinical Cut-off	
Above	55%
Below	45%

3.3.2 Measures

Defeat was measured by the *Defeat Scale*, a self-report measure of 16 questions assessing individuals' perceptions of losing rank position and failed struggle during the past seven days, e.g., "I feel defeated by life" (Gilbert & Allan, 1998). Items are rated on a five-point scale; higher scores indicate feelings of more defeat. The *Entrapment Scale* is a self-report measure of 16 questions that assess motivation to escape, e.g., "I am in a

situation I feel trapped in" (Gilbert & Allan, 1998). Items are rated on a five-point scale; higher scores indicate more feelings of entrapment. Both scales have demonstrated concurrent validity with submissive behaviour, r = .34-.48 (internal and external entrapment), r = .35 (defeat) and hopelessness when controlling for depression, r = .38-.46 (internal and external entrapment), r = .35 (defeat) (Gilbert & Allan, 1998). Within the current study, these scales demonstrated high internal consistency of α =.96 (entrapment) and α =.96 (defeat). Mean scores on both scales were higher than would be expected amongst a community sample (defeat M = 19.66, SD = 11.93, entrapment M = 16.34, SD = 15.47).

Anxiety was measured using the state sub-scale of the *State-Trait Anxiety Inventory* (STAI; Speilberger et al., 1970). This consists of 20 items measuring the current intensity of anxiety experienced by individuals as an emotional state (e.g., "I feel tense"). Participants rate the intensity of their current feelings of anxiety ("right now, at this moment") on a four-point scale, with higher scores indicating greater feelings of anxiety. The maximum score on the scale is 80, and scores above 39 are thought to represent a clinically relevant level of anxiety (Speilberger et al., 1983). The test-retest reliability of this scale has been demonstrated as r = .81 across 104 days (Speilberger et al., 1983). Within the current study, the scale demonstrated high internal consistency of α =.92 and a mean score representing a clinically relevant level of anxiety (M = 41.53, SD = 11.65).

Depression was measured using the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977). This scale contains 20 items and measures depressive symptoms in the general population. Participants rate how often they have experienced certain feelings during the past week (e.g.,"I had trouble keeping my mind on what I was doing"), on a four-point scale from "rarely or none of the time" to "most or all of the time". The maximum score on the scale is 60, scores of 16-26 represent mild depression and scores of 27 and above represent major depression. This scale has test-retest reliability of r = .61 over three months (Devins et al., 1988) and r = .49 over twelve months (Radloff,

1977), and high sensitivity (92%) and specificity (87%) to clinical assessment of depression in a sample of older adults using a cut-off of 21 (Lyness et al., 1997), which represents mild depression. However, a cut-off of 16 has been shown to successfully detect diagnosable depressive disorders within a community sample (Myers & Weissman, 1980). Within the current study, the scale demonstrated high internal consistency of α =.92 and a mean score representing a level above the cut-off for diagnosable depressive disorders (M = 19.19, SD = 11.74).

3.4 Results

3.4.1 Preliminary Analysis

Preliminary analyses were conducted to examine the frequency distributions of depression and anxiety across the sample. These demonstrated that data from the sample was negatively skewed, with the majority of the sample reporting some mental health difficulties. For depression, as measured by the CES-D (Radloff, 1977) at T1, 76 participants (44%) were below the standard cut off for depression, 42 participants (24%) met the criteria for mild depression, and 54 participants (32%) met the criteria for major depression. At T2, 73 participants (42%) were below the cut off for depression, 55 participants (32%) met the criteria for mild depression and 44 participants (26%) met the criteria for major depression. For anxiety as measured by the STAI (Speilberger et al., 1970), at both T1 and T2, 99 participants (58%) met the criteria for clinical anxiety.

The internal consistency of the scales was measured at Time 1. This demonstrated Cronbach's alphas of α =.87 for the Defeat Scale and α =.96 for the Entrapment Scale, which exceeds the standard value for good levels of internal consistency (>.80; Nunnally, 1978). Test-retest reliability of the scales at the two time points was measured, which demonstrated Intra-Class Coefficients (ICC) of .88 for the Defeat Scale and .90 for the Entrapment Scale, which both exceed acceptable ICC values of >.80 (Bruton, Conway, & Holgate, 2000) and exceed the minimum acceptable values for research tools (Keszei et al.,

2010). The correlations between the measures used in the current study can be seen in Table 2.

Table 2. Correlations between measures

Measure	1	2	3
1. Defeat Scale & Entrapment Scale	-	.739**	.751**
2. CES-D	.739**	-	.664**
3. STAI	.751**	.664**	-

Note: ** demonstrates correlation is significant at p <.001 level

3.4.2 Factor Analysis

To explore the structure of the *Defeat Scale* and *Entrapment Scale* (Gilbert and Allan, 1998), a maximum-likelihood exploratory factor analysis (EFA) was conducted on items of both scales completed by participants at T1. Bartlett's test confirmed that an EFA was appropriate (χ^2 [496] = 4872.65, $p < .001$) and a Keiser-Meyer-Olkin (KMO) test indicated an adequate participant:item ratio of 6.1:1 (KMO = .96). The first ten initial eigenvalues (and % of variance accounted for) from the EFA were 17.70 (55.32%), 1.82 (5.70%), 1.18 (3.71%), 1.05 (3.28%), 1.00 (3.12%), .87 (2.72%), .73 (2.28%), .70 (2.18%), .65 (1.99%), and .57 (1.78%).

A parallel analysis (PA) of 1000 datasets using the 95% cut-off (O'Connor, 2000) was conducted to establish how many factors to extract. PA creates random datasets with the same number of cases and variables as the actual dataset. An EFA is performed on each dataset, and any factors within the actual dataset with eigenvalues that exceed those that emerge in less than 5% of PA datasets are defined as having not arisen due to chance variation within the data. The first five eigenvalues extracted for 95% of the simulated datasets were equal to or less than 1.85, 1.73, 1.64, 1.57 and 1.49. In the actual data set, only the first eigenvalue exceeded chance values, suggesting one factor should be extracted. Factor loadings can be seen in Table 3.

As a further test, an EFA was conducted with forced two-factor extraction, using

oblique rotation as it was assumed the two constructs were related. No item from either scale loaded above .40, considered a reasonable loading of an item on a factor (Velicer, Peacock, & Jackson, 1982), whereas on the first factor, 81% loaded above .60. This demonstrates a second extracted factor would be poorly defined and not representative of items. Furthermore, scores on the *Defeat Scale* correlated with scores on the *Entrapment Scale* at $r = .91$, suggesting that the constructs are too conceptually similar to be measured separately. These analyses suggest that items from both scales are represented by one factor, therefore for regression analyses each participant was given a summed score for combined defeat and entrapment ($\alpha = .91$).

Table 3. Factor loadings of the defeat and entrapment scales

		Combined defeat and entrapment
1.	I feel I'm in a deep hole I can't get out of (e)	.853
2.	I would like to get away from who I am and start again (e)	.839
3.	I feel trapped inside myself (e)	.831
4.	I want to get away from myself (e)	.823
5.	I would like to escape from my thoughts and feelings (e)	.823
6.	I often have the feeling that I would just like to run away (e)	.816
7.	I have a strong desire to escape from things in my life (e)	.805
8.	I feel powerless (d)	.804
9.	I feel completely knocked out of action(d)	.798
10.	I feel that I have lost important battles in life (d)	.782
11.	I can see no way out of my current situation (e)	.775
12.	I feel that I have sunk to the bottom of the ladder (d)	.774
13.	I feel that I have lost my standing in the world (d)	.771
14.	I feel down and out (d)	.770
15.	I feel that I have given up (d)	.768
16.	I feel there is no fight left in me (d)	.766
17.	I have a strong desire to get away and stay away from where I am now (e)	.763
18.	I feel powerless to change myself (e)	.746
19.	I feel trapped by other people (e)	.741
20.	I feel defeated by life (d)	.727
21.	I feel that my confidence has been knocked out of me (d)	.717
22.	I am in a situation I feel trapped in (e)	.711
23.	I feel that I am one of life's losers (d)	.710
24.	I feel powerless to change things (e)	.704
25.	I feel trapped by my obligations (e)	.701
26.	I feel that life has treated me like a punch bag (d)	.683
27.	I feel that I have not made it in life (d)	.676
28.	I would like to get away from other more powerful people in my life (e)	.592
29.	I feel that I am a successful person (d) (R)	.565
30.	I am in a relationship I can't get out of (e)	.513
31.	I feel able to deal with whatever life throws at me (d) (R)	.494
32.	I feel that I am basically a winner (d) (R)	.430

Note: (R) denotes reverse coded item, (e) denotes item is from entrapment scale, (d) denotes item is from defeat scale

3.4.3 The predictive role of defeat and entrapment for changes in anxiety

To ensure that our data met underlying assumptions, we conducted several tests before the regression analyses. The majority of participants' data was positioned to the right of the mean, suggesting that the data were negatively skewed. A Kolmogorov-Smirnov test was conducted which was significant for all variables ($p < .05$), demonstrating that the data significantly deviated from normality, and therefore prior to analysis, a square root transformation was performed to normalize the data. Following transformation, we found a non-significant Kolmogorov-Smirnov test for all variables ($p > .05$) demonstrating that the data were normally distributed. As we were conducting several regression analyses, we tested for auto-correlation between variables using a Durbin-Watson statistic. This indicated non auto-correlation between variables (DW = 1.70-1.93), represented by a value near to 2, suggesting that there was no correlation between the error values associated with variables at T1 and T2. As we were studying variables that had previously been shown to correlate, we conducted correlational analyses to check for multicollinearity issues between variables. The variables correlated at $r = .45$ to $r = .61$, demonstrating no multicollinearity issues ($r > .80$; Tabachnick & Fidell, 2007).

Separate regression analyses were conducted for depression and anxiety to investigate whether defeat and entrapment predicted changes in depression and state anxiety. For both, the basic analysis involved regression the T2 score of the outcome variable (depression or anxiety), on its corresponding Time 1 (T1) score and the T1 combined defeat and entrapment score. This analysis predicts the residual change in the outcome variable between T1 and T2. We used this method rather than calculating change scores, as these can be problematic when change between the average scores at baseline and subsequent time points varies between participants, as those with higher scores regress towards the mean score from the baseline time point, leading to misleading results (Hayes, 1988).

The basic model for anxiety was significant ($R^2 = 046$, $F(2, 169) = 71.37$, $p < .001$)

with T1 defeat and entrapment predicting changes in anxiety (β = .29, t(169) = 3.38, p = .001, r_{sp} = .19), see Table 4. As expected, T1 anxiety also remained a significant predictor of T2 anxiety (β = .44, t(169) = 5.14, p = <.001, r_{sp} = .29).

Table 4. Hierarchical regression of T2 anxiety on T1 anxiety and T1 combined defeat and entrapment

Variable		β	$SE(\beta)$	ΔR_2
Step 1				.19**
	Defeat and entrapment	.61**	.12	
Step 2				.29**
	Defeat and entrapment	.28*	.03	
	Anxiety	.44**	.07	

Note: * represents p <.05, ** represents <.001

The robustness of the above model was tested through several further analyses. To test whether defeat and entrapment differentially predicted changes in anxiety for men and women we conducted a moderation analysis following the recommendations of Aiken and West (1991), including centering all variables prior to analysis, through a hierarchical multiple regression. In Step 1, T2 anxiety was predicted from T1 anxiety and T1 combined defeat and entrapment, as above. In Step 2, T2 anxiety was additionally predicted by gender (coded 0 and 1) and the interaction between gender and T1 defeat and entrapment, to see whether the predictive value of defeat and entrapment was dependent on gender. Step 2 did not significantly improve fit (ΔR^2 = <.001, ΔF(1, 168) = <.001, p = .510) demonstrating that the predictive value of defeat and entrapment for changes in anxiety is equally as strong for both genders.

We also performed a further moderation analysis to test whether defeat and entrapment differently predicted changes in anxiety depending on the person's baseline level of anxiety. This would occur, for example, if combined defeat and entrapment only predicted changes in anxiety amongst individuals with low T1 anxiety or individuals with

high T1 anxiety. In Step 1, as above, T2 anxiety was predicted from T1 anxiety and T1 defeat and entrapment. In Step 2, T2 anxiety was additionally predicted from the interaction between T1 anxiety and T1 defeat and entrapment. Step 2 did not significantly improve fit ($\Delta R^2 = <.001$, $\Delta F(1, 168) = .09$, $p = .763$) demonstrating that the predictive value of defeat and entrapment for changes in anxiety is equally as strong irrespective of people's initial levels of anxiety (see Figure 5).

Figure 5. Interaction between combined defeat and entrapment, Time 1 anxiety and Time 2 anxiety.

3.4.4 The predictive role of defeat and entrapment for changes in depression

We repeated these analyses with depression as the outcome. The basic overall model for depression was significant ($R^2 = .519$, $F(2, 169) = 91.15$, $p = .001$) with T1 defeat and entrapment predicting changes in depression ($\beta = .25$, $t(169) = 3.16$, $p = .002$, $r_{sp} = .17$). As expected, T1 depression also remained a significant predictor of T2 depression ($\beta = .52$, $t(169) = 6.69$, $p = <.001$, $r_{sp} = .36$), see Table 5.

Table 5. Hierarchical regression of T2 depression on T1 depression and T1 combined defeat and entrapment

Variable	β	$SE(\beta)$	ΔR_2
Step 1			.17**
Defeat and entrapment	.63**	.04	
Step 2			.36**
Defeat and entrapment	.25*	.05	
Depression	.52**	.08	

Note: * represents p <.05, ** represents <.001

Again, the robustness of this model was tested with subsequent analysis. To test whether defeat and entrapment differentially predicted changes in anxiety for men and women we conducted a moderation analysis, through a hierarchical multiple regression. In Step 1, T2 depression was predicted from T1 depression and T1 combined defeat and entrapment, as above. In Step 2, T2 depression was additionally predicted by gender (coded 0 and 1) and the interaction between gender and T1 defeat and entrapment, to see whether the predictive value of defeat and entrapment was dependent on gender. Step 2 did not significantly improve fit ($\Delta R^2 = <.001$, $\Delta F(1, 168) = .35$, $p = .556$) demonstrating that the predictive value of defeat and entrapment for changes in depression is equally as strong for both genders.

We also performed a further moderation analysis to test whether defeat and entrapment differently predicted changes in depression depending on the person's baseline level of depression. This would occur, for example, if combined defeat and entrapment only predicted changes in depression amongst individuals with low T1 depression or individuals with high T1 depression. In Step 1, as above, T2 depression was predicted from T1 depression and T1 defeat and entrapment. In Step 2, T2 depression was additionally predicted from the interaction between T1 depression and T1 defeat and entrapment. Step 2 did not significantly improve fit ($\Delta R^2 = <.001$, $\Delta F(1, 168) = <.001$, $p = .995$)

demonstrating that the predictive value of defeat and entrapment for changes in depression is equally as strong irrespective of people's initial levels of depression (see Figure 6).

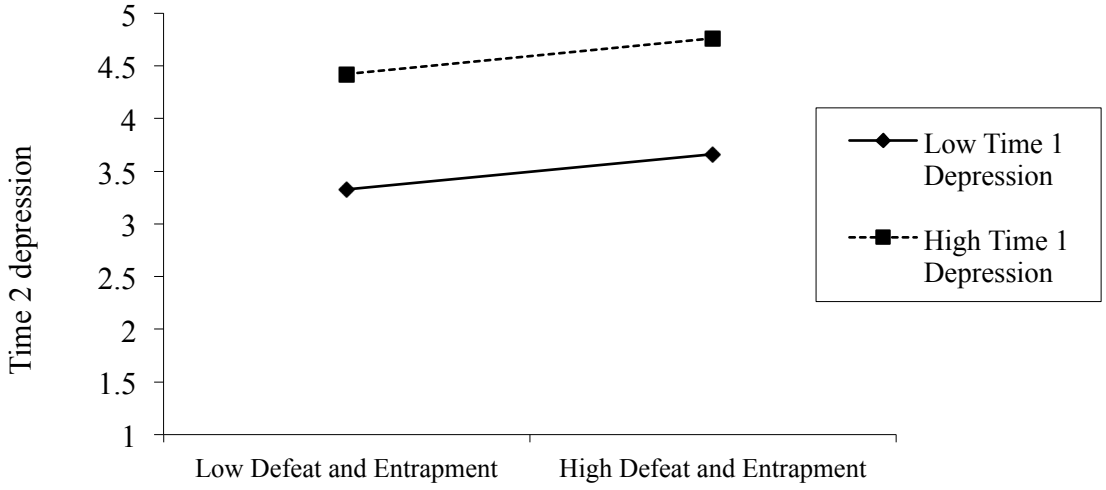


Figure 6. Interaction between combined defeat and entrapment, Time 1 depression and Time 2 depression.

3.4.5 The predictive role of depression and anxiety for changes in defeat and entrapment

To test the direction of the relationship between combined defeat and entrapment and psychopathology, regression analyses were conducted to test whether Time 1 (T1) depression and anxiety scores predicted Time 2 defeat and entrapment scores. Analyses were conducted separately for anxiety and depression due to the potential for substantial overlap between the constructs causing multi-collinearly problems for the analysis, leading to less interpretable coefficients associated with either predictor.

Analyses initially focused on anxiety predicting changes in defeat and entrapment. The overall model was significant (R^2 = .71, F(2, 169) = 211.81, p <.001) with T1 anxiety predicting changes in defeat and entrapment (β = .13, t(169) = 2.10, p = .04) and as expected, T1 defeat and entrapment also remained a significant predictor of T2 defeat and entrapment (β = .75, t(169) = 12.13, p = <.001).

We also performed a moderation analysis to test whether anxiety differently predicted changes in defeat and entrapment depending on the person's baseline level of

combined defeat and entrapment. In Step 1, as above, T2 defeat and entrapment was predicted from T1 depression and T1 defeat and entrapment. In Step 2, T2 defeat and entrapment was additionally predicted from the interaction between T1 anxiety and T1 defeat and entrapment. Step 2 did not significantly improve fit (ΔR^2 = <.001, $\Delta F(1, 168)$ = .26, p = .610) demonstrating that the predictive value of defeat and entrapment for changes in anxiety is equally as strong irrespective of people's initial levels of anxiety.

With depression as a predictor of change in defeat and entrapment, the model was again significant (R^2 = .72, $F(2, 169)$ = 218.08, p <.001). T1 depression predicted changes in defeat and entrapment (β = .17, $t(169)$ = 2.84, p = .001) and as expected, T1 defeat and entrapment also remained a significant predictor of T2 defeat and entrapment (β = .72, $t(169)$ = 12.10, p = <.001).

We also performed a moderation analysis to test whether depression differently predicted changes in defeat and entrapment depending on the person's baseline level of combined defeat and entrapment. In Step 1, T2 defeat and entrapment was predicted from T1 depression and T1 defeat and entrapment. In Step 2, T2 defeat and entrapment was additionally predicted from the interaction between T1 depression and T1 defeat and entrapment. Step 2 did not significantly improve fit (ΔR^2 = <.001, $\Delta F(1, 168)$ = <.001, p = .783) demonstrating that the predictive value of defeat and entrapment for changes in depression is equally as strong irrespective of people's initial levels of depression (and by extension, whether they would have scored above or below clinical cut-off).

3.5 Discussion

The results demonstrated that defeat and entrapment are best defined as one factor. This demonstrates that a one-factor solution is generalizable to a wider population than students, as has previously been studied (Taylor et al., 2009; Sturman, 2011). This supports theories that defeat and entrapment capture a single common, underlying psychological construct. This construct has been conceptualized as representative of an arrested or dysfunctional IDS process which individuals are unable to escape from (Taylor et al.,

2011a; Sturman, 2011). Within the current study, only one-factor and two-factor models were examined. These models were explored as existing evidence supports either a one-factor solution (e.g. Talyor et al., 2009) or two-factor solution (e.g. Gilbert & Allan, 1998) and therefore there was substantial research upon which to base the expectations that one of these structures would emerge. Future research could consider exploring a three-factor solution, a bifactor model or a hierarchical model of defeat and entrapment, to provide a greater understanding of how defeat and entrapment are structured amongst different populations.

The results also demonstrated that higher levels of combined defeat and entrapment at Time 1 were associated with increased depression and state anxiety 12 months later. This supports evidence that feelings of defeat and entrapment are associated with depression and anxiety (e.g. Gilbert and Allan, 1998; Kendler et al., 2003) and provides evidence for the "depressogenic feedback loop", in which defeat and entrapment co-occur and precede the experience of psychopathology (Taylor et al., 2011a). Therefore, the current study expands on the existing literature, which has been largely cross-sectional and has considered defeat and entrapment as separate predictors of negative outcomes. Furthermore, we also demonstrated that depression and anxiety predicted defeat and entrapment twelve months later. As we recruited a sample from economically deprived areas, it is likely that they will have experienced several defeating and entrapping circumstances. These findings suggest that not only do perceptions of defeat and entrapment influence the experience of mental health problems, but also that individuals with mental health difficulties may be vulnerable to defeating and entrapping experiences. The results provide the first evidence that defeat and entrapment operate in a reciprocal loop with anxiety and depression. The experience of depression and anxiety may be in itself defeat and entrapping, leading to increases in perceptions of these constructs, which in turn leads to greater depression and anxiety. Such an effect would imply a downward spiral of functioning and could potentially partially explain the longevity of depressed and

anxious conditions.

As we have shown that defeat and entrapment are reliable predictors of depression and anxiety but also presented the first test of depression and anxiety predicting defeat and entrapment, further research is required to investigate this at several time points, within clinical and non-clinical samples to establish exactly how the relationship between defeat and entrapment and psychopathology operates. For example, involuntary subordination, a construct derived partly from defeat and entrapment that also incorporates submissive behaviour and social comparison, has previously been shown to predict changes in social anxiety across a two-week period (Sturman, 2011). Furthermore, Taylor et al. (2009) suggested that defeat sometimes precedes entrapment before the two constructs co-occur. Studying this within different time frames would provide a clearer evaluation of how this process develops. However, regardless of whether psychopathological problems also predict defeat and entrapment, they should be viewed as key factors that predict the experience of psychopathology and should be measured within treatment settings.

The current sample consisted of individuals who experienced a range of levels of depression and anxiety, from extremely low to more clinically relevant. Defeat and entrapment predicted subsequent mental health regardless of baseline levels of defeat and entrapment, demonstrating that defeat and entrapment are clearly key predictors of psychopathological distress twelve months later within the general population.

The current study focused on an economically deprived population. This sample was selected due to the increased exposure to adversity and vulnerability to experiences of defeat and entrapment in such individuals. Over 50% of participants experienced clinically relevant levels of psychopathology, confirming the view that socioeconomically deprived individuals represent a clinically meaningful group. This suggests the importance of perception of defeat and entrapment in predisposing individuals in this group to subsequent psychopathology. We are also cautious not to overstate the generalizability of our results, instead concluding that we demonstrated an impact of defeat and entrapment on

psychopathology amongst a socioeconomically deprived population, consisting of individuals with high and low levels of mental health difficulties, and suggest that further research should investigate the relationship between defeat, entrapment and psychopathology specifically comparing individuals recruited from clinical and community settings.

Participants completed subjective self-report measures, and future research should consider using clinical diagnoses as a measurement of mental health difficulties. Future research could also consider inducing short-term states of defeat and entrapment, to provide a less subjective measure of individuals' experiences (e.g. Johnson et al., 2011). As we have shown the relationship between defeat and entrapment and mental health difficulties to be bi-directional, this would also help to establish causality within this relationship.

We investigated the relationship between defeat and entrapment and mental health difficulties using hierarchal multiple regression. Although this is the standard and preferred method for establishing moderator effects for continuous variables (Aguinis & Pierce, 1998), a limitation of this method is that the power to detect true interaction effects is lower than recommended levels (Frazier, Barron, & Tix, 2004) and therefore we may have been unable to detect interactions present within the data. However, we recruited a large sample that was normally distributed after transformation and tested moderators in a relationship that was already significant, which helps to maximize the power of tests of moderator effects (Frazier et al., 2004).

This study was longitudinal across twelve months. Such designs only show causality between variables A and B when there is covariation between A and B, A temporally precedes B and other plausible explanations have been rejected. In these circumstances "causality cannot be proven… but can be made plausible" (Cook and Campbell, 1979; Zapf, Dormann, & Frese, 1996). Therefore in this research we could claim to provide causal evidence for the relationship between defeat, entrapment and

psychopathology, however we are careful not to make such a strong conclusion. Instead, we interpret our results as demonstrating that feelings of defeat and entrapment are associated with increased anxiety and depression, whilst also demonstrating that depression and anxiety are associated with increased perceptions of defeat and entrapment. These relationships may result from shared variance with another variable, however even if the relationship operates indirectly our interpretations would not be altered. Future research should consider measuring these factors at several time points in order to increase the understanding of the causality within this relationship.

These results have clinical implications for treating anxiety and depression. It may be beneficial for clinicians to be increasingly sensitive towards themes of defeat and entrapment during clinical assessments, particularly with individuals from socioeconomically deprived backgrounds, where these factors may contribute to psychopathology. For example interventions could focus on the psychological processes underlying defeat and entrapment (e.g. Taylor et al., 2009). By identifying the sources of defeat and entrapment, mental health could be improved by conceptualizing problems as a response to these perceptions (Taylor et al., 2011a) and altering these perceptions by incorporating the factors into clinical assessment or case formulations for interventions (Tarrier, 2006). Cognitive-behavioural techniques could then be employed to modify individuals' appraisals and reduce their sensitivity to defeat signals (Swallow, 2000; Johnson et al., 2008). Individuals could be guided to reimagine situations of defeat in the past, and use this to alter cognitions of this experience (e.g. Lee, 2006). Furthermore, by emphasizing to clients the resilience they have shown and focusing on successes, a more positive image of the self may be formed (Taylor et al., 2011a). Tarrier (2010) suggested that using therapeutic techniques such as the broad-minded and affective coping procedure (Johnson, Gooding, Wood, Fair, & Tarrier, 2013) could help prevent individuals' appraisals from focusing on defeat and entrapment, by widening their behavioural and cognitive repertoires.

These implications may be particularly relevant to individuals from economically deprived areas, as they frequently experience higher rates of psychopathology, for example, such individuals meet clinical diagnosis conditions for psychopathology approximately 2.6 times as often as individuals of higher socioeconomic status (Kohn, Dohrenwend, & Mirotznik, 1998). Therefore, a more tailored approach is needed to support socioeconomically deprived individuals. Screening for defeat and entrapment would allow individuals at risk for psychopathology to be identified earlier.

In conclusion we demonstrated that self-reported perceptions of defeat and entrapment formed one factor and therefore capture a single common, underlying psychological construct, which encompasses feelings associated with dysfunctional IDS behaviours. Levels of this combined defeat and entrapment factor predicted increases in depression and state anxiety 12 months later regardless of whether individuals were experiencing clinically relevant levels of psychopathological symptoms initially, although levels of depression and anxiety also predicted increases in defeat and entrapment suggesting that further research should be conducted to establish the mechanisms underlying this relationship and establish causality across several time points. These results have implications for improving client well-being in clinical settings by focusing on decreasing perceptions of defeat and entrapment in therapy for the treatment of psychopathology. There are also implications for community settings, where screening for defeat and entrapment could identify individuals at risk of developing psychopathology.

CHAPTER 4

4 Feelings of Defeat and Entrapment in the Workplace: A Prospective Role in Caregiver Burden and Depression amongst Formal Caregivers.

4.1 Abstract

As the proportion of adults within the population aged 65 and over continues to rise and more individuals become susceptible to aging-associated disorders, the demand for family and formal (employed) caregivers to provide care for these older adults is also increasing (Pitfield et al., 2011). However, whilst the stress and burden of caring for older adults living at home has been well documented, there is less known about the burden experienced by formal caregivers (Cocco, Gatti, de Mendonca, & Camus, 2003; Duffy, Oyebode, & Allen, 2009) and how this affects the well-being of caregivers and residents. This paper provides an exploration of the role of two psychological factors, defeat and entrapment (Gilbert & Allan, 1998), which have been shown to predict various mental health problems (Taylor et al., 2011a). Specifically we consider whether perceptions of defeat and entrapment predict the experience of caregiver burden and depression amongst formal caregivers working in a large care organization. More generally, this is one of the first explorations of the occupational relevance of the constructs of defeat and entrapment; within recent years they have emerged as key constructs for study within clinical psychology as they have some of the largest and most wide ranging relationship with mental health of any variable (Taylor et al., 2011a). Thus more widely we hope that the current study will start a focus on these variables within the occupational literature, particularly with regards to occupational health within which they could emerge as key predictors of distress. We focus on the occupational setting of caregiving both as more research is needed into this area and as there is reason to believe that defeat and entrapment may be particularly key, but it is also likely that similar findings will generalise to other occupational domains.

Currently under review as: Griffiths, A. W., Wood, A. M., & Tai, S. Feelings of Defeat and Entrapment in the Workplace: A Prospective Role in Caregiver Burden and Depression amongst Formal Caregivers. *Journal of Occupational and Organizational Psychology.*

4.2 Introduction

As the proportion of adults within the population aged 65 and over continues to rise and more individuals become susceptible to aging-associated disorders, the demand for family and formal (employed) caregivers to provide care for these older adults is also increasing (Pitfield et al., 2011). However, whilst the stress and burden of caring for older adults living at home has been well documented, there is less known about the burden experienced by formal caregivers (Cocco et al., 2003; Duffy et al., 2009) and how this affects the well-being of caregivers and residents. This paper provides an exploration of the role of two psychological factors, defeat and entrapment (Gilbert & Allan, 1998), which have been shown to predict various mental health problems (Taylor et al., 2011a). Specifically we consider whether perceptions of defeat and entrapment predict the experience of caregiver burden and depression amongst formal caregivers working in a large care organization. More generally, this is one of the first explorations of the occupational relevance of the constructs of defeat and entrapment; within recent years they have emerged as key constructs for study within clinical psychology as they have some of the largest and most wide ranging relationship with mental health of any variable (Taylor et al., 2011a). Thus more widely we hope that the current study will start a focus on these variables within the occupational literature, particularly with regards to occupational health within which they could emerge as key predictors of distress. We focus on the occupational setting of caregiving both as more research is needed into this area and as there is reason to believe that defeat and entrapment may be particularly key, but it is also likely that similar findings will generalize to other occupational domains.

4.2.1 Caregiver Burden

Working within a care home is known to be a mentally and physically demanding occupation that can lead to staff being at elevated risk for work and stress related illnesses such as depression and psychosomatic illness (Maslach & Jackson, 1986; Testad et al.,

2010). Providing long-term care for individuals with chronic illnesses can significantly impact on caregivers' well-being. This has been documented by an increasing number of formal care staff appearing to be physically and emotionally exhausted whilst in work (Van Veldhoven & Broersen, 1999, as cited in Evers, Tomic, & Brouwers, 2002). Furthermore, high levels of job stress resulting from factors such as insufficient staffing and a fast work pace have been shown to predict absenteeism (Allebeck & Mastekaasa, 2004) as well as high staff turnover (Schaefer & Moos, 1996). This has been conceptualized as 'caregiver burden' and comprises of poor physical and emotional health outcomes that result from excessive caregiving demands (Given et al., 1992).

As the priorities for formal caregivers lie with maintaining the well-being of their residents, such individuals may feel that their health is less of a priority. This is likely to be maintained by professional norms of prioritising the health of residents rather than the self within the care sector (Crout, Chang, & Cioffi, 2005). However, recently, the importance of staff well-being and the impact that low well-being has on the quality of care provided has been highlighted (Boorman, 2009; Duffy et al., 2009). This has been particularly prominent particularly in the UK due to the findings of the Mid Staffordshire National Health Service (NHS) Foundation Trust Public Inquiry (Francis, 2013), which highlighted specific ways that quality of care for patients needs to be improved, for example an increased focus on creating and maintaining a culture of compassion.

The importance of being aware of your own well-being is particularly relevant for formal caregivers, as working with older adults with cognitive impairments, such as dementia, has been associated with high levels of stress (Novak & Chappell, 1996) and subsequent caregiver burden. However, there is also evidence that care staff who experience fewer demands and have more control over their workload and a greater amount of social support available to them experience lower burnout and higher job satisfaction, in comparison to care staff with lower control and more demands (Boekhorst, Willemse, Depla, Eefsting, & Pot, 2008), supporting suggestions that perceptions of

control are significantly associated with psychological distress for care home staff (Testad et al., 2010). Furthermore, having low job control makes a significant contribution to the social gradient of both mental and physical health, and predicts a range of illnesses (Ferrie, 2004; Ferrie, Shipley, Davey-Smith, Stansfeld, & Marmot, 2003). Specifically, high demands and low job control have been associated with poorer general health and increased risk of sickness absence (Marmot & Wilkinson, 2005). Additionally, research has demonstrated negative associations between job satisfaction and levels of burnout (Moniz-Cook, Millington, & Silver, 1997) and the amount of hours worked and emotional exhaustion amongst care home staff (Evers et al., 2002). This suggests that there are many specific factors that can affect whether individuals experience burnout and caregiver burden. As burnout and caregiver burden are associated with negative experiences for both the care staff and residents of care homes (Moniz-Cook et al., 1997), targeting and reducing burnout in staff should be a priority for care organizations (Åström, Nilsson, Norberg, Sandman, & Winblad, 1991).

A recent systematic review of care staff for individuals with dementia demonstrated that the risk for developing burnout varied from 5% to 36%, concluding that there is generally not a high prevalence of psychological stress amongst care staff (Pitfield et al., 2011). However, all the studies included within this review were cross-sectional, so it is possible that those staff members experiencing high levels of psychological stress were most likely to terminate their employment and seek employment elsewhere (Pitfield et al., 2011), and these suggestions have been supported by research that demonstrated that individuals with higher stress levels also felt less committed to their job and were more likely to terminate their employment than those with lower stress levels (Duffy et al., 2009). Furthermore, research has demonstrated that even when staff reported only moderate levels of burnout, almost 70% of these individuals reported experiencing emotional exhaustion as a result of their role (Duffy et al., 2009). On the basis of this conflicting evidence, recommendations have been made to conduct prospective research in

order to establish whether individuals within the care sector are experiencing high levels of psychological stress (Pitfield et al., 2011).

4.2.2 The role of defeat and entrapment in mental health

Two factors that have been associated with psychological distress, and may be particularly relevant to care staff are defeat and entrapment. Defeat is defined as failing to achieve important goals or values and experiencing a loss in social rank (Gilbert & Allan, 1998; Rohde, 2001). Entrapment is defined as a lack of available options for escape from an aversive situation (Gilbert & Allan, 1998). Defeat and entrapment have been associated with the development and maintenance of mental health problems such as depression, anxiety and suicidal ideation in clinical and non-clinical populations (see Taylor et al., 2011a for a review). However, only a limited amount of previous research has considered the role of defeat and entrapment in the health outcomes of caregivers. Martin and colleagues (Martin et al., 2006) examined the role of entrapment in feelings of depression amongst informal caregivers of individuals with dementia. Entrapment was highly related to symptoms of depression, which the authors suggested results from the stress of caregiving (Martin et al., 2006). This is consistent with research on the well-being of mothers of children with special educational needs who reported high levels of stress. This research demonstrated that defeat and entrapment predicted depression in mothers, even when controlling for stress (Willner & Goldstein, 2001), in a cross-sectional association. However, no relationship was found between stress and depression when controlling for defeat and entrapment. This suggests that the constant demands of caring for their children, with the additional of stressors that the mothers were unable to escape from were key factors in the experience of depression (Martin et al., 2006). However, both of these studies were conducted with samples of informal caregivers. Therefore research needs to be extended to a formal caregiving setting, where individuals are working in a labour-intensive role, requiring continuous attention to the well-being of others (Szebehely, 1995, as cited in Elstad & Vabo, 2008). As this situation is unlikely to change unless individuals

make the decision to leave the profession, formal caregivers are likely to feel trapped in situations of chronic high stress. Martin et al. (2006) considered that despite previous evidence suggesting that caregiver morale may increase over time (Gilhooly, 1984), for some individuals the burden of caring for others may become increasingly entrapping and subsequently, increasingly depressing. Therefore, longitudinal research needs to be conducted to establish how these feelings and perceptions may change over time, and the influence that this has on caregiver mental health and also likelihood of terminating employment as a provider of care.

A more thorough understanding of factors that influence whether caregiver burden develops might lead to an increase in the well-being of caregivers through identification of high-risk individuals. This is necessary to be able to identify the psychological stressors that impact on staff well-being, which may in turn impact on the quality of care provided for care home residents (Testad et al., 2010; Duffy et al., 2009), through mechanisms such as decreased empathy and negative attitudes towards residents that are associated with burnout (Kuremyr, Kilgren, Norberg, Åström, & Karlsson, 1994; Åström et al., 1991). Prospective research with large samples that could provide an indication of whether there are any risk factors that predict the experience of caregiver burden has been outlined as a priority (Martin et al., 2006; Pitfield et al., 2011; Duffy et al., 2009), in order to provide strategies to address these risk factors.

Furthermore, although a large amount of research has been conducted considering the role of defeat and entrapment in mental health within community and clinical settings (see Taylor et al., 2011a for a review), only one study has previously measured defeat and entrapment in a workplace (Troop & Baker, 2008). This study demonstrated that defeat and entrapment were associated with depression among a sample of female office workers. However, as the research was cross-sectional, the direction of the relationship could not be established. Furthermore, research has shown that 31% of employees feel trapped in their

current role and wish to leave their role but are unable to (Sweetman, 2001), therefore it is expected that defeat and entrapment will be relevant to the experiences of employees.

4.2.3 The potential for a confounding relationship between defeat and entrapment, caregiver burden and depression

The relationship between caregiver burden and depression has been the focus of limited research. Much research has considered one of these outcomes as a result of providing care, however the relationship between these factors has not been thoroughly explored. In addition to demonstrating a relationship between combined defeat and entrapment and the outcomes of depression or caregiver burden, we also wished to establish the relationship between these outcomes. Although similarities have been suggested between depression and caregiver burden, for example an overlap of symptoms such as fatigue and feelings of failure or reduced personal accomplishment (e.g. Maslach & Jackson, 1986), caregiver burden or burnout and depression have been differentiated on both context and patterns of attribution. Whilst depression is generally representative of personal emotions and thoughts, burden is more strongly related feelings associated with the job of an individual and also their relationship with people who they care for (Leiter & Durup, 1994), for example when measuring caregiver burden or burnout, items focus on how the job affects the emotions of individuals (Maslach & Jackson, 1986). Whereas, when measuring depressive symptoms, negative experiences are attributed to the self (Leiter & Durup, 1994). This differentiation was confirmed by a Confirmatory Factor Analysis, which identified depression and burnout as distinct factors (Leiter & Durup, 1994).

Depression is comprised of both somatic/affective symptoms such as fatigue and poor appetite, and cognitive/affective symptoms such as negative self-image and guilt (Roest et al., 2010). It would be expected that the cognitive/affect aspect, which has been shown to have strong relations with defeat and entrapment (see Taylor et al., 2011a for a

review), would be specifically linked to the experience of caregiver burden, specifically through the shared relationship it has with defeat and entrapment.

Several studies that have considered the relationship between risk factors and mental health problems have shown that defeat and entrapment are the "generative mechanism" linking the two, suggesting that whilst various risk factors may appear to predict the experience of mental health problems, the only "active" part of the risk factor is the variance that is shared with defeat and entrapment. Thus whilst both a risk factor and defeat and entrapment may individually predict a psychopathological outcome, when outcomes are simultaneously regressed on both risk factor and defeat and entrapment only defeat and entrapment remains significant. This has been observed, for example, between positive symptoms of psychosis and suicidal ideation, demonstrating that positive symptoms of psychosis act as a risk factor for the experience of suicidal ideation actually operated based on the shared relationship between combined defeat and entrapment and depression (Taylor et al., 2010b). Similar results were found for the well-established relationship between PTSD and suicidal behaviour, as recent evidence suggests that this relationship is mediated by defeat and entrapment (Panagioti et al., 2012c). This has also been found specifically amongst a sample of individuals who provided care (on an informal basis) for individuals with learning disabilities (Willner & Goldstein, 2001), where the relationship between stress and depression was mediated by perceptions of defeat and entrapment. We therefore predict that, longitudinally, both depression and combined defeat and entrapment will be predictors of burn out, but that only defeat and entrapment will be a significant predictor when controlling for overlapping variance between the constructs.

4.2.4 The current study

The current study provides the first application of defeat and entrapment within a health care setting, and also allows testing of the direction of the relationship between

defeat, entrapment and mental health outcomes. Occupational settings may impact on the mental health of individuals in different ways to previously established relationships in clinical and community settings. Therefore, conducting longitudinal research to establish whether defeat and entrapment affect mental health in an occupational setting provides the opportunity to establish whether these factors are also relevant within occupational settings, as this may provide information regarding why people may terminate their employment or have increased rates of sickness absence. Previous research suggests that staff who have received the least education and training are at the highest risk of experiencing burnout (Edvardsson, Sandman, Nay, & Karlsson, 2009). Therefore if defeat and entrapment are shown to be predictors of negative outcomes for staff, incorporating how to identify these risk factors and deal with these feelings into the training programmes may have a direct effect on the experience of poor mental health by staff within the health care sector.

In the current study, we provide the first direct test of the influence of feelings of defeat and entrapment on negative caregiver outcomes (caregiver burden and depression), in a longitudinal study across twelve months. We predicted that formal caregivers who experience high levels of defeat and entrapment would report higher levels of caregiver burden and depression twelve months later. We also predicted that a relationship would exist between depression and caregiver burden, however that the relationship would operate through the shared variance between depression and combined defeat and entrapment. This would be demonstrated if a significant relationship was demonstrated between depression and caregiver burden, however when combined defeat and entrapment was added as a mediating factor, the original relationship between depression and caregiver burden was found to no longer be significant.

4.3 Method

4.3.1 Participants and Procedure

One hundred and ninety five formal caregivers (age range 18 - 71 years; *M* = 38.4 years, *SD* = 12.20) were recruited on an opportunistic basis through advertisements placed in seven care homes from a large care organization in North Wales. Advertisements for the study were placed in staff rooms, and potential participants approached their manager to obtain a questionnaire pack. Participants did not receive any form of payment for taking part. Formal caregivers in this organization work to provide care for individuals with Alzheimer's disease and other forms of dementia (aged 65 years and older), neurological problems resulting from acquired brain injury or conditions such as Multiple Sclerosis or stroke (aged 19 – 65 years), and older individuals who require 24 hour nursing and residential care (aged 65 years and older). At Time 1, participants had been employed by the care organization for between 1 month and 21 years, for an average of 4.3 years. Ethical approval for this research was obtained from the University of Manchester ethics committee prior to the research being conducted.

Participants completed self-report measures of defeat, entrapment, depression and caregiver burden at two points approximately 12 months apart. T2 questionnaire packs were distributed to participants in monthly batches based on the month in which they returned their T1 questionnaire. Participants who did not return their questionnaires within one month at T2 were contacted by the research team up to three times before exclusion from the study. Out of the 195 participants recruited at T1, 125 also completed the measures at T2, providing an overall retention rate of 64%. This is a lower retention rate than would normally be expected for a longitudinal study similar to this, however due to the exceptionally high turnover rate of staff within the social care sector in comparison to other sectors (Centre for Workforce Intelligence, 2013), we anticipated that a larger than usual attrition rate would be present within this sample. Participants were excluded at T2 if they no longer worked for the Care Organisation and therefore were no longer eligible to

participate, were on maternity leave, had long-term sickness absence, or did not return their questionnaires after being contacted up to three times. Seventy participants were excluded at T2 and therefore their data could not be used within longitudinal analyses (see Figure 7), resulting in data from a sample of 128 participants. We ensured that all dropout didn't affect the conclusions through a test of whether the data was missing completely at random and an intention to treat analysis to check whether the results would have differed if we assume that for all dropped out participants there were no longitudinal relationships between any of the variables; this demonstrated that the results did not differ dependent on whether participants who had dropped out were included in analyses.

As data was collected from staff members via self-report questionnaire packs, some missing values were anticipated for several reasons, such as participants failing to complete all questions and participants withdrawing between time points (Osborne, 2013). Prior to analyses being conducted, missing value analysis was conducted to establish if any patterns existed within missing data. To establish whether imputation of missing data was necessary, the Missing Completely At Random test was used (MCAR; Little, 1998). This test was non-significant; indicating that missing data was missing completely at random and that imputation of any missing data was not necessary.

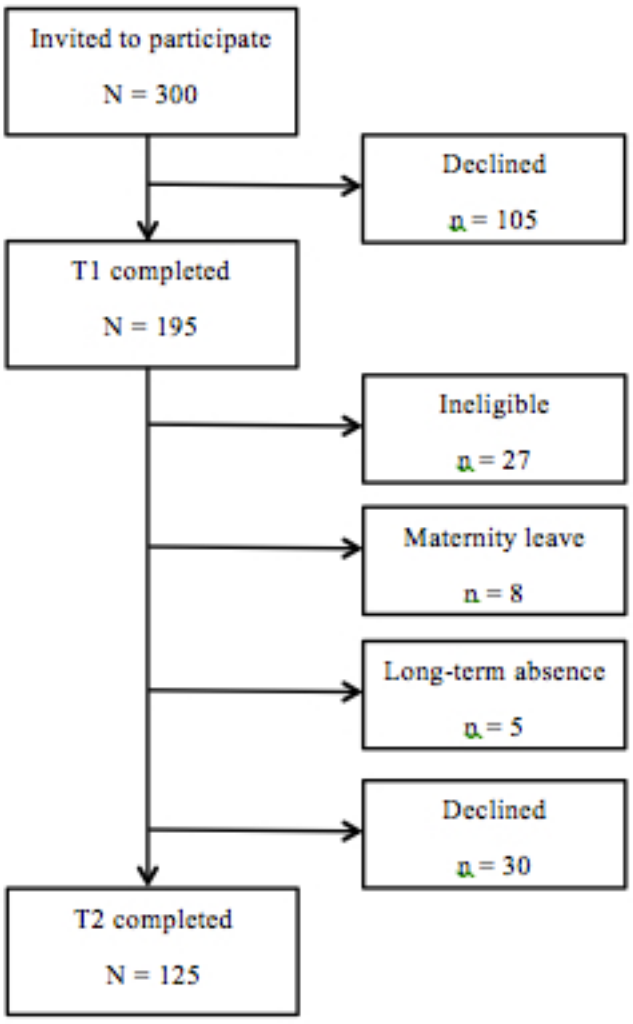
4.3.2 Measures

Defeat was measured using the *Defeat Scale* (Gilbert and Allan, 1998), which consists of 16 questions that assess individuals' perceptions of loss of rank position and failed struggles during the past week (e.g., "I feel defeated by life"). Items are rated on a five-point Likert scale, with higher scores indicating more perceptions of defeat. This scale has demonstrated concurrent validity with submissive behaviour (r = .35) and hopelessness when controlling for depression (r = .35; Gilbert and Allan, 1998). In the present study, the scale demonstrated high internal consistency of α =.91 and a mean score appropriate for a non-clinical sample (M = 11.69, SD = 9.29).

Entrapment was measured using the *Entrapment Scale* (Gilbert and Allan, 1998),

which consists of 16 questions that assess individuals' motivation to escape from situations (e.g., "I am in a situation I feel trapped in"). Items are rated on a five-point Likert scale, with higher scores indicating more perceptions of entrapment. This scale has demonstrated concurrent validity with submissive behaviour (r = .34) and hopelessness (r = .65; Gilbert and Allan, 1998). In the present study, the scale demonstrated high internal consistency of α =.95 and a mean score appropriate for a non-clinical sample (M = 6.09, SD = 9.88). Following demonstrations that defeat and entrapment form a single factor (Griffiths et al., 2014; Taylor et al., 2009), an overall score was calculated for combined defeat and entrapment.

Figure 7. Flowchart demonstrating participant numbers at T1 and reason for dropout at T2.



Caregiver burden was assessed using the Zarit Burden Interview (ZBI; Zarit et al., 1980), adapted for use with formal caregivers. Following the guidelines of Zarit et al. (1980), 'relative' was substituted for 'resident' for each item to make the items applicable to formal caregivers. The measure consists of 21 items that assess the perceived stresses experienced by caregivers, and the impact this has on their lives; conceptualized as 'personal strain'. Participants are asked to rate how often they feel certain ways on a 5-point scale from 'never' to 'nearly always'. Scores of 16 and over on this scale have been shown to have specificity of 90% and sensitivity of 49% to scores on the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977) representative of mild depression, and specificity of 75% and sensitivity of 68% to CES-D scores representing clinically relevant depression (O'Rourke & Tuokko, 2003), which it was used alongside in this study. In the present study, the scale demonstrated internal consistency of α =.84 and a mean score appropriate for a non-clinical sample (M = 16.45, SD = 8.87).

Depression was measured using the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977). This measure consists of 20 items that are designed to measure depressive symptoms within the general population. Participants rate how frequently they have had certain experiences during the past seven days (e.g. "I had trouble keeping my mind on what I was doing"), on a four-point scale ranging from "rarely or none of the time" to "most or all of the time". The maximum score on the scale is 60; scores of 16-26 represent mild depression and scores of 27 and above represent major depression. This scale has test-retest reliability of r = .49 over twelve months (Radloff, 1977), and high sensitivity (92%) and specificity (87%) to clinical assessment of depression through an interview with a clinician using a cut-off of 21, representative of mild depression (Lyness et al., 1997). In the present study, the scale demonstrated internal consistency of α =.88 and a mean score that represented low levels of depression amongst the sample (M = 10.56, SD = 9.24).

Data were also collected for the length of time participants had been employed as Care Practitioners within the company, their shift pattern (coded as 0 = days, either 7:30am-9pm or 7:30am-4pm and 1 = nights, 9pm-7:30am), and the difference between their contracted hours and the amount of hours they actually worked. These factors were measured, as they have previously been associated with either increased or decreased caregiver burden (e.g. Duffy et al., 2009; Goehring et al., 2005; Testad et al., 2010). Baseline characteristics, including some of these factors, can be seen in Table 6.

Table 6. Baseline sample characteristics

	Time 1 (N = 195)
Gender	
Male	16%
Female	84%
Employment Status	
Full-Time	67%
Part-Time	33%
Shift Pattern	
Days	95%
Nights	5%
Ethnicity	
White European	74%
Asian	17%
Other	9%

4.4 Results

4.4.1 Preliminary Analyses

Initial analyses were conducted to see whether the data was normally distributed. A Kolmogorov-Smirnov test was conducted which was significant for the variables of interest; caregiver burden, combined defeat and entrapment, and depression (p <.05), demonstrating that the data significantly deviated from normality at Time 1 (N = 195).

Therefore prior to analysis, a square root transformation was performed to normalize the data. Following this transformation, a further Kolmogorov-Smirnov test was conducted, which was non-significant for all variables (p >.05), demonstrating that the data was normally distributed.

As previous research has demonstrated that those individuals with the highest levels of psychological stress may be more likely to terminate their employment, we examined whether there were differences in the average scores of individuals who had terminated their employment by T2, in comparison to those who were still employed by the Care Organization at T2. There were no significant differences between the caregiver burden scores of those who were and were not still employed by the company [t(193) = .82, p = .27]. This contrasts previous suggestions that those with higher levels of burden would be more likely to terminate their employment, as the results demonstrated that no significant differences existed between caregiver burden scores dependent on whether individuals were still employed by the company at the second time point. This again suggested that drop-out due to people leaving employment was not problematic in the current sample. There was also no significant differences between Caregiver Burden scores based on the shift pattern of participants. Those who worked on night shifts demonstrated higher levels of caregiver burden. This information was collected based on the shift patterns of participants at T2. There were no significant mean scores dependent on shift pattern [t(124) = -.76, p = .45], although as most (n = 112) participants worked day shifts this is not particularly informative. Furthermore, there were no significant differences between those who did and did not complete measures at T2 in gender [t(196) = -.31, p = .53], age [t(196) = 1.06, p = .63] or ethnicity [t(196) = -.07, p = .94]. However, those who had worked longer as a Care Practitioner in general were more likely to complete their questionnaire at T2 [t(196) = 1.11, p = .008], although length of time working at the current organisation did not influence the likelihood of individuals completing the questionnaire pack at T2 [t(196) = 1.41, p = .07]. This suggests that those who had worked

as a Care Practitioner for longer were more likely to still be employed at T2. Additionally, prior to analyses being conducted, the correlations between the measures used in the current were calculated (see Table 7).

Table 7. Correlations between measures

Measure	1	2	3
1. Defeat Scale & Entrapment Scale	-	.462**	.778**
2. ZBI	.462**	-	.328**
3. CES-D	.778**	.328**	-

Note: ** demonstrates correlation is significant at p <.001 level

4.4.2 Regression Analyses

Regression analyses were conducted to investigate whether defeat and entrapment predicted changes in depression and caregiver burden. The basic analysis involved regressing the T2 score of the outcome variable (depression or caregiver burden), on its corresponding T1 score and the T1 combined defeat and entrapment score ($N = 128$). This analysis predicts the residual change in the outcome variable between T1 and T2. We used this method rather than calculating change scores, as these can be problematic when change between the average scores at baseline and subsequent time points varies between participants, as those with higher scores regress towards the mean score from the baseline time point, leading to misleading results (Hayes, 1988).

In the first analysis, we attempted to predict changes in caregiver burden from T1 combined defeat and entrapment, controlling for T1 caregiver burden. The basic model for caregiver burden was significant ($R^2 = .10$, $F(1, 123) = 13.98$, $p < .001$) with T1 caregiver burden being a significant predictor of T2 caregiver burden scores ($\beta = .47$, $t(123) = 5.37$, $p < .001$) , and critically T1 defeat and entrapment additionally predicting changes in caregiver burden ($\beta = .32$, $t(123) = 3.78$, $p < .001$), although this no longer remained

significant when controlling for T1 Caregiver Burden score (see Table 8).

Table 8. Hierarchical regression of T2 Caregiver Burden on T1 Caregiver Burden and T1 combined defeat and entrapment

Variable		β	$SE(\beta)$	ΔR_2
Step 1				.30**
	Defeat and entrapment	.30*	.05	
Step 2				.56**
	Defeat and entrapment	.01	.05	
	Caregiver Burden	.55**	.09	

Note: * represents p <.05, ** represents <.001

In the second analysis, we attempted to predict changes in depression from T1 defeat and entrapment, controlling for T1 depression. The basic model for depression was also significant (R^2 = .22, $F(1, 123) = 35.53$, p <.001)) with T1 depression scores predicting T2 depression scores (β = .34, $t(123) = 3.41$, p = .001).. Importantly, T1 combined defeat and entrapment predicting changes in depression (β = .48, $t(123) = 5.95$, p = <.001), although as above, in the second step, T1 combined defeat and entrapment was no longer a significant predictor of T2 depression (see Table 9).

Table 9. Hierarchical regression of T2 depression on T1 depression and T1 combined defeat and entrapment

Variable		β	$SE(\beta)$	ΔR_2
Step 1				.44**
	Defeat and entrapment	.44**	.05	
Step 2				.52**
	Defeat and entrapment	.16	.06	
	Depression	.39**	.13	

Note: ** represents <.001

4.4.3 Combined defeat and entrapment as a mediating variable in the relationship between depression and caregiver burden

To test whether combined defeat and entrapment was a mediating variable in the relationship between depression and caregiver burden, the steps of Baron and Kenny (1986) were followed. Firstly, a regression analysis was conducted to confirm that the predictive variable (depression) was associated with the outcome variable (caregiver burden). The basic model was significant (R^2 = .53, $F(1, 123) = 22.52$, $p < .001$) with T1 caregiver burden scores predicting T2 caregiver burden scores ($\beta = .48$, $t(123) = 5.82$, $p < .001$), showing some stability of the construct. Importantly, T1 depression significantly predicted changes in T2 caregiver burden ($\beta = .28$, $t(123) = 3.20$, $p = .002$). Secondly, a regression analysis was conducted to confirm that the predictive variable (depression) was associated with the potential mediating variable (combined defeat and entrapment). This demonstrated that T1 depression was significantly associated with combined T1 defeat and entrapment ($\beta = .70$, $t(123) = 13.50$, $p < .001$). Finally, a regression analysis was conducted to establish whether the predictive variable (depression) remained significantly associated with the outcome variable (caregiver burden), when the mediating variable (combined defeat and entrapment) was controlled for. A regression analysis demonstrated that when combined defeat and entrapment was controlled for, depression was no longer a significant predictor of changes in caregiver burden ($\beta = .12$, $t(123) = 1.10$, $p > .05$), whereas combined defeat and entrapment was a significant predictor of changes in caregiver burden ($\beta = .24$, $t(123) = 2.16$, $p < .05$). Additionally, the Sobel test (Sobel, 1982), which tests the significance of a mediation effect in a relationship, was used to demonstrate that the indirect path implied by the diagram was significant. Specifically, this stated that the relationship between depression and caregiver burden was significantly decreased when controlling for defeat and entrapment (Sobel = 1.79, $p = .007$), suggesting that combined

defeat and entrapment have an influence on the relationship between depression and caregiver burden, however the original relationship remained significant. Overall, these analyses demonstrate that combined defeat and entrapment acts as a partial mediator in the relationship between depression and subsequent caregiver burden (see Figure 8). Partial mediation exists where there remains a significant direct relationship between variables even when the mediating variable is included, as observed here (Rucker, Preacher, Tormala, & Petty, 2011).

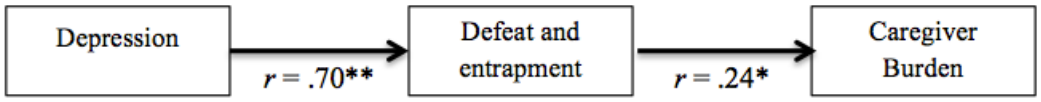


Figure 8. Diagrammatic overview of the relationship between depression, combined defeat and entrapment, and caregiver burden. Note: * denotes relationship significant at the $p < .05$ level, ** denotes relationship significant at the $p < .001$ level.

4.4.4 Direction of the relationship between combined defeat and entrapment and mental health problems

As some previous research has demonstrated a bidirectional relationship between defeat, entrapment and mental health outcomes within community and clinical samples (Griffiths et al., 2014; Taylor et al., 2010a), whilst other research has demonstrated that the relationship operates in a single direction with defeat and entrapment predicting mental health outcomes (Taylor et al., 2011b), additional analyses were conducted to establish whether feelings associated with caregiver burden and depression at T1 predicted perceptions of defeat and entrapment at T2. To test this, a regression analysis was conducted to test whether T1 depression and caregiver burden scores predicted T2 defeat and entrapment scores.

The analysis demonstrated that the bidirectional relationship was not observed

among this sample. The overall model was significant (R^2 = .09, F(3, 114) = 3.91, p = .01). As expected, T1 defeat and entrapment was a significant predictor of T2 defeat and entrapment (β = .39, t(123) = 3.00, p = .003). However neither T1 caregiver burden (β = .05, t(123) = .51, p > .05) nor depression (β = .09, t(123) = .79, p >.05) predicted changes in defeat and entrapment. This demonstrates that the experience of caregiver burden and depression at T1 is not associated with increases of defeat and entrapment at T2.

4.4.5 Intention to Treat Analysis

Due to the high attrition rate amongst this sample (38%), an intention to treat analysis was conducted to establish whether this had led to biased findings. Intention to treat analysis (ITT) resolves issues associated with participants who are lost to follow-up and provides an estimate of results had all participants completed every time point (Hollis & Campbell, 1999). Whereas, withdrawal from research usually results in an individual being excluded from analysis, ITT allows imputation of predicted outcome values. Outcome (T2) data is imputed based on the previous scores of an individual, using the last available data point and carrying it forward to any future data points (Mazumdar, Liu Houck, & Reynolds, 1999). The highly conservative assumption is thus made that every participant who dropped out did not have any longitudinal relationships between the variables, and that each participant's inclusion would have counted against the hypothesis were they included. Within this study, T1 scores were replicated for T2 where required. Regression analyses identical to those above were conducted to investigate whether combined defeat and entrapment predicted changes in depression and caregiver burden.

The basic model for caregiver burden was significant (R^2 = .13, F(1, 193) = 28.82, p < .001) with T1 caregiver burden scores a significant predictor of T2 caregiver burden scores (β = .67, t(192) = 11.25, p <.001), again demonstrating that the construct has stability across 12 months. Crucially, T1 defeat and entrapment predicted changes in caregiver burden (β = .36, t(193) = 5.37, p < .001). The basic model for depression was also significant (R^2 = .35, F(1, 192) = 103.30, p <.001) with T1 depression scores

remaining a significant predictor of T2 depression scores (β = .57, t(191) = 8.18, p < .001). Importantly, T1 defeat and entrapment significantly predicted changes in depression (β = .59, t(192) = 10.15, p = <.001). These two analyses demonstrated that participant dropout did not affect the prospective role of defeat and entrapment in predicting depression and caregiver burden. We also re-ran the test of mediation with the same results; the Sobel test, remained significant (Sobel = 6.37, p <.001).

4.5 Discussion

This study provided the first application of defeat and entrapment to a health care setting, and also the first longitudinal evidence that defeat and entrapment impact on mental health in an occupational setting. The results of this study demonstrated that perceptions of defeat and entrapment were associated with increases in caregiver burden and depression twelve months later. This provides the first evidence that perceptions of defeat and entrapment are relevant within an occupational setting, demonstrating the need for organizations to be aware of their impact for employees. The results of this study support previous research that has demonstrated a link between entrapment and depression (Martin et al., 2006; Willner & Goldstein, 2001), and defeat and depression (Willner & Goldstein, 2001), in samples of informal caregivers. Therefore the current study expands the research area by providing the first longitudinal evidence of factors that can predict negative outcomes, specifically depression and caregiver burden, within formal caregivers. These findings suggest that education and training about the early warning signs of negative outcomes that may predict caregiver burden or burnout, for example defeat and entrapment, would help to identify individuals at risk of experiencing mental health problems.

Additionally, this study demonstrated that depression and caregiver burden were significantly related, supporting evidence that the two constructs share similarities in symptoms, such as feelings of exhaustion and failure (Maslach & Jackson, 1986).

However, the findings also demonstrated that combined defeat and entrapment partially mediated this relationship, as when this variable was controlled for, the original relationship did not remain significant. This is consistent with evidence that defeat and entrapment mediates the relationship between stress and depression amongst mothers caring for individuals with learning disabilities (Willner & Goldstein, 2001), between positive symptoms of psychosis and suicidal ideation (Taylor et al., 2010b) and between symptoms of PTSD and suicidal behaviour (Panagioti et al., 2012c). This supports the 'depressogenic loop' theory proposed by Taylor et al. (2011a), which purports that perceptions of defeat and entrapment influence the experience of the cognitive/affective symptoms of depression, such as feelings of inferiority and negative affect. This suggests that defeat and entrapment may play a key role in the experience of depression amongst formal caregivers and more generally for individuals within the workplace and also demonstrates the possibility that they could be used alongside more established indicators, such as depression, to help identify those most at risk of developing caregiver burden or burnout.

The findings of this research may be particularly relevant within the social care sector, where average annual staff turnover rates are thought to be between 40% and 75% (Cohen-Mansfield, 1997), a number that is still increasing (Centre for Workforce Intelligence, 2013), and staff members are at elevated risk of developing stress and work related illnesses (Testad et al., 2010). Furthermore, staff who have received the least education and training have been shown to be at the highest risk of experiencing burnout (Edvardsson et al., 2009), suggesting that education and training may have a direct effect on the experience of burnout. Training interventions have previously been shown to reduce burden, stress levels and staff turnover rates (e.g. Magai, Cohen, & Gomberg, 2002; McCabe, Davison, & George, 2007).

Employers should consider how to structure working environments to reduce the tendency for challenges at work to be perceived by employees as defeating and entrapping.

This would promote the likelihood of employees seeing direct pathways out of difficulty, to reduce the likelihood of mental health problems being experienced and increase employee motivation. Individuals who feel entrapped in their role are known to frequently leave their role in order to face new challenges in other companies (Nohria, Groysberg, & Lee, 2008). Therefore ensuring that all employees feel that they are making a meaningful contribution towards the company can increase employee motivation. For example individuals are likely to be motivated by roles that provide challenges and enable growth and continual learning (Nohria et al., 2008). Therefore by ensuring that all employees maintain motivation, through systems such as reward, feedback, collaboration and effective performance management (Nohria et al., 2008), employees should be less likely to experience perceptions of defeat and entrapment. This is supported by evidence that feeling trapped and worthless are associated with an increased likelihood to leave a role, whilst perceptions of clarity on how the reward system is associated with job performance alongside an understanding of how the employer aims to develop employees' skills are associated with motivation (Mak & Sockel, 2001).

In contrast to previous research that has demonstrated a bidirectional relationship between defeat and entrapment and poor mental health (e.g. Griffiths et al. 2014; Taylor et al., 2010a), we demonstrated a linear relationship between these factors. Defeat and entrapment predicted caregiver burden and depression, however this relationship was not found to operate in the reverse direction. This suggests that amongst formal caregivers, the experience of perceptions of defeat and entrapment may be a key predictor of the subsequent experience of caregiver burden. Specifically individuals may become entrapped in a role or career as they feel that they have invested too much to leave, despite the experience of low pay offs and high stress levels (Gilbert et al., 2004a; Leahy, 2000). This may be expected due to suggestions that burnout and caregiver burden develop over time (e.g. Brodaty, Draper, & Low, 2003), and could result from feelings of entrapment within a job role.

However, there are several limitations associated with this research. Firstly, although this research was longitudinal, we only measured caregiver outcomes at two time-points. Although, as this research was exploratory in nature, the demonstration of an initial relationship between defeat, entrapment and subsequent caregiver mental health provides a strong basis for further work to be conducted, measuring these outcomes at several time points. This would allow a greater understanding of how defeat and entrapment influence the development and maintenance of caregiver burden and mental health problems amongst formal caregivers.

Secondly, participants in this study completed subjective self-report measures. Future research should consider using face-to-face interviews as an additional form of measurement to gain a greater understanding of the experience of caregiver burden and how this affects the care provided to residents within care homes. Research could also collect measures from caregivers and the residents that they care for, in order to provide a direct measure of how caregiver mental health affects the day-to-day quality of care and quality of life for residents. For example, previous research has demonstrated that low depression and anxiety amongst care staff correlated with higher quality of life for residents with dementia in care homes (Hoe, Hancock, Livingston, & Orrell, 2006).

Additionally, there was a retention rate of 64% within this study. Although a higher attrition rate was expected than would typically be seen in a study of this nature, due to the high staff turnover within social care settings (Centre for Workforce Intelligence, 2013), this may lead to conclusions being drawn from individuals that do not represent the sample recruited at the first time point (Amico, 2009). Amico (2009) suggested that a minimum retention rate of 60% of participants demonstrates acceptable levels, although detail needs to be provided to understand why individuals did not complete the study. Therefore, although we obtained the required retention rate, we also provided information regarding the reasons participants did not complete questionnaires at the second time point. Critically, we also showed that attrition did not affect the results; the missing data was

"missing completely at random", and when we used a conservative intention to treat analysis (assuming that if every participant had been retained, each would have counted against our hypotheses), the results remained significant.

The current study provided the first evidence of a link between defeat, entrapment and negative aspects of well-being in care staff within a single care organization from North Wales. However it is also one of the first empirical studies to consider the well-being of care staff in the United Kingdom. Currently, a small amount of research has been conducted in different countries (e.g. Italy, Sweden and the USA; Pitfield et al., 2011), meaning that it is difficult to generalize these findings across countries where the care sectors may operate differently. Collaborative research needs to be conducted cross-culturally, to establish whether different structures and procedures within care sectors affect health outcomes for care providers.

There are several avenues for future research that have arisen from the current study. Data was collected for this study from care staff working in group living and traditional homes. Care staff working within group living homes have been shown to report lower burnout and higher job satisfaction than individuals who work in traditional care homes (Boekhorst et al., 2008). Therefore, future research should make direct comparisons between these two living styles of care homes, in order to establish whether one format is associated with significantly higher staff well-being, which would be expected to lead to better care for residents and could be used to inform the design of the layout of future care homes and renovations of current care homes.

Secondly, we demonstrated that the relationship between defeat, entrapment and poor health outcomes for caregivers operates across a period of 12 months. Studying this within different time frames would provide a clearer evaluation of how this process develops and may change over time. The current research contrasts previous evidence that has suggested that defeat and entrapment influence mental health problems, but that the experience of mental health problems also predicts increases of perceptions of defeat and

entrapment (e.g. Griffiths et al., 2014). However, regardless of whether the relationship is also shown to operate in the reverse direction, defeat and entrapment should be viewed as key factors in the development of caregiver burden.

Furthermore, we did not investigate how defeat, entrapment and caregiver burden affect outcomes for residents as we only collected staff measures. It has previously been suggested that psychological stress can lead to poor care for residents (von Dras, Flittner, Malcore, & Pouliot, 2009) and staff generally perceive residents in a negative way (Brodaty et al., 2003). Future research should now investigate how caregiver burden impacts on the care of residents on a longitudinal basis.

These findings have specific implications for care organizations as we demonstrated that shift pattern and the length of time that individuals have been employed to provide care can affect whether they experience caregiver burden. This suggests that organizations could consider offering alternative shift patterns or where possible employment within another home for individuals who report poor mental health, as this may help to reduce the likelihood of caregiver burden being experienced. This could also be generalized to a range of occupational settings, whereby shift patterns and work environments may impact on mental health, as the findings suggest that defeat and entrapment influence mental health for employees in the same way as individuals with specific mental health diagnoses (e.g. Taylor et al., 2010a), and also individuals from areas of socio-economic deprivation (e.g. Griffiths et al., 2014). However, research now needs to be conducted within other occupational settings to establish whether defeat and entrapment could reduce sickness absence and turnover, factors that represent a substantial burden to organizations (Centre for Workforce Intelligence, 2013).

In conclusion we demonstrated that self-reported perceptions of defeat and entrapment predicted feelings of caregiver burden and depression 12 months later in a sample of formal caregivers. These results are particularly relevant to the social care sector, where there are elevated risks of staff experiencing work and stress related illnesses

(Testad et al., 2010), as well as a high turnover of staff. The results also have implications for improving education and training about the potential negative outcomes that can affect caregivers, and future research should consider how caregiver burden affects the quality of care received by residents.

CHAPTER 5

5 The Relationship between Defeat, Entrapment and Reward Sensitivity.

5.1 Abstract

Adaptive decisions and responses to changing environments are crucial for survival. However, the experience of mental health problems is thought to affect the process of decision-making process and influence responses toward rewards and punishments. There is evidence that defeat and entrapment are implicated in the etiology and maintenance of mental health problems (e.g. Taylor et al., 2011a). These factors are likely to affect how individuals respond to future problems, as well as affecting reward sensitivity and decision making of individuals. Participants (N = 100) were recruited from the University of Manchester, and completed measures of defeat, entrapment, depression and anxiety. Participants also completed a computerised version of the Iowa Gambling Task (IGT). Results demonstrated that combined defeat and entrapment was not associated with performance on the IGT. As this study provided the first application of defeat and entrapment to a behavioural task, there may be sample and methodological issues that need to be considered before future research is conducted. A greater understanding of how defeat and entrapment impact on mental health problems may help their application within therapeutic interventions.

5.2 Introduction

The ability to make advantageous decisions and adapt to changing situations based on the outcomes of previous decisions is vital for survival in a social world (Soares et al., 2012). Mental health problems, such as depression, can affect the way in which individuals process rewards and punishments (Eshel & Roiser, 2010), and therefore affect the decision-making process and also the value placed on different outcomes. For example, depressive mood and anxiety affect the ability of individuals to process information effectively and systematically, as depressed individuals are biased towards loss of rewards, whereas anxious individuals are biased towards the risk or threat that is related to decisions they may make (Gotlib et al., 2004). However, research investigating reward sensitivity and decision making amongst individuals with mental health problems has led to conflicting findings, therefore there may be underlying transdiagnostic processes that vary across individuals and affect their decision-making, accounting for these observed differences.

5.2.1 The relationship between defeat, entrapment and mental health

Two factors that are thought be implicated in the etiology of mental health problems are defeat and entrapment. These concepts were originally developed from evolutionary theories of depression (Gilbert, 2001). Defeat has been defined as perceived feelings of a failed struggle related to the loss of identity of social status for the individual, whilst entrapment is a perceived inability of there being available escape routes or ways to move forward from the defeating situation (Gilbert & Allan, 1998). Taylor and colleagues (2011a) proposed that the two constructs occur in a "depressogenic loop" and influence each other. Initially stressors trigger perceptions of defeat that lead to feelings of entrapment if the situation cannot be resolved or escaped from. Feelings of entrapment then maintain the initial defeat and this process repeats, forming a continuous cycle that can result in psychopathological outcomes. Depression and anxiety occur in humans to a

greater degree in defeating and entrapping situations (Gilbert & Allan, 1998) and research has demonstrated a consistent relationship between these factors (see Taylor et al., 2011a for a review). As these factors are likely to affect how individuals respond to future difficulties, it is thought that feeling trapped in a situation with no available escape routes might affect decision making abilities and sensitivity towards rewards. In turn, this could influence the likelihood of individuals experiencing mental health problems. Furthermore, depression and anxiety have been shown to predict levels of defeat and entrapment twelve months later (Griffiths et al., 2014), suggesting that individuals with mental health problems may be more vulnerable to defeating and entrapping experiences.

5.2.2 Testing reward sensitivity

Reward sensitivity can be tested within the lab using the Iowa Gambling Task (IGT; Bechara et al., 1994), a task that requires participants to make selections from four decks of cards (A, B, C and D) and simulates real-life decision-making. Card selections from these decks always result in a monetary reward and also unpredictable punishments. Selections from decks B and D lead to large immediate rewards but also long-term losses and are considered to be disadvantageous decks. Selections from decks A and C lead to smaller immediate rewards but also smaller long term losses, making them advantageous decks overall, as they lead to overall gains. Initially on the IGT, all card selections result in rewards without any punishments, making the disadvantageous decks appear to be advantageous. As these decks become punishing, participants' must shift their card selection preference to the advantageous decks to gain money. This change of preference requires inhibition of response to the disadvantageous decks that were initially seen as highly rewarding, and increased response towards the advantageous decks that are seen as less rewarding (Bechara et al., 2000). This task was originally developed to test the decision-making deficits observed in patients with damage to their prefrontal cortex (Bechara et al., 1994), who typically develop impairments in decision-making associated with insensitivity towards future consequences. Therefore, such individuals continuously

make disadvantageous selections on the IGT, as they are guided only by the immediate prospects of decisions (Bechara et al., 1994), and are unable to shift their preferences away from the disadvantageous decks when they become punishing.

5.2.3 The relationship between reward sensitivity and mental health

Recently, research has examined how mental health influences reward sensitivity and decision-making, using the IGT. Adults experiencing depression showed enhanced sensitivity towards future consequences as they chose less cards from disadvantageous decks on the IGT and won more money on the task than healthy controls. This could suggest that they are more risk aversive and highly sensitive to future outcomes than individuals who are not experiencing depression (Smoski et al., 2008). However in contrast, research has also found that individuals with major depressive disorder failed to learn to perform advantageously on the IGT and consistently chose from the disadvantageous decks (Must et al., 2006). This could suggest that participants were highly sensitised to reward regardless of how this may impact future outcomes, and were also not influenced by large punishments (Must et al., 2006). These contrasting findings could be due to individuals with depression showing maladaptive responses to punishment, rather than being highly sensitised towards reward or future outcomes, and this is potentially influenced by comorbidity with other mental health problems. Overall, depressed participants appear to perform poorly following punishment, suggesting that they are highly sensitised towards punishment but they are unable to utilise the feedback to improve their performance (Eshel & Roiser, 2010). Depressed participants are more likely to continue to make selections on the IGT associated with the highest rewards regardless of the punishments associated with these selections. This would promote a strategy of disadvantageous decision-making on the IGT, as decks associated with highest rewards are also associated with the highest punishments, but depressed individuals appear to be unable to act in a long-term manner and instead focus on the immediate gains (Mueller et al., 2010).

Research has also considered the IGT performance of individuals with Generalized Anxiety Disorder (GAD), a disorder characterised by high levels of chronic anxiety and has demonstrated that individuals with GAD are likely to be highly sensitised towards future experiences and cues that may predict rewards and punishments (Mueller et al., 2010). Individuals with GAD show heightened performance on the IGT as they learned to avoid card selections associated with high future losses more quickly and effectively than control participants. This suggests that individuals with GAD have a heightened sensitivity towards unpredictable punishments, providing them with more realistic expectations regarding future losses (Mueller et al., 2010) and resulting in less risky decision-making behaviour. However, in contrast Miu and colleagues (2008) demonstrated that individuals with high trait anxiety showed impaired performance on the IGT, indicating that anxious people might focus only on the rewards within the task, rather than the uncertain punishments. As highly anxious individuals are likely to focus on reducing feelings of uncertainty and increasing their level of control over a situation (Raghunathan & Pham, 1999), this may lead to disadvantageous performance on the IGT as highly rewarding decks, that may appear as certain to lead to large rewards, are also highly punishing.

The findings summarised so far are not specific to clinical samples of people with a diagnosis of mental health problems. Research in non-clinical samples has demonstrated that general low mood also affects decision-making and alters individuals' perception of risk. Suhr and Tsanadis (2007) showed that undergraduate students who experienced higher negative mood showed a more risky performance on IGT. Although, it is unclear from the results whether the performance of participants with negative affect was significantly more disadvantageous and resulted in fewer winnings on the task than participants with positive affect. In contrast, Peters and Slovic (2000) found that high negative affect was associated with more advantageous performance and fewer selections from decks associated with high punishments, suggesting that negative affect sensitised participants towards punishment and loss during the task.

In sum, conflicting evidence regarding the relationship between mental health and decision-making has been found. This is potentially explained by contrasting goals by individuals with different forms of mental health problems, as anxious individuals are focused on reducing feelings of uncertainty, whereas individuals with negative affect are more focused on reward seeking (Raghunathan & Pham, 1999). However these specific goals may influence individuals' performance in either positive or negative ways dependent on the levels of anxiety or negative affect being experienced. Therefore factors such as defeat and entrapment, which are associated with and precede negative affect and mental health problems such as anxiety and depression, are expected to influence participants' decision-making, as they are known to influence the goals that individuals strive for (e.g. Rohde, 2001). Furthermore, theories considering the role of defeat and entrapment within suicide have proposed that experiencing perceptions of defeat and entrapment has a negative influence on the problem solving skills of individuals (e.g. Williams & Pollock, 2001; Johnson et al., 2008b). Therefore, it would be expected that experiencing perceptions of defeat and entrapment would lead to maladaptive sensitivity towards to rewards, as they are thought to downgrade reward systems and influence an inability to experience pleasure (Gilbert, 2000b).

The current study is the first to examine the impact of defeat and entrapment on decision-making and reward sensitivity using a behavioural task. As previous research has demonstrated that the experience of mental health problems can affect decision-making and reward sensitivity, it is hypothesised that individuals experiencing higher levels of defeat and entrapment will show greater impairment in performance on the Iowa Gambling Task. In this study individuals with higher levels of defeat and entrapment are expected to experience more desensitisation towards future outcomes and punishment. This is expected as they are likely to feel trapped in an inescapable situation and therefore will fail to learn to avoid the disadvantageous decks and consistently make selections from these decks. Additionally it is thought that when the initially rewarding decks become punishing, it is

expected that individuals with higher defeat and entrapment will be less adaptive in their strategy to improve their performance, resulting in poor performance on the task.

5.3 Method

5.3.1 Participants

One hundred undergraduate students (age range 18 – 30 years; M = 19.46, SD = 1.58) were recruited from a research participant pool at the University of Manchester, England. Students participated in exchange for course credit. The majority of participants described themselves as White British (77%) or Asian (14%). Participants were recruited on the basis that they had not previously participated in any experiment involving the Iowa Gambling Task (IGT) to avoid practice effects. The majority of participants were female (86.5%). Before participating, potential participants were screened to ensure that they had not previously been diagnosed with a schizophrenic disorder or depressive disorder, neurological damage or a serious head injury (Turnbull, Bowman, & Evans, n.d.; see Appendix V), as these would be likely to affect performance on the IGT. No exclusions were required on the basis of neurological history. Prior to this study being conducted, ethical approval for this research was obtained from the University of Manchester ethics committee.

Information was also collected about the current and past gambling activities of participants. This demonstrated that the current gambling activities of participants ranged from 0 – 2 times per week, and the amount spent ranged from £0 - £5 per week. The previous gambling activities of participants ranged from 0 – 5 times per week, and the amount spent ranged from £0 to £100. Before data analysis, we screened for outliers based on performance on the task in relation to previous gambling activities.

5.3.2 Measures

Participants completed self-report questionnaires measuring defeat, entrapment, depression and anxiety. The *Defeat Scale* (Gilbert & Allan, 1998) consisted of 16

questions assessing the prevalence individuals of have of rank position losses and failed struggle during the past seven days (e.g., "I feel defeated by life"). Items were rated on a five-point scale ranging from 0 to 4, where higher scores indicated feelings of more defeat. The *Entrapment Scale* (Gilbert & Allan, 1998) also consisted of 16 questions designed to assess the escape motivation of individuals (e.g., "I am in a situation I feel trapped in"). Items were rated on a five-point scale ranging from 0 to 4, with higher scores indicating feelings of more entrapment. Based on previous research demonstrating that defeat and entrapment should be conceptualised as a single construct (Griffiths et al., 2014; Taylor et al., 2009), an overall score was computed for each scale by summing all responses. Both scales have demonstrated moderate concurrent validity, as they correlate with submissive behaviour and hopelessness, r =.34, .65 (Gilbert & Allan, 1998). The scales have additionally been shown to have high internal consistency of between α = .88 and α = .93 for the *Entrapment Scale,* and between α = .93 and α = .94 for the *Defeat Scale* (Gilbert & Allan, 1998) with samples of students and individuals with depression. In the current study, the scales demonstrated high internal consistency with Cronbach's alphas of α =.88 for the Defeat Scale and α =.95 for the Entrapment Scale. The mean scores on the scales were low, as would be expected for a non-clinical sample (Defeat M = 17.45, SD = 7.94, Entrapment M = 10.39, SD = 11.52).

Depression was measured using the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977). This scale consisted of 20 items, and was developed to measure depressive symptoms amongst the general population. Participants rated how often they had experienced different feelings during the past week (e.g., "I had trouble keeping my mind on what I was doing"), on a four-point scale from 0 (rarely or none of the time) to 3 (most or all of the time). An overall score was calculated by summing each participant's responses with a maximum possible score of 60. Scores of 16-26 represented mild depression whilst scores of 27 and above represented major depression. The scale has been shown to have high sensitivity (92%) and specificity (87%) to a clinical assessment of

depression when using a cut-off of 21 (Lyness et al., 1997). The scale has also been shown to have high internal consistency of α = .84 (Radloff, 1977) to α = .91 (Gilbert & Allan, 1998). In the current study, the scale was shown to have high internal consistency of α = .89, with a low mean as would be expected for a sample of undergraduate students (M = 13.02, SD = 8.43).

Anxiety was measured using the *General Anxiety Disorder* Q*uestionnaire* (GAD-7; Spitzer et al., 2006). This questionnaire measures symptoms of anxiety and asks participants "Over the last two weeks, how often have you been bothered by any of the following problems?" Example problems include "trouble relaxing" and "feeling nervous, anxious or on edge". Statements are rated on a Likert scale ranging from 0 (not at all) to 3 (nearly every day). The scale has been shown to have high sensitivity (89%) and specificity (82%) to a structured psychiatric interview assessing anxiety when using a cut-off of 10 (Spitzer et al., 2006). In the current study, the scale was shown to have internal consistency of α = .86, with a low mean as would be expected for a sample of undergraduate students (M = 4.98, SD = 4.19).

5.3.3 Procedure

After completion of the questionnaire pack, a computerised version of the Iowa Gambling Task was administered, using the 'Real Money' condition (See Appendix VI). In this condition participants received computerised rewards of five or ten pence per card selection, up to a task maximum of £4. Participants were required to make 100 selections from four decks of cards – A, B, C and D and a maximum of 60 selections could be made from each deck. Each card selection resulted in a monetary reward, but could also result in an unpredictable monetary punishment. The first two decks of cards (A and B) were disadvantageous overall, as if participants consistently selected from these decks they resulted in overall losses, and the second two (C and D) were advantageous overall, as the majority of selections being made from these decks lead to overall gains. Although rewards

were given for every card selection, unpredictable punishments of 1/10 for decks A and C, 5/10 for decks B and D lead to an overall loss of 25 pence per 10 selections from disadvantageous decks, and an overall gain of 25 pence per 10 selections from advantageous decks.

5.4 Results

5.4.1 Preliminary Analyses

Data were examined for normal distribution. A Kolmogorov-Smirnov test was conducted which was significant for the variables of interest; combined defeat and entrapment ($p < .05$), demonstrating that the data significantly deviated from normality. Prior to analysis, a square root data transformation was performed, with the aim of normalising the data. Following this transformation, a further Kolmogorov-Smirnov test was conducted, which was non-significant for all variables ($p > .05$), demonstrating that the data was normally distributed. Correlations between the measures collected in the current study were calculated prior to analyses being conducted (see Table 10).

Missing value analysis was also conducted to establish if any patterns existed within missing data. To establish whether imputation of missing data was necessary, the Missing Completely At Random test was used (MCAR; Little, 1998). This test was non-significant; indicating that missing data was missing completely at random and that imputation of missing data was not necessary.

Table 10. Correlations between measures

Measure	1	2	3
1. Defeat Scale & Entrapment Scale	-	.801**	.007
2. CES-D	.801**	-	.015
3. GAS	.007	.015	-

Note: ** demonstrates correlation is significant at $p < .001$ level

5.4.2 Behavioural Performance on the Iowa Gambling Task

Regression analyses were conducted to investigate whether defeat and entrapment predicted performance on the IGT. Higher scores on the IGT represent greater reward sensitivity, indicating that fewer selections were made from decks associated with punishment. The basic analysis involved regressing the overall IGT score, on the combined defeat and entrapment score. This demonstrated that a non-significant relationship between defeat and entrapment and performance on the IGT (R^2 = .02, F(1, 96) = .04, p > .05, η_2 = .02).

As a non-significant relationship was demonstrated between combined defeat and entrapment and performance on the IGT, regression analyses were also conducted to investigate whether depression and anxiety were associated with IGT performance. No significant association was found between depression and performance on the IGT (R^2 = .02, F(1, 99) = 1.61, p > .05, η_2 = .13), suggesting that the depression scores of individuals' did not affect their performance on the IGT. However anxiety scores were not associated with performance on the IGT (R^2 = .03, F(1, 99) = 3.80, p >.05, η_2 = .19).

5.4.3 The relationship between combined defeat and entrapment, depression and anxiety

Following the non-significant relationships demonstrated between IGT performance and combined defeat and entrapment, depression, and anxiety, regression analyses were conducted to identify whether the well-established relationship between combined defeat and entrapment and mental health problems (i.e. depression and anxiety) was present within the current study. It was expected that as neither depression nor anxiety were associated with performance on the IGT, contrasting previous evidence, neither depression nor anxiety would be associated with scores of defeat and entrapment.

The regression analyses demonstrated that combined defeat and entrapment scores were associated with depression (R^2 = .64, F(1, 99) = 177.57, p < .001, η_2 = .80). However,

combined defeat and entrapment scores were not associated with anxiety (R^2 = -.01, F(1, 99) = .05, p >.05, η_2 = .01).

5.5 Discussion

The results demonstrated a non-significant relationship between combined defeat and entrapment and performance on the Iowa Gambling Task (IGT), or anxiety and performance on the IGT. This did not support the hypothesis that individuals who were experiencing higher levels of defeat and entrapment would show greater impairment in performance on the Iowa Gambling Task. Additionally, no relationships were found between either depression or anxiety and performance on the IGT. The non-significant relationship found between defeat, entrapment and IGT performance might have arisen due to the generally low levels of defeat and entrapment within the sample, despite a large variation in performance on the IGT. Although there were large differences between participants on scores on the IGT, the defeat and entrapment scores were generally very low. There is some previous evidence that depressed individuals are biased towards loss of rewards (Gotlib et al., 2004) and therefore individuals within the current study with higher levels of depression might have focused specifically on the rewards that they could potentially gain, leading to better performance on the task. Whereas, anxious individuals are more likely to be biased towards the risk or threat that is related to decisions they may make (Gotlib et al., 2004), so individuals within this study with high scores for anxiety might have been focusing more on reducing the risks of their decisions rather than trying to establish a pattern that would lead to the largest rewards. Due to the general low levels of depression and anxiety within the sample, it may be that participants attempted to use both of these strategies simultaneously, leading to subsequent poor performance on the IGT.

Previous research investigating the impact of negative mood on IGT performance has demonstrated conflicting results. Suhr and Tsanadis (2007) found that participants showed poor and high-risk performance on the IGT, whereas Peters and Slovic (2000)

found that participants showed low risk performance. This suggests that factors associated with negative affect, such as defeat and entrapment, may affect performance in various ways dependent on other factors. This should be investigated in the future by using experimental techniques inducing feelings of defeat and considering how this affects reward sensitivity. This could follow the guidance of Johnson and colleagues (2011), by allocating participants to either success or failure conditions and using puzzles to induce either success or failure. One such task involves presenting three words to participants and asking them to provide a fourth word that is related to the three presented. For example, 'falling' 'actor' and 'dust' would be associated with the fourth word of 'star'. In the success condition, participants are presented with puzzles that are easier to solve and are also provided with a hint to the answer (Johnson et al., 2011). The use of this task has been shown to lead to significant increases in self-reported defeat and negative affect (Johnson et al., 2011) and therefore participation in this task before completion of the Iowa Gambling Task could help to identify whether inducing defeat has a direct impact on IGT performance.

Overall, there appears to be mixed evidence for the existence of, and direction of, relationships between mental health problems and reward sensitivity as measured by the Iowa Gambling Task. Therefore, future research could replicate the current study using alternative measures of decision-making and reward sensitivity. This would allow a greater understanding of whether the results found here arose due to task specific issues, or whether defeat and entrapment do not have any affect on decision-making or reward sensitivity, conflicting theoretical assumptions (Gilbert, 2000b). This may also be appropriate for anxiety, which was not related to either combined defeat and entrapment or IGT performance within the current study, contrasting expectations based on previous research (e.g. Taylor et al., 2011a; Miu et al., 2008).

The conducting of a systematic review of the observed relationships between mental health problems and IGT performance, considering the measures used and

populations from which samples were recruited could potentially help to identify why there are inconsistencies within the existing literature. For example, the relationship between anxiety problems and IGT performance has been shown to be particularly inconsistent within the existing literature (reference), however any differences between studies that did and did not observe a relationship are yet to be examined.

Alternatively, methods such as median split could be implemented to differentiate between individuals experiencing high and low perceptions of defeat and entrapment, as was used in one study investigating the impact of anxiety on IGT performance (Miu et al., 2008). In such an analysis, groups are defined by the top 50% of participants being labelled as 'high' on the relevant factor, and the bottom 50% being labelled as 'low'. However, there are issues associated with this method, as individuals with very similar scores can be grouped into separate groups resulting in a loss of information about individual differences (MacCallum, Zhang, Preacher, & Rucker, 2002), making this method not appropriate for work aiming to establish how individual differences affect performance on a task. Therefore, exploratory work is required to establish the most appropriate way of measuring defeat and entrapment in relation to processes that may be affected as a result of these perceptions.

There are several limitations in the current study. On the IGT, participants are only permitted to select a maximum of 60 times from each deck (out of 100 selections). Therefore potentially during the last 40 selections of the IGT participants may not be able to make selections from their preferred deck. This can, in effect, penalise individuals who learn to perform advantageously early on the task, as they have to make selections from decks that may not have been their first choice, potentially reducing their performance. This could be overcome in future research by allowing participants to select 100 cards from each deck.

As gender differences in performance on the IGT have been demonstrated, the sample recruited for this study may have influenced the findings, as the majority of

participants were female (86.5%). Both adult men (Reavis & Overman, 2001) and adolescent men (Overman, 2004) have been found to perform more advantageously on the IGT than women, as they consider long-term outcomes of decisions. However, adolescent females avoided decks that yield frequent punishments (A&C) rather than the explicitly disadvantageous decks (Hooper et al., 2004). Contrasting this research, women and men with higher levels of depression have both been shown to engage in less risky behaviour (Brewer & Olive, 2014), suggesting that differences do not exist between genders on sensitivity to rewards. Future research needs to establish whether such differences exist, which may begin to provide an understanding why contrasting results have been found within the current literature.

Furthermore, approximately 20% of participants do not learn to perform advantageously on the IGT (Bechara & Damasio, 2002), making more selections from disadvantageous decks across the entire task. This demonstrates the high variability of performance across individuals, which may account for the findings demonstrated within this study. A recent review of forty studies has supported these suggestions, demonstrating in all of these studies healthy participants did not always perform advantageously on the task (Steingroever, Wetzels, Hortsmann, Neumann, & Wagenmakers, 2013). However, there is currently no clear way of distinguishing between those participants who fail to learn to perform advantageously and those who perform in a similar way due to a biased sensitivity towards rewards.

The participants recruited for this study were undergraduate students. As outlined above, generally the defeat and entrapment scores of these individuals were very low, whilst there were still large variations in performance on the IGT. A repetition of this study recruiting a sample from a population who have experienced a large amount of negative life experiences, such as a sample from economically deprived areas or individuals with specific mental health diagnoses, would be likely to have larger variation in scores of defeat and entrapment. A greater range of defeat and entrapment scores might be more

likely to show differences in IGT performance.

The findings from this research provided the first application of the measurement of defeat and entrapment to a behavioural task. Although the results of this study did not provide evidence that defeat and entrapment impact on reward sensitivity through this mechanism, as there is very limited evidence as to whether there are any mechanisms that mediate the relationship between combined defeat and entrapment and subsequent mental health problems. This should be the focus on future research. Such research has potential applications for clinical settings, as a greater understanding of the mechanisms through which factors impact on mental health problems can help to focus and develop therapeutic interventions (Salkovskis, 2002).

Future research could test whether defeat and entrapment impact on factors such as reward sensitivity and rumination, that have consistently been shown to be related to mental health outcomes, are either directly related to defeat and entrapment, or mediate existing relationships. For example, recent evidence has demonstrated that brooding, a form of rumination, is implicated in the relationship between induced defeat and positive future thinking amongst undergraduate students (O'Connor & Williams, 2014). Future research should therefore consider the impact of defeat and entrapment on rumination for samples recruited from populations where a wide range of defeating and entrapping experiences are likely to have been experienced.

In conclusion, this research provided the first application of defeat and entrapment to a behavioural task. The results did not demonstrate a relationship between defeat, entrapment and reward sensitivity, as measured by performance on the IGT. This may be a result of the sample that was recruited, as participants generally experienced very low levels of defeat and entrapment. There are applications for increasing the understanding of mechanisms through which factors impact on mental health problems, to allow these mechanisms to be included in the formulation of therapeutic interventions.

CHAPTER 6

6 The Development of the Short Defeat and Entrapment Scale (SDES)

6.1 Abstract

Previous research has suggested that defeat (conceptualized as a failed social struggle) and entrapment (conceptualized as a perceived inability to escape from aversive situations) form a single construct that reliably predicts psychopathological outcomes in clinical and community settings. However, scales designed to measure defeat and entrapment measure the constructs separately, whereas recent research evidence suggests a single factor scale would be appropriate. Existing scales may also be too lengthy to have clinical utility. The present study developed and evaluated a short scale that measured both defeat and entrapment. Exploratory and confirmatory factor analysis demonstrated that defeat and entrapment were best defined by a single factor and eight items were selected that best represented this construct to form the scale. The scale has high internal consistency (α = .88 - .94), shows criterion validity with hopelessness (r = .45 - .93), incremental validity for caregiver burden when controlling for depression and positive symptoms of psychosis when controlling for hopelessness (β = .45 - .60) and excellent test-retest reliability using single measures absolute agreement Intra-Class Coefficients across 12 months (r_{icc} = .88 - .92) within four samples, respectively people with posttraumatic stress disorder, people with psychosis, care home employees and people from a community sample. The scale demonstrated known group validity through discrimination between clinical and non-clinical groups of participants. This scale could be implemented within therapeutic settings to help clinicians identify patients experiencing defeat and entrapment and incorporate these factors into their clinical assessment and case formulations for treatment.

Currently in press as: Griffiths, A. W., Wood, A. M., Maltby, J., Taylor, P. J., Panagioti, M., & Tai, S. (in press). The development of the Short Defeat and Entrapment Scale (SDES). *Psychological Assessment.*

6.2 Introduction

The concepts of defeat, representing a failed social struggle, and entrapment, representing a blocked motivation to escape from aversive situations (Gilbert & Allan, 1998), have been implicated in the development and maintenance of mental distress amongst individuals from clinical and non-clinical populations (Taylor et al., 2011a). Although initially viewed as separate concepts, most recent theory and research has conceptualised defeat and entrapment as a single construct encompassing feelings of failure without any escape routes (e.g. Taylor et al., 2009; Sturman, 2011). Taylor et al. (2011a) suggested that following an aversive event, defeat and entrapment form a self-reinforcing mechanism whereby the experience of one influences the other continuously, leading them to co-occur to such an extent that they cannot be separated. Johnson, Gooding, and Tarrier's (2008) model suggested that defeat and entrapment involve identical themes representing a biased appraisal of an aversive situation and a lack of escape options available to the individual, which precede psychopathological experiences and are thus best conceptualised as a single response to negative situations. Furthermore, Sturman (2011) proposed that the experiences of defeat and entrapment are overlapping sub-facets within the construct of involuntary subordination, which has been shown to influence the development of mental health problems. Each of these models view defeat and entrapment as a single construct that plays a transdiagnostic role in the development and maintenance of various psychopathological disorders.

6.2.1 The relationship between defeat, entrapment and mental health

Most previous research investigating the link between defeat, entrapment and mental health problems has used the 16-item *Defeat Scale* and the 16-item *Entrapment Scale*, which were developed separately to measure discrete constructs (Gilbert & Allan, 1998). A review of studies investigating defeat, entrapment and psychopathological distress by Taylor et al. (2011a), and a further literature search using key words of "defeat"

and “entrapment” in psychINFO for studies published between 2011 and 2013, found that 62% of studies used these scales to measure defeat and entrapment. Whilst the scales show very good reliability and validity, they correlate with each other very highly (e.g., r = .74, O’Connor et al., 2013, r = .83, Panagioti et al., 2012a; r = .85, Taylor et al., 2010a), suggesting that they are measuring a single construct. Several factor analyses have also been conducted using the items from both scales and have shown that a clear single factor emerges, which represents both the defeat and entrapment items (Griffiths et al., 2014; Sturman, 2011; Taylor et al., 2009). Correlations of this magnitude and results from factor analyses suggest that a single combined defeat and entrapment score should be formed when these factors are measured, as the two scales measure the same latent construct, and because it would be statistically inappropriate to conduct regression analysis, or other analyses, on two predictors that are correlated this highly. Indeed, some recent studies have chosen to use a combined defeat and entrapment score (e.g. Panagioti et al., 2012a), although the reliability and validity of this composite variable has not been fully explored.

Nevertheless, the *Defeat Scale* and *Entrapment Scale* – either as single or joint predictors – have shown strong cross-sectional and longitudinal relationships with outcome measures of mental health problems in clinical and non-clinical settings. On the basis of these results, a recent systematic review has suggested that defeat and entrapment form a fundamental transdiagnostic process that strongly relates to various aspects of mental distress amongst different populations (Taylor et al., 2011a). Defeat and entrapment have been shown to correlate with depression as measured by the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977) scores in student populations (r = .58, Allan & Gilbert, 2002; r = .64 - .73, Gilbert & Allan, 1998; r = .65 - .68; Gilbert et al., 2005; r = .72, Wyatt & Gilbert, 1998) and a population of informal caregivers (r = .63, Stommel, Given, & Given, 1990). Defeat and entrapment also correlated with depression as measured by scores on the *Beck Depression Scale* (BDI; Beck et al., 1961) in samples recruited from clinical settings (r = .84, Clare & Singh, 1994; r = .54 - .77, Gilbert &

Allan, 1998; *r* = .81 - .86, Panagioti et al., 2012a) and non-clinical settings (*r* = .70 - .74, Goldstein & Willner, 2002; *r* = .64 - .81, Troop & Baker, 2008; *r* = .71 - .77, Willner & Goldstein, 2001). Defeat and entrapment have been associated with suicidal ideation in clinical populations (*r* = .57 - .71, Rasmussen et al., 2010; *r* = .52 - .56, Taylor et al., 2010a) and non-clinical populations (*r* = .45 - .49, Taylor, Wood, Gooding, & Tarrier, 2010b; *r* = .60, Taylor et al., 2011b) and defeat also predicted the onset of psychosis in high-risk individuals (*r* =.45, Stowkowy & Addington, 2012). Furthermore, combined defeat and entrapment scores have been associated with suicidal behaviour within a population of individuals with PTSD as a single predictor (*r* = .75, Panagioti et al., 2012c). Entrapment has been associated with anxiety in non-clinical populations (*r* = .39 - .59, Gilbert et al, 2002; *r* = .71, Sturman & Mongrain, 2005) and also predicted depression in formerly depressed students after 16 months (*r* = .21; Sturman & Mongrain, 2008a). Scores of hopelessness, as measured by the *Beck Hopelessness Scale* (BHS; Beck, Weissman, Lester, & Trexler, 1974), have been shown to correlate with defeat and entrapment in individuals with schizophrenia spectrum disorders (*r* = .70 - .71, Taylor et al., 2010a), individuals with depression (*r* = .61- .65, Gilbert & Allan, 1998) and individuals with PTSD (*r* = .82 - .84, Panagioti et al., 2012a).

In summary, defeat and entrapment have been widely measured in mental health research, although there are suggestions that it would be preferable to measure both as a single construct. Further, there are suggestions that the lack of a short measurement tool is restricting research in the area as well as preventing the repeated and routine use of the measurement of defeat and entrapment within clinical settings, for initial case formulation or to measure the progress of clients during therapeutic interventions.

6.2.2 The measurement of defeat and entrapment

As outlined above, the majority of research measuring defeat and entrapment has measured these using the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998). However, recently in response to suggestions that defeat and entrapment should be

measured as a single construct, Sturman (2011) developed the *Involuntary Subordination Questionnaire* (ISQ), derived of items from the *Defeat Scale, Entrapment Scale, Social Comparison Scale* and *Submissive Behaviour Scale* (Gilbert & Allan 1998; Allan & Gilbert, 1995; Gilbert & Allan, 1995). Although this scale provides a broader overview of how individuals perceive their feelings in comparison to their perceptions of others, it also consists of 32 items and there remains a need for a briefer scale. Underlying the need for a short validated scale, several researchers have used shorter measures of defeat and entrapment that have not been validated, or have captured perceptions of defeat and entrapment through semi-structured interviews (e.g. O'Connor, 2003; Gilbert, Gilbert, & Sanghera, 2004b; Leblanc et al., 2004), possibly due to the participant burden of administering a 32-item scale. The increasing proliferation of multiple unvalidated short scales is problematic as each scale developed measures outcomes slightly differently, and without validation within several populations, it cannot be established which scale provides the most accurate representation of the construct (Streiner & Norman, 2008). Furthermore, despite the popularity Gilbert and Allan's (1998) scales, the use of separate scales may not be appropriate in light of research demonstrating that defeat and entrapment should be considered as one factor. As the existing short unvalidated scales for defeat and entrapment measure the constructs separately, we chose to develop a short single factor scale based on a combination of items from the *Defeat Scale* and *Entrapment Scale;* the most widely used and well validated of the measures currently available.

During recent years, demand for economy of measurement within clinical research has increased, as demonstrated by the increasing number of short psychological assessments being developed (Mühlan et al., 2008). As the priority within clinical settings is delivering effective therapeutic interventions rather than conducting research, shorter measures are particularly relevant to increasing the utility of health measures in these settings (Joyce et al., 2011). A shorter scale measuring defeat and entrapment could be used in therapeutic settings as a measure of progress during therapeutic treatment for

mental health problems, to distinguish changes in symptomology on a session-by-session basis. Such a use is indicated by the strong correlations between defeat, entrapment and mental health problems, as well as theoretical positions that see the construct as a key transdiagnostic factor underlying several disorders (Taylor et al., 2009; Siddaway et al., in press).

6.2.3 The current study

For the current study, participants were recruited from clinical and non-clinical settings. Although we expected all samples to include participants who were experiencing defeat and entrapment, based on previous work linking defeat and entrapment to mental health difficulties, we expected participants from both clinical groups to report higher levels of defeat and entrapment, as measured by the newly developed scale, than the non-clinical groups. These participants are more likely to experience problems with their mental health and well-being, and may feel entrapped by their distress, as well as defeated as a result of trying to cope with their symptoms. We predicted that participants experiencing psychosis would have the highest average scores on the scale, based on clinical severity and the percentage of participants with clinical diagnoses, as well as the high amount of stigma attached to having a diagnosis of a psychotic disorder, which may act as a barrier to recovery (Link, Struening, Nesse-Todd, Asmussen, & Phelan, 2001). Furthermore, defeat and entrapment related appraisals are specifically related to negative outcomes such as depression in those with schizophrenia-spectrum disorders (Birchwood et al., 1993) We expected the sample of individuals with PTSD to have the second highest average scores on the SDES based on the high comorbidity between PTSD and depression (Kessler, Chiu, Demler, & Walters, 2005), which has been consistently linked to defeat and entrapment. We expected the non-clinical samples to have lower scores of defeat and entrapment and this was tested by comparing scores on the newly developed scale across samples.

Within the current study, it was expected that caregiver burden, defined as the poor

physical and emotional health that results from excessive caregiving demands (Given et al., 1992) and a known occupational hazard of formal caregiving (Miyamoto, Tachimori, & Ito, 2010), would be predicted by the SDES above and beyond depression. It was also expected that following Taylor et al. (2010a), the SDES would predict the positive symptoms of psychosis (e.g. paranoia, hallucinations, delusions) above and beyond depression and hopelessness. This relationship was expected as psychotic symptoms are reported at elevated levels in people with anxiety and depression (van Os et al., 1999) and have been found to predict depression over time in samples identified as high risk for psychosis (Verdoux et al., 1999).

The current study sought to develop and evaluate a short scale that measures both defeat and entrapment, named the Short Defeat and Entrapment Scale (SDES) following the guidelines of Keszei et al. (2010). We expected that defeat and entrapment would form a single factor when measured using the *Defeat Scale* and *Entrapment Scale*, analysed using Exploratory Factor Analysis, and that this structure would be confirmed using Confirmatory Factor Analysis. The internal consistency of scales of different length would then be explored to determine the optimal scale length. We expected that the SDES would show high test-retest reliability across 12 months and would correlate with measures of depression, anxiety and hopelessness, based on evidence from the original scales. Finally, we expected that the SDES would predict the experience of caregiver burden above and beyond the level predicted by depression and the presence of the positive symptoms of psychosis above and beyond the level predicted by depression and hopelessness.

6.3 Method

6.3.1 Participants

Participants in the current study were recruited within four samples; a community sample, an occupational sample and two samples from clinical settings. These samples were selected to validate the scale within both clinical and non-clinical populations, to establish whether the scale accurately measured defeat and entrapment amongst groups of

individuals who would be expected to have varied experiences. The inclusion of a community sample was based upon previous work viewing defeat and entrapment to exist on a continuum, upon which people from the general population would be expected to fall on the lower end (Griffiths et al., 2014). The inclusion of samples of individuals with psychosis and posttraumatic stress disorder was based on previous work demonstrating that defeat and entrapment are key constructs within these mental health problems (e.g. Taylor et al., 2010a; Panagioti et al., 2012). The occupational sample was selected as formal caregivers have been outlined as a group particularly vulnerable to the experience of burnout and poor psychological health (Moniz-Cook et al., 1997), and who frequently experience high levels of enduring psychological stress (von Dras et al., 2009), both of which are linked to the experience of defeat and entrapment among individuals caring for others (Willner & Goldstein, 2001). Prior to this research being conducted, ethical approval was obtained from the University of Manchester ethics committee.

Sample 1 (community sample). A sample of 262 participants (age range 18-85 years; M =26.86 years, SD =10.49; 26% male) was recruited on an opportunistic basis from Facebook, an online social networking site (n =159), and various community settings (people visiting the University and people in public areas around the city) in Manchester, England (n = 103). There were no significant differences in defeat and entrapment based on age (t = 1.23, p >.05) or differences between males and females (t =.493, p >.05), although participants recruited from community settings had significantly lower defeat and entrapment scores than those recruited from the social networking site (t =3.47, p <.001).

Sample 2 (formal caregiver sample). A sample of 163 formal caregivers (Care Practitioners, Nurses, Activities Coordinators and Care Support Workers) was recruited from adverts placed in a care organization in North Wales which consists of seven care homes for young adults with neurological problems, adults with dementia and older adults requiring residential or nursing care. The majority of participants were female (84%), consistent with the demographics of the health care sector (Yar, Dix, & Madhavi, 2006).

Participants' ages ranged from 18 to 66 years (*M*= 38.23 years, *SD*= 12.24) and participants had been employed as formal caregivers for between 6 months and 40 years (*M*= 8.63 years, *SD*= 8.98).

Sample 3 (sample of mental health service users with psychosis). Seventy-eight participants experiencing symptoms of psychosis were recruited through advertisements sent to outpatient services including community mental health teams, early intervention services, assertive outreach services and voluntary organizations across North West England. Service users were eligible to participate if they had a chart diagnosis of a schizophrenic spectrum disorder, diagnosed using the ICD-10 criteria (World Health Organisation, 1992) and were attending an outpatient service, therefore were not acutely ill. Participants were diagnosed with schizophrenia (91%), schizoaffective disorder (5%), atypical psychosis (1%) or psychosis not otherwise specified (3%). Potential participants were identified through their clinicians and key workers before being contacted to confirm whether they wished to participate in the research and a researcher was present whilst participants completed measures. Although no evidence was collected to demonstrate that participants were capable of completing questionnaires, we recruited exclusively from outpatient settings and no participants appeared to have difficulties completing the measures as a result of psychotic symptoms. Participants were aged between 19 and 73 years (*M*= 42.4 years, *SD*= 11.7) and the majority were male (72%). This sample was selected as defeat and entrapment have been shown to be particularly high in this group and are linked to the disorders etiology (Taylor et al., 2009).

Sample 4 (sample of people diagnosed with PTSD). Ninety-six people (age range 18-55 years, *M*= 28.7 years, *SD*= 10.4) were recruited from Manchester, England, who were identified as having previously experienced a traumatic experience. Participants were recruited from advertisements placed in mental health services, newspapers, within the University of Manchester and online advertising sites. Participants were screened for PTSD diagnosis using the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995),

a 30-item structured interview that was conducted by a trained doctoral student. Participants were assessed as either having a current diagnosis of posttraumatic stress disorder (PSTD; *n* = 53), a lifetime diagnosis of PTSD (*n* = 27) or not fulfilling the criteria for PTSD (*n* = 16). The majority of participants were female (73%). Fifty-five participants from this sample who met the criteria for current or lifetime PTSD diagnosis and had the highest scores on the CAPS were selected to complete the measures at a second time point. As with psychosis, defeat and entrapment are particularly high in this group and are theoretically linked to the etiology of the disorder (Panagioti et al., 2012a).

6.3.2 Measures

All participants completed the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998), which were administered together. Each scale consists of 16 items and assesses individuals' perceptions of losing rank position and failed struggle during the past seven days (e.g. "I feel defeated by life") , and their motivation to escape from such situations (e.g. "I can see no way out of my current situation"). Items are rated on a Likert scale ranging from "0 – not at all like me" to "4 – extremely like me". The scales have been shown to have high internal consistency of between α = .88 and α = .93 for the *Entrapment Scale,* and between α = .93 and α = .94 for the *Defeat Scale* (Gilbert & Allan, 1998) with groups of students and individuals with depression. Amongst the four samples recruited in the current study, the *Entrapment Scale* showed high internal consistency (α = .96, Sample 1; α = .95, Sample 2; α = .95, Sample 3; α = .96, Sample 4) and the *Defeat Scale* showed similarly high internal consistency (α = .95, Sample 1; α = .80, Sample 2; α = .86, Sample 3; α = .96, Sample 4). Both of these scales have demonstrated concurrent validity with hopelessness when controlling for depression, *r* = .35 (defeat), *r* = .38 - .46 (internal and external entrapment; Gilbert and Allan, 1998). Additionally, the scales have demonstrated discriminant validity from the presence of social support, *r* = -.41 (defeat), *r* = .40 (internal and external entrapment; Rasmussen et al., 2010). (Test-retest reliability of

the scales across 12 months has demonstrated single measures absolute agreement Intra-Class Coefficients (ICC) of r_{icc} = .88 for the Defeat Scale and r_{icc} = .90 for the Entrapment Scale (Griffiths et al., 2014).

Participants from three samples completed one of two measures of depression. The *Beck Depression Inventory* (BDI; Beck, 1961) was completed by clinical samples and the *Center for Epidemiologic Services Depression Scale* (CES-D; Radloff, 1977) was completed by non-clinical samples. This combination of scales was preferred as the BDI assesses the more severe aspects of depression, making it appropriate for use with clinical populations, whereas the CES-D assesses the full range of depression as a continuum, making it particularly appropriate for community samples (Joseph & Wood, 2010; Wood & Joseph, 2010). The BDI assesses depression through 21 items that measure how participants have felt during the past week on a four-point scale, for example "0 – I do not feel like a failure" to "3 – I feel I am a complete failure as a person". The BDI has shown high sensitivity (85%) and specificity (86%) to a clinical diagnosis of depression, using a cutoff score of 10 (Oliver & Simmons, 1984). The scale has been shown to have internal consistency of α = .89 for a sample of outpatients with mood and anxiety disorders (Beck, Steer, Ball, &, Ranieri, 1996) and within the present study, the measure also showed similar internal consistency amongst a sample of individuals experiencing symptoms associated with psychosis (α = .84). Although the wording of the BDI-I is less recent than the (proprietary) BDI II, the two correlate at r = .93 (Beck et al., 1996), demonstrating that it is still suitable for use in research settings, and we have previously used it successfully with these populations. The BDI has been shown to have convergent validity with the depression and dysphoria subscales of the IDAS (r = .81 - .83, Watson et al., 2007) and discriminant validity with symptoms of anxiety, as measured by the Beck Anxiety Inventory (r = .48, Beck, Epstein, Brown, & Steer, 1988). The second questionnaire used to measure depression, the CES-D, consists of 20 items that measure depressive symptoms within the general population based on how participants have felt during the past week

(e.g., “I felt lonely”) on a scale from “0 – rarely or none of the time” to “3 – most or all of the time”. The scale has been shown to have internal consistency of α = .84 (Radloff, 1977) to α = .91 (Gilbert & Allan, 1998). In the present study, the scale demonstrated internal consistency of α =.88 amongst a sample of formal caregivers. A cut-off score of 16 on the CES-D has been shown to successfully detect diagnosable depressive disorders within a community sample of individuals with a diagnosis of a chronic pain condition, with specificity of r = .95 and sensitivity of r = .72 to diagnosis of a mood disorder (Julian et al., 2011), using the Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). The scale has test-retest reliability of r = .88 across twelve months within a sample of healthy participants recruited from the general population and negatively correlated with both satisfaction with life (r = -.45) and quality of life (r = -.43; Schroevers, Sanderman, van Sonderen, & Ranchor, 2000).

The *Beck Hopelessness Scale* (BHS; Beck et al., 1974), which consists of 10 items that measure participants’ motivations, expectations and attitudes towards the future (e.g. “my future seems dark to me”), was completed by two samples. The scale has been found to have high internal consistency in samples of individuals with depression (α = .97; Bouvard, Charles, Guérin, Aimard, & Cottraux, 1992) and healthy controls (α = .79; Bouvard et al., 1992). Within the present study, the scale was found to have high internal consistency amongst a sample of individuals with PTSD diagnoses (α = .92). A meta-analysis found the BHS to have high sensitivity (74%-82%) and adequate specificity (38%-45%) to non-fatal self-harm and high sensitivity (68%-90%) and adequate specificity (41%-44%) to suicide (McMillan, Gilbody, Beresford, & Neilly, 2007). Additionally, the scale has been shown to converge with clinician ratings of hopelessness (r = .62 - .74, Taylor et al., 2010b).

Participants from the sample of formal caregivers also completed the *Zarit Burden Interview* (ZBI; Zarit et al., 1980) modified by the original authors to be suitable for healthcare staff. This modification replaces the word ‘relative’ with ‘resident’. This scale

was designed to measure the personal strain experienced by caregivers of adults with dementia (e.g. “do you feel you could do a better job caring for your resident?”), although is now one of the most frequently used measures of caregiver burden for caregivers of patients with a wide spectrum of disorders and illnesses (O’Rourke & Tuokko, 2003). Items are responded to using a Likert scale ranging from “0 – Never” to “4 – Always”. Limited research has considered the reliability or validity of the scale within formal care settings, although the scale has acceptable internal consistency with healthcare staff (r = .74-.87) and assessed burden satisfactorily (Sourial, McCusker, Cole, & Abrahamowicz, 2001). Within the present study, the measure demonstrated higher internal consistency than existing literature amongst a sample of formal caregivers (α = .84).

The *Brief Psychiatric Rating Scale Expanded version* (BPRS-E; Ventura, Green, Shaner, & Liberman, 1994) was administered by researchers to measure the presence of psychiatric symptoms in individuals in *Sample 3*. This is a 24-item assessment of common psychopathological symptoms including depression, hallucinations and suicidality (e.g. “Do you ever seem to hear your name being called?”). Items are rated for frequency and severity by the interviewer and the interview lasts between 10 and 40 minutes. Each item is rated on a scale ranging from “1 - not present” to “5 - extremely severe”. The measure has been shown to effectively distinguish between those with schizophrenic spectrum disorders and those with mood or anxiety disorders (Lykke, Hesse, Austin, & Oestrich, 2008). The measure has adequate internal consistency when administered to a sample of individuals with schizophrenia spectrum disorders, affective disorders and personality disorders (α = .55 - .76; Dingesman, Linszen, Lenior, & Smeets, 1995). The sub-scales of the measure have been shown to have discriminant validity from suicidal ideation (r = .11 - .42; Taylor et al., 2010a). The sub-scales of the measure have also been shown to have convergent validity with the relevant sub-scales of the Behaviour Observation System, an observational measure of psychopathological behaviours (Mogge, LePage, Del Ben, & Murphy, 2002). Within the present study, the measure also demonstrated adequate internal

consistency amongst a sample of individuals who were experiencing symptoms of psychosis (α = .72).

6.3.3 Missing Data

Missing value analysis was also conducted to establish if any patterns existed within missing data. Generally, as the majority of questionnaires were completed with a researcher present, there was a very limited amount of missing data and no cases were removed as a result of missing data. To establish whether imputation of missing data was necessary, the Missing Completely At Random test was used for each sample (MCAR; Little, 1998). This test was non-significant; indicating that any missing data was missing completely at random and that imputation of missing data was not necessary for participants from any sample. Additionally, across all samples, it was not necessary for any cases to be removed due to missing data on measures.

6.4 Results

6.4.1 Structure

A principal-axis exploratory factor analysis (EFA) was conducted on the correlation matrix of the 32 items from the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998) completed by *Sample 1*, to establish the optimal factor structure of the data. This sample was selected as it was most representative of the general population and therefore provided the greatest generalizability. The 8:1 ratio of participants to items exceeded recommendations that a sample should comprise of at least five times the number of items being analysed (Cattell, 1978; Gorsuch, 1983), and the Kaiser-Meyer-Olkin (KMO) test indicated that the sample data was appropriate for an EFA (KMO = .96). Bartlett's test of sphericity confirmed further that correlations between items were large enough for an EFA (χ^2 [496] = 6878.41, p < .001).

Preliminary analyses of the items of the *Defeat Scale* and *Entrapment Scale* before

conducting the EFA demonstrated that the data had positive skew ($M = 1.67$) and kurtosis ($M = 3.25$), which was expected for a community sample, as the majority of participants would have low levels of defeat and entrapment. Therefore a principal-axis EFA was conducted, as this makes no assumptions about data distribution and no data transformation was required before analysis (Fabrigar et al., 1999). The first ten initial eigenvalues (and % of variance accounted for) extracted from the EFA were 17.06 (53.32%), 1.88 (5.89%), 1.31 (4.09%), 1.08 (3.37%), 0.94 (2.95%), 0.81 (2.54%), 0.76 (2.38%), 0.71 (2.21%), 0.65 (2.04%) and 0.56 (1.75%). All 32 items loaded above the .40 cut off considered a reasonable loading on a factor (Velicer et al., 1982) and 88% loaded above .60 (see Table 11).

A parallel analysis was conducted to establish how many factors to extract. Parallel analysis creates datasets with the same number of cases and variables as the actual dataset, filled with random numbers. An EFA is then performed on each dataset and any factors within the actual dataset with eigenvalues that exceed those that emerge in 95% of the datasets of random numbers are defined as not having arisen due to chance variation within the data. A parallel analysis of 1000 datasets using the 95% cut-off (O'Connor, 2000) was conducted. The first five eigenvalues (and % of variance accounted for) extracted for 95% of the simulated datasets were equal to or less than 2.25 (2.43%), 2.06 (2.20%), 1.93 (2.04%), 1.81 (1.91%) and 1.71 (1.80%). In the actual data set, only the first eigenvalue of 17.06, which explained 53.32% of the variance, exceeded chance values, suggesting that one factor underlies the data.

As a further test, a second EFA was conducted to force the extraction of two factors, using oblique rotation based on the assumption that the two constructs are related. No item from either scale loaded on the second factor above the .40 cut off considered a reasonable loading on a factor (Velicer et al., 1982).

The results of the PA combined with poor item loadings on a second factor suggests that items from the *Defeat Scale* and *Entrapment Scale* are best represented by a

single factor and suggesting that defeat and entrapment can be effectively measured using a single scale.

Table 11. Standardised item loadings for a single factor encompassing defeat and entrapment. Note: items in bold were selected for the final scale.

	Combined defeat and entrapment
1. **I would like to escape from my thoughts and feelings (e)**	.811
2. **I feel defeated by life (d)**	.808
3. **I would like to get away from who I am and start again (e)**	.802
4. **I would like to get away from other more powerful people in my life (e)**	.797
5. I often have the feeling that I would just like to run away (e)	.796
6. **I can see no way out of my current situation (e)**	.796
7. I want to get away from myself (e)	.788
8. I feel trapped by my obligations (e)	.787
9. **I feel that there is no fight left in me (d)**	.773
10. **I feel that I am one of life's losers (d)**	.773
11. **I feel powerless (d)**	.773
12. I feel powerless to change things (e)	.759
13. I feel down and out (d)	.753
14. I feel completely knocked out of action (d)	.750
15. I feel that I have lost my standing in the world (d)	.744
16. I feel that I have given up (d)	.737
17. I feel trapped by other people (e)	.731
18. I feel that I have sunk to the bottom of the ladder (d)	.728
19. I feel that I have lost important battles in life (d)	.727
20. I am in situation I feel trapped in (e)	.726
21. I have a strong desire to escape from things in my life (e)	.723
22. I am in a relationship I can't get out of (e)	.723
23. I feel that my confidence has been knocked out of me (d)	.722
24. I feel I'm in a deep hole I can't get out of (e)	.706
25. I feel that I have not made it in life (d)	.666
26. I feel that life has treated me like a punch bag (d)	.640
27. I feel powerless to change myself (e)	.613
28. I feel trapped inside myself (e)	.606
29. I feel that I am a successful person (d) (R)	.594
30. I feel that I am basically a winner (d) (R)	.538
31. I feel able to deal with whatever life throws at me (d) (R)	.523
32. I have a strong desire to get away and stay away from where I am now (e)	.471

Note: (R) denotes reverse coded item, (e) denotes item is from entrapment scale, (d) denotes item is from defeat scale.

6.4.2 Item Selection and Consistency

Based on the above analyses, eight items were chosen to form the SDES. To ensure full representation of the construct, the four highest loading items assessing defeat and the four highest loading items representing entrapment were selected for inclusion in the shortened scale. All selected items loaded on the factor between .77 and .81. As both the fourth and fifth highest loading items assessing entrapment identically loaded at .796, we selected the fifth item, which appeared to enable a broader coverage of the construct, due to greater theoretical distinctiveness from other items. Our preference for having four items representing defeat and four items representing entrapment was determined *a priori* to balance the need for a short scale against broad coverage of the construct. However, for each of the samples, we tested whether forming scales of different lengths significantly affected Cronbach's alphas. Table 12 shows the Cronbach's alphas for scales consisting of four, six, eight and ten items within all four samples to establish the optimal number of items, with each scale formed of an equally balanced number of the highest loading items assessing defeat and assessing entrapment (respectively 2, 3, 4 and 5 items for each). This demonstrates that the eight-item scale exceeds the standard value suggesting optimal internal consistency with eight items in all samples (≥.90; Nunnally, 1978), whereas neither the four or six item scales reached this level. Additionally, the inclusion of ten items was felt to be unnecessary given the aim to develop a short scale. Furthermore the inclusion of more items and subsequent increased length of time that would be required to complete the measure cannot be justified. On this basis, we developed the SDES with eight items (see Appendix IV).

Table 12. Cronbach's alphas for four-, six- eight- and ten-item scales across four samples.

	Sample size	Four-item scale	Six-item scale	Eight-item scale	Ten-item scale
Community (Sample 1)	264	.87	.91	.93	.94
Formal Caregivers (Sample 2)	163	.84	.88	.90	.91
Individuals with Psychosis (Sample 3)	78	.84	.88	.91	.93
Individuals with PTSD (Sample 4)	96	.87	.92	.94	.95

6.4.3 Confirmatory Factor Analysis

As the EFA showed a one-factor solution was the best fit for the data, we tested this structure using a maximum likelihood Confirmatory Factor Analysis (CFA) on the eight items of the SDES[1]. This was conducted using AMOS 17 software (Arbuckle, 1997), to identify whether this structure provided the best fit of the data in *Samples 2-4* ($N = 337$), and in accordance with recommendations there were five response options for items on the scale (Byrne, 2004). A Kolmogorov-Smirnov test demonstrated that the data was not normally distributed ($p < .001$), which was expected for samples involving individuals recruited from clinical settings. Therefore, prior to analyses being conducted, a square root transformation was conducted. Following transformation, a Kolmogorov-Smirnov test demonstrated that the data was normally distributed ($p > .05$). The fit of the model was determined by the χ^2 (chi-square) test, where good fit of the model would be demonstrated by a non-significant value. However this test is extremely sensitive to sample size,

[1] A second CFA specifying the defeat and entrapment item loadings on separate factors was conducted, however defeat and entrapment were shown to correlate at r = .91, suggesting that the two factors are best represented by a single latent factor, as multicollinearty >0.6 can lead to substantial Type II error rates (Grewal et al., 2002), where separate scales are formed for each factor and entered simultaneously in future regression analyses.

therefore other indices were considered. We also considered the Comparative Fit Index (CFI; Bentler, 1990), where conventionally a reasonable fit is indicated by CFI >.90, and the SRMR, where reasonable fit is indicated by SRMR <.08 (Hu & Bentler, 1999). We initially conducted a multigroup CFA, which showed that the fit of the constrained model, where factor loading are fixed to be equal across the three samples (χ^2= 287.51, p<.001) was significantly worse than the unconstrained model where loadings were allowed to vary (χ^2= 325.44, p<.001; χ^2= -37.94, p<.001). This suggests that there were differences in the factor loadings across samples. However, when we examined the individual loadings for each of the samples (see Table 13), whilst loadings do vary between samples, all were consistently above .40, considered a reasonable loading on a factor (Velicer et al., 1982). Further, the fit of the model was reasonable in each sample; particularly for the formal caregiver sample [CFI = .91, SRMR = .09, χ^2 = 993.0 (p<.04)] and individuals with psychosis [CFI = .99, SRMR = .05, χ^2 = 364.70 (p<.001)], although it was on the lower side of acceptability for people with PTSD [CFI = .92, SRMR = .19, χ^2 = 671.21 (p<.001)]. Furthermore, all fitted residuals within the model were much lower than recommendations (Byrne, 2001; Kline, 2011). Overall, we concluded that the model provided reasonable support for the structure of the scale, whilst highlighting the need to validate the scale separately within different populations and acknowledging the methodological limitations within this analysis.

6.4.4 Test-Retest Reliability

The test-retest reliability of the shortened scale was calculated based on repeated completion of the SDES 12 months apart by *Sample 4*. The 55 participants with the highest scores for PTSD were asked to complete measures at the second time point. All of the selected sub-sample completed measures at the second time point. This time scale was selected based on previous research that has utilised a 12-month period for repeated measurement with the original scales (Griffiths et al., 2014; Taylor et al., 2011b). The mean Time 1 scores (M = 8.04, SD = 8.39) did not significantly differ from Time 2 scores

($M = 7.84$, $SD = 6.81$, $t = .250$, $p = .80$. The single measures absolute agreement Intra-Class coefficient (ICC) was calculated to establish the consistency between scores at Time 1 and Time 2. This was calculated at $r_{icc} = .88$. This demonstrated excellent ICC of >.80 (Bruton et al., 2000), showing both rank and mean level stability of the scale over twelve month periods.

Table 13. Standardised factor loadings for each sample within a one-factor CFA

		Sample			
		Community	Individuals with Psychosis	Formal Caregivers	Individuals with PTSD
Item	1	.829	.738	.853	.694
	2	.832	.759	.865	.656
	3	.839	.782	.873	.805
	4	.815	.681	.798	.715
	5	.769	.838	.831	.791
	6	.748	.788	.832	.661
	7	.754	.710	.825	.751
	8	.772	.749	.731	.741

Note: All loadings p<.05

6.4.5 Criterion Validity

Criterion validity was tested by establishing whether the shortened scale correlated with measures of depression, anxiety and hopelessness which the *Defeat Scale* and *Entrapment Scale* have previously been shown to correlate with among clinical and non-clinical samples. The shortened scale significantly correlated with the depression, anxiety and hopelessness measures at values comparable to previous research, with the exception of the measure of depression within the sample of individuals with psychosis (see Table 14).

Table 14. Correlations between the shortened scale and outcome measures.

Sample	CES-D	BDI	BHS	ZBI
Formal Caregivers (Sample 2)	.712**			.433**
Psychosis Patients (Sample 3)		.237*	.446**	
Trauma Patients (Sample 4)		.849**	.926**	

Note: * p <.05 ** p <.001 CES-D = Center for Epidemiologic Services Depression Scale, BHS = Beck Hopelessness Score, BDI = Beck Depression Inventory, ZBI = Zarit Burden Inventory

In order to determine whether there was potential loss of information through item rejection on the SDES, in comparison to the original *Defeat Scale* and *Entrapment Scale*, the tests for criterion validity were repeated with the original scales (see Table 15). A short version of any scale should correlate with the same criterion variables as the full scale and these correlations should be to the same magnitude (Richins, 2004). For these analyses an overall score was calculated for combined defeat and entrapment. This demonstrated similar correlations for both the short and original scales at the same levels of significance.

Table 15. Correlations between the original *Defeat Scale* and *Entrapment Scale* and outcome measures.

Sample	CES-D	BDI	BHS	ZBI
Formal Caregivers (Sample 2)	.778**			.462**
Psychosis Patients (Sample 3)		.304*	.663**	
Trauma Patients (Sample 4)		.882**	.925**	

Note: * p <.05 ** p <.001 CES-D = Center for Epidemiologic Services Depression Scale, BHS = Beck Hopelessness Score, BDI = Beck Depression Inventory, ZBI = Zarit Burden Inventory

6.4.6 Incremental Validity

In testing for incremental validity an outcome needs to be selected for which defeat and entrapment would be expected to explain additional variance beyond that which a third variable already accounts for. Two-step hierarchal regression analyses were conducted with participants from *Sample 2* (non-clinical) using CES-D to measure depression and CBI to measure caregiver burden and participants from *Sample 3* (clinical) using BPRS to measure positive symptoms associated with psychosis BDI to measure depression and also BHS to measure hopelessness.

In the first regression, we aimed to test whether the SDES was able to predict the experience of caregiver burden above and beyond depression as a predictor. In Step One of a hierarchal multiple regression, depression was included as a predictor of caregiver burden (β = .13, p <.05). In Step Two of the analysis, when the SDES score was also included as a predictor, there was an R^2 change of .10 (R^2 = .39, F(2, 158) = 19.21, p<.001) and the two predictors accounted for 44% of the variance. The SDES was a significant predictor of caregiver burden (β = .49, p <.001) and depression was no longer a significant predictor (β = -.07, p >.05). These analyses demonstrated that the shortened scale had incremental predictive value in the measurement of caregiver burden beyond levels that could be predicted by depression.

In the second regression, we aimed to test whether the SDES was able to predict the experience of the positive symptoms of psychosis above and beyond the prediction of depression and hopelessness. In Step One of a hierarchical multiple regression analysis depression and hopelessness were included as predictors of the positive symptoms associated with psychosis. This demonstrated that depression was a significant predictor of these symptoms (β = .48, p <.001), whilst hopelessness was not a significant predictor (β = -.14, p >.05). For Step Two, the SDES was included as an additional predictor there was a R^2 change of .10 (R^2 = .19, F(2, 161) = 18.64, p<.001) and together the predictors accounted for 43% of the variance. The SDES was a significant predictor of symptoms (β

= .53, p <.001) and with the effect of defeat and entrapment controlled, neither depression (β = .20, p >.05) nor hopelessness (β = .04, p >.05) were significant predictors of positive symptoms. This is consistent with previous work demonstrating that defeat and entrapment mediate the effect of other variables on psychopathology, such as the symptoms of PTSD on subsequent suicidal behaviour (Panagioti et al., 2012c). Taken together, the two tests, in different samples, showed that the SDES is meaningfully different from both depression and hopelessness with which it is correlated.

6.4.7 Known Group Validity

It was expected that within all samples there would be participants who were experiencing defeat and entrapment, although we expected participants from both clinical groups to report higher levels than those from the non-clinical groups. The mean scores for the samples followed this hypothesis, as the psychosis group (*Sample 3; M* = 12.83, *SD* = 9.09) scored higher than all other samples [Community Sample (*Sample 1; M* = 5.79, *SD* = 6.12), Formal Caregivers (*Sample 2; M* = 3.72, *SD* = 5.34) and individuals with PTSD (*Sample 4; M* = 8.04, *SD* = 8.39)]. As expected, the clinical groups had higher levels of defeat and entrapment than the non-clinical groups, which demonstrated that the shortened scale accurately captures differences between clinical and non-clinical populations. An ANOVA demonstrated that there were significant differences between the mean scores on the SDES for the four samples (F(3, 595) = 33.17, p<.001, η^2 = .14). Bonferroni corrected paired-samples t-tests demonstrated that the differences between all samples were significant; the psychosis sample scored significantly higher than the community sample (t (3) = 7.04, p<.001), the sample of formal caregivers (t (3) = 9.12, p<.001) and the sample of individuals with PTSD (t (3) = 4.79, p<.001). Individuals with PTSD also scored significantly higher than the community sample (t (3) = 2.25, p = .03) and the formal caregivers sample (t (3) = 4.32, p<.001).

6.5 Discussion

The above analyses report the development of an eight-item scale that measures defeat and entrapment. An EFA demonstrated that a one-factor solution was most appropriate for defeat and entrapment, which was confirmed by a multigroup CFA. This is consistent with theories that defeat and entrapment are best defined as a single construct (Johnson et al., 2008; Taylor et al., 2009; Taylor et al., 2011a) and on this basis should be measured by a single scale.

The SDES demonstrated good psychometric properties across four samples recruited from clinical and non-clinical settings. The scale significantly correlated with outcome measures of depression and hopelessness previously shown to correlate with the original defeat and entrapment scales (e.g. Gilbert & Allan, 1998; Sturman & Mongrain, 2008b; Panagioti et al., 2012). However, it is important to establish the extent of the conceptual distinctness that defeat and entrapment have from constructs such as hopelessness and depression. The current scale was shown to account for variance that is not accounted for by either hopelessness or depression, suggesting that conceptual distinctness between the constructs exists.

The SDES effectively distinguishes between individuals who would be expected to experience different levels of defeat and entrapment, as participants' mean scores on the scale were significantly higher in samples recruited from clinical settings than non-clinical settings. This was expected based on previous clinical work demonstrating that individuals experiencing mental health problems also experience more perceptions of defeat and entrapment, and also provided further support for the clinical utility of the scale. Excellent test-retest reliability across twelve months for the scale was also demonstrated using single measures absolute agreement Intra-Class Coefficients ($r_{icc} = .88$); suggesting that responses on the measure are stable across time amongst individuals whose situation does not change.

The scale has unique value in the prediction of sample specific psychopathological

outcomes when controlling for depression and hopelessness. We found the SDES to be a significant predictor of positive psychotic symptoms, when controlling for depression and hopelessness, and caregiver burden, when controlling for depression. This demonstrates that although defeat and entrapment have been shown to correlate with depression (e.g. Griffiths et al., 2014; Panagioti et al., 2012a), the SDES measures a unique factor that cannot be captured through the measurement of depression.

Although defeat and entrapment have been measured as predictors of mental health problems, their infrequent assessment within therapeutic settings may be partly due to a lack of a valid short measure of both constructs that could be regularly administered to patients across treatment programmes to provide an indication of their current status. As defeat and entrapment have been shown to predict psychopathological outcomes such as depression and anxiety, they may act as a barrier to progress in therapeutic settings (Taylor et al., 2011a). Our scale contains eight items and therefore increases the feasibility of defeat and entrapment being measured on a session-by-session basis in therapeutic settings. This would help therapists to identify patients who were experiencing persistent perceptions defeat and entrapment and incorporate these factors into their clinical assessment and case formulations for treatment (Tarrier, 2006). For example, emphasising to patients that their mental health problems can be conceptualised as a reasonable response to feelings of defeat and entrapment based on their previous experiences (Taylor et al., 2011a) and using cognitive-behavioural techniques to modify individuals' appraisals of situations could reduce their sensitivity towards defeat signals (Johnson et al., 2008; Swallow, 2000). Therefore increased awareness of defeat and entrapment within therapy settings and emphasizing to individuals the resilience they have shown through regular measurement of these factors, could improve client well-being (Taylor et al., 2011a).

Additionally, existing literature suggests that there are some personality styles, (namely self-critical, perfectionistic, and neurotic) which clients would frequently present to therapists with. This is relevant for therapists for two reasons. Firstly, such personality

styles have been associated with the experience of depression (e.g. Blatt & Zuroff, 1992) and secondly these personality styles may leave such clients more vulnerable to experiencing and generating perceptions of defeat and entrapment (Sturman, Rose, McKeighan, Burch, & Evanico, in press). It has specifically been noted that self-criticism interacts with negative life events to predict depressive symptoms developing (Blatt & Zuroff, 1992). Supporting this, research has demonstrated that involuntary subordination, of which combined defeat and entrapment is a component, mediates the relationship between self-criticism and depression (Sturman & Mongrain, 2005). Furthermore, self-criticism has been shown to predict a higher number of defeat related events and depressive symptoms at a second time point seven weeks later (Sturman et al., in press), suggesting that self-criticism directly impacts on perceptions of defeat and the experience of depression. Perfectionism is also known to impact on individuals' judgments of defeat and entrapment, and is implicated in the risk of suicidal behaviour (O'Connor, 2007). Perfectionism has also been shown to mediate the relationship between social rank status (including measures of defeat and entrapment) and anorexic symptoms, within a sample of individuals with eating disorders (Troop & Baker, 2008). One potential implication of the influence of personality styles on perceptions of defeat and entrapment is that clinicians could focus on the way in which these perceptions are generated and dealt with by clients (Sturman et al., in press). Regular measurement of perceptions of defeat and entrapment could help clinicians to identify which specific personality characteristics may be influencing clients' perceptions and mental health.

However there are two important limitations associated with the development of this scale. Firstly, a CFA demonstrated that a single-factor solution was not a good fit for the model on all fit indices. Although, as the factor loadings were consistently above .40, representing a reasonable loading on a factor (Velicer et al., 1982) and the structure was supported across the samples, this highlights the need for the scale to be validated within different populations. Secondly, although samples were selected to represent clinical and

non-clinical populations, the scale needs further validation amongst individuals experiencing symptoms and disorders that defeat and entrapment have specifically linked to, for example individuals with depression and anxiety (e.g. Gilbert & Allan, 1998; Griffiths et al., 2014). Additionally, within this study, we did not assess the presence of comorbid disorders. We acknowledge that this limits our ability to fully describe the samples, however as we recruited individuals to these samples to represent participants commonly seen in clinical practice, where co-occurrence is the norm, the presence of comorbid diagnoses would not affect the abilities of participants to be eligible for or included within the study. Future research that aims to validate the SDES in different populations should ensure that comorbid disorders are appropriately identified.

Furthermore, whilst defeat and entrapment can be measured together, and evidence has shown that for depression, anxiety and PTSD this is an effective form of measurement, there are many existing mental health problems that defeat and entrapment have not yet been examined in relation to. Further research is needed to establish the relationship between defeat and entrapment and mental health problems such as bipolar disorder. Additionally, as there is a lack of current evidence of interventions that aim to specifically target defeat and entrapment, it is possible that they may require different interventions for the treatment of mental health problems. The evaluation of the delivery of such interventions would help to establish the optimal way of focusing on defeat and entrapment in the treatment of mental health problems.

Future research should establish how distinct defeat and entrapment are from a measure of negative affect. As defeat and entrapment have been shown to relate to depression (e.g. Gilbert & Allan, 1998; Griffiths et al., 2014), it would be expected that there would be some overlap between these constructs, however this is yet to be examined. Furthermore, there may be some specific situations in which individuals feel defeated but not entrapped. Gilbert and Allan (1998) suggested that being defeated but not entrapped is less problematic than experiencing perceptions of both concurrently. This is supported by

suggestions that individuals who experience a defeat situation may not necessarily become entrapped, for example, individuals who experience a major financial loss. This is further supported by evidence from individuals with psychosis that when there is recovery of symptoms, which would suggest that they no longer feel entrapped by their illness, their negative appraisals do not also recover (Upthegrove, Ross, Brunet, McCollum, & Jones, 2014). However, these are specific situations and it is thought for the majority of individuals, defeat and entrapment occur concurrently and are best defined as a single construct (e.g. Taylor et al., 2009). This was supported by our EFA and CFA, which demonstrated that there was a robust single factor underlying the scale, showing strong empirical evidence that amongst the diverse samples within this study, defeat and entrapment co-occurred.

The current research suggested that defeat and entrapment operate as a single construct in the prediction of mental health problems. However, less is currently known about how the relationship between defeat and entrapment develops and changes over time. Specifically, it is unknown whether there are any situations in which defeat and entrapment may underlie and lead to different outcomes, rather than operating as a single construct. This issue could be addressed by future research. An experience sampling design could look at individuals' shifts in perceptions of both defeat and entrapment in response to specific stressors, identifying whether changes in defeat and entrapment co-vary. If these perceptions were shown to change at different rates, or over different periods of time, this may provide evidence of two overlapping but distinct constructs. However, if these perceptions were shown to change at the same rate, this would serve to strengthen the evidence for defeat and entrapment being conceptualized as a single construct.

In conclusion, this initial test of the validity and reliability of the SDES suggests that the scale effectively measures defeat and entrapment within clinical and community populations. This scale is quick for practitioners to administer and score and also less of a burden for patients to complete in comparison to the original scales in terms of time and

effort. The scale demonstrated reliability and validity in several samples, specifically a sample of formal caregivers, a community sample, a sample of individuals diagnosed with PTSD and a sample of mental health services users with psychosis. As defeat and entrapment are reliable predictors of the experience of psychopathology, it is hoped the development of this scale will lead to their regular measurement in therapeutic settings and the greater use of validated scales within defeat and entrapment research where response burden is an issue.

CHAPTER 7

7 Moving forward: The implications of measuring defeat and entrapment in clinical settings.

This chapter will discuss the potential benefits of translational research on defeat and entrapment within applied settings and clinical research. This will include discussion of defeat and entrapment in relation to mental health problems, potential avenues to address current barriers to measurement, and clinical applications and implications of measuring defeat and entrapment within therapeutic settings.

7.1 Why should defeat and entrapment be measured in clinical settings?

The findings presented in this thesis have demonstrated that defeat and entrapment should be conceptualised and measured as a single construct, based on evidence from community, occupational and student samples. As a single construct, it has significant predictive value for mental health problems, such as depression, anxiety and caregiver burden. The results obtained from work presented within the current thesis supports previous research that conceptualises defeat and entrapment as one construct that encompasses feelings of failure without any available escape routes (Taylor et al., 2009) and arise as a result of the same biased appraisal of a negative situation (Johnson et al., 2008a). This has implications for how defeat and entrapment can be applied and measured within therapeutic situations. Previous accounts have proposed that defeat and entrapment should be conceptualised as separate factors that independently underlie and influence the development of mental health problems. However, two factor theories suggest that although defeat and entrapment are related, there are situations where individuals could have a defeating experience but do not become entrapped; for example, a relationship crisis which is judged to be escapable from (O'Connor, 2003). Alternatively, one factor theories (e.g. Johnson et al., 2008a; Taylor et al., 2009; Sturman, 2011) postulate that combined defeat and entrapment operates as an on-going process, where their inter-related experience

impacts upon the mental health of individuals.

The studies within this thesis have demonstrated that, conceptualised as a single factor, combined defeat and entrapment predicts poor psychological outcomes including depression, anxiety and caregiver burden across twelve months within samples recruited from a socioeconomically deprived community and occupational settings. Although these samples may represent populations that are clinically relevant, for example over 50% of the community sample and 23% of the caregiver sample were experiencing clinically relevant levels of depression and/or anxiety at the beginning of the study, research was not conducted with a sample of participants experiencing mental health problems, recruited from clinical settings. This is reflective of the samples generally recruited within the existing literature concerning defeat and entrapment. Although several studies have explicitly recruited samples from clinical settings (e.g. Taylor et al., 2011b; Panagioti et al., 2012a), these have generally been quite small samples and have studied cross-sectional relationships and therefore have not considered the impact of defeat and entrapment on the development and progression of mental health problems. Therefore, the current thesis makes a unique contribution to the literature by primarily providing the first longitudinal evidence for the role of defeat and entrapment in mental health outcomes for samples recruited from general community and occupational settings. It is important to establish whether defeat and entrapment experiences are common for all people, or whether they are specific to individuals who are experiencing mental health problems. The work presented in this thesis demonstrated a bidirectional relationship between defeat, entrapment and mental health problems. Future studies might now consider the prospective relationship of defeat and entrapment in the development and maintenance of mental health problems, for individuals recruited from clinical settings.

In summary, defeat and entrapment have been shown to reliably predict the experience of various mental health problems (e.g. depression and anxiety, Chapter 3 of the current thesis; PTSD, Panagioti et al., 2012a). Additionally, individuals who are at a

high risk of suicide have been found to interpret the experience of stressful events as defeating and entrapping (Bolton et al., 2007). Therefore, defeat and entrapment may be key predictors of suicidal ideation and behaviour, and identification of these factors could help to predict those individuals at highest risk of suicidal behaviour, regardless of the other symptomology presented by patients. Measuring defeat and entrapment within clinical settings could therefore, not only help to identify potential underlying processes that are impacting on the well-being of clients, but also help to identify those who are at highest risk of suicide.

7.2 Clinical implications and applications of measuring defeat and entrapment

As perceptions of defeat and entrapment are closely related to various mental health problems, clinicians awareness of the presence and implications of these factors should be increased, through inclusion in clinical assessment, formulation, intervention, evaluation and prevention of mental health problems (Siddaway, 2013).

Perceptions of defeat and entrapment are thought to arise from a process of social comparison. By comparing the self to others, individuals obtain crucial information regarding their status in comparison to those around them, giving an insight as to whether they are likely to be able to effectively compete for resources (Swallow, 2000). Individuals who consistently perceive themselves to be inferior in comparison to others are likely to be particularly vulnerable to perceptions of defeat and entrapment; and subsequently be at a higher risk of experiencing mental health problems (Swallow, 2000). This premise is supported by research demonstrating that individuals with mild depression made particularly high numbers of unfavourable social comparisons in comparison to individuals with no history of depression (Swallow & Kuiper, 1992). Using psychological interventions, clinicians are able to target specific processes, such as thinking styles related to social comparison, with the aim of impacting on the symptoms presented by individuals. Defeat and entrapment, conceptualised as failure or poor social comparison resulting from

one or more triggering experiences, appear to be examples of such processes that could be targeted within interventions, either as a single process or two interrelated processes.

Although defeat and entrapment have been measured within clinical and non-clinical research settings, there has been limited research based on longitudinal designs. This provided the rationale for conducting the prospective research presented in this thesis. Although existing literature has shown strong cross-sectional relationships between defeat and entrapment and mental health outcomes, without longitudinal studies, inferences about the direction of causality cannot be made. This poses a particular problem as whilst it is conceivable that perceptions of defeat and entrapment lead to mental health problems, it could also be stated that the experience of mental health problems is an inherently defeating and entrapping experience for individuals. For example there is a well-established link between poor mental health and social isolation (House, Landis, & Umberson, 1988) and therefore the direction of the relationship is not yet clear. The findings of the prospective studies within this thesis provide potential theoretical applications for future research considering how the relationship between defeat, entrapment and changes in mental health problems; specifically depression, anxiety and caregiver burden. Prospective studies build upon an over-reliance of cross sectional research within the current literature, however amongst the longitudinal research conducted to date, included data has been collected only at two separate time points. Whilst this provides evidence of the predictive value of perceptions defeat and entrapment in the experience of mental health problems, as the relationship has been shown to be bidirectional within some studies (e.g. Chapter 3 within this thesis; Panagioti et al., 2012a; Taylor et al., 2011b), it is difficult to provide strong conclusions regarding the direction of the relationship.

Furthermore, within the limited longitudinal research, a total of only three studies have investigated whether the relationship is bidirectional, two of which are presented within the current thesis. This represents a significant challenge to evaluating the literature,

as currently very little is known about how the relationship develops and changes over time. Specifically, it is unknown whether there are any situations in which the experience of mental health problems predicts increased perceptions of defeat and entrapment, rather than operating in the reverse direction. This issue could be addressed by future research. However, until further research is conducted, using multiple time points across a range of longitudinal study lengths, it is not possible to make causal inferences about the directionality of the relationship. This has implications for the way in which defeat and entrapment are targeted within therapeutic interventions, as they could be targeted as perceptions that influence, result from, or maintain mental health problems, or a combination of these.

To address these issues, research could be conducted within a therapeutic setting looking at how defeat and entrapment affect progress for individuals receiving psychological interventions for the treatment of mental health problems. O'Connor et al. (2013) highlighted that entrapment may be an index of clinical change and thus should be included in research evaluating the treatment of mental health. This would be particularly relevant for individuals who are at risk as suicide, as it is thought that entrapment may represent a component of the pathway to suicidal behaviour (O'Connor et al., 2013). By collecting information at several time points, for example during sessions with a therapist, longitudinal multi-level modelling techniques (e.g. Raudenbusch & Bryk, 2002) could be utilised to establish how scores on scales measuring defeat, entrapment and relevant symptoms change between sessions when receiving an intervention. This would provide more detail on the development of the relationship between defeat and entrapment and mental health outcomes, and would also increase the understanding of how defeat and entrapment may be targeted within therapeutic interventions. Preliminarily, a case study of a single individual could establish whether such research would be plausible and effective for people receiving treatment for mental health problems. This approach is often used to provide initial demonstrations of the efficacy of a treatment in terms of therapeutic benefit

for clients before developing a large-scale intervention to evaluate the treatment (Smith et al., 2007).

7.2.1 Targeting defeat and entrapment within therapeutic interventions

In addition to conducting research to investigate the role of defeat and entrapment within mental health problems, their relevance within therapeutic interventions should also be considered. The following sections will outline ways in which defeat and entrapment could be incorporated into the formulation and treatment phases of therapeutic interventions.

7.2.1.1 Targeting defeat and entrapment within CBT interventions

It is well established that therapeutic interventions are effective for treating mental health problems (National Institute for Health and Clinical Excellence, 2011), however an increased understanding of how defeat and entrapment operate could help to focus interventions on targeting perceptions that may prevent progress in therapy. Currently there are no existing evidence-based interventions that directly target defeat and entrapment, however there may be a strong rationale for targeting defeat and entrapment within such therapeutic interventions, as they are thought to underlie a wide spectrum of psychopathological disorders. Therefore if therapists are aware that an individual is experiencing perceptions of defeat and entrapment, this can be specifically targeted within interventions.

Due to the associations between perceptions of defeat and entrapment and several mental health problems, these factors may be a key target within therapeutic interventions, as reducing perceptions of being defeated and trapped may be a function through which such interventions operate (Taylor et al., 2011a). For example, it has been suggested that some individuals have a cognitive vulnerability towards the experience of emotional disturbance (Harvey et al., 2004), which in certain situations, for example high stress experiences, can lead to and maintain psychological disorders. One therapeutic

intervention programme that is often used to treat mental health problems is Cognitive Behavioural Therapy (CBT). CBT aims to improve everyday functioning by targeting the unhelpful and maladaptive thinking patterns and coping behaviours that maintain the distressing symptoms experienced by individuals (Hendriks, Oude Voshaar, Keijsers, Hoogduin, & van Balkom, 2008), to decrease the levels of emotional disturbance and distress experienced by individuals (Kuipers et al., 2006).

However, although CBT has been demonstrated to be an effective treatment for depression and generalised anxiety (Butler, Chapman, Forman, & Beck, 2006) not all patients make progress as a result of psychological therapy, or experience reductions in their symptoms. As combined defeat and entrapment represents a psychological process that underlies several disorders, treatments that aim to target this process, as opposed to specific symptoms, might be a more efficient way of achieving favourable therapeutic outcomes for patients (Harvey et al., 2004).

There are several ways in which defeat and entrapment could be incorporated into therapeutic interventions involving CBT. Firstly, defeat and entrapment could be incorporated into case formulation by illustrating how they might lead to and maintain problems specific to the individual and indicating where they might be targeted within intervention (Tarrier, 2006). This would involve identifying the potential origins of perceptions of defeat and entrapment, their patterns of development over time and how they are currently manifested for the patient (Sheldon, 2011). For example, in a typical situation where a patient presented with perceptions of defeat and entrapment, illustrating to the patient the behaviours and thinking patterns that are influencing their mental health problems, such as repetitive negative self-appraisals. By exploring core behaviours such as social avoidance that are thought to result from perceptions of defeat, therapists could consider how these are evaluated, for example feeling inferior in comparison to others, to establish which behaviours develop from these perceptions (Gilbert, 2000a). Therapists could also describe to patients how their symptoms may have arisen from entering a

maintenance cycle (the IDS) that might otherwise have terminated following a triggering experience (Sloman, Sturman, & Price, 2011). Furthermore, patients may be encouraged to have their experiences 'normalised' by learning that the feelings of inadequacy and low self-esteem associated with the IDS may function to prevent them attacking people that they would not want to (Sloman et al., 2011), as a component of the IDS is that all individuals have evolved with a sensitivity towards seeking the positive attention of others (Sloman et al., 2003).

Defeat and entrapment could be an important target for psychological interventions (Taylor et al., 2011a; O'Connor et al., 2013). As perceptions of defeat and entrapment are thought to be a self-protective response to aversive situations, the underlying beliefs that lead to these perceptions could be explored within CBT (Swallow, 2000). For example, some individuals may need assistance to assert themselves in social situations; whilst for others the target might be reducing their tendency to retreat from defeat situations as opposed to engaging with and facing their problems (Gilbert et al., 2004a). One strategy for this would be providing clients with skills to help them assert themselves in situations where they may experience success (Price et al., 1994). For example, providing guidelines for clients that suggest helpful ways to think and behave in a more assertive manner (e.g. Williams, 2001), or specific tools such as cards that clients can read repeatedly that emphasise a desire to overcome current problems (e.g. Sloman et al., 2011). Furthermore, clients could also be assisted to overcome small problems or battles to increase their confidence (Sloman, 2008). This is likely to help the client to engage in an adaptive cycle that increases their feelings of self-esteem and self-efficacy (Sturman, 2011).

CBT procedures could also be used to help identify and modify the appraisals of clients in relation to defeat and entrapment. Specifically, perceptions of defeat and entrapment could be focused on within interventions to direct treatment on modifying appraisals that are distressing to the patient. Individuals with high perceptions of defeat and entrapment have been shown to experience particularly high sensitivity towards signals of

defeat (Johnson et al., 2008). This may be particularly relevant within interventions, as it has been shown that illness appraisals that are not focused on within therapeutic interventions do not recover alongside symptoms of mental health problems (Upthegrove et al., 2014). Therefore defeat and entrapment could be focused upon within CBT interventions in two complementary ways. Firstly, if defeating situations are in the past, therapists could guide the patient to cognitively restructure the event (Lee, 2006) and reduce hypersensitivity towards situations or interactions that would usually signal defeat or entrapment to the patient (Malhi et al., 2013). For example, if an individual was bullied over a period of time, they could be guided by a therapist to draw on their knowledge that, despite the seriousness of the situation, they did not experience any persistent loss to their sense of identity of self (Taylor et al., 2011a). As a result of this, the defeating experience could be recoded to the present time, allowing for the inclusion of knowledge that the event could be overcome (Ehlers & Clark, 2000). Secondly, therapists could work with patients to build a more positive and dominant image of the self, by highlighting ways in which they have shown resilience in the face of their defeating and entrapping experiences (Taylor et al., 2011a). This can aid clients to face, and subsequently accept, experiences in their past that cannot be changed, emphasising the role of resilience in their recovery (Bonanno, 2004). Alongside this, successes that they have achieved in the past, despite having experienced these situations, could be highlighted to the client (Tarrier, 2010).

Furthermore, people experiencing high levels of defeat and entrapment are likely to regularly exhibit submissive behaviours, which could also be a target for psychological interventions. Engaging in submissive behaviours reduces the opportunity for individuals to engage in exploratory experiences that could disconfirm negative beliefs they might hold (Salkovskis, 1991). This prevents changes to cognitions underlying these behaviours, which may represent vulnerability towards the experience of mental health problems; as this mechanism is likely to maintain negative beliefs about the self (Birchwood et al., 2000). For example, when engaging in submissive behaviours, an individual with

agoraphobia is unlikely to leave their house, which would allow them to disconfirm their fears about the outside world, therefore they continue to exhibit submissive behaviours. Individuals who engage in submissive behaviours and withdraw from others also receive less positive reinforcement from external stimuli in the environment, which could also be responsible for maintaining their low mood and psychological distress (Ferster, 1973; Martell, Addis, & Jacobson, 2001). Similarly, Sturman (2011) suggested that encouraging clients to identify small challenges in their life that will result in victories that have potential to increase their confidence and mastery, by entering an adaptive cycle whereby victories increase self-efficacy and confidence, leading to further victories. Therefore, altering individuals' perceptions of defeat and entrapment is likely to influence their behaviours and thoughts and should lead to improved well-being alongside reduced distress for individuals. This may be more relevant to improving the general quality of life of individuals than specifically targeting a reduction of symptoms (Wykes, Steel, Everitt, & Tarrier, 2008). Furthermore, ruminating on perceptions of defeat and the lack of escape options may be a key factor in the relationship between defeat and entrapment and mental health problems (Gilbert et al., 2004a). Therefore by targeting the underlying processes of mental health problems, clients may experience greater changes in observable symptoms. For example, this could be done within a CBT setting by providing clients with a contingency plan for a situation that they feel they would be unable to escape from, to demonstrate to individuals that if the relevant situation arose, escape would be possible (Swallow, 2000), or by highlighting to individuals ways in which they have control over the symptoms that they experience (Chadwick, Sambrooke, Rasch, & Davies, 2000), which may be particularly relevant for individuals with psychosis.

Clinicians could also be encouraged to promote and increase the patient's self-acceptance, by showing an accepting attitude towards them, rather than focusing purely on the changes the patient needs to make (Clark, 2012). This may be particularly relevant for individuals who frequently have defeating and entrapping experiences and are disappointed

or dissatisfied with past life events (Fava & Ruini, 2003). As accepting a defeating situation helps individuals to overcome it (Sloman, 2000), by acknowledging that such aversive situations are going to continue to occur, and form a part of the self, patients may be more prepared to accept such experiences. Therapists could then work alongside the patient to equip them with tools to manage aversive situations; such as reconceptualising the appraisals an individual holds about the personal and social resources they have to cope with such situations (Folkman et al., 1991; Taylor et al., 2011). Additionally, the specific circumstances that triggered an individual's perceptions of defeat and entrapment could be positively reframed as providing clear information regarding what the individual values most in their life (Siddaway & Sloman, unpublished).

Furthermore, traumatic experiences and high levels of stress in childhood are thought to lead to maladaptive responses to defeat situations experienced in adulthood (Sloman et al., 2003). This suggests that aversive situations affect responses much later in life, therefore defeat and entrapment may underlie a general cognitive vulnerability towards psychological distress and may act as triggers for the development of mental health problems. Therefore, working with clients to highlight their successes across their lifetime, and emphasizing the ways that they have shown resilience in the face of past aversive situations, which may influence their current defeat and entrapment, may benefit patient outcomes by allowing individuals to build a more positive image of the self (Tarrier, 2010).

Additionally, rather than impacting directly on the symptoms associated with mental health problems, for example withdrawal or extreme mood changes, perceptions of defeat and entrapment may influence the development of maladaptive coping strategies, such as rumination on a previously experienced event. Such strategies are likely to maintain and increase feelings of defeat and entrapment even when the situation is no longer relevant to the individual (Gilbert, 2001; Sloman et al., 2003). This would suggest that targeting the feelings of defeat and entrapment, which are thought to underlie the

experience of mental health problems, would engender individuals to develop more adaptive coping strategies, rather than maladaptive strategies such as submitting too easily to others and could also provide greater resilience to defeat situations. This in turn could lead to a reduction of symptoms through strategies such as behavioural activation, which encourages clients to engage in situations and activities that lead to positive reinforcement, breaking the cycle of maladaptive coping, which may result from a desire to avoid any social situations that may induce a negative mood (Cully & Teten, 2008), and may have a role as a defensive strategy for use in social competitions (Gilbert, 2000a). Clients could also be encouraged to alter their social goals, expectations and values, which could alter their sensitivity towards signals of defeat and entrapment (Johnson et al., 2008a). For example, individuals who have set unobtainable goals for themselves regarding successful employment might benefit from being encouraged to focus on successes in other areas of their life, where they may be achieving goals, for example family roles and participation in sport (Siddaway & Sloman, unpublished).

7.2.1.2 Targeting defeat and entrapment within Broad-Minded and Affective Coping interventions

A further therapeutic intervention that could be used to target defeat and entrapment is the Broad-Minded and Affective Coping (BMAC; Tarrier, 2010) procedure. This aims to improve mood by encouraging clients to recall positive memories from their past and can be used in conjunction with other forms of psychological therapy, such as CBT, to facilitate positive emotions being experienced (Tarrier, 2010). This contrasts traditional psychological therapies, which focus on the reduction of symptoms or negative experiences (Johnson et al., 2013). However, it has been suggested that treatment could be optimized by the inclusion of interventions designed to boost positive moods (Wood & Tarrier, 2010) and encourage resilience. This therapy aims to broaden the range of cognitive and behavioural repertoires that clients can access, by asking individuals to recall

specific memories and providing prompts to encourage the most vivid and detailed memory possible. Therefore BMAC could be used with clients with perceptions of defeat and entrapment, as this could prevent individuals from becoming overly focused on the themes of inescapability and defeat (Tarrier, 2010). Previously, the use of the BMAC with patients with PTSD has shown that the intervention successfully increased the experience of positive emotions and decreased the experience of negative emotions (Panagioti et al., 2012b). However, although they were measured, feelings of defeat were not specifically targeted within this intervention, and perceptions of defeat and hopelessness were lower at the first follow-up after the intervention. This suggests that BMAC has potential as a therapeutic intervention specifically to target perceptions of defeat and entrapment. Indeed, it was concluded that integrating the BMAC into therapeutic interventions for those with high levels of perceptions of defeat and hopelessness could provide tools for resilience against the development of negative thoughts and behaviours, by focusing on reducing the severity of these perceptions (Panagioti et al., 2012b).

7.2.1.3 Targeting defeat and entrapment with Compassion Focused Therapy

An additional form of therapeutic intervention that could be used to target perceptions of defeat and entrapment is Compassion Focused Therapy (CFT; Gilbert, 2009), which has been developed from the evolutionary models that also underpin the Involuntary Defeat Strategy; specifically that evolutionary processes such as social comparison and are systems implicated in the experience of mental health problems (Gilbert, 2014; Taylor et al., 2011a). CFT is based upon the understanding that evolutionary constructs, such as shame, self-criticism and defeat, underlie the experience of a range of mental health problems (Gilbert, 2014). CFT aims to deactivate the IDS and clients are encouraged to shift cognitions that are threatening towards the self and often lead to clients' perceiving that they have a reduced sense of control over their mental state (Birchwood et al., 2000). For example, defeating, self-critical or shaming cognitions could be shifted to more compassionate cognitions that promote positive affect (Braehler,

Harper, & Gilbert, 2013). CFT has been recommended for people with eating disorders, to facilitate the acceptance of defeating situations and reduce threats towards the self (Troop et al., 2013). Through CFT, clients could be encouraged to reflect on their current mood and feelings towards the self, and consider how defeating experiences have influenced this mood (Gilbert, 2014). This may be particularly relevant for clients who ruminate on perceptions of defeat as this may act as a direct attack on the self, which would precede further feelings of defeat and inferiority (Carvalho et al., 2013) and this may amplify rumination, even if an individual has successfully escaped from the initial situation of defeat (Traschel et al., 2010). Therefore therapists could explain to clients how ruminating on these thoughts is problematic to them and how to refocus their thinking in a compassionate way (Gilbert, 2009). This explains to clients that ruminating may be preventing them from overcoming past defeating experiences (Sloman, 2000). This would involve increasing the client's understanding of how ruminating on negative events stimulates their threat protection system and subsequently leads to stress and negative mood (Gilbert, 2009), providing barriers to the recovery process (Braehler et al., 2013). Although the value of CFT as a therapeutic intervention for targeting perceptions of defeat and entrapment has not yet been specifically established, as specific avenues through which defeat and entrapment could be targeted have been highlighted, the efficacy of CFT should now be considered and empirically tested.

7.3 Defeat and entrapment as transdiagnostic processes

Current evidence suggests that defeat and entrapment are reliable predictors of depression, anxiety, PTSD and suicidality, and has focused specifically on these four psychological problems. However, if taking a 'disorder focused' approach, there are many more mental health problems that defeat and entrapment are yet to be tested in relation to.

There appears to be clear underlying reasons for the relationship between defeat, entrapment and mental health problems being studied first in relation to these four

outcomes (Taylor et al., 2011; Siddaway et al., 2014). Depression and anxiety represent the most common mental health problems amongst adults in the general population (Carek, Laibstain, & Carek, 2011), whilst suicidality represents a significant issue to mental health services, as rates of suicide continue to increase (Chakravarthy, Frumin, & Lotifipour, 2014). PTSD rates have also shown increases during recent years. This may be partly accounted for by increasing numbers of war veterans from the Afghanistan and Iraq wars, for example 35% of veterans in the USA have reported symptoms of PTSD since returning home (Veterans for Common Sense, 2012).

Therefore, prioritizing research in the four areas outlined above and exploring the clinical implications of this research would be expected to lead to the maximum possible benefits to mental health services (Siddaway, 2013). Furthermore, it is thought that the concept and perception of defeat is equivalent within depression, suicidality and PTSD (Sloman et al., 2003; Taylor et al., 2011a). Although, now the relationship with these mental health problems has been well established, research should now consider the impact of defeat and entrapment on other mental health outcomes, such as schizophrenia spectrum disorders and bipolar disorder. It has been suggested that even mild stressors are likely to trigger perceptions of defeat and entrapment, alongside suicidal ideation amongst individuals with bipolar disorder, during a depressive phase (Malhi et al., 2013). This suggests that defeat and entrapment may be key predictors of suicidal ideation amongst individuals with bipolar disorder, however, there is no existing evidence supporting these proposals. Furthermore, other psychological processes, such as attentional biases, have been found to be common across many mental health disorders (Harvey et al., 2004), acting as transdiagnostic processes, therefore it would be beneficial to examine whether perceptions of defeat and entrapment also operate in this way. The following section will discuss and consider this.

7.3.1 Comorbidity amongst mental health problems

Over half of patients who seek help from mental health services experience symptoms representative of at least two mental health disorders and currently there is limited empirical evidence to guide practitioners on treating multiple disorders (National Institute for Health and Clinical Excellence, 2011). It has been proposed the comorbidity of two or more mental health problems may represent a general cognitive vulnerability towards the experience of emotional disturbance (Harvey et al., 2004), which in certain situations, such as high stress, can lead to psychological disorders. There is evidence of core transdiagnostic psychological processes that underlie the development of a range of different disorders, for example depression and anxiety (Bird, Mansell, Dickens, & Tai, 2013). Treatments that aim to target these processes, as opposed to specific symptoms, may be more efficient in achieving favourable therapeutic outcomes for patients (Harvey et al., 2004). Furthermore, NICE recommendations explicitly state that practitioners should consider comorbid disorders when identifying the most appropriate treatment plan for a patient (National Institute for Health and Clinical Excellence, 2011). This demonstrates the importance of treating the current and observable symptoms and also any underlying factors that may be influencing these.

As defeat and entrapment have been implicated in the development and maintenance of several psychopathological disorders, such as depression and anxiety (e.g. Sturman & Mongrain, 2008a; Kendler et al., 2003), they may represent transdiagnostic processes that can affect patient outcomes in therapeutic interventions. Defeat and entrapment have previously been conceptualised as core dysfunctional beliefs, as a component of the Involuntary Defeat Strategy (Swallow, 2000) and are associated with both a lack of motivation for escape and ability to escape from an aversive situation, as well as a lack of available solutions to the individual to resolve the situation (Johnson et al. 2008a). Therefore they could be important predictors of which patients respond well to therapy, as people experiencing high levels of defeat and entrapment are less likely to see

or envisage any escape routes from their current situation that could lead to a reduction in distress. Furthermore, individuals who perceive that they consistently experience defeats may be particularly sensitised towards losses and see this as particularly significant (Swallow, 2000). Consequently such patients may make less progress in treatment settings, as they are less willing or ready to make the necessary changes that could help them to make progress in therapy. Furthermore, understanding how defensive strategies that are associated with defeat and entrapment have developed may help to establish similarities and differences between mental health problems (Gilbert, 2000a). Therefore research should now consider the role of defeat and entrapment within the therapeutic process for the treatment of mental health problems.

7.3.2 The lack of current measurement of defeat and entrapment in clinical settings

Despite there being a strong rationale for measuring defeat and entrapment in clinical settings, to date there has been no longitudinal research considering how defeat and entrapment may impact on mental health problems by regularly measuring these within clinical settings, particularly throughout the process of therapeutic interventions. There have been several suggestions that defeat and entrapment may impact on reducing negative symptoms in therapeutic settings (e.g. Gilbert, 2001; Leahy, 2000), and could provide an alternative conceptualisation of traditional treatments for mental health problems (Swallow, 2000) through focusing on underlying perceptions rather than the symptoms presented. However, this does not appear to have translated to clinical practice.

The traditional model of mental health treatment has focused on targeting and treating the symptoms that patients report that are associated with diagnosable psychological disorders upon referral to therapeutic settings, using a ‘disorder specific’ approach (Harvey et al., 2004). Whilst this has led to effective treatments being developed for several mental health problems, this had also resulted in many different treatments being developed for specific disorders (Bird et al., 2013), each with distinct assessment and

treatment protocols (Mansell, Harvey, Watkins, & Shafran, 2009), despite the increasing evidence of high comorbidity between psychological disorders. For example, comorbidity of depression and anxiety disorders has been estimated at 50% (Hirschfield, 2001) and it is thought that over half of individuals with one mental health diagnosis also have at least one further diagnosis (Kessler, Chiu, Demler, & Walters, 2005). Additionally, the lifetime comorbidity between depression and generalised anxiety disorder has been reported at 80% (Judd et al., 1998). In the case of comorbidity, clinicians often aim to identify and treat a primary disorder, whilst hoping that the symptoms of any additional disorders will also be reduced by the treatment (Harvey et al., 2004). This may result in core perceptions underlying the disorder, such as defeat and entrapment, which are closely related to several mental health problems, being ignored in favour of targeting 'disorder specific' symptoms. However, this form of treatment often leaves patients with residual symptoms following treatment (Menza, Marin, & Opper, 2003), as it is unlikely that all of an individual's symptoms will be specifically related to one disorder. Whereas, considering mental health from a transdiagnostic process may provide an explanation for the high comorbidity rates commonly observed within clinical settings (Harvey et al., 2004). This approach allows the measurement and treatment of not only the symptoms associated with specific disorders, but also the opportunity to establish whether there are underlying processes that may be maintaining the symptoms, such as defeat and entrapment, that could be common across a range of disorders. Thus, the evidence is currently shifting to recognize that disorders may share underlying processes, and treatments are being developed that are designed to target these underlying processes, with the aim of being effective for individuals presenting to services with a range of problems (Bird et al., 2013; Mansell et al., 2009).

As defeat and entrapment are not currently recognized within a disorder-focused approach as processed related to a specific psychological disorder within the classification system, they are rarely featured as target processes in therapeutic interventions. As defeat and entrapment are closely related to depression and anxiety, they may not be explicitly

noted as target symptoms within therapeutic interventions, as the aim of such treatments is to reduce the diagnosable symptoms of the disorder. As outlined above, by using the transdiagnostic approach and focusing on the processes maintaining specific symptoms, defeat and entrapment could become targets for reduction within therapeutic interventions.

However, whilst the current 'disorder focus' within clinical settings may partly account for the lack of measurement of defeat and entrapment could also be influenced by a current lack of short measurement tool that could be repeatedly administered. The economical measurement of health variables is a necessity within clinical settings, where the priority is the delivery of effective therapeutic interventions rather than providing repeated measurement of outcomes for research or evaluation purposes. However, to increase the utilisation of health measures being collected within clinical settings, short forms of many measures have been developed, although there is still demand for such measures to continue being developed (Mühlan et al., 2008). On this basis, alongside the increasing evidence that defeat and entrapment should be measured as one construct, the Short Defeat and Entrapment Scale (SDES) was developed within this thesis. The original *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998) consist of 16 items each, which reduce the likelihood of defeat and entrapment being measured in clinical settings, due to the time burden associated with administering these scales. It is hoped that the development of this scale will lead to the increased measurement of defeat and entrapment within therapeutic settings, on the basis that they have been shown to predict psychopathological outcomes, and therefore may have a role in the formulation, or as target symptoms, of therapeutic interventions.

7.4 Suggestions for future clinical work involving defeat and entrapment

Within the current thesis, combined defeat and entrapment has been shown to reliably predict depression and anxiety within a community sample recruited from socioeconomically deprived areas (Chapter 3) and caregiver burden and depression within

a sample of formal caregivers (Chapter 4). This demonstrates the relevance of defeat and entrapment to novel populations, more representative of the general population that the samples recruited for previous studies within the literature. However both of these longitudinal studies only investigated the relationship between defeat, entrapment and psychopathological outcomes at two time points that were twelve months apart. Within the community sample, depression and anxiety scores were also shown to predict defeat and entrapment twelve months later, suggesting that the relationship between these factors requires further evaluation to establish the causality. Therefore further work is necessary to establish the temporal precedence within this relationship, to allow causal inferences to be drawn. This would have implications for both research and clinical settings.

The development of the Short Defeat and Entrapment Scale (SDES; Chapter 6 of the current thesis) enables defeat and entrapment to be measured routinely during the formulation and evaluation of therapeutic interventions for mental health disorders, specifically to measure change in symptoms and general psychological well-being on a session-by-session basis. The inclusion of defeat and entrapment within initial assessments of patients within mental health services has potential to identify whether individuals can visualise escape routes from their current situation, which would help to establish whether such individuals are ready to accept changes that would be expected to arise during therapeutic intervention. O'Connor et al. (2013) highlighted that entrapment in particular should be included in clinical assessment as it may be an index of clinical change for individuals with mental health problems. The inclusion of defeat and entrapment in initial assessments of individuals could help to identify the most appropriate treatment for patients, as levels of readiness to change can be used to inform which treatment or interventions patients receive (Zeidonis & Fisher, 1994), in order to provide them with the most appropriate services and plan their future care. Patients who report low readiness to change have been shown to experience the highest drop-out rates from therapy, and patient's subjective experience of change during the initial stages of treatment is a reliable

predictor of the outcomes of their treatment (Duncan & Miller, 2000). However it is unclear whether readiness to change directly affects patient outcomes, or acts as a mediator for factors such as defeat and entrapment, which are associated with a lower motivation to change. For example, it is thought that due to a heightened sensitivity towards losses, individuals who have high perceptions of defeat and entrapment may show lower acceptance of losses than those with low perceptions (Swallow, 2000). Examining this relationship would allow clinicians to ensure that therapy can be targeted specifically towards factors and symptoms that would lead to the greatest change possible.

Defeat and entrapment have been shown to predict the experience of several mental health problems, and are therefore thought to be transdiagnostic processes associated with a general cognitive vulnerability towards emotional distress, rather than a predictor of specific disorders. However, there are further mental health problems that have not been investigated in relation to defeat and entrapment. These need to be considered in cross-sectional and longitudinal research to increase the overall understanding of how defeat and entrapment influence mental health problems and negative outcomes for individuals, to provide further clarity on the direction of the relationship and also to establish whether defeat and entrapment act as transdiagnostic processes for all mental health problems, not just the specific disorders that have they have currently been investigated in relation to. This has implications for therapeutic interventions, as those that aim to target transdiagnostic processes, as opposed to specific symptoms, may be more efficient in achieving favourable therapeutic outcomes for patients (Harvey et al., 2004). For example, targeting maladaptive thinking patterns and coping behaviours that maintain distressing symptoms within CBT (Hendriks et al., 2008), rather than exclusively targeting specific symptoms associated with mental health problems. As demonstrated above, Cognitive Behavioural techniques could be used to target feelings of defeat and entrapment in therapeutic interventions. One example of this would be to establish the role of defeat and entrapment as transdiagnostic processes for clients referred for CBT as an intervention for

mental health problems. By collecting baseline measures of perceptions of defeat and entrapment (before individuals begin receiving treatment), as well as questionnaires specifically related to their symptoms, and following therapy sessions, session-by-session change in defeat and entrapment could be used to evaluate mental health outcomes for clients.

7.5 Conclusions

The current chapter has demonstrated how the concepts of defeat and entrapment could be integrated into therapeutic interventions, based on the current position in the literature that these perceptions arise from biased social comparisons and impact on the development and maintenance of numerous mental health problems. Despite the current methodological issues that may have impacted on the measurement of defeat and entrapment in clinical settings, it is hoped that the development of the SDES provides an avenue to overcome these issues. The role of defeat and entrapment within several aspects of clinical symptomatology places them as transdiagnostic processes that could represent a key target for therapeutic interventions. Specific examples for ways in which defeat and entrapment could be integrated into such interventions, for example within CBT, have been outlined within this chapter.

CHAPTER 8

8 General Discussion

The following chapter will summarise the key findings presented within the empirical chapters of this thesis. The findings from these chapters will then be discussed within the context of the existing literature. Additionally, the limitations of the work within this thesis will be addressed and potential mediating variables will be considered. Finally, important questions for future research will be discussed.

8.1 Summary of key findings

8.1.1 The prospective role of defeat and entrapment in depression and anxiety

The aim of Chapter 3 was to test the hypothesis that perceptions of defeat and entrapment would predict the experience of depression and anxiety 12 months later, among a community sample recruited from areas of socioeconomic deprivation. Previous literature provided strong evidence that a cross-sectional relationship between these factors exists, although longitudinal research in this area was very limited. It was expected that perceptions of defeat and entrapment would predict the experience of depression and anxiety at a second time point 12 months later.

The findings of the current thesis demonstrated that perceptions of defeat and entrapment significantly predicted the experience of depression and anxiety 12 months later. Additionally, levels of depression and anxiety at the first time point also predicted perceptions of defeat and entrapment at the second time point. Further analyses also revealed that this relationship was standardised across individuals who were experiencing low levels of depression and anxiety, and those experiencing high ‘clinically relevant’ levels of depression and anxiety.

The results of this study extend the previous literature by providing the first prospective evidence for defeat and entrapment in the experience of depression and anxiety

within a community sample. Previously this has only been considered within samples of individuals with specific mental health diagnoses, the majority of which have looked at follow-ups during the course of the illness (e.g. schizophrenia spectrum disorders, Iqbal et al., 2000; Rooke & Birchwood, 1998), rather than follow-ups with individuals after they have received treatment, who no longer meet the criteria for diagnosis of a specific mental health problem. By using such specific samples, the existing literature has so far been unable to indicate how the relationship between defeat, entrapment and mental health problems operates within the general population. Additionally, the constructs of defeat and entrapment may be particularly relevant socioeconomically deprived samples. For example, perceptions of entrapment may be prolonged as a consequence of an individual growing up in an environment where they were unable to exert a substantial amount of control. This is likely to result in individuals who have learned whilst growing up that behaving in a submissive manner is the only option available to them, and who are particularly sensitive to threats within social situations (Williams, 1997). Such individuals would be expected to be more vulnerable as adults to the experience of mental health problems than those who grew up in an environment where they were able to exert a greater amount of control (Marmot & Wilkinson, 2005).

Furthermore, the current study was also the first longitudinal study that measured defeat and entrapment with the *Defeat Scale* and *Entrapment Scale* (Gilbert & Allan, 1998), which are acknowledged as being the most widely used assessments of defeat and entrapment in the existing literature (Taylor et al., 2011a). Additionally, it has been suggested that alternative scales that have previously been used require further psychometric evaluation (Birchwood et al., 2012; Taylor et al., 2011a), which brings into question the validity of findings from studies using such measures and subsequently it is unclear whether the concepts of defeat and entrapment were being accurately measured within these studies.

The current sample was recruited from a socioeconomically deprived area, where individuals are potentially more 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, 2010). 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). Individuals of low socioeconomic status also face higher rates of morbidity and mortality in comparison to those of higher socioeconomic status (Department of Health and Social Security, 1980). Furthermore, the lack of access to resources leads to a lower standard of living for such individuals (Ganzini, McFarland, & Cutler, 1990) and elevated levels of stress and frustration that are associated with socioeconomic deprivation, leading to health problems that prevent individuals from entering employment (Adams et al., 2004). Alongside these issues, a perceived lack of control is common in individuals experiencing socioeconomic deprivation (Ross et al., 1990), which often precedes mental disorders including depression (Dixon et al., 1989). For example, when it becomes apparent to an individual that they lack control over aspects of their life that they perceive to be important, their initial response may be anger. Furthermore, as the perceptions of failure increases, or individuals feel like they have been rejected, they are more likely to experience feelings of hopelessness and defeat (Williams, 1997). However, as perceptions of defeat may be continuous rather than related to a single event (Sturman & Mongrain, 2008b), when high levels of defeat and entrapment are combined with the environmental pressures that individuals are already faced with in situations of socioeconomic deprivation, such as high levels of unemployment (Perkins & Rinaldi, 2002), the potential consequences would be the

experience of mental health problems. Therefore predicting the experience of mental health problems for individuals living in such areas is greatly important.

8.1.2 The prospective role of defeat and entrapment in caregiver burden and depression amongst formal caregivers

The aim of Chapter 4 was to extend the longitudinal research from Chapter 3 to a population that is known to experience high levels of caregiver burden and depression. It was expected that perceptions of defeat and entrapment would predict the experience of caregiver burden and depression at a second time point 12 months later.

Formal caregivers were expected to experience elevated levels of defeat and entrapment, due to their caring role, and individuals employed in the social care sector are also at elevated risk of developing stress and work related illnesses (Testad et al., 2010).

The findings within the current thesis demonstrated that perceptions of defeat and entrapment predicted the experience of depression and caregiver burden 12 months later. However, in contrast to the previous chapter, levels of depression and caregiver burden at the first time point did not predict perceptions of defeat and entrapment at the time point 12 months later. It was anticipated that caregiver burden would not predict the experience of defeat and entrapment, as there have been suggestions that burnout and caregiver burden develop over time (e.g. Brodaty et al., 2003), and may arise as a result of feelings of entrapment within a job role (Maslach, 2003), demonstrating a relationship that operates in a single direction. This was in contrast to the results of the previous chapter and suggests that in certain situations, defeat and entrapment may precede the experience of mental health problems. This supports the IMV model of suicide (O'Connor et al., 2012), which proposes that there are motivational and volitional moderators, such as social support that impact on whether an individual's perceptions of defeat and entrapment lead to suicidal behaviour. The relationship between combined defeat and entrapment and subsequent

caregiver burden may operate in a similar way, whereby a lack of social support, decreased control in a job role and additional demands may increase the likelihood of individuals experiencing caregiver burden (Boekhurts et al., 2008). However, further research needs to be conducted to establish whether these potential moderating factors influence the experience of caregiver burden in the way hypothesised here.

The results of this study extend the previous literature by providing the first prospective evidence for defeat and entrapment in the experience of caregiver burden and depression amongst formal caregivers. Previous research that has demonstrated a link between entrapment and depression (Martin et al., 2006; Willner & Goldstein, 2001), and defeat and depression (Willner & Goldstein, 2001) has firstly been cross-sectional and secondly has been conducted with samples of informal caregivers who are unpaid and care for family members. Therefore, prior to the current study it was not known whether the relationship between defeat and entrapment and mental health problems for formal caregivers operated in the same way as the relationship for informal caregivers. There are implications for education and training about defeat and entrapment as potential 'warning signs' of caregiver burden that have arisen as a result of these findings and could be implemented by employers within care organisations. For example, interventions with formal caregivers who report high levels of defeat and entrapment might be helpful in identifying potential situations within the workplace that precede and influence perceptions leading to depression and caregiver burden. This may also help formal caregivers to reflect on and alter their responses to these situations. Such interventions could be formulated to specifically target defeat and entrapment (e.g. Tarrier, Gooding, Gregg, Johnson, & Drake, 2007). For example, individuals who feel that they are unable to meet their goals of effectively caring for every resident within a home could be guided to alter their goals to focus on their achievements with individual residents, rather than to focus on the failures, such as that they are physically unable to effectively care for all residents within the Care

Home on their own, despite a desire to ensure that all residents receive the highest standard of care possible.

The results of this study are not limited to care organisations. The experience of mental health problems by employees is a significant problem for businesses generally in the UK, accounting for many periods of long-term sickness from the workplace (Little, Henderson, Brohan, & Thornicroft, 2011) and has a significant negative financial impact for companies, accounting for up to £8 billion losses across the UK annually. Recently there has been a national focus on reducing stigma and increasing awareness of mental health problems in the workplace (Evans-Lacko, Henderson, & Thornicroft, 2012). For example, many training programmes have been developed to increase employers' awareness of mental health within the workplace and how to effectively deal with this without prejudice. Therefore, any factors that may influence the development of mental health problems and could help employers to identify individuals who may be at risk of developing such problems would in theory be welcomed. Such factors could be measured routinely within occupational settings, although this is not common practice currently. Training programmes for employees often include psychometric measures designed to assess factors such as learning style and responses to stress. Through the inclusion of the SDES within such training packs, employers would be able to identify employees who may require increased levels of support from their supervisors. However the likelihood of such measures being used regularly would be expected to vary from business to business dependent on the priorities within the company.

8.1.3 The influence of defeat and entrapment on reward sensitivity

The aim of Chapter 5 was to establish whether perceptions of defeat and entrapment were associated with reward sensitivity, as measured by performance on a gambling task. Defeat and entrapment were expected to affect how individuals respond to future problems, as feeling defeated and entrapped could influence reward sensitivity and

decision-making. It was hypothesized that individuals with higher levels of defeat and entrapment would perform poorly on the gambling task, as they would be desensitised towards future outcomes and punishment. It was expected that when the initially rewarding decks become punishing, individuals with higher defeat and entrapment would be less adaptive in their strategy to improve their performance.

This was the first test of defeat and entrapment employing a behavioural task and measure of reward sensitivity. Previous research has investigated the relationship between low mood and reward sensitivity Suhr and Tsanadis (2007) and found that participants showed poor and high-risk performance on the IGT, whereas Peters and Slovic (2000) found that participants showed low risk performance. This suggests that factors associated with negative affect, such as defeat and entrapment, may affect performance in various ways dependent on other factors that are yet to be formally identified.

In the current study, defeat and entrapment were found not be related to performance on the IGT. This was contrary to our hypothesis, although might in part be accounted for by the defeat and entrapment scores of participants within the sample being generally very low (M = 25.8 out of a possible 256), whilst there were still large variations in performance on the IGT, which could be accounted for by various factors. Firstly, gender differences have been found in IGT performance (Bolla, Eldreth, Matochik, & Cadet, 2004) and we did not recruit a sample with equal numbers of males and females, as this would not have been practical with a psychology course undergraduate sample, where the majority are female. Additionally, it is thought that approximately 20% of individuals are unable to successfully learn how to complete the IGT. Furthermore, a recent review of forty studies has demonstrated that in many situations, healthy participants violate the assumptions that they will perform well on the task, making advantageous decisions (Steingroever et al., 2013). This suggests that the Iowa Gambling Task may not be fully appropriate for measuring reward sensitivity amongst healthy individuals (Steingroever et

al., 2013). Within the current study, we found the majority of individuals within our sample to have low scores for defeat and entrapment, therefore those who were and were not able to perform well on the task are unlikely to have been differentiated on the basis of their defeat and entrapment score. This study could now be applied to samples that would be likely to report a wider range of defeat and entrapment scores, where scores may differentiate performance on the task and where the task may be more appropriate for use. However, as there is currently very limited evidence as to whether there are any mechanisms that mediate the relationship between combined defeat and entrapment and subsequent mental health problems, this could be a focus for future research measuring defeat and entrapment. A greater understanding of the mechanisms through which defeat and entrapment impact on mental health problems has the potential to help to focus and develop therapeutic interventions for a range of disorders (Salkovskis, 2002).

8.1.4 The development of the Short Defeat and Entrapment Scale (SDES)

Based on the findings within this thesis and the wider literature that defeat and entrapment are best conceptualised as a single construct (e.g. Chapter 3 within this thesis, Taylor et al., 2009), within Chapter 6 we aimed to develop a single short (eight item) scale to measure defeat and entrapment. The scale was validated within both clinical and non-clinical samples. The structure of the scale was tested, which confirmed that a one-factor solution was most appropriate for defeat and entrapment. The scale demonstrated good psychometric properties across four samples; a community sample, the sample of formal caregivers recruited for Chapter 4, a sample of patients with PTSD and a sample of patients with schizophrenia spectrum disorders. Scores on the scale were shown to have stability across 12 months and were related to depression, anxiety and hopelessness.

As the demand for economy of measurement within clinical research continues to increase (Mühlan et al., 2008), the development of this scale provides an opportunity for the routine measurement of defeat and entrapment in therapeutic settings and research

settings where response burden is problematic. Use of the scale is supported by the strong correlations between defeat, entrapment and a range of mental health problems. It is further supported by theoretical positions that see the construct as a key transdiagnostic factor underlying several disorders (Taylor et al., 2009). The development of the scale also provides a form of measurement of defeat and entrapment that is more time efficient than the original scales, making it particularly appropriate for use in populations where the time taken to complete measures is relevant, for example amongst individuals living with dementia or individuals with mental health problems that affect their attention span.

8.2 Theoretical implications

The results outlined above demonstrate that defeat and entrapment are significant predictors of negative mental health outcomes for individuals from several populations, in cross-sectional and longitudinal studies. However, the results also demonstrated that defeat and entrapment were not associated with reward sensitivity. From the previous literature, a clear cross-sectional relationship between defeat, entrapment and negative mental health outcomes had been demonstrated, however a very limited amount of longitudinal research currently exists.

8.2.1 Conceptualising defeat and entrapment

The studies within this thesis provide theoretical advances in the debate concerning the structure and conceptualisation of defeat and entrapment, which has been the subject of much debate. Several findings within this thesis demonstrated that defeat and entrapment should be considered as a single factor. The Exploratory Factor Analyses (EFA) conducted in Chapters 3 and 6 and Confirmatory Factor Analysis (CFA) conducted in Chapter 6 provided direct evidence for the structure of defeat and entrapment as a unitary construct. This builds upon existing theoretical views and literature, suggesting that defeat and entrapment should be conceptualised as one construct, which represents a failed struggle (Taylor et al., 2011a). As the ‘failed’ component suggests that the struggle cannot be

escaped from, this encompasses perceptions of both defeat and entrapment. The research presented in the current thesis begins to provide some resolution for the debate surrounding the structure of defeat and entrapment. Only two EFA have previously been conducted for defeat and entrapment, both of which have demonstrated that a single factor underlies defeat and entrapment (Taylor et al., 2009; Sturman, 2011), however both of these were conducted with samples of undergraduate students.

These analyses support theories that defeat and entrapment capture a single common underlying psychological construct. This construct has been conceptualized as representative of an arrested or dysfunctional IDS process which individuals are unable to escape from (Taylor et al., 2011a; Sturman, 2011). This has been supported by evidence that defeat and entrapment are core components of a latent IDS variable (Sturman, 2011). However, as existing tests of the structure of defeat and entrapment only considered one time point, it is still unclear whether there is any temporal distinctness between defeat and entrapment in certain situations, as suggested by the Cry of Pain model (Williams, 1997).

There are several arguments against the conceptualisation of defeat and entrapment as a single construct. Gilbert and Allan (1998) devised the *Defeat Scale* and *Entrapment Scale* on the basis that the two constructs are distinct from one another and are differentially activated. However, they suggested that if individuals focus on perceptions of entrapment, they would experience an increase in feelings of entrapment (Gilbert & Allan, 1998). Several theories since have proposed that defeat and entrapment are independent responses to stressful experiences (O'Connor et al., 2012; Sloman et al., 2003). In such situations, a stressor influences perceptions of defeat; however perceptions of entrapment are only experienced if the motivation to escape is blocked. Support of these theories comes from the awareness of situations where an individual may be entrapped in a situation, but do not become defeated. An example provided by an anonymous journal reviewer suggested that differences exist between a person who feels defeated because he

is unrealistically ambitious beyond his skills or intelligence, and therefore continuously experiences rejections and failures but continues to seek achievements, and an individual who feels entrapped and defeated in a situation of domestic violence. However, the definition of defeat is that it is a 'failed struggle' (Gilbert & Allan, 1998). A key concept of this definition is that following continuous rejections and failures, unless an individual has given up and cannot see ways in which they could improve or move forward (Rooke & Birchwood, 1998), they cannot be said to be defeated or entrapped, in the sense of the definition provided by Gilbert and Allan (1998).

Despite these arguments, evidence for a single construct provided by exploratory and confirmatory factor analyses has been presented in the current thesis and supported by previous exploratory and confirmatory factor analyses also demonstrating that defeat and entrapment are best defined within a single factor (Taylor et al., 2009; Sturman, 2011). There have also been demonstrations that defeat and entrapment are highly inter-correlated (e.g. $r = .83$, Panagioti et al., 2012a; $r = .81$, Rasmussen et al., 2010), which would suggest that to include defeat and entrapment as separate predictors in any model would leave the findings vulnerable to inappropriate conclusions as a result of multi-collinearity. This is an issue for any correlations greater than $r = .80$ (Tabachnick & Fidell, 2007), which correlations between defeat and entrapment have consistently exceeded.

8.2.2 The relationship between combined defeat and entrapment and mental health problems

The research presented in the current thesis provides further evidence that defeat and entrapment are associated with, and predict, several mental health outcomes, specifically depression, anxiety and caregiver burden.

Prior to the current thesis, a very limited amount of longitudinal research had been conducted. Therefore, whilst there were well-established links between defeat, entrapment and various mental health outcomes, it was not known whether the experience of defeat

and entrapment influenced subsequent mental health problems. The results of Chapter 3 and Chapter 4 provided contrasting findings on whether the longitudinal relationship between defeat, entrapment and mental health problems exists in a linear or bidirectional way. Previous to the work conducted in the current thesis, only one study has considered whether the relationship between defeat, entrapment and mental health operates in a bidirectional way (Taylor et al., 2010). This study demonstrated that defeat and entrapment both influence and are influenced by the experience of poor mental health. Although as this research was cross-sectional, the results are unable to establish whether this relationship remained on a longitudinal basis.

Within the current thesis evidence for (Chapter 3) and against (Chapter 4) a bidirectional relationship has been presented. The populations from which the samples were selected might account for these differences. The sample that was recruited for Chapter 3 were individuals from a socioeconomically deprived area and were likely to have been caught in an aversive and entrapping situation for a prolonged period of time. Furthermore, the experience of depression and anxiety would be likely to prevent them from escaping from their situation, such as unemployment. However, within the sample of formal caregivers (Chapter 4), feeling entrapped in their role is likely to lead to the development of caregiver burden, which increases over time (e.g. Brodaty et al., 2003), rather than forming an on-going experience that may not change over time, such as being in a situation of socioeconomic deprivation.

The contrasting results on the direction of the relationship in the current thesis suggest that the relationship may vary dependent on the population. To provide a greater understanding of this, research should now consider whether or not the relationship between defeat, entrapment and mental health outcomes is bidirectional in samples recruited from clinical settings and also other occupational settings. This would provide a more thorough overview of how this relationship operates and would establish whether the

findings here represent the general pattern of the relationship amongst different populations, or whether the relationship is outcome specific.

8.2.3 The mediating role of defeat and entrapment in established relationships

Within the current thesis, we provided the first evidence that combined defeat and entrapment partially mediates the previously established relationship between depression and caregiver burden (e.g. Maslach & Jackson, 1986). This demonstrates that the previously observed relationship is dependent on the presence of defeat and entrapment and suggesting that defeat and entrapment may interact with risk factors for the experience of mental health problems.

There is currently limited evidence of a mediating role for defeat and entrapment within existing relationships between various mental health problems. Whilst several studies that have considered the relationship between risk factors and mental health problems have shown that defeat and entrapment are the "generative mechanism", linking the two factors, these are only preliminary observations that demonstrate that various risk factors that appear to predict the experience of mental health problems share variance with defeat and entrapment. Thus, whilst both a risk factor and defeat and entrapment may individually predict the occurrence of a mental health problem, when outcomes are simultaneously regressed on both risk factor and defeat and entrapment, only combined defeat and entrapment remains significant. The earliest test of defeat and entrapment as mediators, demonstrated that the relationship between stress and depression was mediated by perceptions of stress and depression within a sample of individuals who provided care (on an informal basis) for individuals with learning disabilities (Willner & Goldstein, 2001), where the relationship between stress and depression was mediated by perceptions of defeat and entrapment. This has been supported by observations that positive symptoms of psychosis, which are known to act as a risk factor for the experience of suicidal ideation,

actually operated as a risk factor based on the shared relationship between combined defeat and entrapment and depression (Taylor et al., 2010b). Similar results were found for the well-established relationship between PTSD and depression, as recent evidence suggests that this relationship is mediated by defeat and entrapment (Panagioti et al., 2012c). Supporting the suggestion that trauma experiences lead to mental health problems, van Nierop and colleagues (2014) tested the established relationship between early trauma experiences during childhood and subsequent experience of a psychotic disorder during adulthood amongst a large-scale community sample. They demonstrated that social defeat fully mediated the relationship between childhood trauma and the presence of a psychotic disorder. However, as this research was cross-sectional, trauma experiences were reported on a retrospective basis and research needs to be conducted to establish whether this relationship also exists on a longitudinal basis, to provide further evidence on whether trauma experiences influence whether situations are more likely to be perceived as defeating, to incorporate this into mental health care (van Nierop et al., 2014). Overall, this evidence suggests that defeat and entrapment hold a mediating role in previously well-established relationships. Future research should now explore the mediating role of combined defeat and entrapment further, on a longitudinal basis, to address the current lack of consistency in whether the mediating role is tested within research measuring defeat and entrapment. This may be particularly relevant for longitudinal research, which could help to establish the causal role of defeat and entrapment in the onset and maintenance of mental health problems.

8.2.4 Potential confounding variables in the relationship between combined defeat and entrapment and mental health problems

8.2.4.1 Guilt and shame

Within this thesis, defeat and entrapment were the only factors measured as predictors of mental health problems. Although the rational for this research arose from a substantial amount of existing literature, two constructs that were not evaluated or measured within the thesis are guilt and shame. These constructs may be linked to defeat and entrapment, and could be confounding variables in the relationship between defeat and entrapment and mental health problems for three specific reasons. Firstly, similarly to defeat and entrapment, guilt and shame are thought to be transdiagnostic processes underlying a wide range of mental health problems (Gilbert, 2009). Secondly, defeat, entrapment and shame have all been conceptualised as involuntary submissive strategies in reaction to aversive situations (Michail & Birchwood, 2013; Sloman, 2000). Finally, guilt has been conceptualised as an integral component of not only perceptions of entrapment, but also the motivation to escape from situations, and perhaps most importantly, whether actual escape behaviour occurs (e.g. Gilbert et al., 2004; Martin et al., 2006).

Guilt conceptualised as a focus on the harm or hurt that one has done to others, either imagined or in reality (Clark, 2012), has been associated with feelings of depression (Gilbert, 2000a; Roest et al., 2011). Furthermore, Gilbert and colleagues (2004b) found that the second highest reason reported by participants for experiencing perceptions of entrapment was ‘guilt about leaving someone who depends on you’. This suggests that guilt may be a crucial factor that prevents individuals seeking escape from a defeating situation and can increase perceptions of entrapment (Gilbert et al., 2004b). For example a formal caregiver terminating their role and leaving the care of their residents to someone else may experience feelings of guilt.

Similarly, shame, conceptualised as feelings of inadequacy, inferiority and being flawed as a person (Gilbert, 1998b), has also been considered as a factor that may be associated with perceptions of defeat and entrapment. Similarities have been drawn between displays of shame and submissive behavior. For example, avoidance of eye gaze and desire to escape if challenged are behaviours present in both shame displays and as submissive behaviours (Gilbert, 1998b). Furthermore, shame is thought to operate through submissive strategies (Gilbert, 2000a), and both serve the purpose of inhibiting and reducing the frequency of attacks that individuals make towards themselves (Keltner & Harker, 1998).

Shame experiences, such as feeling judged and humiliated by others (Matos & Pinto-Gouveia, 2010), have been shown to increase vulnerability to the experience of depressive symptoms (Cheung, Gilbert, & Irons, 2004; Iqbal et al., 2000; Matos & Pinto-Gouveia, 2010), be a specific symptom of depression (Roest et al., 2010) and anxiety (Gilbert, 2000). For example, suggestions have been made that individuals with psychotic disorders are developmentally vulnerable to the experience of shame (Michail & Birchwood, 2013). It has been proposed that shame impacts the onset and maintenance of depression (e.g. Andrews, Qian, & Valentine, 2002; Thompson & Berenbaum, 2006). These proposals have been supported by research demonstrating that shame prospectively predicted depressive symptoms (Andrews et al., 2002) and that people with comorbid psychotic disorder and social anxiety were shown to experience perceptions of shame and entrapment (Gumley et al., 2004). This is supported by findings that people with comorbid psychotic disorders and social anxiety are thought to feel more shame about their diagnoses and may view their disorder as uncontrollable and difficult to escape from (Birchwood et al., 2006). Additionally, feeling entrapped and shamed precedes distress and depression related to delusions, in individuals with psychotic disorders (Birchwood et al., 2005). Furthermore, research has demonstrated that individuals with psychotic disorders

express negative appraisals comprising of feelings of shame and humiliation, alongside perceptions of entrapment and loss of social status (Michail & Birchwood, 2013). Additionally, even when patients recover from the symptoms associated with mental health problems, illness appraisals, such as shame, do not also recover (Upthegrove et al., 2014). This provides support for direct link existing between the constructs shame, defeat and entrapment for individuals with psychotic disorders and suggests that such appraisals need to be focused upon in therapeutic interventions, in order to target the underlying processes that may be maintaining the symptoms of mental health problems.

The constructs of guilt and shame may be particularly relevant to informal and formal caregivers as feelings of guilt are thought to promote and influence subsequent caring behaviours (Gilbert, 2000a). Formal caregivers have been shown to suffer from overwhelming levels of guilt, shame and anger arising from demands that they cannot meet (Häggström & Kihlgren, 2007; Stenbock-Hult & Sarvimäki, 2011). Whereas amongst informal caregivers, guilt may arise due to beliefs that they have influenced the illness of the person that they care for and they may feel shame associated with the person and their behaviours (Clark, 2012). Supporting research has demonstrated that shame was associated with depression amongst informal caregivers of individuals with dementia. Martin and colleagues (2006) found an association between entrapment and shame, suggesting that there may be a link between how inadequate an individual feels and how entrapped they feel in their role.

In summary, the current evidence suggests that perceptions of defeat and entrapment may be interlinked with feelings of shame and guilt. For example, as stated above a direct link between perceptions of shame, defeat and entrapment has been found amongst individuals with psychotic disorders (Michail & Birchwood, 2013). The relationship between these constructs should now be explored in future research, to firstly establish whether any overlap exists between these constructs, and secondly to identify

whether feelings of shame or guilt moderate the relationship between defeat and entrapment and mental health outcomes. For example, guilt has been shown to mediate the relationship between psychological burnout and depression amongst employees who work with individuals with intellectual disabilities (Gil-Monte, 2012). The role of guilt and shame was not explored within the current thesis, as the aim of the longitudinal research presented here was to establish whether a basic relationship existed, before considering potential confounding variables. However, on the basis of the demonstration of the existence of a basic longitudinal relationship, the relationship between defeat, entrapment, shame and guilt should now be explored. Currently, only one study has considered the impact of shame on subsequent mental health (Upthegrove et al., 2014) and no research exists considering the longitudinal role of guilt in mental health problems. This could be done using Structural Equation Modelling techniques, to establish how these factors interact. This is particularly relevant for populations such as informal and formal caregivers, who have been shown to experience perceptions of all of these factors.

8.2.4.2 Personality characteristics

Existing literature has suggested that there are three personality styles, namely self-critical, perfectionistic, and neurotic, that may influence the impact of defeat and entrapment on mental health problems.

Self-criticism has been shown to interact with negative life events to predict the development of depressive symptoms (Blatt & Zuroff, 1992). Research has supported this, demonstrating that involuntary subordination, which involves a component of combined defeat and entrapment, mediates the relationship between self-criticism and depression (Sturman & Mongrain, 2005). Furthermore, self-criticism has shown to prospectively predict a higher number of defeat related events and depressive symptoms across seven weeks (Sturman et al., in press). This suggests that self-criticism has a direct influence on perceptions of defeat and the experience of depressive symptoms.

Perfectionism is also thought to impact on the judgments of defeat and entrapment made by individuals and has been implicated in the risk of suicidal behaviour (O'Connor et al., 2007). Sturman (2011) demonstrated a significant relationship between involuntary subordination and perfectionism. Furthermore, perfectionism has also been shown to mediate the relationship between social rank status (a construct that includes measures of defeat and entrapment) and symptoms of anorexia, among a sample of individuals who were diagnosed with eating disorders (Troop & Baker, 2008). It is thought that failure is particularly problematic for individuals who score highly for perfectionism (Sturman, 2011), therefore defeating and entrapping experiences may be more likely to lead to mental health problems amongst such individuals.

Sturman (2011) demonstrated that involuntary subordination is significantly associated with neuroticism. It is thought that higher levels of neuroticism may be related to involuntary subordination as individuals with high neuroticism may be particularly attuned to social threats (Sturman, 2011). For example, it has been suggested that neuroticism evolved as a social threat detection system, through which individuals become sensitive to signals of social rejection (Denissen & Penke, 2008). Individuals with higher sensitivity towards signals of social rejection may be more likely to experience perceptions of defeat and entrapment in response to social situations.

Personality styles such as these may leave individuals at increased risk of experiencing perceptions of defeat and entrapment (Sturman et al., in press). This could be focused on within therapeutic interventions, as the way in which these perceptions are generated and dealt with by clients could be considered (Sturman et al., in press). Future research needs to consider whether these three personality characteristics reliably predict the experience of defeat and entrapment on a longitudinal basis and also establish whether there are any further personality styles that are yet to be considered that may also influence the likelihood of defeat and entrapment being experienced.

8.2.5 The Involuntary Winning Strategy

The empirical research reported in this thesis only considered and evaluated outcomes that were associated with negative affect and poor mental health, for example depression, caregiver burden, and anxiety. These outcomes were measured in relation to defeat and entrapment, which are known to be components of the Involuntary Defeat Strategy (IDS; Sloman, 2000; Sturman, 2011). However, social victories and successes are a major component of everyday life (Sturman et al., in press). If the IDS exists as a genetically pre-programmed strategy amongst all individuals, that activates as the direct response to a defeat situation, an Involuntary Winning Strategy (IWS) must also exist that is activated by individuals when they obtain social related gains, for example, being successful in a job application or experiencing a success within a relationship (Sloman et al., 2011). In a winning or victory situation, individuals are expected to enter similar cycles to those as the IDS. However, rather than these being maladaptive, whereby an inability to escape from the defeating situation would lead to further defeats (Taylor et al., 2011a), following a victory it is thought that individuals may enter adaptive cycles (Sloman et al., 2011). In such cycles, competitive and social successes lead to positive affect and increases in feelings and perceptions of confidence, which then influence the experience of further victories and successes (Sloman et al., 2011).

This suggests that defeats and victories exist on a continuum, whereby the activation of the IDS and the IWS fluctuate dependent on the experiences of an individual (Sturman, 2011). It has been proposed that this can account for evidence that the IDS remains activated even when a defeat situation has passed, for example following repeated defeat experiences during childhood, and has been supported by evidence that perceptions of an activated IDS remained stable across a period of nine weeks (Sturman, 2011). However, whilst it is known that escaping from an abusive relationship leads to improved psychological well-being, this does not always lead to a reduction in mental health

problems such as depression (Anderson & Saunders, 2003). Furthermore, it is not yet clear whether escaping from a defeating situation also automatically activates the IWS, which is conceptually important in the understanding of how the two are related. Therefore, it is unclear whether the deactivation of the IDS is directly linked to the activation of the IWS.

However, whilst the IDS operates as an adaptive strategy to protect animals from further harm (Sloman, 2000), it is unclear whether the IWS also plays an adaptive role in the well-being of individuals. For example, the confidence gained from social victories may lead to individuals experiencing perceptions of confidence that exceed their abilities, and therefore may precede defeat situations if such individuals attempt to obtain resources that they are unable to obtain. This is supported by proposals that following a large win during a game, poker players may play in an overly confident way in future games (Smith, Levere, & Kurtzman, 2009). Additionally an overreliance on the importance of winning and the acquisition of resources can lead to increased vulnerability towards the experience of depression, particularly when individuals are unable to reach goals or acquire desired resources (Taylor et al., 2011a). These examples suggest that the IWS can be maladaptive in certain situations.

The proposed existence of a direct link between the IDS and IWS is supported by research that suggested that depression and psychological well-being exist on a continuum. Wood and colleagues (2010) demonstrated that the CES-D, traditionally thought to measure depression, actually measures a continuum of depression to happiness and represents a single factor. This suggests that a link may exist between happiness and mental health problems. The implications of this research are that the experience of depression and happiness are directly related to one another and that situations that lead to increases in one are likely to lead to a reduction in the other. For example, following a social success, this research would suggest that the individual would then experience increases in psychological well-being and a concurrent reduction in depressive symptoms.

This has implications for therapeutic interventions, whereby focusing on positive functioning may help to reduce relapse rates and prevent future mental health problems (Joseph & Wood, 2010).

Overall, considering the role of the IWS and IDS and how they may interact suggests that the impact of successes on the mental health of individuals should also be considered, rather than a focus purely on defeating situations, as winning and obtaining successes in social situations are equally as important as defeats across an individual's lifetime. Therefore, future research needs to focus not only on the impact of defeat situations on mental health problems, but also on whether successes lead to increased well-being and act as a buffer to negative outcomes. The requirement for research to investigate the effects of victories has been outlined previously (Sloman et al., 2011). This could be done through longitudinal research, in which repeated collection of measures associated with the IDS and IWS could be collected. This would allow researchers to establish whether a causal link exists between the two strategies, and provide evidence on how daily successes and defeats can affect individuals over time.

8.3 Limitations

Although the limitations of each of the empirical chapters within the current thesis are considered within the discussion sections of each chapter, there are several general limitations of the work within the current thesis that should be addressed.

The samples in the empirical research in the current thesis were recruited to answer research questions related to specific populations and were therefore homogenous on several factors. Within the student sample, the majority of participants were aged between 18 and 20 and were female. This is representative of undergraduate populations who take psychology courses within the UK, but as gender differences have previously been found for performance on the Iowa Gambling Task (Bolla et al., 2004), this may have influenced

the results of Chapter 5 and may impact how generalisable the results are to the wider population. The sample was recruited from an undergraduate student population due to the research being exploratory. In future research this could be overcome by a specific sampling strategy with the aim of recruiting an equal number of males and females. Within the community sample and sample of formal caregivers, although there was a wider age range, all participants were of a working age (18 - 65 years) in order to be eligible to participate. Furthermore, the majority of participants in all studies identified their ethnicity as White British (69% - 74%). This may be representative of populations where samples were recruited from, however again this may reduce the ability of findings to be generalised. Ethnicity and cultural identity may be particularly relevant in the context of researching defeat and entrapment, as it is thought that cultural values influence both the experience of defeat and entrapment, and also how these factors impact on mental health outcomes (Gilbert et al., 2004b). It is thought that cultural factors may play a moderating role between loss of social rank (i.e. a defeating experience) and subsequent depression (Abu-Kaf & Priel, 2008). As the aim of the majority of the research within the current thesis was to provide preliminary evidence for specific relationships, examining any cultural or ethnic differences was not a priority. However, in future research it would be beneficial to consider whether defeat and entrapment affect the mental health of individuals from different cultural backgrounds in the same way.

The research within this thesis provides the first evidence that a relationship exists between defeat and entrapment and mental health problems, longitudinally, within a community sample and a sample of formal caregivers. However, whilst this research provides indication of how this relationship might operate, data was only collected at two time points, therefore causality within the relationship cannot be fully established. Such designs only show causality between variables A and B when there is covariation between A and B, A temporally precedes B and other plausible explanations have been rejected. In

these circumstances “causality cannot be proven… but can be made plausible” (Cook & Campbell, 1979; Zapf, Dormann, & Frese, 1996). Therefore, whilst we provide preliminary evidence for the direction of the relationship, it cannot be stated whether defeat and entrapment directly cause mental health problems or vice versa, as there may be a third unmeasured variable that accounts for this. This could be addressed in future by longitudinal research capturing life events and mental health alongside perceptions of defeat and entrapment over several time points spanning several years. Furthermore, as a bidirectional relationship was demonstrated within the community sample but not the sample of formal caregivers, this suggests that further research needs to be conducted to consider whether this relationship holds across various populations.

There do also exist issues that concern individual differences in responses to the IDS and vulnerability towards subsequent mental health problems that were not acknowledged with within the current thesis. For example, accepting a defeat situation and taking a lower social rank position is thought to terminate the experience of an IDS, however not all individuals are able to achieve this (Swallow, 2000). This suggests that there must be certain factors underlying the responses of individuals to the IDS, which affects their response to situations of defeat. Therefore, a greater understanding of the overall situation of individuals is needed, in order to establish what factors affect whether individuals are able to accept a defeat situation. This could be addressed by considering factors such as social support and coping mechanisms, both of which are thought to affect the progression of mental health problems, particularly for individuals of low socioeconomic status (McLeod & Kessler, 1990). Understanding which, if any, factors mediate the relationship between defeat, entrapment and mental health, leaving individuals feeling defeated and entrapped even when they are no longer in a defeat situation may present novel ways to conceptualise and treat mental health problems (Gilbert et al., 2004a). These potential mediating factors were not examined in the current thesis due to

the limited existing research demonstrating a basic longitudinal relationship between defeat, entrapment and mental health problems. However, there is some evidence that personality traits such as perfectionism, extraversion and neediness may influence the effects of defeat and entrapment on subsequent mental health problems (Sturman, 2011).

The results of Chapter 5 did not support the hypothesis that there would be a relationship between defeat, entrapment and reward sensitivity. This was an unexpected finding, as changes in reward sensitivity have consistently been associated with depression and anxiety within the literature. Defeat and entrapment have been associated with elevated levels of chronic stress, a factor often present in making decisions involving rewards (Preston, Buchanan, Stansfield & Bechara, 2007) and associated with impaired decision-making, as individuals fail to concentrate on the required task (Arnsten, 1998). Therefore, we expected these factors to lead to poor performance on the IGT. As individuals with high levels of defeat and entrapment are likely to experience elevated levels of chronic stress in their daily lives (Adams et al., 2004), they were expected to experience low reward sensitivity and make poor decisions on the IGT. However, these findings were not demonstrated within the study. A recent review has suggested that IGT may not be a suitable tool for measuring reward sensitivity amongst healthy individuals (Steingroever et al., 2013), which may account for the unexpected findings of the study. Alternatively, this may be a result of the generally low levels of defeat and entrapment within the sample. Although there were large variations of scores on the IGT, the defeat and entrapment scores were generally very low. Therefore, within such a sample, other unmeasured factors were influencing performance. In order to more effectively measure whether defeat and entrapment are associated with reward sensitivity, a depressive mood induction could be conducted. This would establish whether perceptions of defeat causally influence sensitivity towards rewards, as comparisons could be made between before and after scores on a task measuring reward sensitivity. Two studies have previously

considered the impact of inducing a depressive or negative mood on perceptions of defeat and entrapment. Goldstein and Willner (2002) demonstrated that depressive mood caused significant increases in perceptions of defeat and entrapment. Additionally, Johnson et al. (2011) demonstrated amongst a sample of undergraduates that inducing a negative mood by giving participants puzzles that could not be solved (failure condition), increased subsequent scores of defeat, in comparison to participants who were given easier puzzles to complete (success condition). This was then replicated with a sample of individuals with schizophrenia spectrum disorders. Again, individuals in the failure condition reported higher perceptions of defeat following mood induction than individuals in the success condition (Johnson et al., 2011). The results of these studies suggest that inducing depressive mood would provide a realistic comparison between the general reward sensitivity of individuals, and how this is affected by defeat.

8.4 Avenues for further research

Although the current findings have contributed to the understanding of the prospective role of defeat and entrapment in the onset and maintenance of mental health problems, several areas where future research would be beneficial have been identified. Specific avenues for further research have been outlined in the discussion section of the empirical chapters within the current thesis; however there are some more general avenues for future research that should be considered.

One further research avenue that should be explored would be to establish the role of defeat and entrapment as transdiagnostic processes for clients referred for CBT as an intervention for mental health problems. Whilst CBT is known to effectively target and impact on specific symptoms, irrespective of this, Wykes and colleagues (2008) argue it might be more relevant to examine the wider benefits for patients that would be demonstrated in the form of increased general functioning and reduction of distress. By collecting baseline measures of perceptions of defeat and entrapment (before individuals

begin receiving treatment), as well as questionnaires specifically related to their symptoms, and following therapy sessions, session-by-session change in defeat and entrapment could be used to evaluate mental health outcomes for clients. Multi-level modelling analyses could then be used to establish the change in scores between sessions for each participant, and establish whether defeat and entrapment are predictors of patient outcomes. However, dropout rates for outpatient settings treating symptoms of disorders associated with depression and anxiety have been shown to range from 10.3% (Issakidis & Andrews, 2004) to 24.6% (Hans & Hiller, 2013), which may present a challenge for conducting longitudinal research in clinical settings. Using intention to treat analysis, which would allow the comparison of each time point for those individuals who dropped out during the study, the impact of patient drop out within the study could be reduced.

Due to the conflicting evidence regarding whether the relationship between defeat, entrapment and poor mental health operates in a bidirectional way, a large-scale longitudinal study with participants recruited from several clinical and non-clinical groups, recruited from a range of socio-economic backgrounds, could provide further clarification of the direction of the relationship. To establish this, participants from samples recruited from several populations would be asked to complete a set of questionnaires. Analyses would then be conducted making comparisons between groups and also considering all groups as a single sample, representative of the general population. This study would confirm whether the results demonstrated within the current thesis are a product of the specific samples from which participants were recruited, or whether the relationship between defeat, entrapment and mental health operates in the same way across various populations. This research would increase understanding of how defeat and entrapment influence the experience of poor mental health and could inform the development of interventions that aim to target ways of reducing defeat and entrapment, for example for individuals receiving treatment for mental health problems or individuals in organisations

where there are issues with perceptions of defeat and entrapment in relation to job roles.

Additionally, although the relationships between defeat and entrapment and four specific mental health problems (depression, anxiety, PTSD and suicidality) have been well established (see Taylor et al., 2011a for a review), very limited research has considered how defeat and entrapment may impact on a wider range of mental health problems. There are specific rationales for conducting such research, for example, individuals with bipolar disorder are thought to be particularly vulnerable to appraising events as defeating, as during the depressive phase of bipolar disorder, even minor stressors are thought to trigger defeat and entrapment (Malhi et al., 2013) and the change in functioning arising from episodes of illness within bipolar disorder are thought to represent a prevailing defeating experience (Johnson & Miller, 1997). This provides an example of just one mental health problem that is yet to be studied in relation to defeat and entrapment, but for which there is a clear rationale for such research to be conducted. The application of defeat and entrapment to a wider range of mental health problems through research could be conducted initially amongst a large sample of undergraduate students or an alternative non-clinical sample, to establish whether basic relationships exist between defeat and entrapment and a range of mental health problems. Such research could be supported by research conducted within clinical settings, with the recruitment of samples of individuals experiencing symptoms associated with specific mental health problems. However, as it is thought that defeat and entrapment are transdiagnostic processes that underlie a range of mental health problems (e.g, Harvey et al., 2004; Siddaway et al., in press) it may be more appropriate to look at the symptomology that defeat and entrapment impact upon, rather than considering specific mental health problems. For example, high risk individuals for suicide are thought to interpret even minor stressful events as being defeating and entrapping (Bolton et al., 2007), therefore there are implications of such research for identifying who of those that are currently receiving treatment for mental

health problems are at high risk of suicide. Although regardless of the focus of the research, recruiting individuals from clinical settings who are experiencing symptoms related to mental health problems not yet measured in relation to defeat and entrapment would help to confirm whether defeat and entrapment are a transdiagnostic process underlying the experience of poor mental health, and establish whether the strength of these relationships is consistent across different mental health problems (Siddaway et al., in press).

A further avenue of research is to consider the impact of defeat and entrapment on outcomes associated with positive mood, such as psychological well-being or happiness, which defeat and entrapment would be expected to negatively correlate with. Goldstein and Willner (2002) demonstrated that inducing positive moods in participants lead to a decrease in perceptions of defeat and entrapment. However, no research has considered whether lowering perceptions of defeat and entrapment increases psychological well-being. One specific way that this could be measured would be via a longitudinal study measuring defeat, entrapment, poor mental health outcomes such as depression and anxiety, as well as positive outcomes such as happiness and psychological well-being. This could be conducted in a community sample of unemployed individuals by collecting measures whilst they were unemployed, immediately following a successful job application (a success), and several months later as an additional follow up. As suggestions have been made that depression and happiness exist on a continuum (Wood et al., 2010), it may be expected that reductions in defeat and entrapment would be directly related to increased happiness and associated psychological well-being. This would support the Involuntary Winning Strategy hypothesis (Sloman et al., 2011), by demonstrating that reduced defeat and entrapment lead to increases in psychological well-being over time. This would also provide further evidence that the presence and absence of mental health problems correlate highly, and exist on two inter-related continua (Keyes, 2002). Collecting data at three time

points would also help to provide a more thorough understanding of the relationship between combined defeat and entrapment and subsequent mental health, both positive and negative.

8.5 Conclusions

The work presented in the current thesis provides the first demonstration of a longitudinal relationship between combined defeat and entrapment and mental health problems in samples representative of and recruited from the general population. This research also confirmed suggestions that defeat and entrapment should be considered a single factor; encompassing feelings of failure and inability to escape, a finding that lead to the development of a short scale designed to increase the measurement of these constructs within clinical settings. The single factor that emerged throughout this thesis, consisting of combined defeat and entrapment, was shown to reliably predict depression, anxiety, and caregiver burden. However, despite the advances to the literature brought about by this research, it is still unclear whether defeat and entrapment are related to specific mental health problems, or whether they are a 'transdiagnostic process' associated with a general cognitive vulnerability towards the experience of mental health problems. This, alongside the general lack of longitudinal research with clinical settings, provides potential avenues for future research to identify how perceptions of defeat and entrapment impact on the experience of mental health, either directly or by mediating the role of other risk factors. The results suggest that defeat and entrapment are key predictors of mental health problems and should be included within the formulation and delivery of therapeutic interventions for individuals. Potential ways that these factors could be incorporated into such interventions in clinical and occupational settings have been highlighted and discussed. Future research should now consider the role of defeat and entrapment in a wider range of mental health problems and also consider whether lower perceptions of defeat and entrapment are associated with positive outcomes for individuals.

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APPENDICES

APPENDIX I: TABLE OF STUDIES REVIEWED FOR CHAPTER 1

Authors	Design and Sample	Defeat/Entrapment Measure Used	Outcome(s) Measured
Broadhead & Abas (1998)	Retrospective life-event; Zimbabwean women (*n* = 172)	LEDS	Depression
Gilbert & Allan (1998)*	Cross-sectional; undergraduate students (*n* = 302) and individuals with depression (*n* = 90)	Defeat scale and entrapment scale	Depression
Rooke & Birchwood (1998)	Prospective (30 months follow-up); individuals with Schizophrenia spectrum disorder (*n* = 49)	PBIQ	Depression
Wyatt & Gilbert (1998)*	Cross-sectional; students (*n* = 113)	Defeat scale and entrapment scale	Depression
Iqbal et al. (2000)	Prospective (4, 8, 12 month follow-up after acute episode); individuals with schizophrenia spectrum disorder (*n* = 70)	PBIQ	Depression
Gilbert et al. (2001)	Cross-sectional; individuals with schizophrenia spectrum disorder (*n* = 66); individuals with depression (*n* = 50)	EVT	Depression
Willner & Goldstein (2001)*	Cross-sectional; mothers of children with additional needs (*n* = 76)	Defeat scale and entrapment scale	Depression
Allan & Gilbert (2002)*	Cross-sectional; undergraduate students	Entrapment scale	Depression

	(*n* = 197)		
Goldstein & Willner (2002)*	Cross-sectional; undergraduate students (*n* = 32)	Defeat scale and entrapment scale	Depression
Gilbert et al. (2002)*	Cross-sectional; undergraduate students (*n* = 193), psychiatric inpatients (*n* = 81)	Defeat scale and entrapment scale	Depression
Yoon (2003)	Cross-sectional; adult caregivers of family members in Korea (*n* = 311)	CBS-E	Depression
Kendler et al. (2003)	Retrospective; adult twins (*n* = 7322)	LEDS	Depression
O'Connor (2003)	Cross-sectional; parasuicidal individuals (*n* = 30), hospital controls (*n* = 30)	Unvalidated defeat and escape-potential scales	Suicidality
Gumley et al. (2004)	Cross-sectional; individuals with schizophrenia spectrum disorders (individuals who were relapse prone and had comorbid social anxiety, *n* = 19; matched controls, *n* = 19)	PBIQ	Anxiety (presence of comorbid social anxiety disorder)
LeBlanc et al. (2004)	Cross-sectional; family caregivers of individuals with Alzheimer's Disease (*n* = 188)	Unvalidated defeat scale	Depression
Gilbert et al. (2004a)	Cross-sectional; individuals with depression	Interview	Depression

	(*n* = 50)		
Gilbert et al. (2005)*	Cross-sectional; undergraduate students (*n* = 166)	Entrapment scale	Depression
Sturman & Mongrain (2005)*	Cross-sectional; undergraduate students with former depression (*n* = 146)	Entrapment scale	Depression Anxiety
Birchwood et al. (2005)	Cross-sectional; individuals with schizophrenia spectrum disorder (*n* = 26)	PBIQ	Depression
Birchwood et al. (2006)	Cross-sectional; individuals experiencing first-episode schizophrenia spectrum disorder (*n* = 103)	PBIQ	Anxiety
Kidd (2006)	Cross-sectional; homeless youths (*n* = 208)	Latent variable of 'trapped experiences'	Suicidality
Martin, Gilbert, McEwan & Irons (2006)	Cross-sectional; caregivers of individuals with dementia (*n* = 70)	CES	Depression
White, McCleery & Gumley (2007)	Cross-sectional; individuals with schizophrenia spectrum disorders (*n* = 100)	PBIQ	Depression
Karatzias, Gumley, Power & O'Grady (2007)	Cross-sectional; individuals with schizophrenia spectrum disorder who were relapse prone	PBIQ	Anxiety (comorbid)

	(*n* = 138)		
Tang, Salkovskis & Hanna (2007)	Cross-sectional; individuals with chronic pain (*n* = 124), individuals with acute pain (*n* = 68), and pain-free control participants (*n* = 110)	PSPS	Depression Anxiety
Sturman & Mongrain (2008a)*	Cross-sectional; undergraduate students who participated in sport (*n* = 115)	Defeat scale and entrapment scale	Dysphoria
Sturman & Mongrain (2008b)*	Prospective (16 months follow-up); formerly depressed students (*n* = 146)	Defeat scale and entrapment scale	Depression
Troop & Baker (2008)*	Cross-sectional; female office workers (*n* = 74)	Defeat scale and entrapment scale	Depression
Tang et al. (2010)	Cross-sectional; individuals with chronic pain (*n* = 133)	PSPS	Anxiety
Taylor, Gooding et al. (2010)*	Cross-sectional; individuals with schizophrenia spectrum disorder (*n* = 78)	Defeat scale and entrapment scale	Suicidal ideation
Taylor, Wood et al. (2010)*	Cross-sectional; undergraduate students with past or current suicidal ideation (*n* = 93)	Defeat scale and entrapment scale	Suicidal ideation
Rasmussen et al. (2010)*	Cross-sectional; parasuicidal individuals (*n* = 103); Hospital controls (*n* = 37)	Defeat scale and entrapment scale	Suicidal ideation

Park et al. (2010)*	Cross-sectional; Korean school children (n = 11, 393)	Entrapment scale	Suicidal ideation
Trachsel et al. (2010)*	Cross-sectional; German academics and undergraduate students (n = 540)	Entrapment scale	Depression
Johnson et al. (2011)	Study 1: cross-sectional, undergraduate students (n = 120) Study 2: cross-sectional, individuals with schizophrenia spectrum disorder (n = 78)	VAS	Negative affect
Sturman (2011)*	Cross-sectional; undergraduate students (n = 119)	Defeat scale and entrapment scale	Depression Anxiety
Taylor et al. (2011b)*	Longitudinal; undergraduate students reporting suicidality (n = 79)	Defeat scale and entrapment scale	Suicidal ideation
Cheon (2012)*	Cross-sectional; Korean undergraduate students (n = 216)	Defeat scale and entrapment scale	Depression Anxiety
Dunn et al. (2012)*	Cross-sectional; working adults (n = 397)	Defeat scale	Depression Anxiety
Panagioti et al. (2012a)*	Cross-sectional; individuals with PTSD diagnosis (n = 95)	Defeat scale and entrapment scale	Depression Suicidal behaviour
Panagioti et al. (2012c)*	Cross-sectional; individuals with PTSD diagnosis (n = 56)	Defeat scale and	Suicidal ideation

		entrapment scale	
Stowkowy & Addington (2012)*	Individuals at risk of developing psychosis (n = 38), healthy control participants (n = 23)	Defeat scale and entrapment scale	Positive symptoms of psychosis
Michail & Birchwood (2012)	Individuals with first episode psychosis (n = 60), individuals with first episode psychosis and social anxiety disorder (n = 20), individuals with social anxiety disorder (n = 31), healthy individuals from community (n = 24)	PBIQ entrapment sub-scale	Anxiety Positive symptoms of psychosis
Lester (2013)*	Cross-sectional; undergraduate students (n = 152)	Defeat scale and entrapment scale	Depression Suicidal ideation
Hacıoğlu et al. (2013)	Females receiving treatment for schizophrenia spectrum disorders (n = 62)	SBS	Depression Positive and negative symptoms of psychosis
Carvahlo et al. (2013)*	Individuals with depression (n = 106), healthy controls (n = 116)	Study 1; Defeat scale Study 2; Defeat scale and entrapment scale	Depression
O'Connor et al. (2013)*	Longitudinal; individuals hospitalised after a suicide attempt (n = 70)	Defeat scale and entrapment scale	Suicide attempt
Troop et al. (2013)*	Longitudinal; individuals with history of eating disorders	Defeat scale and	Depression

	(*n* = 73)	entrapment scale	
Panagioti et al. (2013)*	Cross-sectional; individuals with PTSD diagnosis (*n* = 73)	Defeat scale and entrapment scale	Suicidal behaviour
Troop & Hiskey (2013)	Study 1: Cross-sectional, individuals with a trauma experience (*n* = 194) Study 2: Longitudinal, individuals with a trauma experience (*n* = 81)	Defeat scale and entrapment scale	PTSD symproms
Griffiths et al. (2014)*	Longitudinal; individuals from area of socioeconomic deprivation (*n* = 172)	Defeat scale and entrapment scale	Depression Anxiety
O'Connor et al. (2014)*	Studay 1: Cross-sectional, undergraduate students (*n* = 39) Study 2: Cross-sectional, undergraduate students (*n* = 70)	Entrapment scale	Positive Future Thinking Depression
Van Nierop et al. (2014)	Cross-sectional; individuals reporting a psychotic experience (*n* = 792)	'defeat scale'	Affective symptoms
Upthegrove et al. (2014)	Longitudinal; individuals within 4 weeks of treatment for first episode psychosis (*n* = 92)	PBIQ	Depression (post psychotic)

Note: * denotes that a study used the Defeat Scale and/or Entrapment Scale (Gilbert & Allan, 1998). CES = Caregiver's Entrapment Scale (Martin et al., 2006); LEDS = Life Events and Difficulties Schedule (Brown & Harris, 1978); PBIQ = Personal Beliefs about Illness Questionnaire (Birchwood et al., 1993); PSPS = Pain Self Perception Scale (Tang et al., 2007).

APPENDIX II: DEFEAT SCALE

Defeat Scale

Please read each of the following statements carefully and indicate how often you have felt like this in the previous seven days by circling a response on the scale.

I feel that I have not made it in life	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that I am a successful person	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel defeated by life	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that I am basically a winner	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that I have lost my standing in the world	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that life has treated me like a punch bag	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel powerless	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that my confidence has been knocked out of me	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel able to deal with whatever life throws at me	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that I have sunk to the bottom of the ladder	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel completely knocked out of action	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that I am one of life's losers	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that I have given up	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel down and out	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel like I have lost important battles in life	Never	Rarely	Sometimes	Mostly	Always/All the time
I feel that there is no fight left in me	Never	Rarely	Sometimes	Mostly	Always/All the time

APPENDIX III: ENTRAPMENT SCALE

Entrapment Scale

Please read each of the following statements carefully and indicate how much you feel like this by circling a response on the scale.

I want to get away from myself	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel powerless to change myself	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I would like to escape from my thoughts and feelings	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel trapped inside myself	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I would like to get away from who I am and start again	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel I'm in a deep hole I can't get out of	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I am in a situation I feel trapped in	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I have a strong desire to escape from things in my life	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I am in a relationship I can't get out of	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I often have the feeling that I would just like to run away	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel powerless to change things	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel trapped by my obligations	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I can see no way out of my current situation	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I would like to get away from other more powerful people in my life	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I have a strong desire to get away and stay away from where I am now	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel trapped by other people	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me

APPENDIX IV: THE SHORT DEFEAT AND ENTRAPMENT SCALE

The Short Defeat and Entrapment Scale (SDES)

For each of the following statements indicate the extent to which you think it represents your own viev of yourself. Read each item carefully and indicate how much this reflects how you have felt during th **past seven days**, using the scale below. Please do not omit any item.

I can see no way out of my current situation	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel defeated by life	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I would like to get away from other more powerful people in my life	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel powerless	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I would like to escape from my thoughts and feelings	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel that there is no fight left in me	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I am in a situation I feel trapped in	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I would like to get away from who I am and start again	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me
I feel that I am one of life's losers	Not at all like me	A little like me	Moderately like me	Quite a bit like me	Extremely like me

APPENDIX V: PSYCHIATRIC AND NEUROLOGICAL HISTORY SCREENING QUESTIONNAIRE

Participant Number:…….. **Date:……**

Gender: Male/Female **Date of Birth:……..**

Psychiatric History

Have you ever suffered from major depression or any psychiatric disorder? For example; Schizophrenia. If yes, please supply further details.

YES/NO

Have you ever been referred to a psychiatrist for treatment? If yes, please supply further details.

YES/NO

Neurological History

Have you ever suffered from any neurological damage? For example, Stroke or Multiple Sclerosis. If yes, please supply further details.

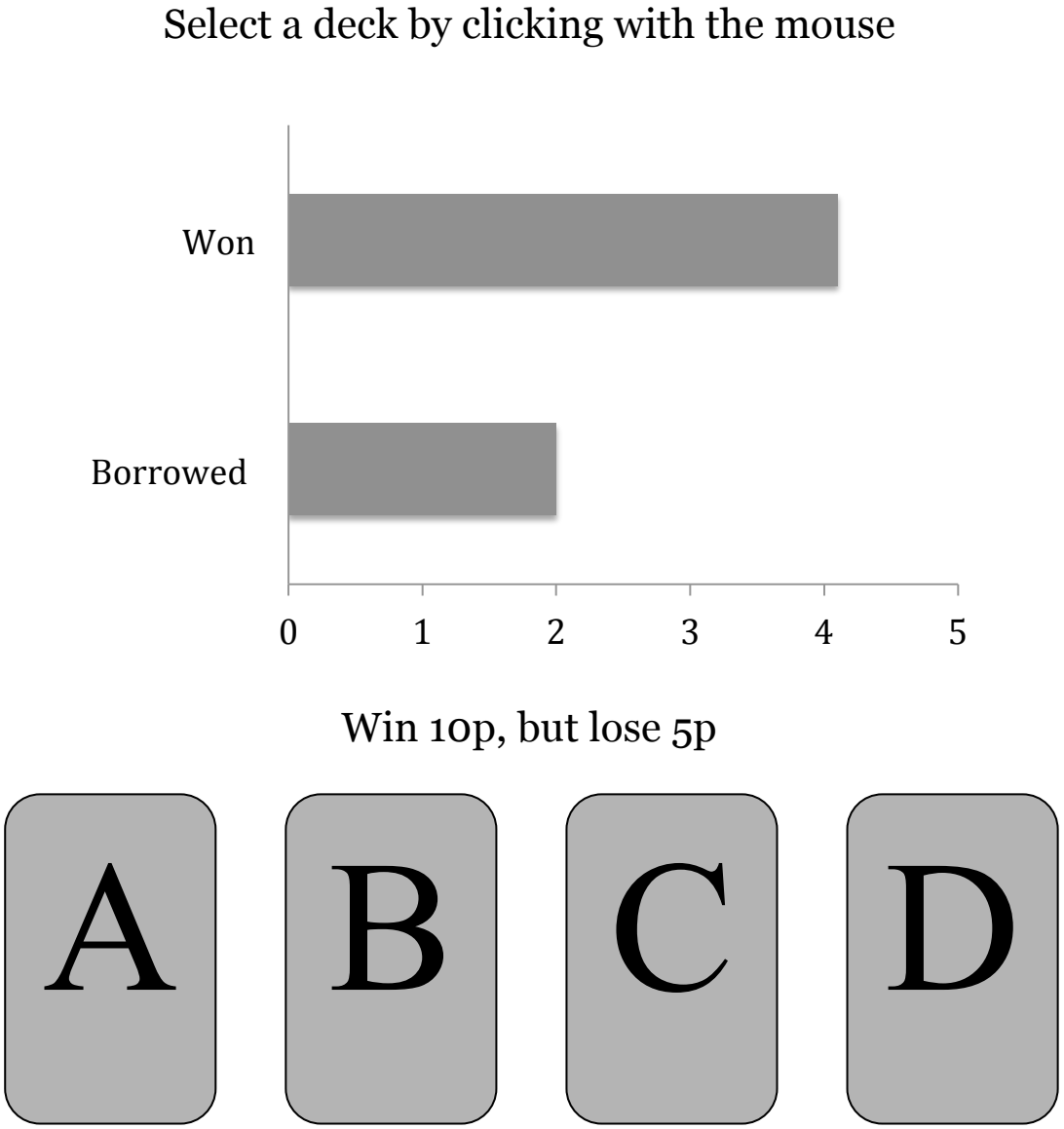
YES/NO

Have you ever suffered serious head injury causing you to lose consciousness? For example, serious car accident. If yes, please supply further details.

YES/NO

If yes, for how long were you unconscious?

APPENDIX VI: THE IOWA GAMBLING TASK



Schedule of Reward and Punishment

Deck	Reward per selection	Punishments per 10 selections	Net gain/loss per 10 selection
A	10 pence	5	25 pence loss
B	10 pence	1	25 pence loss
C	5 pence	5	25 pence gain
D	5 pence	1	25 pence gain