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Title: *Defeat and Entrapment in Bipolar Disorder: Exploring the Relationship with Suicidal Ideation from a Psychological Theoretical Perspective*

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Abstract

Objective: Contemporary psychological theoretical models of suicide hypothesise that defeat and entrapment underlie the development of suicidal ideation. This hypothesis has never been tested in people who experience bipolar disorder.

Findings: Regression analysis revealed that defeat and entrapment significantly predicted suicidal ideation at four-month follow-up. The relationship between defeat and suicidal ideation was mediated by total entrapment and internal entrapment, but not external entrapment.

Conclusions: Results suggest that perceived defeat and entrapment underlie the development of prospective suicidal ideation in bipolar disorder. Findings could potentially improve the assessment of suicide risk in people who experience bipolar disorder.

Introduction

Suicide represents a serious public health problem and accounts for almost 1 million deaths worldwide each year (World Health Organisation, 2016). In 2013, there were 6233 suicides in the UK, which averaged at around 12 suicide per 100,000 deaths within the general population (Office for National Statistics, 2013). A mental health diagnosis is a well-established risk factor for suicidal behaviour (e.g., Clements et al., 2013; Harris & Barraclough, 1997). Bipolar disorder is one such diagnosis which carries a heightened risk of suicide (Clements et al., 2013; Goodwin & Jamison, 2007; Hawton et al., 2005). In a review of 31 studies which included close to 10,000 people with bipolar disorder, the mean proportion of deaths attributable to suicide was 19% (Goodwin & Jamison, 2007).

Evidence suggests that the intention to carry out suicidal behaviour occurs as a result of complex interactions between multiple different factors (O'Connor & Nock, 2014; Panagioti et al., 2012; Taylor et al., 2010; Wasserman et al., 2007). A better understanding of these factors is key to both improving the accuracy of suicide risk detection and the efficacy of suicide prevention efforts. A number of psychological theoretical models postulate that defeat and entrapment play a central role in the pathways underlying suicidal thoughts and behaviours (e.g., Johnson et al., 2008; Joiner, 2005; Joiner et al., 2009; O'Connor, 2011; Tarrier et al., 2013; Williams, 1997).

Defeat has been defined as a sense of failed social struggle, whereas entrapment describes the perception that there are no means of escape (Gilbert & Allan, 1998; Rooke & Birchwood, 1998; Taylor et al., 2011). It has been proposed that entrapment can be divided into two distinct sub-types (Gilbert & Allan, 1998). Internal entrapment describes feeling trapped within one's own self, i.e., one's own thoughts and feelings, whereas external entrapment describes feeling trapped by external events or situational factors. However, there remains debate in the literature regarding whether the different types of perceived entrapment each have a specific effect upon suicidal ideation, or whether it is a more generalised escape motivation which gives rise to suicidal feelings (Gilbert & Allan, 1998; Taylor et al., 2011).

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Three contemporary psychological theoretical models of suicidal behaviour which implicate defeat and entrapment in pathways leading to suicide are the Cry of Pain model (CoP; Williams, 1997), the Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) and the Integrated Motivational Volitional Model of Suicide (IMV; O'Connor, 2011). Both the CoP and the IMV assert that suicidal behaviour is motivated by the underlying desire to escape from intolerable psychological pain (Williams, 1997; O'Connor, 2011). A stressful situation triggers feelings of defeat and entrapment which, when combined with perceptions of no rescue from the situation or a lack of social support, leads to feelings of hopelessness and suicidal ideation (Williams, 1997; O'Connor, 2011). Perceptions of defeat and entrapment are exacerbated by negative information processing biases and impairments in perceived problem-solving abilities, which further amplify perceptions of no means of escape (Williams & Pollock, 2001). The SAMS is a contemporary model which builds on the Cry of Pain model by placing greater emphasis on how individuals appraise and perceive their environment, the self and others. The SAMS model posits that when the individual's current situation is appraised as defeating and entrapping, the future is perceived to be hopeless, the self is deemed unable to cope and social support factors, or rescue factors, are appraised as being unavailable, this makes the individual vulnerable to the experience of suicidal ideation (Johnson et al., 2008).

There is a substantial body of evidence which supports the hypothesised role of defeat and entrapment in psychological pathways leading to suicide. People who experience suicidal ideation tend to experience higher levels of perceived defeat and entrapment than non-suicidal individuals (O'Connor, 2003; Rasmussen et al., 2010). Defeat and entrapment have been shown to significantly predict suicidal ideation in people with schizophrenia (Taylor et al., 2010) and post-traumatic stress disorder (Panagioti et al., 2013). Perceived defeat and entrapment have also been found to mediate the relationship between symptoms of schizophrenia and suicidal ideation, even after controlling for hopelessness and depression (Taylor et al., 2010). Entrapment significantly predicted repeat suicidal behaviour in a sample of 70 suicide attempters over four years (O'Connor et al., 2013). Furthermore, in a sample of male prisoners, perceptions of defeat, entrapment and hopelessness were all significantly associated with a measure of suicide probability (Gooding et al., in press). Hopelessness is similar to defeat and entrapment in that it represents a negative appraisal, however whereas defeat

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and entrapment relate to the current situation, an appraisal of hopelessness is concerned with the future (Acosta et al., 2012). Hopelessness has consistently been found to predict suicidal ideation and behaviour in bipolar disorder (e.g., Acosta et al., 2012; Johnson et al., 2005; Pompili et al., 2012; Umamaheswari et al., 2014), and evidence suggests that hopelessness may help to explain the relationship between depression and suicide (Taylor et al., 2011).

The relationship between defeat, entrapment and suicidal ideation has never been scientifically tested in a sample of individuals with bipolar disorder. However, individuals with bipolar disorder have described a sense of perceived entrapment when recalling suicidal feelings in a previous qualitative study (Owen, Gooding, Dempsey & Jones, 2015). Based upon the hypothesised pathways of contemporary theoretical models of suicide (O'Connor, 2011; Williams, 1997), the present study tested whether perceived entrapment significantly mediated the relationship between perceived defeat and suicidal ideation. Entrapment was divided into its respective subscales, internal and external entrapment, in order to elucidate the effects of each sub-type. Since hopelessness overlaps conceptually with defeat and entrapment, it was necessary to control for the effects of hopelessness in all analyses. Depression symptoms were also controlled for. It was hypothesised that the mediational pathways would remain significant after controlling for hopelessness and depression.

Method

Design

A prospective longitudinal design with repeated measures was employed to address the aim of the present study. Participants completed self-report measures at baseline and at a four-month follow-up assessment. The predictor variable was perceived defeat at baseline; the mediator variable was perceived entrapment at follow-up; the outcome variable was suicidal ideation at four-month follow-up. The controlled variables were baseline suicidal ideation, baseline hopelessness and baseline depression symptoms.

Recruitment

Participants were recruited from the North of England using a number of recruitment methods. Members of staff in NHS services, such as community mental health teams, were able to refer potentially eligible participants to the study. Participants were also able to self-refer into the study. This was mainly sought by placing advertisements in local newspapers, and promoting the study online via social media. Based upon the contact information provided, self-referred participants were able to contact the first author directly.

This study was granted approval by the University of Manchester Ethics Committee and NHS Research Ethics Committee (Ref: 14/NW/1470).

Participants

In total, 80 participants were recruited based upon the following inclusion criteria:

1. A primary diagnosis of bipolar disorder (I or II) according to the Diagnostic and Statistical Manual of Mental Disorders (DSM) IV research criteria (First, Gibbon, Spitzer, Williams & Benjamin, 1997). Participants were in a euthymic mood state according to SCID criteria (four weeks free from clinically significant mood symptoms), when they completed the questionnaires.

2. Self-reported past experience of suicidal ideation and/or a previous suicide attempt.

3. Aged 18-65 years.

4. Sufficient English language ability to comprehend and complete the assessment measures.

Measures

The Structured Clinical Interview for DSM-IV Axis I Disorders, Research Version (SCID; First et al., 1997)

The first author (RO) conducted the SCID interview which assessed criteria for the Major DSM-IV Axis I disorders. It remains the gold standard for identifying the presence of psychiatric diagnoses in clinical research trials (First et al., 1997). Module A (Depressive, Manic and Hypomanic Mood

Episodes) was administered to all participants to confirm the presence of bipolar disorder for research purposes. RO was fully trained and experienced in administering the SCID interview.

The Defeat Scale (Gilbert & Allan, 1998)

The defeat scale is comprised of 16 items assessing perceptions of defeat including those of failure and low social ranking (e.g., "I feel that I have sunk to the bottom of the ladder"). Respondents are asked to rate the occurrence of these perceptions on a five-point scale ranging from 'Never' to 'Always'. The alpha coefficient for the current study was 0.97.

The Entrapment Scale (Gilbert & Allan, 1998)

This measure comprises 16 items assessing perceptions of feeling trapped (e.g., 'I have a strong desire to escape from things in my life'). The measure is divided into two subscales, which are, (1) internal entrapment (e.g., 'I would like to escape my own thoughts and feelings), and (2) external entrapment (e.g., 'I feel trapped by other people'). Respondents rate all items using a five-point scale ranging from 'Not at all like me' to 'Extremely like me'. The alpha coefficient for the current study was 0.93.

The Beck Suicidal Ideation Scale (BSIS; Beck & Steer, 1991)

The Beck Suicidal Ideation Scale is comprises 21-items. The first 19 items assess the presence of current suicidal ideation during the past week, whereas the final two items ask about participants' previous history of suicide attempts. The present study assessed current suicidal ideation and so used items 1-19 only.

For questions 1-19, participants are asked to select one of three responses indicating increasing severity of suicidal ideation (e.g., 'I have no desire to kill myself"; 'I have a weak desire to kill myself'; 'I have a moderate to strong desire to kill myself'). Due to a technical error, item 8 ('Do you accept this idea of suicide?') was omitted. To replace the missing item, an average score was calculated from the remaining items for each participant. The BSS has previously demonstrated an alpha coefficient of 0.96 and test–retest reliability of $r = 0.88$ (Pinninti et al., 2002). The alpha coefficient for this scale at baseline and follow-up in the present study was 0.85.

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The Beck Hopelessness Scale (BHS; Beck, 1988)

This scale is comprised of 20 questions which reflect positive and negative views about the future. Participants are asked to indicate the extent to which they agree with each statement during the last seven days using a one to five-point scale from, 'Not at all' to 'Very much so'. Item examples include, 'All I can see ahead of me is unpleasantness rather than pleasantness' and, 'the future looks vague and uncertain to me'. Cronbach's alpha for the present study was 0.94.

Centre for Epidemiologic Studies Depression Scale (CES-D-10; Andresen, 1994)

Participants are asked to rate the presence of depression symptoms (e.g., 'I was bothered by things that do not usually bother me') within the past week on a four-point scale from 'Rarely or none of the time (less than one day)', to 'All of the time (5-7 days)'. Possible scores range from 0 to 30 and a cut off score of 10 indicates the presence of significant depressive symptoms. The scale has previously demonstrated satisfactory internal consistency reliability coefficients (Cronbach $\alpha = 0.88$; Zhang et al., 2012). The CES-D-10 also showed comparable accuracy to the original CES-D-20 in identifying depressed samples (Kappa = 0.82, $P<0.001$; Zhang et al., 2012). The alpha coefficient for the present study was 0.90.

Altman Self-Rating Mania Scale (Altman, Hedeker, Peterson & Davies, 1997)

This is a 5 item scale in which participants rate the severity of manic symptoms for the previous week on a scale ranging from zero (e.g., 'I do not talk more than usual') to four (e.g., 'I talk constantly and cannot be interrupted'). A cut-off score of six indicates the presence of clinically significant manic symptoms. The scale has previously demonstrated good sensitivity (85%) in being able to detect the presence of moderate manic symptoms and good specificity in being able to identify mild or no symptoms of (87.3%) (Altman et al., 2001). The alpha coefficient for the present study was 0.89.

Procedure

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First, potential participants were provided with a participant information sheet. After considering the information sheet for at least 24 hours, those who were interested attended a structured clinical interview during which informed consent was gained (SCID; First et al., 1997).

Eligible participants were sent an email with the link to the confidential online questionnaires. For participants who did not have access to the internet (N=14), the questionnaires were posted out in hard copy format with a freepost envelope to return them. After four-months, participants were contacted and asked to complete the self-report questionnaires for the final time at a follow-up assessment.

Data Analysis

SPSS version 22 was used to analyse the data. All variables were screened for normality. Z-scores were calculated from the skewness and kurtosis scores divided by the respective standard error. An absolute value greater than 1.96 is significant at $p<0.05$ and indicates that the data is not normally distributed. This method of testing normality is the most suitable for use in small sample sizes (Field, 2012). Spearman's rho or Pearson's product moment correlation coefficients were used as appropriate for the normality of the distribution of the data.

This study used hierarchical linear regression to test whether defeat and entrapment significantly predicted suicidal ideation at four-months. A mediational pathway was tested using model four of the Process algorithm for SPSS (Hayes, 2013), whereby the relationship between perceived defeat and suicidal ideation at four-months was mediated by perceived entrapment. Baseline suicidal ideation, hopelessness and depression were controlled for. Direct effects and indirect effects were calculated.

The total entrapment variable was divided into its' individual sub-scales, which were, (1) internal entrapment, and, (2) external entrapment. Two separate mediational models were ran with internal entrapment and external entrapment as the respective mediators. The control variables were baseline suicidal ideation, hopelessness and depression. Again, direct and indirect effects were calculated.

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Bootstrapping with 5000 random samples was used to test the significance of the indirect effect of the predictors on suicidal ideation, i.e., the effect of the independent variable on the dependent variable via the mediator (Hayes, 2009). Bootstrapping is an appropriate and robust method for testing mediation effects in smaller samples (Preacher & Hayes, 2004). Sobel's test is often used to test the significance of indirect effects in mediation models, however, this test assumes a normal distribution and since mediated or indirect effects are rarely normally distributed, bootstrapping offers a more rigorous alternative (Cheung & Lau, 2007).

Results

Participant Characteristics

Sixty-four percent of the original baseline sample (N=51) had attempted suicide on at least one occasion. Thirty-six percent (N=29) had experienced suicidal ideation without attempting suicide. Of the 80 baseline participants, a total of 62 participants (78%) took part in the four-month follow-up assessment.

Of the baseline sample, 38% were male and 62% were female. Of the follow-up sample, 39% were male and 61% were female. Table 1. presents key demographic and clinical characteristics of both the baseline and the follow-up sample. Where there are differences between the means of the baseline and follow up sample, t-tests have been conducted to ascertain whether these differences are statistically significant. The t-tests revealed that participants at follow-up scored significantly higher on the mania symptom rating scale compared to participants at baseline, and significantly lower on the suicidal ideation scale (see Table 1).

Table 1. Demographic and clinical characteristics of the baseline and follow-up sample, with means (and mean differences, assessed via t-test), standard deviations and minimum/maximum values.

Correlation Coefficients

Table 2. presents the correlation coefficients for clinical characteristics, predictor variables, mediator variables, outcome variables and control variables at both baseline and follow-up for the present study.

Table 2. Pearson's and Spearman's correlation coefficients for all clinical and psychosocial variables.

Hierarchical Regression Results

Fig 1. displays the direct and indirect (mediated) pathways between defeat, entrapment (a combined total score of external and internal entrapment), and suicidal ideation at four-months, controlling for baseline hopelessness and depression. The overall regression model was significant and explained 46% of the variance in suicidal ideation ($F(4, 53) = 9,18$, $p<0.0001$, $R^2 = 0.46$). The external dashed line in Fig 1. indicates that there was a trend for the direct effect of defeat upon total entrapment, however this did not reach statistical significance (p=0.08). The non-dashed lines indicate that the direct effect of defeat upon suicidal ideation was significant, as was the direct effect of entrapment upon suicidal ideation (p<0.05). There was a significant indirect (mediation) effect of defeat upon suicidal ideation via entrapment, illustrated by the internal non-dashed lines from defeat to entrapment and entrapment to suicidal ideation (p<0.05). Beta coefficients, bootstrapped standard errors of the beta coefficients (in parenthesis), and 95% confidence intervals are shown for each pathway. The italicised values represent the indirect effects.

Fig 1. Direct and indirect pathways between defeat, entrapment and suicidal ideation using hierarchical linear regression.

Internal and External Entrapment

Fig 2. displays the direct and indirect (mediated) pathways between defeat, internal entrapment and suicidal ideation at four-months, controlling for baseline hopelessness and depression. The overall regression model was significant and explained 49% of the variance in suicidal ideation ($F(5, 54) =$

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10.29, $p<0.001$, $R^2 = 0.49$). The external non-dashed lines in Fig. 2 indicate that the independent direct effects of defeat and internal entrapment on suicidal ideation were significant. As illustrated by the internal non-dashed lines, the regression model revealed a significant mediation effect, whereby internal entrapment mediated the relationship between defeat and suicidal ideation. Beta coefficients, bootstrapped standard errors of the beta coefficients (in parenthesis), and 95% confidence intervals are displayed for each pathway. The italicised values represent the indirect effects.

Fig 2. Direct and indirect pathways between defeat, internal entrapment and suicidal ideation using hierarchical linear regression.

Fig 3. presents the direct and indirect (mediated) pathways between defeat, external entrapment and suicidal ideation at four-months, whilst controlling for hopelessness and depression. The overall regression model was significant and explained 34% of the variance in prospective suicidal ideation ($F(5, 54) = 8.28$, $p<0.001$, $R^2 = 0.34$). The external non-dashed line indicates that there was a significant direct effect of external entrapment on suicidal ideation ($p<0.05$). The external dashed line in Fig 3. indicates that the direct effect of defeat on external entrapment was non-significant ($p=0.30$). The internal dashed lines show that there was no significant mediation effect of defeat on suicidal ideation via external entrapment ($p=0.35$). Beta coefficients, bootstrapped standard errors of the beta coefficients (in parenthesis), and 95% confidence intervals are displayed for each pathway. The italicised values are for the indirect effects.

Fig 3. Direct and indirect pathways between defeat, external entrapment and suicidal ideation using hierarchical linear regression.

Discussion

The central aim of this paper was to test a mediational pathway which is hypothesised by contemporary theories of suicidal behaviour, including the Schematic Appraisals Model of Suicide (Johnson et al., 2008), whereby perceived defeat predicted suicidal ideation via perceived entrapment. This mediational pathway was supported in a sample of individuals with bipolar disorder.

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This study represents the first scientific test of the role of perceived defeat and entrapment in pathways to suicidal ideation in bipolar disorder. Taylor and colleagues (2010) found that defeat and entrapment mediated the relationship between symptoms of psychosis and suicidal ideation in people with schizophrenia. Defeat and entrapment have been shown to play a central role in the development of suicidal ideation in post-traumatic stress disorder (Panagioti et al., 2012). Defeat and entrapment have also previously been associated with suicidal ideation in individuals who are at a higher risk of suicide than the general population, such as, prisoners (Gooding et al., in press). The present study contributes to the ever-growing evidence base that defeat and entrapment represent part of an important and potentially transdiagnostic psychological mechanism underlying suicidality (e.g., Griffiths et al., 2014; Tarrier et al., 2013; O'Connor & Nock, 2014).

It has been suggested that perceptions of defeat and entrapment may impact upon suicidal ideation due to their shared variance with hopelessness (Johnson et al., 2008). However, the mediational pathway in the present study remained significant after controlling for feelings of hopelessness. Therefore, despite the large degree of conceptual overlap between these psychological constructs, defeat and entrapment appear to have a relationship with suicidal ideation that is independent of hopelessness (Johnson et al., 2008; Taylor et al., 2010).

With regards to entrapment, the present study demonstrated that both internal and external entrapment independently predicted prospective suicidal ideation. However, whilst internal entrapment significantly mediated the relationship between defeat and suicidal ideation, external entrapment did not. Furthermore, defeat did not predict external entrapment. This suggests that *internal* entrapment, or the perception of being unable to escape from one's own thoughts and feelings (Gilbert & Alan, 1998), may be more closely related to feelings of defeat than external entrapment in bipolar disorder. Few previous studies have divided entrapment into its' respective subscales and investigated them individually (see Taylor, Gooding, Wood & Tarrier, 2011 for a review). However, internal entrapment has been found to mediate the relationship between depression-focused rumination and symptoms of depression in a student sample (Gilbert, Cheung, Irons, & McEwan, 2005). This suggests that internal entrapment is associated with negative cognitions and the experience of low mood, both of which are related to feelings of defeat (Gilbert & Allan, 1998);

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contribute to the maintenance and exacerbation of the acute phases of bipolar disorder (e.g., Gruber et al., 2011; Kim et al., 2012); and can trigger suicidal ideation (Miranda, Tsypes, Gallagher, & Rajappa, 2013; Morrison & O'Connor, 2008). Future work should aim to further explore the nature of internal versus external entrapment in bipolar disorder, with a particular focus on the relationship with bipolar mood symptoms. A more comprehensive understanding of the precise effects of internal versus external entrapment could help to enhance the efficiency and specificity of suicide-related psychological assessments.

The prospective nature of the present study allowed us to elucidate that heightened perceptions of defeat and entrapment lead to the development of prospective suicidal ideation over time. Controlling for baseline suicidal ideation helped to ascertain that the changes in suicidal ideation at follow-up were not simply due to increased levels of suicidal ideation at baseline. These temporal relationships between the independent variables, mediator variables and dependent variables within the present study are consistent with the hypotheses of contemporary psychological theoretical models of suicide, such as the Cry of Pain (Williams, 1997) and the Integrated Motivational Volitional Model of Suicide (IMV; O'Connor et al., 2011). Future research should also seek to determine whether heightened perceptions of entrapment occur as a consequence of suicidal ideation in people who experience bipolar disorder. This could be achieved, for example, by gaining participants' own perspective on the sequential relationships between these psychological mechanisms via qualitative interviews, or using Experience Sampling Methodology (ESM) to look at momentary fluctuations in perceived entrapment following suicidal ideation or a recent suicide attempt.

The present study supports the potential utility of defeat and entrapment as indicators of future suicidal ideation in bipolar disorder. Whilst a range of sociodemographic and clinical risk factors for suicidal ideation and behaviour in this clinical population have previously been identified, including, more frequent relapses into the acute stages of bipolar disorder and poorer treatment adherence, these factors are primarily useful at a descriptive level as their predictive power is fairly poor (Bolton et al., 2007). This is because these factors are common and they identify a large group of people, the majority of whom are not currently suicidal (Bolton et al., 2007; O'Connor & Nock, 2014; Tarrier et al., 2013). The present study demonstrated that perceived defeat and entrapment

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significantly predicted prospective suicidal ideation in a relatively short timeframe, even whilst controlling for hopelessness and depression. Thus, within a suicide risk assessment context, assessing theoretically-relevant psychological constructs, such as, perceptions of defeat and entrapment, may offer a more effective method of identifying individuals who are at an increased immediate risk of experiencing suicidal ideation (Taylor et al., 2011). Accurate detection of high suicide-risk individuals could in turn help to ascertain specifically who would benefit from interventions targeting these underlying psychological mechanisms, as well as informing wider service approaches which promote reduced defeat and entrapment (Tarrier et al., 2013).

The World Health Organisation states that psychological interventions which aim to reduce suicide risk should play an important role in suicide prevention approaches (e.g., Haddock et al., 2016; O'Connor & Nock, 2014; Pompili et al., 2004). Although, in reality, around 60% of people who experience suicidal thoughts and behaviours do not receive any treatment (Bruffaerts et al., 2011). Findings from a meta-analysis of cognitive-behavioural therapies for suicidal behaviour revealed a significant effect of these therapies in reducing the rates of suicide attempts (Tarrier, Taylor & Gooding, 2008). However, the authors identified a potential publication bias, with smaller studies reporting higher effect sizes, and no study reported negative effects for any intervention (Tarrier, Taylor & Gooding, 2008). There is a lack of randomised controlled trials testing the efficacy of psychological treatments for people at risk of suicidal thoughts and behaviours (O'Connor & Nock, 2014). Furthermore, to the best of our knowledge, no previous research has investigated whether a suicide preventative intervention reduces perceptions of defeat and entrapment. There is a clear and important need for future work to develop evidence-based psychological treatments for reducing suicide risk. Specifically, studies should aim to evaluate the extent to which targeting mechanisms such as defeat and entrapment can help to reduce suicidal thoughts and behaviours in high suicide-risk populations, including, individuals with bipolar disorder. This would also help to ascertain the extent to which perceptions of defeat and entrapment are modifiable.

A psychological intervention which aims to target defeat and entrapment in order to alleviate suicidal thinking should aim to widen and actively re-direct the individual's appraisal system away from suicide-related cognitions to more positive appraisals and alternative goal-directed escape

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behaviours (Tarrier et al., 2013). For example, some people imagine a return to calmness or a peaceful emotional state following a suicidal act, therefore behaviours which allow the individual to temporarily escape from anxiety associated with feeling entrapped, such as meditation or relaxation techniques, may be a useful way to help protect against the formation of suicidal intent (O'Connor & Nock, 2014). Such therapeutic interventions should also aim to facilitate better coping and emotion regulation to reduce perceived defeat and entrapment (e.g., Haddock et al., 2016; Tarrier et al., 2014).

There are three limitations which must be taken into consideration when interpreting the results of this study. First, due to time-constraints of the present study, the four-month follow-up period was relatively short. Whilst this allows us to ascertain that defeat and entrapment predict suicidal ideation in the short term, it remains unclear whether perceived defeat and entrapment represent long-term predictors of suicidal ideation. Furthermore, since suicidal behaviour has such a low baseline rate, a study with a longer follow-up period, e.g., over a number of years, would help to determine whether defeat and entrapment also predict suicide attempts in bipolar disorder. Second, the study had a relatively small sample size. Future studies with larger samples are needed to increase power and to have greater confidence in the role of defeat and entrapment in people who experience bipolar disorder. Third, the present study did not consider the effects of bipolar-specific processes, or processes which are particularly relevant to maintaining and exacerbating problems within bipolar disorder specifically, on the relationship between defeat, entrapment and suicidal ideation. A recently developed model which attempts to explain the development of suicidal ideation in people with bipolar disorder is the Bipolar Suicidality Model (BSM; Malhi et al., 2013). The BSM considers the impact of 'disorder-specific' processes, such as, emotion dysregulation, upon pathways underlying suicidal ideation and behaviour. The model postulates that impairments in cognition, a pre-disposition to experiencing more extreme emotions and poor emotion regulation strategies serve to amplify perceptions of defeat and entrapment in bipolar. Future work should seek to determine whether these 'disorder-specific' processes have a particular effect on suicide-related psychological mechanisms, such as, defeat and entrapment. Knowledge of potential idiosyncrasies of the psychological pathways which underlie suicidal ideation and behaviour across different clinical groups would help to inform

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adaptations to psychological interventions according to the specific problems of the client. This in turn may help to improve the efficacy of such interventions.

Despite the limitations, this study represents the first scientific test of the relationship between defeat, entrapment and suicidal ideation in a sample of individuals with bipolar disorder. Investigating suicide-related psychological constructs, such as, defeat and entrapment, within the framework of theoretical models of suicide helps to generate specific and testable hypotheses which further our current understanding of the psychological pathways which underlie suicidal ideation and behaviour. Future work should evaluate the efficacy of targeting perceived defeat and entrapment in psychological interventions which aim to reduce the risk of suicide in bipolar disorder.

References

Acosta, F. J., Vega, D., Torralba, L., Navarro, S., Ramallo-Fariña, Y., Fiuza, D., & Siris, S. G. (2012). Hopelessness and suicidal risk in bipolar disorder. A study in clinically nonsyndromal patients. *Comprehensive Psychiatry*, *53*(8), 1103-1109.

Altman, E. G., Hedeker, D., Peterson, J. L., & Davis, J. M. (1997). The Altman self-rating mania scale. *Biological Psychiatry*, *42*(10), 948-955.

Andresen, E. M., Malmgren, J. A., Carter,W. B., & Patrick, D. L. (1994). Screening for depression in well older adults: Evaluation of a short form of the CES-D. *American Journal of Preventive Medicine*, *10*(2), 77-84.

Cheung, G. W., & Lau, R. S. (2007). Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational Research Methods, 3,* 1-30.

Clements, C., Morriss, R., Jones, S., Peters, S., Roberts, C., & Kapur, N. (2013). Suicide in bipolar disorder in a national English sample, 1996-2009: frequency, trends and characteristics. *Psychological Medicine*, *107,* 1-10.

Beck, A. T., & Steer, R. A. (1991). Manual for the Beck scale for suicide ideation. *San Antonio, TX: Psychological Corporation*.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: the hopelessness scale. *Journal of Consulting and Clinical Psychology*, *42*(6), 861.

Bolton, C., Gooding, P., Kapur, N., Barrowclough, C., & Tarrier, N. (2007). Developing psychological perspectives of suicidal behaviour and risk in people with a diagnosis of schizophrenia: we know they kill themselves but do we understand why? *Clinical Psychology Review*, *27*(4), 511-536.

Bruffaerts, R., Demyttenaere, K., Hwang, I., Chiu, W. T., Sampson, N., Kessler, R. C., & Florescu, S. (2011). Treatment of suicidal people around the world. *The British Journal of Psychiatry, 199*, 64-70.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. UK: Sage.

First, M.B., Spitzer, R.L., Gibbon, M., & Williams, J.B.W. (1997). *Structured Clinical Interview for DSM-IV Axis I Disorders-clinician Version* . American Psychiatric Press: Washington, DC.

Gilbert, P., & Allan, S. (1998). The role of defeat and entrapment (arrested flight) in depression: an exploration of an evolutionary view. *Psychological Medicine*, *28*(03), 585-598.

Gilbert, P., Cheung, M., Irons, C., & McEwan, K. (2005). An exploration into depression-focused and anger-focused rumination in relation to depression in a student population. *Behavioural and Cognitive Psychotherapy*, *33*(03), 273-283.

Gooding, P., Tarrier, N., Dunn, G., Awenat, Y., Shaw, J., Ulph, F., & Pratt, D. (In Press). Psychological characteristics and predictors of suicidal thoughts and behaviours in high risk prisoners. *Criminal Justice and Behaviour*.

Goodwin, F. K., & Jamison, K. R. (2007). *Manic-depressive illness: bipolar disorders and recurrent depression*. UK: Oxford University Press.

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*(1), 52-59.

Gruber, J., Eidelman, P., Johnson, S. L., Smith, B., & Harvey, A. G. (2011). Hooked on a feeling: rumination about positive and negative emotion in inter-episode bipolar disorder. *Journal of Abnormal Psychology*, *120*(4), 956-962.

Haddock, G., Davies, L., Evans, E., Emsley, R., Gooding, P., Heaney, L., & Awenat, Y. (2016). Investigating the feasibility and acceptability of a cognitive behavioural suicide prevention therapy for people in acute psychiatric wards (the 'INSITE' trial): study protocol for a randomised controlled trial. *Trials, 17,* 2-8.

Harris, E. C., & Barraclough, B. (1997). Suicide as an outcome for mental disorders. A meta-analysis. *The British Journal of Psychiatry*, *170*(3), 205-228.

Hawton, K., Sutton, L., Haw, C., Sinclair, J., & Harriss, L. (2005). Suicide and attempted suicide in bipolar disorder: a systematic review of risk factors. *Journal of Clinical Psychiatry*, *66*(6), 693-704.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium. *Communication Monographs, 76*(4), 408-420.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. UK: Guilford Press.

Johnson, J., Gooding, P., & Tarrier, N. (2008). Suicide risk in schizophrenia: Explanatory models and clinical implications, The Schematic Appraisal Model of Suicide (SAMS). *Psychology and Psychotherapy: Theory, Research and Practice*, *81*(1), 55-77.

Johnson, S. L., McMurrich, S. L., & Yates, M. (2005). Suicidality in bipolar I disorder. *Suicide and Life-Threatening Behaviour*, *35*(6), 681-689.

Joiner, T. E., Van Orden, K. A., Witte, T. K., Selby, E. A., Ribeiro, J. D., Lewis, R., & Rudd, M. D. (2009). Main predictions of the interpersonal–psychological theory of suicidal

behaviour: Empirical tests in two samples of young adults. *Journal of Abnormal Psychology*, *118*(3), 634-646.

Malhi, G. S., Bargh, D. M., Kuiper, S., Coulston, C. M., & Das, P. (2013). Modelling bipolar disorder suicidality. *Bipolar Disorders*, *15*(5), 559-574.

Miranda, R., Tsypes, A., Gallagher, M., & Rajappa, K. (2013). Rumination and hopelessness as mediators of the relation between perceived emotion dysregulation and suicidal ideation. *Cognitive Therapy and Research*, *37*(4), 786-795.

Morrison, R., & O'Connor, R. C. (2008). A systematic review of the relationship between rumination and suicidality. *Suicide and Life-Threatening Behaviour*, *38*(5), 523-538.

O'Connor, R. C. (2003). Suicidal behaviour as a cry of pain: Test of a psychological model. *Archives of Suicide Research*, *7*(4), 297-308.

O'Connor, R. C. (2011). Towards an integrated motivational-volitional model of suicidal behaviour. *International handbook of suicide prevention: research, policy and practice, (1st Ed)* London: John Wiley & Sons Ltd.

O'Connor, R. C., & Nock, M. K. (2014). The psychology of suicidal behaviour. *Lancet Psychiatry,* 73-85.

O'Connor, R. C., Smyth, R., Ferguson, E., Ryan, C., & Williams, J. M. G. (2013). Psychological processes and repeat suicidal behaviour: A four-year prospective study. *Journal of Consulting and Clinical Psychology*, *81*(6), 1137.

Office for National Statistics (2014). *Suicides in the United Kingdom: 2014 Registrations.* London: Office for National Statistics.

Panagioti, M., Gooding, P., Taylor, P. J., & Tarrier, N. (2012). Negative self-appraisals and suicidal behaviour among trauma victims experiencing PTSD symptoms: The mediating role of defeat and entrapment. *Depression and Anxiety*, *29*(3), 187-194.

Panagioti, M., Gooding, P., Taylor, P. J., & Tarrier, N. (2013). A model of suicidal behaviour in posttraumatic stress disorder (PTSD): The mediating role of defeat and entrapment. *Psychiatry research*, *209*(1), 55-59.

Pompili, M., Innamorati, M., Rihmer, Z., Gonda, X., Serafini, G., Akiskal, H., & Girardi, P. (2012). Cyclothymic–depressive–anxious temperament pattern is related to suicide risk in 346 patients with major mood disorders. *Journal of Affective Disorders*, *136*(3), 405-411.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*(4), 717-731.

Rasmussen, S. A., Fraser, L., Gotz, M., MacHale, S., Mackie, R., Masterton, G., & O'Connor, R. C. (2010). Elaborating the cry of pain model of suicidality: testing a psychological model in a sample of first-time and repeat self-harm patients. *British Journal of Clinical Psychology*, *49*(1), 15-30.

Rooke, O., & Birchwood, M. (1998). Loss, humiliation and entrapment as appraisals of schizophrenic illness: A prospective study of depressed and non-depressed patients. *British Journal of Clinical Psychology*, *37*(3), 259-268.

Suicide, W. P. A Global Imperative. 2014. *World Health Organisation (WHO).*

Tarrier, N., Gooding, P., Pratt, D., Kelly, J., Awenat, Y., & Maxwell, J. (2013). *Cognitive behavioural Prevention of suicide in psychosis: A treatment manual.* UK: Routledge.

Tarrier, N., Kelly, J., Maqsood, S., Snelson, N., Maxwell, J., Law, H., & Gooding, P. A. (2014). The cognitive behavioural prevention of suicide in psychosis: A clinical trial. *Schizophrenia Research, 156*(2-3), 204-210.

Taylor, P. J., Gooding, P. A., Wood, A. M., Johnson, J., Pratt, D., & Tarrier, N. (2010). Defeat and entrapment in schizophrenia: The relationship with suicidal ideation and positive psychotic symptoms. *Psychiatry Research*, *178*(2), 244-248.

Taylor, P. J., Gooding, P., Wood, A. M., & Tarrier, N. (2011). The role of defeat and entrapment in depression, anxiety, and suicide. *Psychological Bulletin, 137*(3), 391-420.

Umamaheswari, V., Avasthi, A., & Grover, S. (2014). Risk factors for suicidal ideations in patients with bipolar disorder. *Bipolar Disorders, 10,* 1-10.

Wasserman, D., Geijer, T., Sokolowski, M., Rozanov, V., & Wasserman, J. (2007). Nature and nurture in suicidal behaviour, the role of genetics: some novel findings concerning personality traits and neural conduction. *Physiology & Behaviour*, *92*(1), 245-249.

Williams, J.M.G. (1997). *Cry of Pain.* Harmondsworth: Penguin.

Williams, J. M. G., & Pollock, L. R. (2001). Psychological aspects of the suicidal process. *Understanding Suicidal Behaviour, 7,* 76-93.

Table 1. Demographic and clinical characteristics of the baseline and follow-up sample, with means (and mean differences, assessed via t-test), standard deviations and minimum/maximum values.

	BL Mean	FU Mean	t (p)	BL (FU) Standard Deviation	BL (FU) Minimum - Maximum
Age (years)	43	43		12.36 (12.29)	22–65 (23-65)
Age of onset depression	15	15		5.67 (5.65)	4-34 (4-34)
Age of onset mania	19	19		5.64 (5.73)	4-34 (4-34)
No. lifetime depressive episodes	36	36		40.77 (38.51)	2-200 (2-200)
No. lifetime manic episodes	14	14		13.75 (13.51)	1-50 (1-50)
CES-D-10	13	14	-1.50 (p=0.14)	6.77 (7.45)	0-26 (0-29)
ASRM	4	8	-5.58 (p<0.001)	4.80 (3.29)	0-18 (4-17)
BSSI	7	5	1.95 (p<0.001)	7.66 (6.42)	0-33 (0-23)

CES-D-10 = Centre for Epidemiological Studies Depression Scale; ASRM = Altman Self-Rating Mania Scale; BSIS = Beck Suicidal Ideation Scale.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Age Depression	1	.62**	-.24	-.30*	.26*	.12	-.11	-.09	-.13	.02	.08	.01	.01	-.04	.14	-.06	-.10	-.10	.01	-.20
2. Age Mania	.62**	1	.12	-.32*	-.08	.21	.11	-.09	-.06	.15	.20	.03	.10	.05	.20	-.01	-.22	-.25	.15	-.10
3. Depressive Episodes	-.24	.12	1	.27	-.43**	-.08	.09	-.05	.07	.14	-.14	-.03	-.13	-.09	-.09	-.01	.07	-.08	.17	.19
4. Manic Episodes	-.31*	-.32*	.27	1	-.30*	-.19	-.19	-.25	.17	.13	-.20	-.12	-.16	.10	-.17	.17	.15	-.11	-.06	.05
5. AUDIT	.25	-.08	-.43**	-.30*	1	.47**	.07	-.06	.03	.07	.22	.21	.28*	.12	.16	.04	.05	.15	.10	.07
6. DAST	.20	.21	-.08	-.19	.47*	1	.25	.19	.11	-.03	.15	.05	.29*	.02	.19	.10	-.13	-.14	.38**	.28*
7. BL CESD	-.11	.11	.09	-.19	.07	.25	1	.41**	-.14	.18	.70**	.36**	.66**	.45**	.50**	.27*	-.32*	-.24	.56**	.33*
8. FU CES-D	-.09	-.09	-.05	.25	-.06	.19	.41**	1	.01	-.14	.40*	.70**	.38**	.73**	.29*	.68**	-.28*	-.54**	.39**	.45**
9. BL AMRS	-.13	-.06	.07	.17	.03	-.11	-.14	.01	1	.37**	-.09	.11	-.01	.00	-.14	-.06	-.11	-.00	-.12	.15
10. FU AMRS	.02	.15	.14	.13	.07	-.03	.18	-.14	.37**	1	.14	-.06	.08	-.16	.04	-.22	-.04	.26	.19	.04
11. BL DEF	.08	.20	-.14	-.20	.22	.15	.70**	.40*	-.09	.14	1	.52**	.81**	.51**	.75**	.36**	-.47**	-.20	.58**	.29*
12. FU DEF	.01	.03	-.03	.12	.21	.05	.36**	.70**	.11	-.06	.52**	1	.47**	.81**	.37	.78**	-.34**	-.47**	.33**	.45**
13. BL ENT	.01	.10	-.13	-.16	.28*	.29*	.66**	.38**	-.01	.08	.81**	.47**	1	.58**	.78**	.46**	-.49**	-.30*	.63**	.48**
14. FU ENT	-.04	.05	-.09	.10	.19	.02	.45**	.73**	.00	-.16	.51**	.81**	.58**	1	.38**	.69**	-.26*	-.47**	.39**	.51**
15. BL BHS	.14	.20	-.09	-.17	.16	.19	.50**	.29*	-.14	.04	.75**	.37**	.78**	.38**	1	.49**	-.60**	-.43*	.61**	.32**
16. FU BHS	-.06	-.01	.01	.17	.04	.10	.27*	.68**	-.06	.22	.36**	.76**	.46**	.69**	.49**	1	-.38**	-.64**	.30*	.47**

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
17. BL PRQ	-.10	-.22	.07	.15	*.05*	*-.13*	**-.32***	**-.28***	*-.11*	-.04	-.47**	.34**	-.49**	**-.26***	-.60**	.38**	1	-.66**	-.50**	***-.30****
18. FU PRQ	-.09	-.25	-.08	-.11	*.15*	*-.14*	-.24	**-.55****	*-.00*	*.26*	-.20	.47**	-.30*	-.47**	-.43**	-.64**	**.66****	1	*-.35***	*-.40***
19. BL Suicide	*.01*	*.15*	*.17*	-.08	*.10*	**.38****	**.56****	**.39****	*-.12*	*.19*	**.58****	**.33****	**.63****	**.39****	**.61****	**.30***	-.50**	-.35**	*1*	*.53***
20. FU Suicide	*-.20*	*-.10*	*.19*	*.05*	*.07*	**.28***	**.33****	**.45****	*.15*	*.04*	**.29***	**.45****	**.48****	**.51****	**.32***	**.47****	-.30**	-.40**	**.53****	*1*

Age Depression = Self-Reported Age at First Onset of Depression; Age Mania = Self-Reported Age at First Mania Onset; Depressive Episodes = Self-Reported Number of Lifetime Depressive Episodes; Manic Episodes = Self-Reported Number of Lifetime Manic Episodes; BL = Baseline; FU = Follow-Up; AUDIT = Alcohol Use Disorders Identification Test; DAST = Drug Abuse Screening Test; CES-D = Centre for Epidemiological Studies Depression Scale; ASRM = Altman Self-Rating Mania Scale; DEF = Defeat Scale; ENT = Entrapment Scale; BHS = Beck Hopelessness Scale; PRQ = Personal Resource Scale. BSIS = Beck Suicidal Ideation Scale.

*= p<.05; **= p<.001

Italicised values = Spearman's test for non-normally distributed data.

Non-italicised values = Pearson's test for normally distributed data.

Fig 1. Direct and indirect pathways between defeat, entrapment and suicidal ideation using hierarchical linear regression.

Fig 2. Direct and indirect pathways between defeat, internal entrapment and suicidal ideation using hierarchical linear regression.
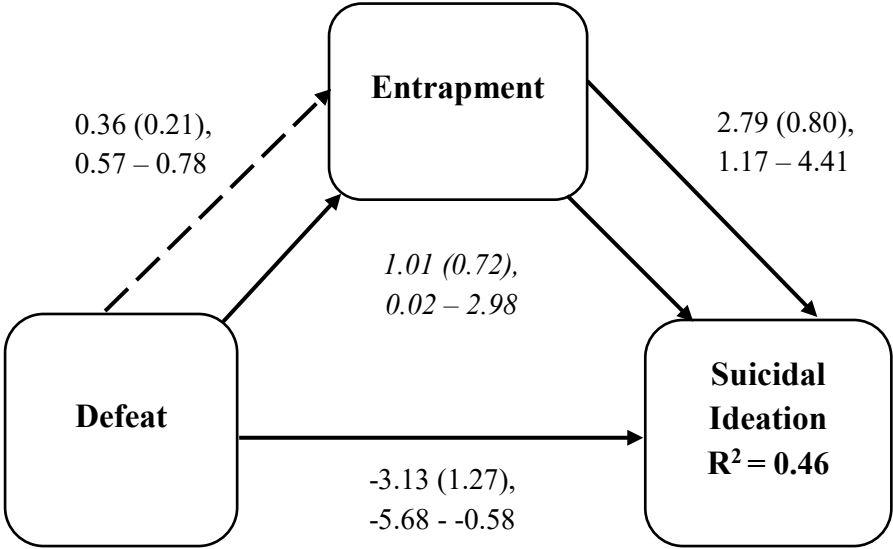
Fig 3. Direct and indirect pathways between defeat, external entrapment and suicidal ideation using hierarchical linear regression.

External
Entrapment

0.22 (0.21), -
0.20 – 0.65

2.24 (0.81),
0.62 – 3.86

0.50 (0.57),
-0.31 – 0.35

Defeat

Suicidal
Ideation
R² = 0.34

-2.59 (1.29),
-5.17 - -0.01