Investigating the role of future thinking in social problem solving

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ABSTRACT

Backgrounds and objectives: There is well-established evidence that both rumination and depressed mood negatively impact the ability to solve social problems. A preliminary stage of the social problem solving process may be the process of catapulting oneself forward in time to think about the consequences of a problem before attempting to solve it. The aim of the present study was to examine how thinking about the consequences of a social problem being resolved or unresolved prior to solving it influences the solution of the problem as a function of levels of rumination and dysphoric mood.
Method: Eighty six participants initially completed the Beck Depression Inventory- II (BDI-II) and the Ruminative Response Scale (RRS). They were then presented with six social problems and generated consequences for half of the problems being resolved and half of the problems remaining unresolved. Participants then solved some of the problems, and following a delay, were asked to recall all of the consequences previously generated.
Results: Participants reporting higher levels of depressed mood and rumination were less effective at generating problem solutions. Specifically, those reporting higher levels of rumination produced less effective solutions for social problems that they had previously generated unresolved than resolved consequences. We also found that individuals higher in rumination, irrespective of depressed mood recalled more of the unresolved consequences in a subsequent memory test.
Limitations: As participants did not solve problems for scenarios where no consequences were generated, no baseline measure of problem solving was obtained.
Conclusions: Our results suggest thinking about the consequences of a problem remaining unresolved may impair the generation of effective solutions in individuals with higher levels of rumination.

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1. Introduction

Deficits in social problem solving are a core feature of depression (e.g., Beck, 1976; Nezu, 1987), linked to both its onset and maintenance (Beck, 1976; Marx, Williams, & Claridge, 1992; Nezu, 1987). Research has found, that compared to controls, depressed individuals generate less effective strategies to hypothetical social problems (Goddard, Dritschel, & Burton, 1996; Marx et al., 1992) and rate themselves as being more unsuccessful at social problem solving (Heppner, Baumgardner & Jackson, 1985; Nezu, 1987; Nezu & Ronan, 1985). One mechanism that is associated with poorer social problem solving in depression is rumination (Kao, Dritschel, & Astell, 2006; Nolen-Hoeksema, 1991; Watkins & Moulds, 2005). Rumination is a response style that consists of recurrent thoughts

that involuntarily enter into consciousness (Nolen-Hoeksema, 1987). It involves an individual focusing their thoughts and behaviour on the causes and consequences of negative events and their resultant negative affect (Nolen-Hoeksema, 1991).

The importance of rumination in depressive disorders has been well established, with rumination linked to depression maintenance, increased negative cognitions and enhanced accessibility of negative memories (Lyubomirsky & Nolen-Hoeksema, 1993; Nolen-Hoeksema, 2000). With respect to social problem solving, rumination leads to an increased focus on the negative feelings associated with those problems. As a consequence, the negative affect impairs the generation of useful steps (Yoon & Joormann, 2012) and increases the likelihood of spontaneous categorical retrieval, thus providing an impoverished database for solving problems (Goddard et al., 1996). Rumination of negative life events and negative mood states also exerts effects independent of levels of depressive symptomology (Nolen-Hoeksema, 1991). Indeed, research has found that rumination, irrespective of depression is also related to impaired social problem solving (Nolen-Hoeksema, Wilsco, & Lyubomirsky, 2008).

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One potential mechanism that could contribute to social problem solving ability is the impact of thinking about the consequences of a problem being resolved or remaining unresolved before solving it. Imagining the potential consequences of a problem before attempting to solve that problem often occurs spontaneously. For example, an individual might consider the consequences of divorcing a spouse or remaining married when thinking about how to solve a serious marital conflict. By engaging in this cost-benefit analysis, an individual may generate motivation for having a positive or negative orientation toward the problem. It also enables the individual to think about the problem beyond current needs, which may further benefit long-term goal achievement (Boyer, 2008). Thus, thinking about the consequences of a problem being resolved or remaining unresolved represents a preliminary stage of the problem solving process.

Given that a pessimistic view of the future is an important feature of depressive thinking (Beck, 1976; Beck, Rush, Shaw, & Emery, 1979; Marx et al., 1992; Nezu, 1987) with rumination facilitating the generation of negative future events (Lavender & Watkins, 2004; Lyubomirsky & Nolen-Hoeksema, 1995), it is possible that dysphoric individuals (i.e., individuals experiencing negative mood) and those high in rumination may be more predisposed to think negatively about a problem, and, thus generate possible outcomes of a problem remaining unresolved.

Furthermore, these individuals may be unable to inhibit these negative consequences which may subsequently affect their ability to generate the steps needed to solve a problem, thus resulting in impaired social problem solving. Inhibition is deemed important for preventing irrelevant information from entering working memory and keeping the focus on goal-oriented behaviour (Hasher & Zacks. 1988). Research looking at the ability to inhibit no-longer relevant information in both depression and rumination has revealed that individuals high in both rumination and depression demonstrate greater difficulty in inhibiting irrelevant information (Joormann, 2006; Joormann & Gotlib, 2008). For example, Joormann and Gotlib (2008) used a negative priming task in which depressed and non-depressed participants initially learnt two lists of emotional words and were subsequently asked to recall one list of words. The study found that depressed participants showed more intrusions of negative words from the irrelevant list, thus, demonstrating an inability to disregard irrelevant negative information. Furthermore, this difficulty was also associated with rumination in the depressed group. Taken together, these findings suggest that both depression and rumination are associated with poor inhibition.

Moreover, given that dysphoric and depressed individuals demonstrate enhanced memory for material that is congruent to their mood (Matt, Vázquez, & Campbell, 1992; Noreen & Ridout, 2010; Watkins, Mathews, Williamson, & Fuller, 1992), it is possible that these individuals will demonstrate superior memory for the consequences of the problem remaining unresolved as such consequences are generally negative in content.

It is important to note that whilst there have been a number of studies implicating the role of rumination and depression in impairing social problem-solving, the ability to imagine what might happen in the future for social problems either being resolved or remaining unresolved has yet not been examined. The aim of the present study was to address this question by looking at the effects of generating resolved and unresolved consequences on social problem solving in dysphoria and rumination. The present study used a modified version of the Means-End Problem Solving Task (MEPS; Platt & Spivack, 1975). Participants were presented with six vignettes consisting of a range of distinct interpersonal problems. They were asked to generate five consequences of the problem being resolved for three of the vignettes and five

consequences of the problem remaining unresolved for the remaining vignettes. Subsequently, participants were given four of the vignettes with their resolutions and asked to describe the steps they would take to solve the problem in order to achieve the positive resolution described. Following a 10 min distraction task, participants were presented with all six vignettes and asked to recall all of the consequences that they had previously generated.

We predicted that individuals scoring high on indices of dysphoric mood and rumination would produce less effective solutions and generate fewer relevant means (i.e. steps) for problems solved. We also predicted that there would be greater variance for problems where they generated unresolved as opposed to resolved consequences. We also predicted that on a subsequent recall task, there would be greater recall of unresolved consequences and poorer recall of resolved consequences for individuals scoring high as opposed to low on indices of dysphoric mood and rumination. Finally we also examined whether the same pattern of findings for the recall of consequences would be observed when participants did not engage in problem solving (i.e., as a baseline condition of recall).

2. Method

2.1. Participants

The participants were 86 (75F, 11M; Mean age = 19.60, SD = 2.81) students from the University of St Andrews, Scotland.

2.2. Measures

2.2.1. Mood and problem-solving questionnaires

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) was used to assess the severity of participants' depressed mood. The BDI-II is a 21 item, self-report measure of depression symptom intensity over the past two weeks. For each item, participants are asked to indicate which one of four statements best describes how they have been feeling, with higher scores indicating higher levels of depressive symptoms.

The Rumination Response Scale (RRS; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) was used to assess how participants respond to sad or depressed mood. The RRS consists of 22 statements (e.g. how often do you *"analyze recent events to try to understand why you are depressed"*) that involve participants rating their ruminative activities on a four point scale with 1 = 'almost never' and 4 = 'almost always'. The questionnaire involves combining the numbers corresponding to the selected statements for each of the 22 statements to obtain a total score. The total scores obtainable on the questionnaire range from 22 to 88, with higher scores indicating more real life rumination.

2.2.2. Means End Problem-Solving (MEPS; Platt & Spivack, 1975)

We constructed a modified version of the MEPS that consisted of six hypothetical scenarios, some of which were adapted from Dennis, Astell, and Dritschel (2012). The scenarios contained hypothetical problems that could be encountered by a student population, i.e., your friends avoiding you, your supervisor finding fault with your work, your parents arguing with you, your sports coach belittling you in front of your team mates, your housemates not doing their chores and your partner not spending enough time with you.

These scenarios were selected from a larger pool of 14 scenarios that were piloted. Forty eight participants took part in the pilot study to ensure that the scenarios we used in our main study were matched on word count (total words = 50), openness (from 1 = not open at all (i.e. completing a problem using a fixed sequence of