The effect of social exclusion on state paranoia and explicit and implicit self-esteem in a non-clinical sample

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ABSTRACT

Background and objectives: The relationship between self-esteem and paranoia may be influenced by social stress. This study aimed to replicate previous research on the impact of social exclusion on paranoia and self-esteem in a non-clinical sample and to extend this work by examining the effect of exclusion on self-esteem at the 'implicit' level.
Methods: Non-clinical participants (N = 85) were randomly allocated to the Inclusion or Exclusion condition of a virtual ball-toss game ('Cyberball'). They completed self-report measures of state paranoia and self-esteem, and two implicit measures of self-esteem — the Implicit Association Task (IAT) and Implicit Relational Assessment Procedure (IRAP) —prior to and after exposure to Cyberball.
Results: Social exclusion increased state paranoia. This effect was moderated by distress associated with trait paranoia. Exclusion was also associated with decreased self-reported self-esteem, as well as reduced implicit self-esteem on the IAT. Changes in self-reported self-esteem were associated with state paranoia at post-Cyberball. The IRAP indicated that reductions in implicit self-esteem may be due to increases in 'Me-Negative' and 'Others-Positive' biases (rather than reductions in 'Me-Positive' bias).
Limitations: The current study involved a non-clinical sample and so findings cannot be generalized to clinical paranoia.
Conclusions: These findings are consistent with previous evidence that paranoia is associated with negative self-evaluations, whereas positive self-evaluations can persist in paranoia. They also provide support for the suggestion that investigations of self-esteem in paranoia should extend beyond global self-esteem and might benefit from a distinction between positive and negative components.

1. Introduction

Paranoia involves the belief that harm is occurring or will occur and that a perceived persecutor is deliberately trying to cause harm (Freeman & Garety, 2000). It is considered a complex multi-dimensional phenomenon involving a continuum from normal human experience to persecutory delusions at the extreme end (e.g., Freeman et al., 2005; Peters, Joseph, Day, & Garety, 2004). Self-esteem has been implicated in a number of prominent theories of the development and maintenance of paranoia, and there is some evidence in this regard. For example, individuals diagnosed with persecutory delusions, as well as those with paranoia-proneness, are characterized by low and fluctuating self-esteem (Kesting & Lincoln, 2013; Tiernan, Tracey, & Shannon, 2014). Furthermore, there is evidence that reduced self-esteem precedes increases in state paranoia (e.g., Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008). To account for this relationship, Bentall, Kinderman, and Kaney (1994); Bentall, Corcoran, Howard, Blackwood, and Kinderman (2001) proposed that individuals with paranoia attribute negative events externally and personally in order to preserve self-esteem. In contrast, Freeman and colleagues argued that paranoid beliefs directly reflect emotional concerns and negative self-concepts (e.g., self as vulnerable; Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002; Freeman & Garety, 2014).

A number of researchers have investigated the relationship between paranoia and self-esteem in non-clinical samples by

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examining the putative role of social exclusion induced through a virtual ball toss game ('Cyberball'; Williams, Cheung, & Choi, 2000), in which participants are either included or excluded by other (computer-generated) 'players' (e.g., Kesting, Bredenpohl, Klenke, Westermann, & Lincoln, 2013; Lincoln, Stahnke, & Moritz, 2014; Westermann, Kesting, & Lincoln, 2012). For example, Kesting et al. (2013) found that excluded participants reported an increase in sub-clinical paranoia, which was mediated by a decrease in self-esteem and moderated by paranoia-proneness. These findings suggest that the experimental induction of social stress, as in Cyberball, may be useful in studying possible relationships among aversive interpersonal experiences, paranoia, and self-esteem by allowing us to investigate the potential causal role of adverse social events on paranoia, self-esteem, and the relationship between them.

1.1. Measuring self-esteem

Several factors should be considered when measuring self-esteem in the experimental induction of social stress. First, while much previous research has focused on *global* self-esteem (see Kesting & Lincoln, 2013), Barrowclough et al. (2003) emphasized the distinction between positive and negative components because "individuals may hold both strong positive and strong negative views about the self at the same time, with the two dimensions not only making independent contributions to global self-esteem, but also making separate contributions to behavior and affect" (p. 93). Indeed, the review by Kesting and Lincoln indicated that both persecutory delusions in clinical samples and paranoid ideation in the general population are associated with specific negative self-evaluations; while positive self-evaluations are maintained, or are at least less impaired, in clinical samples. To date, only global self-esteem, rather than positive and negative self-evaluations, has been investigated using Cyberball.

Second, self-report methods rely on an individual's ability to access their feelings and on their willingness to report them (Nisbett & Wilson, 1977; Ross & Nisbett, 1991), and thus are susceptible to response biases (e.g., self-presentation), particularly on socially or personally sensitive topics (see Greenwald, Poehlman, Uhlmann, & Banaji, 2009). Measuring 'automatic' or 'implicit' cognitions may help circumvent such biases (see Greenwald et al., 2002). This can be achieved using implicit measures, such as the Implicit Association Task (IAT; Greenwald, McGhee, & Schwartz, 1998) that place participants under time pressure and therein capture 'automatic' responding.

1.2. Implicit self-esteem

The widely used 'self-esteem IAT' (Greenwald & Farnham, 2000) assesses the relative strength of associations of two contrasted construct categories (e.g., 'Me' versus 'Others') with two contrasted attribute categories (e.g., 'Positive' versus 'Negative'). Participants are required to respond as quickly as possible in accordance with two separate construct-attribute associations by mapping one of each onto the same response keys. On one block of trials, participants are required to categorize 'Me' with 'Positive' and 'Others' with 'Negative' (hypothesized as 'consistent' with a typical learning history). On an alternative block of trials, participants must categorize 'Me' with 'Negative' and 'Others' with 'Positive' ('inconsistent' with typical learning). Faster responding on consistent ('Me' with 'positive') than inconsistent ('Me' with 'negative') blocks indicates positive implicit self-esteem.

Despite its widespread use, the IAT has limitations, especially as a measure of implicit self-esteem. First, it juxtaposes self and others as contrast categories, thus rendering it impossible to explore self-

based associations independently (Karpinski, 2004; although see Pinter & Greenwald, 2005). Thus, the effect obtained does not specify whether the stronger self-positive association represents a 'Me-Positive' bias, an 'Others-Negative' bias, or some combination of these. Second, the IAT does not capture the nature of an association (e.g., 'Me-Positive' could in principle be 'Me'-same as-'Positive' or 'Me'-opposite to-'Positive') and thus can only be deemed an *indirect* measure of potential underlying self-evaluations.

The Implicit Relational Assessment Procedure (IRAP; Barnes-Holmes et al., 2006) is an alternative measure that may offer some advantages over the IAT. The IRAP is based on a modern behavioral account of human language and cognition called Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001), which argues that the core functional units of language are relational. Thus, the IRAP focuses on specific relations (e.g., opposition, or comparison) between stimuli, rather than associations (see Hughes, Barnes-Holmes, & DeHouwer, 2011; Hughes, Barnes-Holmes, & Vahey, 2012). While the IAT and IRAP both require participants to respond quickly and accurately in ways deemed consistent or inconsistent with their previous learning histories, the format of IRAP trials is different from the IAT. Consider the following 'self-esteem' IRAP, for example. On each trial, one of two label stimuli (e.g., 'Me', 'Others') is presented top-screen with, for example, either a positive (e.g., 'good', 'friendly') or negative (e.g., 'bad', 'rejected') target stimulus presented center-screen. Participants must then choose one of two response options (e.g., 'Similar', 'Opposite') presented left and right bottom-screen. Hence, responding on consistent trials might involve selecting 'Me-Positive-Similar', while responding on inconsistent trials might involve selecting 'Me-Positive-Opposite'. This format generates four individual trial-types which are considered four metrics of the individual relational responses that comprise a self-esteem bias ('Me-Positive', 'Me-Negative', 'Others-Positive', 'Others-Negative'), unlike the IAT's single metric. This enhanced specificity may be useful in distinguishing between the positive and negative self-evaluations in global self-esteem.

The IRAP has been increasingly used in experimental-clinical research and has provided some important insights (see Vahey, Nicholson, & Barnes-Holmes, 2015, for a meta-analysis). For example, Remue, DeHouwer, Barnes-Holmes, Vanderhasselt, and De Raedt (2013) found that individuals with self-reported dysphoria had lower *actual* self-esteem and higher *ideal* self-esteem than controls. Such research highlights the utility of the IRAP in parsing out how self-concepts may be related to clinically-relevant phenomena. Furthermore, some studies have demonstrated that the IRAP may capture subtle changes in responding following a brief intervention (e.g., Hooper, Villatte, Neofotistou, & McHugh, 2010; Kishita, Muto, Ohtsuki, & Barnes-Holmes, 2014), making it well suited for the current study, which examined the effects of a particular environmental manipulation on self-esteem.

1.3. The current study

The aim of this study was to investigate the influence of an adverse interpersonal event (social exclusion) on state paranoia and self-esteem, and to assess the relationship between these two variables in this context by replicating previous research on this topic (e.g., Kesting et al., 2013). It was hypothesized that exclusion would be associated with increased state paranoia and that this would be moderated by trait paranoia. That is, we anticipated that individuals with a history of responding to adverse experiences in a paranoid manner (i.e., paranoia-prone) would be more likely to do so in the current context. It was also hypothesized that changes in state paranoia following exclusion would be associated with changes in self-esteem. Specifically, we expected the adverse