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Research paper

The influence of attention biases and adult attachment style on treatment outcome for adults with social anxiety disorder☆

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ABSTRACT

Background: Attention biases figure prominently in CBT models of social anxiety and are thought to maintain symptoms of social anxiety disorder (SAD). Studies have shown that individual differences in pre-treatment attention biases predict cognitive behavioural therapy (CBT) outcome. However, these findings have been inconsistent as to whether vigilance towards threat predicts better or poorer treatment outcome. Adult attachment style is an individual characteristic that may influence the relationship between attention bias and SAD. This study investigates the relationship between attention biases and CBT treatment outcome for SAD. Furthermore, we examined the influence of adult attachment style on this relationship.

Method: Participants with a primary diagnosis of SAD completed a passive viewing (measuring vigilance towards threat) and a novel difficulty to disengage (measuring difficulty to disengage attention) eye-tracking task prior to attending 12 CBT group sessions targeting SAD. Symptom severity was measured at pre- and post-treatment. Regression analyses were conducted on a sample of 50 participants.

Results: Greater vigilance for threat than avoidance of threat at pre-treatment predicted poorer treatment outcomes. Greater difficulty disengaging from happy faces, compared to neutral faces, predicted poorer treatment outcomes. Attachment style did not moderate these relationships.

Limitations: The associations between attention biases and specific components of CBT treatment were not examined. The novel findings regarding difficulty to disengage attention require replication.

Conclusions: The findings have implications for the theoretical models of SAD and for the treatment of SAD.

1. Introduction

Social anxiety disorder (SAD) is the second most common anxiety disorder that 8.4% of Australians and 13% of Americans will meet diagnostic criteria for at some point in their lives (Crome et al., 2014; Kessler et al., 2012). Typically, the central feature of SAD is the overwhelming concern about being judged negatively by others when in a social situation. To date the most effective psychological treatment for those diagnosed with SAD is cognitive behavioural therapy (CBT) (Heimberg, 2002; Rodebaugh et al., 2004; Wersebe et al., 2013; Mayo-Wilson et al., 2014). However, recent meta-analyses examining the effectiveness of CBT treatment report significant moderate effect sizes for those with SAD compared to controls (Mayo-Wilson et al., 2014; Wersebe et al., 2013). The effect sizes between studies varied from 0 to 1, which indicates that there is large variation in terms of effectiveness of CBT treatment for individuals with SAD. Consequently, research examining factors that may predict treatment outcomes from CBT is increasing, the results of which have the potential to influence treatment options made available to clients. Thus, the purpose of this study is to investigate one factor that may influence treatment outcome for those diagnosed with SAD, namely attention biases.

Attention biases have been implicated in the major CBT models of social anxiety. For example, Rapee and Heimberg (1997) and Heimberg et al. (2010) propose that attention biases work to maintain symptoms of SAD. They suggest that those with SAD are initially biased towards threat cues (e.g., someone yawning in the audience while the individual is giving a speech) and once threat is detected they have difficulty disengaging from threat. This is a maladaptive response of the attentional system that serves to maintain an individual's focus on, and later information processing towards, external stimuli that can be interpreted as negative; thus reinforcing the central concern of those with SAD - that they will be judged negatively by others.

In socially anxious samples both initial vigilance to, and difficulty disengaging from, threatening stimuli have been widely investigated. Findings from studies examining vigilance toward threat have been inconsistent. While some studies have found evidence that socially

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anxious individuals are initially vigilant towards threat (Asmundson and Stein, 1994; Mogg and Bradley, 2002; Shechner et al., 2013), others have failed to do so (Garner et al., 2006; Schofield et al., 2013, 2012; Wieser et al., 2009). Similarly, studies examining difficulty disengaging attention from threat have reported mixed findings with some suggesting that socially anxious individuals display difficulty disengaging their attention from threatening stimuli (Amir et al., 2003; Buckner et al., 2010; Schofield et al., 2012), others have found no evidence to support this particular attention bias (Niles et al., 2013; Schofield et al., 2013).

More recently researchers have begun to examine the relationship between attention biases and CBT treatment for those with SAD. Specifically, there has been a number of studies investigating the relationship between attention biases and CBT treatment outcome. One of the first studies to examine change in attention biases as a result of CBT treatment for SAD, found that vigilance to threat decreased from pre- to post-treatment and this decrease was associated with better treatment outcomes (Pishyar et al., 2008). In contrast, Legerstee et al. (2010) found that CBT treatment responders showed a pre-treatment bias away from threat and report no significant bias, either avoidance or vigilance, to threat at post-treatment. More recently the notion of different subgroups of attention, either those who are vigilant to threat as opposed to avoidant of threat, at pre-treatment has been examined. Waters and colleagues (2012) report that those classified as avoidant of threat at pre-treatment became significantly more vigilant toward threat, while those classified as vigilant showed no significant differences following treatment. Contrary to findings reported by Legerstee et al. (2010) this pre-treatment bias towards threat (vigilant subtype) was associated with better CBT treatment outcomes (Price et al., 2011; Waters et al., 2012).

Therefore, the research in this area is limited to a few studies that have reported mixed findings. It is important to acknowledge that the mixed findings may be due to methodological differences, as studies have differed in terms of examining children versus adults, the type of stimulus used (pictures rated as severely threatening versus angry faces) and the treatment outcome measures used (clinically significant reduction in symptoms versus diagnosis free). Given these inconsistent findings it is important to investigate whether attention bias predicts treatment outcome for those receiving CBT treatment for SAD. In addition, while research suggests that socially anxious adults display a difficulty to disengage from threatening stimuli, to date no study has examined the impact of this phenomenon on treatment outcome. Another important avenue to explore, which may also account for the previously described mixed findings, is the influence of individual differences on attention biases that may moderate the association with treatment outcome. Thus, the current study also examines an individual difference characteristic that might be involved in the interplay between social anxiety, attention bias, and treatment outcome; namely, adult attachment style.

Adult attachment style can be viewed as a potential moderator of the relationship between attention biases and social anxiety disorder. Adult attachment refers to the way adults approach their close personal relationships and can be measured and described using two dimensions: an anxious and an avoidant dimension (Bowlby, 1982; Brennan et al., 1998). Those who score high on the anxious attachment dimension tend to be overly concerned about the availability and responsiveness of the attachment figure while low scorers tend to be more secure in the perceived responsiveness of the attachment figure. High scorers on the dimension of avoidant attachment tend to feel uncomfortable being close to others and relying or opening up to them while low scorers on this dimension are comfortable opening up to and relying on attachment figures. Typically a securely attached adult would score low on both the anxious and avoidant attachment dimensions (Brennan et al., 1998). When an individual perceives a situation as threatening the attachment system is activated and thus they are likely to process external information in line with these attachment related characteristics. Research findings examining both adult attachment styles and social anxiety reveal that those with SAD tend to endorse anxious and secure adult attachment styles (Eng et al., 2001; Manassis et al., 1994). SAD participants with an anxious attachment style reported more severe social anxiety, avoidance, greater depression, greater impairment and lower life satisfaction than those who reported a secure attachment style (Eng et al., 2001).

Attachment theory suggests that those with an anxious attachment style will be vigilant towards threat and those with an avoidant attachment style will be more likely to avoid threatening stimuli (Dewitte and De Houwer, 2008). Previous research offers partial support for this theory and has shown that those with both anxious and avoidant attachment styles exhibit an attention bias away from threatening stimuli. In a non-clinical sample of students randomly allocated to receive an anxiety prime or not, it was found that anxiously attached individuals were more likely to avoid attending to threatening relative to neutral stimuli regardless of exposure to the anxiety prime. The avoidantly attached participants, however were more likely to avoid attending to emotional stimuli (either threatening or positive) only when exposed to the anxiety prime (Byrow et al., 2016). The latter result highlights that the activation of the attachment system, during a situation that may be perceived as social threat, can influence attention. We intend to extend these findings by examining the influence of attachment style on the relationship between attention biases and treatment outcome for individuals attending a CBT program for SAD.

The current study has the overarching aim of investigating the relationship between attention biases displayed by anxious individuals and CBT treatment outcome. Furthermore, we examine the influence of adult attachment style on this relationship. Given that previous research findings regarding vigilance toward threat and avoidance of threat have differentially predicted treatment outcome, and that the current study is the first to examine these biases using eye-tracking methodology rather than reaction time based methods (e.g., dot probe task), the current study is exploratory. We aim to explore whether vigilance to threat will predict better (Price et al., 2011; Waters et al., 2012) or poorer (Legerstee et al., 2010) treatment outcome. In terms of difficulty to disengage from threat, we examine whether this attention bias will predict treatment outcome. Lastly, we examine the influence of attachment style as a potential moderator of the attention bias and CBT treatment outcome relationship.

2. Method

2.1. Participants

Clinical participants were recruited, from a treatment seeking sample, as part of a larger ongoing trial examining CBT treatment outcome for those diagnosed with SAD. Participants included in this study were 54 adults (29 male) aged between 18 and 66 years of age ($M = 33.20$; $SD = 9.84$) with a primary diagnosis of SAD. Participants in the final sample met the following selection criteria: (i) Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 2000) primary diagnosis of SAD as determined by the Anxiety Disorders Interview Schedule-IV (ADIS-IV; Di Nardo et al., 1994); the absence of (ii) current active suicidal ideation; (iii) organic mental disorders such as developmental delay or schizophrenia; (iv) comorbid psychotic disorders; (v) current, unmanaged substance dependence, and (vi) if taking any psychotropic medication they must have been on a stable dose for at least 3 months prior to commencing treatment and remain on a stable dose throughout treatment.

Diagnoses were made by graduate psychology students experienced in the assessment of anxiety and ADIS-IV administration.[1] The clinical severity of each disorder was rated using a 0–8 scale, where a score of 4

[1] Graduate psychology students were undergoing training in clinical psychology or completing a Ph.D in psychology. ADIS training specifically consisted of 1) watching 3 recorded ADIS interviews and conducting diagnostic assessment with supervision from a senior clinical psychologist, 2) Observing the ADIS interview conducted by a senior clinical psychologist in real time 3) Conducting 3 ADIS interviews while being observed by a senior clinical psychologist. All diagnoses were approved by a senior clinical psychologist.