Behaviour Research and Therapy 61 (2014) 150–155

Contents lists available at ScienceDirect

Behaviour Research and Therapy

journal homepage: www.elsevier.com/locate/brat

Shorter communication

The attention training technique, self-focused attention, and anxiety: A laboratory-based component study

Thomas A. Fergus*, Nancy E. Wheless, Lindsay C. Wright

Baylor University, United States

ARTICLE INFO

Article history:
Received 28 March 2014
Received in revised form
30 July 2014
Accepted 19 August 2014
Available online 27 August 2014

Keywords:
Anxiety
Attention training technique (ATT)
Metacognitive therapy
Mindfulness
Self-focused attention

ABSTRACT

Self-focused attention is an important target of intervention within Wells's (2009) metacognitive therapy and the attention training technique (ATT) is one component of metacognitive therapy that purportedly alters focus of attention. However, we do not yet fully understand whether ATT causes changes in focus of attention, the effectiveness of ATT compared to other techniques in reducing self-focused attention, and how ATT leads to its therapeutic gains. A laboratory-based component study was completed to address these gaps in the literature. Nonclinical participants were randomly assigned to one session of ATT ($n = 38$) or a mindfulness-based task ($n = 38$). ATT and the mindfulness-based task differentially changed focus of attention, with ATT causing greater external focus of attention and the mindfulness-based task causing greater self-focused attention from pre-to-post manipulation. ATT and the mindfulness-based task both led to reductions in anxiety. Reductions in self-focused attention were related to less anxiety following ATT, whereas increases in self-focused attention were related to less anxiety following the mindfulness-based task. Conceptual and therapeutic implications are discussed.

Introduction

Self-focused attention (SFA) has been defined "as an awareness of self-referent, internally generated information that stands in contrast to an awareness of externally generated information derived through sensory receptors" (Ingram, 1990, p. 156). Because of its putative role in the development and maintenance of a diverse array of psychopathology (Ingram, 1990), SFA plays a prominent role within some conceptual models of psychopathology. One such model is Wells's (2009) metacognitive model of emotional disorders. According to Wells (2009), the metacognitive model "deals with the way that people think and it assumes the problem rests with inflexible and recurrent styles of thinking in response to negative thoughts, feelings and beliefs" (p. 3). This style of thinking referred to by Wells (2009) is termed the cognitive attentional syndrome, which is marked by heightened SFA. Within the metacognitive model, SFA contributes to the development and maintenance of emotional disorders via maintaining activation of dysfunctional beliefs, engendering an attentional bias for threat, and constraining attentional resources necessary to process information incompatible with dysfunctional beliefs (Wells, 2009; Wells & Matthews, 1996).

Given its deleterious effects, SFA is an important target of intervention within Wells's (2009) metacognitive therapy. In fact, Wells and Matthews (1996) opined that a general marker of the efficacy of metacognitive therapy is whether there are reductions in SFA. Researchers advocate for using the attention training technique (ATT; Wells, 1990, 2007, 2009) to reduce SFA and promote an external focus of attention (Wells & Matthews, 1996). ATT involves presenting individuals with auditory stimuli while they complete attentional exercises related to selective attention, attention switching, and divided attention. ATT is just one component of metacognitive therapy, but it has been shown to reduce anxiety as a standalone intervention (Papageorgiou & Wells, 1998; Wells, 1990; Wells, White, & Carter, 1997).

In these treatment outcome studies, individuals completed multiple sessions of ATT and practiced ATT at home. Although such studies are informative for supporting the benefits of ATT as a standalone intervention, a useful additional method for examining ATT would be by using laboratory-based experimental research. Laboratory-based experimental research offers advantages to researchers, including controlling and manipulating intervention variables at a level that would be difficult to achieve in treatment outcome studies (Levin, Hildebrandt, Lillis, & Hayes, 2012). We

* Corresponding author. Department of Psychology & Neuroscience, Baylor University, One Bear Place #97334, Waco, TX 76798, United States. Tel.: +1 254 710 2651; fax: +1 254 710 3033.
E-mail address: thomas_fergus@baylor.edu (T.A. Fergus).

http://dx.doi.org/10.1016/j.brat.2014.08.007
0005-7967/

propose that use of laboratory-based experimental research can shed light onto at least three unresolved questions related to the ATT component of metacognitive therapy.

One unresolved question relates to the impact of ATT on SFA. Wells et al. (1997) found that a self-focus exercise reversed the therapeutic effects of ATT. However, as noted by Wells et al. (1997), the lack of a measure of SFA limited conclusions that could be drawn about the effects of ATT on SFA. Examining post-manipulation data, Nassif and Wells (2014) found that participants were significantly more externally focused following ATT compared to a control condition. However, Nassif and Wells (2014) did not present results examining whether ATT led to greater changes in SFA from pre-to-post manipulation compared to the control. Moreover, Nassif and Wells's (2014) use of an inactive control (i.e., letter-finding task) did not afford a strong comparison. Sharpe et al. (2010) similarly found that participants were significantly more externally focused following ATT compared to a control. Sharpe et al.'s (2010) study had the strength of including an active control (i.e., progressive muscle relaxation; PMR), but these researchers only assessed post-manipulation data. Given these limitations of prior studies, we presently do not fully understand whether ATT changes focus of attention.

A second unresolved question is the effectiveness of techniques other than ATT for altering SFA. Morrison and Heimberg (2013) stated that "although understudied to date, acceptance and mindfulness-based approaches may also target the detrimental effects of self-focused attention" (p. 259). However, Wells (2002) highlighted a difference between ATT and mindfulness-based tasks, stating "this technique [ATT] differs from the mindfulness strategies reviewed above in that it does not require self-focused attention" (p. 96). This difference in focus of attention between ATT and mindfulness-based tasks has also been raised by other researchers (Shapiro, Carlson, Astin, & Freedman, 2006). It is important to note that the SFA related to mindfulness-based tasks seems conceptually different from the forms of SFA that are targets of intervention within metacognitive therapy. For example, Baer et al. (2008) noted that mindfulness-based tasks teach individuals to observe internal experiences using an accepting and nonreactive stance, stating that "close observation of internal experience may be maladaptive in the general population but adaptive when it is done mindfully" (p. 331). In metacognitive therapy, SFA is described as perseverative, inflexible, and repetitively processing perceived threats (Wells, 2009). As such, the impact of SFA on emotional functioning could be context-dependent (e.g., whether it occurs within a mindfulness-based context; Baer, 2009).

A third unresolved question is how ATT leads to therapeutic benefits. Wells (2007) outlined a number of possibilities, including increasing executive control and/or changing thinking style. However, Wells (2007) noted that "the use of multicomponent packages incorporating ATT means that any specific effect of ATT cannot be isolated" (p. 136). As noted, Wells et al. (1997) found that a self-focus exercise reversed the therapeutic effects of ATT. Although one variable is unlikely to fully account for the outcomes of a treatment, these findings suggest that changes in focus of attention likely relate to the therapeutic benefits of ATT. Given the possibility that ATT and mindfulness-based tasks differentially change focus of attention, these two tasks might have distinct mechanisms of change. For example, an external focus of attention could be particularly important for symptom reduction following ATT (Wells, 2009) and SFA could be important for the therapeutic gains of mindfulness-based tasks (Baer, 2009).

We completed a laboratory-based component study to compare ATT and a mindfulness-based task, which was Orsillo and Roemer's (2011) mindfulness-based progressive muscle relaxation (MB-PMR). MB-PMR was chosen because it is a published task, it can be used within a single session, and it is equivalent in length to ATT. MB-PMR has individuals engage in mindful breathing, a standard mindfulness-based technique (Bishop et al., 2004), and then PMR. Whereas PMR is typically considered distinct from mindfulness *per se* (e.g., Feldman, Greeson, & Senville, 2010), researchers assert that PMR may achieve its therapeutic benefits, in part, by promoting mindfulness. In particular, Hayes-Skelton, Usmani, Lee, Roemer, & Orsillo (2012) asserted that PMR cultivates present-moment awareness and acceptance, which are two core components of mindfulness (Bishop et al., 2004). Of note, PMR has been found to increase mindfulness in prior studies (Agee, Danoff-Burg, & Grant, 2009). Based on these considerations, MB-PMR was considered an appropriate task for the stated goals of the present study.

Our first goal was to examine whether ATT caused significantly different pre-to-post manipulation changes in focus of attention compared to the mindfulness-based task. As described, prior studies have found greater post-manipulation external focus of attention following ATT compared to a control (Nassif & Wells, 2014; Sharpe et al., 2010). Further, Wells (2002) asserted that mindfulness-based tasks foster greater SFA. We thus predicted that ATT would cause a greater external focus of attention and MB-PMR would cause greater internal focus of attention from pre-to-post manipulation.

Our second goal was to examine the impact of ATT and MB-PMR on anxiety. Research has found that both techniques are useful for reducing anxiety (Orsillo & Roemer, 2011; Wells, 2009). We thus predicted that ATT and MB-PMR would cause a significant pre-to-post reduction in anxiety, but we did not expect the rate of change in anxiety to differ between the groups. Our third goal was to examine whether changes in focus of attention were related to changes in anxiety. Based on Wells et al.'s (1997) findings that a self-focus exercise reversed the effects of ATT, we predicted that increased external focus of attention would correlate with less anxiety following ATT. Analyses examining relations between changes in focus of attention and anxiety following MB-PMR were exploratory, although, as noted, it is possible that increased SFA would correlate with less anxiety following mindfulness-based tasks.

Although it remains important to examine the effects of ATT on carefully diagnosed patients, focus of attention and anxiety are both continuous constructs (Ingram, 1990; Ruscio, Borkovec, & Ruscio, 2001). Differences in these constructs are thus best viewed as being quantitative rather than qualitative in nature. In addition, nonclinical samples have been used in prior studies examining ATT (e.g., Nassif & Wells, 2014; Sharpe et al., 2010). As such, the extant literature supports the study of unselected participants as a reasonable method for better understanding this component of metacognitive therapy and the other targeted constructs.

Method

Participants

The total sample consisted of 76 undergraduate students at a Southern University. The mean age of the sample was 18.9 years (SD = 1.0) and the majority were female (84.2%). Approximately 60.5% of the sample self-identified as White, 11.8% as Latino, 11.8% as Asian, 10.5% as African American, 2.6% as bi- or multi-racial, and 2.6% as "Other" race/ethnicity.

Measures

Focus of attention

Focus of attention was assessed using a standard one-item marker (Wells, 2009). This item asks participants to report "at