

EFFECTS OF SELF-DISTANCING AND MINDFULNESS INSTRUCTIONS ON ANXIETY
AND APPROACH MOTIVATION

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Abstract

Two experiments tested the effects of self-distancing and mindfulness instructions on approach motivation and state anxiety. Following Kross and Ayduk (2011), we expected that the self-distancing and mindfulness instructions would be particularly useful in providing relief for anxious people who tend to get mired in ruminative distress. Both experiments accordingly tested the hypotheses that self-distancing and mindfulness manipulations should restore a more buoyant approach motivated state and reduce anxious distress, especially among the more trait anxious participants. Results with both fly-on-the-wall (Study 1, N = 148) and mindfulness (Study 2, N = 143) manipulations revealed that both manipulations increased self-reported approach motivation only for trait anxious participants. Neither self-distancing nor mindfulness had an effect on self-reported anxious distress and negative affect. The discussion examines whether the self-distancing and mindfulness manipulations increased approach motivation among trait anxious participants due a defensive reactive approach motivation (McGregor, Nash, Mann, & Phillips, 2010), or if they restored a resilient kind of approach motivation which then allowed trait anxious participants to more mindfully acknowledge their worries. The discussion also examines possible reasons why the self-distancing and mindfulness manipulations did not reduce state anxiety despite their demonstrated effectiveness in past studies (Kross & Ayduk, 2011; Baer, 2003; Hofmann, Sawyer, Witt, & Oh, 2010).

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I. Introduction

Anxiety and depression are among the most common mental health problems. Eighteen percent of the population is distressed by either of these conditions at any one time (Wittchen, Nelson, & Lachner, 1998). Furthermore, people perceive even moderate episodes of anxiety and depression as impeding their quality of life (Kendall & Brady, 1995). Given the distressing nature of these conditions, people struggling with depression and anxiety want to improve their psychological condition. Current struggles with anxiety and depression predict later psychopathology (e.g. Ollendick & King, 1998), however, which suggests that adequate solutions are elusive. Research has therefore focused on therapeutic techniques that might help.

Many therapy methods try to help depressed and anxious individuals by helping them engage in more meaningful goals. Pursuing personal goals is related to well-being, such as overall life satisfaction and increased positive affect (Sheldon & Houser-Marko, 2001), and simply striving to attain personal goals, regardless of achievement, is thought to increase overall well-being (Sheldon, Kasser, Smith, & Share, 2002).

However, both anxiety and depression have been shown to negatively affect goal motivation. Anxiety and depression are related to increased avoidance motivation (i.e. the avoidance of undesirable outcomes) and to decreased approach motivation (i.e. the pursuit of desirable outcomes; Dickson & MacLeod, 2004a). This is troublesome because increased avoidance motivation and decreased approach motivation are thought to result in less well-being, possibly due to increased attention towards potential goal failures rather than what can be successfully accomplished (Elliot, Sheldon, & Church, 1997).

These findings parallel Gray and McNaughton's (1982) motivation model which is composed of the behavioural activation system (BAS) and the behavioural inhibition system (BIS). The BIS serves to regulate behavior towards punishment and aversive experiences (i.e. avoidance motivation). The BAS, on the other hand, is thought to be responsible for behavior towards reward and desirable experiences (i.e. approach motivation).

The Behavioural Inhibition System (BIS) and the Behavioural Activation System (BAS)

According to Gray and McNaughton (1982), humans and related animals become anxious when their goals are threatened by uncertainty and/or punishment. This feeling of anxiety is termed "anxious uncertainty", and it is the starting point of the behavioral inhibition system (BIS), a neural system which has evolved in vertebrates to deal with goal conflict. When a goal is threatened, the BIS arouses a vigilant state of anxious uncertainty in order to motivate the animal to search for an alternative means of attaining the blocked goal, or to search for newer and more feasible goals (Nash, McGregor, & Prentice, 2011).

Approaching a new goal re-enables approach motivation, a single-minded state of goal pursuit. When approach motivated, stimuli not related to the goal are less noticeable and less distracting (Gable & Harmon-Jones, 2008; Shah, Friedman, & Kruglanski, 2002). Therefore, minor goal hindrances and different mindsets are shielded while one's own are dominant (Guinote, 2007; Keltner, Gruenfeld, & Anderson, 2003). This allows the animal to pursue the new goal with a focused mindset.

Furthermore, approach motivation reduces activity of the BIS (e.g. anxious uncertainty). The anxiety reducing quality of approach motivation is supported by two main findings. First, neural activity correlated with approach motivation has generally been demonstrated to reduce both

neural and behavioral reactions to anxiety activating events (Nash et al., 2011). Second, it has been argued by some that approach motivation limits attention to information related to the new goal and prevents other information from distracting the organism (Harmon-Jones & Gable, 2009). This suggests that anxiety related cognitions regarding a blocked goal can also be tuned out in order to help the animal focus on the new goal.

The Benefits of Approach Motivation

Approach motivation's ability to attenuate the anxious uncertainty of the BIS is considered a means of encouraging organisms to find new goals in the face of conflict. In other words, when a goal is conflicted, the animal will be motivated to pursue a new goal in order to activate approach motivation and reduce anxious uncertainty. As can be imagined, this is useful when an organism needs to withdraw from uncertain goals in order to seek more feasible goals.

Trait and state approach motivation are associated with a host of benefits. In fact, research has found strong associations between neural markers of approach motivation (i.e. greater left compared to right frontal brain activity; Elliot & Fryer, 2008) and lessened reactivity to threatening stimuli, increased mental health (Elliot & Fryer, 2008), greater happiness and meaning in life (Urry, 2009), as well as less reactivity to precarious and noxious stimuli (Gianotti, et al., 2009). Furthermore, when biofeedback is used to increase approach motivated neural activity, there is greater inhibition of goal conflicts (Harmon-Jones, Harmon-Jones, Fearn, Sigelman, & Johnson, 2008). Nash, McGregor and Inzlicht (2010) have also demonstrated that approach-motivated EEG activity is associated with less distressful reactivity in the ACC during Stroop-task errors. Lastly, neural markers of approach motivation (i.e. greater left compared to

right frontal brain activity) are indicative of the active and uplifting moods theoretically associated with approach motivation (Drake & Myers, 2006).

Overall, approach motivation's characteristic ability to single-mindedly focus on a new goal can be very useful when it is necessary to move from conflicted to non-conflicted goals. Given that approach motivation is such a functional mechanism, it is important to understand why chronic or dysfunctional anxiety and depression might lead to impaired approach motivation and increased avoidance motivation.

The Relation Between BIS/BAS, and Anxiety and Depression

Researchers previously speculated that both depression and anxiety would be related to higher levels of BIS, while only depression would be related to lower levels of BAS (Fowles, 1987). However the relationship between anxiety and depression, and BIS-BAS has been found to be more nuanced than expected.

Recent research has shown that depression is in fact associated with decreased approach motivation (Dickson & MacLeod, 2004ab), however the reasons for this relation are still unclear. Depression's characteristic focus on past failures may make a person more sensitive to present cues of failure, which may subsequently inhibit approach motivated goals in order to protect against failure. This is problematic because a lack of approach motivated goals will result in less experience with reward and desirable outcomes, which may further increase depression's association with past failures (Beck 1979). Reduced approach motivation among depressed people may also be a function of depression's characteristic hopelessness (Beck, 1979). In other words, less anticipation for positive outcomes may result in a lower desire to pursue approach motivated goals.

Depression's association with avoidance motivation, on the other hand, is more nuanced. Specifically, depression has been related to increased avoidance related plans, but not to avoidance related goals. According to McIntosh (1996), plans are the more detailed aspects of goal attainment and consist of how everyday actions can be directed towards a goal (also see Dickson and MacLeod, 2004a for a more in depth differentiation between goals and plans). Therefore, although depression may not be associated with increase avoidance related goals, depressed individuals are thought to pursue more avoidance related plans in order to accomplish their goals (Dickson & MacLeod, 2004a).

As expected, recent research has shown that anxiety is in fact associated with increased avoidance motivation. The idea of anxiety resulting in greater avoidance related goals is consistent with research showing that anxiety increases attention towards threatening cues. This attention bias may prolong the vigilance and expectation of threatening experiences associated with the BIS, which may subsequently prolong long-term levels of anxiety (Mathews & MacLeod, 1994).

Many studies have found anxiety not to be associated with approach motivation, which might suggest that anxiety does not affect one's desire to approach desirable outcomes. However, Dickson and MacLeod (2004a) have found a more nuanced relationship between anxiety and approach motivation. Specifically, anxiety has been found to be related to decreased approach motivated plans, but not to approach motivated goals (Dickson & MacLeod, 2004ab). The relation between anxiety and approach motivation might also be obscured by the tendency for at least some people to react to threat and anxiety with defensive forms of BAS activity. Reacting to a threat with approach motivation in order to quell the anxiety is referred to as reactive approach motivation (RAM). RAM can take on defensive forms which can be unproductive but

anxiety reducing nonetheless (McGregor, Nash, Mann, & Phills, 2010). Depression, on the other hand, does not activate RAM (McGregor, Prentice, & Nash, 2013; McGregor, Prentice, & Nash, 2009).

Overall, anxiety and depression seem to be capable of decreasing approach motivation and increasing avoidance motivation. This similar effect is not surprising given how anxiety and depression share so many facets and are so highly correlated with each other, especially at the less extreme (i.e. sub-clinical) levels. Ideally, treatment techniques for anxiety and depression will not only reduce state anxiety, but will also allow people to pursue goals (i.e. increase approach motivation). Mindfulness and self-distancing are two therapeutic techniques which may be capable of doing this.

Self-Distancing, Mindfulness, and Approach-Avoidance Motivation

Approach motivation is a necessary function that helps humans find solutions to conflicted goals, and it is associated with a host of benefits such as reduced anxiety. Therefore, aside from reducing state anxiety, helpful therapeutic techniques may also be able to increase approach motivation in order to help individuals re-engage in goals rather than being bogged down in ruminative distress.

Mindfulness and self-distancing are two therapeutic techniques that allow people to observe their anxiety related cognitions as they occur. They are means of developing a deeper awareness and a newer understanding of anxiety related cognitions. Zgierska et al. (2009) define mindfulness as "the intentional, accepting and non-judgmental focus of one's attention on the emotions, thoughts and sensations occurring in the present moment." Kross and Ayduk (2011) define self-distancing as when people "take a step back when thinking about...experiences and reason about them from

the perspective of a distanced observer, akin to a fly on the wall.” Self-distancing and mindfulness are conceptually similar practices which share the common objective of increasing one’s awareness and understanding of his/her anxiety(or non-anxiety) related cognitions. Both have been related to therapeutic techniques such as decentering (Sauer & Baer, 2010), and both are considered foundational aspects of therapy programs such as Acceptance and Commitment Therapy and Dialectical Behaviour Therapy (Baer, 2005; Ayduk & Kross, 2010).

Self-distancing and mindfulness have already been found to reduce short-term and long-term affective and physical distress (Kross & Ayduk, 2008; Baer, 2003). Furthermore, the accepting and non-judgmental nature of mindfulness and self-distancing is thought to help people reconstrue and reduce their anxiety (Kross & Ayduk, 2011; Siegel, 2007; Hayes, 2006). Therefore, given that self-distancing and mindfulness can improve mood and help reduce anxious distress, both of which are also associated with increased approach motivation, we speculated that that these two techniques would give people an opportunity to emerge from the ruminative BIS state and become more approach motivated.

Self-Distancing

People are interested in understanding their behaviours and feelings (Kelly, 1967), and this desire to understand one’s feelings is particularly strong during distress because people believe understanding their cognitions will help alleviate distress (Wilson & Gilbert, 2008). But this is not necessarily true. In fact, although there is research showing that an awareness of one’s reaction to distress enables greater adaptation as well as greater psychological and physical well-being (Wilson & Gilbert, 2008), there is also a great deal of research demonstrating that attempts to understand emotions can result in rumination. This makes sense given that rumination is

essentially a process whereby people are chronically thinking of their emotions and why they feel that way, and this over involved thinking has been shown to actually worsen negative emotions (Smith & Alloy, 2009).

Psychological distance can generally be described as when one's direct and egocentric experience of a stimulus is diminished (Lieberman & Trope, 2008). The concept of self-distancing has figured prominently in the literature on self-control and adaptive coping. Social psychologists have demonstrated that children who are able to engage in self-distancing are able to delay short-term desirable outcomes in order attain more long-term goals (Mischel & Ayduk, 2004; Mischel & Rodriguez, 1993). On the same line, newer work suggests psychological distance as manipulated in a number of dimensions, such as spatially (manipulating distance), temporally (manipulating time) and socially (self vs. other), leads to an awareness of the greater context for an event, which subsequently helps the person focus more on long-term goals rather than being seduced by short-term goals (Lieberman & Trope, 2008). Psychological distancing has also been shown to result in more positive self-construals and greater achievement motivation (Libby, Eibach & Gilovich, 2005; Vasquez & Buehler, 2007).

Self-distancing has also received a lot of attention in clinical research. Alford and Beck (1998) explained that "distancing refers to the ability to view one's own thoughts (or beliefs) as constructions of 'reality' rather than as reality itself." Being able to self-distance was considered necessary for cognitive therapy. Similarly, many of the newer types of cognitive behavioural therapy, such as Acceptance and Commitment Therapy, Mindfulness Based Cognitive Therapy, and Dialectical Behaviour Therapy, emphasize "decentering" as being necessary for therapy. Decentering is very similar to self-distancing because it essentially teaches patients to "step back from their thoughts and feelings and observe them" (Ayduk & Kross, 2010).

Self-Distancing and Analyzing Negative Emotions

Kross and Ayduk (2008) predicted that the utility of analyzing emotions from negative experiences would depend on the level of psychological distance. Confirming their prediction, they found that analyzing negative experiences with low psychological distance (i.e. self-immersion) led to rumination, whereas high psychological distance (i.e. self-distancing) led to adaptive self-reflection and less physiological and emotional reactivity, both in the short-term and the long-term (Kross & Ayduk, 2008).

Self-distancing is also thought to allow people to reconstrue the meaning of their negative experiences rather than simply ruminate about what happened. Kross and Ayduk (2008) demonstrated that a self-distanced (vs. self-immersed) perspective when recalling negative experiences (specifically anger and sadness related experiences) results in less rumination over the emotionally distressing details of the event, and more reconstruing of the negative experiences in ways that seemed to demonstrate more insight and emotional closure.

Mindfulness

Mindfulness, which has its roots in the Buddhist wisdom traditions, has also been the subject of much psychological research assessing the effectiveness of mindfulness based clinical programs, such as the Mindfulness Based Stress Reduction (MBSR) program (Kabat-Zinn, 1990) and the Acceptance and Commitment Therapy program (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). This research has attempted to demonstrate that mindfulness based interventions can be an effective means of reducing problematic psychological symptoms such as excessive anxiety and depression (Bishop, 2002; Grossman, Niemann, Schmidt, & Walach, 2004).

The seemingly impressive results of mindfulness based interventions among both clinical and non-clinical populations has led to mindfulness becoming a foundational element of many interventions designed to treat psychological disorders such as BPD (Linehan, 1993; Linehan, Heard, & Armstrong, 1993), depression (Ma & Teasdale, 2004; Segal, Williams, & Teasdale, 2002) and anxiety (Kabat-Zinn, 1992; Miller, Fletcher, & Kabat-Zinn, 1995). The results have been equally encouraging for non-clinical populations. Brown and Ryan (2003) found lower levels of unpleasant affect in high trait mindfulness people, and studies have found that mindfulness interventions (on average lasting about 8 weeks) can result in lower levels of state and trait anxiety, as well as less perceived stress in response to problems as compared to waitlisted control groups (Shapiro, Schwartz, & Bonner, 1998).

Despite all of this clinical evidence, there is still confusion regarding the mechanism of mindfulness. Mindfulness' non-judgmental acceptance and more concentrated attention on one's problematic mindsets has resulted in some researchers proposing that mindfulness functions by increasing emotional acceptance and one's willingness to experience discomforting emotions (Eifert & Heffner, 2003; Levitt, Brown, Orsillo, & Barlow, 2004). Furthermore, this is thought to result in a lesser impact of and less time needed to recover from painful emotions and discomforting mental events (Kabat-Zinn, 1990).

Mindfulness has also been likened to concepts in the social psychological literature. For example, mindfulness has been compared to decentering, a process which allows the individual to disengage or step outside their immediate experience in order to simply observe, and this is thought to put a "space between one's perception and response" (Vago & Silbersweig, 2012). This can also allow an individual to become aware of the difference between one's thoughts as they are, as opposed to when they are associated to the self (e.g. "I'm stupid" vs. "I am having

thoughts about being stupid”). Furthermore, mindfulness can also provide the awareness that an individual’s cognitions and feelings “are subjective and transient in nature” (Vago & Silbersweig, 2012; Safran, Segal, Hill, & Whiffen, 1990). All of these insights are thought to naturally give rise to a progressive non-attachment which helps improve one’s overall health, life satisfaction, and social relations (Sahdra, Shaver, & Brown, 2010). Mindfulness has also been likened to meta-awareness and metacognition, two synonymous concepts which refer to humans’ innate ability to be aware of their own cognitions. Meta-awareness and metacognition are akin to mindfulness in that they enable monitoring of consciousness for effective avoidance of unproductive thought patterns (e.g. negative reactions or rumination; Vago & Silbersweig, 2012).

II. Overview of Studies

Given that research has shown self-distancing and mindfulness to reduce anxious distress and improve mood, both of which are associated with approach motivation, the main purpose of the following two studies is to assess whether brief self-distancing and mindfulness manipulations will also increase state approach motivated goal pursuit.

Therefore, we hypothesized that self-distancing and mindfulness would increase approach motivated goal pursuit. Given that a variety of self-distancing and mindfulness treatments have been shown to reduce short-term and long-term anxious distress, we also hypothesized that self-distancing and mindfulness would reduce state anxiety. Lastly, mindfulness and self-distancing have been shown to be particularly effective at reducing negative symptoms among anxious populations (Baer, 2003; Kross & Ayduk, 2011). Therefore, we also predicted that the effects predicted above would be particularly pronounced among high trait anxiety participants.

Study 1

In study 1, we specifically tested four hypotheses. Because all participants were subjected to a relationship uncertainty threat, we firstly hypothesized that all participants (i.e. low and high trait anxious participants) would be able take advantage of self-distancing (vs. relaxation) to reduce state anxiety. Secondly, we hypothesized that self-distancing would reduce state anxiety even more effectively among high trait anxiety participants. Similarly, the third and fourth hypotheses suggest that in the presence of threat, self-distancing would increase approach motivated goal pursuit among participants in general, and even more effectively among high trait anxiety participants.

Method

Participants and procedure. One-hundred and forty-eight undergraduate psychology students (107 females, 40 males, 1 other; mean age = 20 years) participated over the URPP system for partial course credit between November 16 2012 and December 21 2012. The study was completed online, and was available to students through computers and mobile devices.

Trait anxiety measures. Multiple measures related to anxiety and depression were measured. These included the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), the Uncertainty Response Scale (specifically the emotional uncertainty subscale; Greco & Roger, 2001), the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), the Rumination-Reflection Questionnaire (specifically the rumination subscale; Trapnell & Campbell, 1999), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Experiences in Close Relationships (ECR)-Anxiety subscale (Fraley, Waller & Brennan, 2000), the Philadelphia

Mindfulness Scale (Cardaciotto, Herbert, Forman, Moitra & Farrow, 2008), the adult hope scale (Snyder et al., 1991), and the general self-efficacy scale (Schwarzer & Jerusalem, 1995).

Later analyses revealed that many of these personality measures were similarly moderating the relationship between the self-distancing condition and the dependent variables. Therefore, principal components analysis was used to identify an overall trait anxiety factor. Participants' mean scores for those measures which loaded most strongly onto the trait anxiety factor (see Table 1) were standardized, and an overall mean score was created for each participant. Lastly, it is important to note that the trait anxiety measures were measured after the self-distancing (vs. control) manipulation. However, t-test analyses demonstrated that the personality measures were not significantly affected by the self-distancing manipulation, and the trait anxiety standardized mean was therefore used as a moderating variable.

Uncertainty threat. All participants were subjected to an uncertainty threat in the context of an important relationship. Specifically, participants were asked to “please describe, as specifically as you can, a relationship with a friend, partner, or family member in which things seem to be going poorly and the future of the relationship feels uncertain.” Subsequently, participants were asked to “please describe the emotions that thinking about this uncertain relationship arouses in you.” Participants were given two minutes to answer each of these questions. Relationship threats are thought to be salient for most individuals, and such threats have been shown to effectively result in anxious distress (McGregor & Marigold, 2003).

Self-distancing manipulation. After experiencing the uncertainty threat, participants were randomly assigned to either a self-distancing or relaxation (control) condition. Participants in the former condition were asked to perceive the uncertainty threat they previously experienced

from a self-distanced perspective (i.e. from the perspective of a fly on the wall; Kross & Ayduk, 2011). Specifically, participants were asked that “regarding the uncertain relationship you just wrote about, imagine viewing yourself in the context of this relationship from the perspective of a fly on the wall--that is, an observer’s perspective from which you can see yourself, other relevant people, and the surroundings all at once. In the space below, please describe how the interactions and feelings in your uncertain relationship might seem from such a third person perspective.” Participants were given three minutes to complete this task.

Participants in the relaxation condition were asked to choose an area of their life that they associated with relaxation, and were then asked to write about it. Specifically, participants were asked to “select the domain from the list in which you are most relaxed, and in the box below describe *why* being relaxed is important to you, and *how* you’ve been relaxed in this domain in the past and plan to in the future.” Participants were given the following domains to choose from: Business/Economics/Making Money, Social Life/Relationships, Art/Music/Theatre, Social Action/Helping Others, Science/Pursuit of Knowledge, and Religion/Spirituality. Participants were given three minutes to complete this task. Prior studies in the McGregor Lab (2012, 2013) demonstrated that the relaxation condition worked effectively as a control for manipulations such as value affirmation and spiritual affirmation.

State approach motivated goal pursuit. Approach motivated goal pursuit was measured using the Behavioural Activation System (BAS) questionnaire (Carver & White, 1994). The BAS questionnaire is made of three subscales: 1) drive, which measures individual differences in the persistent pursuit of desired goals (e.g. “I would go out of my way to get what I wanted.”); 2) reward responsiveness, which measures individual differences in positive responses to present or anticipated reward (e.g. “It would excite me to win a contest”); 3) fun seeking, which measures

individual differences in desire for new rewards and one's willingness to approach potentially new rewards on the spur of the moment (e.g. "I crave excitement and new sensations"). Because of this study's interest in the goal pursuit aspect of approach motivation, only the drive subscale ($\alpha=.76$; Carver & White, 1994) was taken into consideration (see McGregor, Nash, & Prentice, 2010 for another example of the BAS drive subscale being used on its own.)

Furthermore, although the BAS questionnaire measures trait BAS, the present study modified it to measure state BAS. Specifically, the BAS questionnaire was introduced by asking the participants to "please rate the extent to which each of the following statements applies to you *right now*." This was followed by the items as they appear on the original BAS questionnaire. Participants rated their agreement on each item from 1 = strongly disagree to 5 = strongly agree. According to Carver and White (1994), the BAS questionnaire has reasonable reliability and validity, and it is related to other measures similar to the BAS (Harmon-Jones, & Allen, 1997; Sutton & Davidson, 1997).

State anxiety and negative affect measures. The felt uncertainty scale was used to measure state anxiety levels. It contains 19 items that measure conflict-related discomfort (McGregor, Prentice, & Nash, 2013). Participants were asked to "please take a few seconds to check in with your gut feeling and rate the following statements based on your first reaction. Do not over think it—just rely on your intuitive sense for how you are feeling at the moment." Statements included "I feel mixed," "I feel uneasy," "I feel unclear," "I feel of two minds," etc. ($\alpha=.89$; McGregor et al., 2013). McGregor, Zanna, Holmes, and Spencer (2001) and McGregor et al. (2013) have previously shown that an uncertainty threat similar to the one above significantly increased felt uncertainty scores. It has also been recently linked to anxiety-specific affect (Hayes, Ward, & McGregor, in press). The Negative Affect Scale of the PANAS ($\alpha=.75$;

Watson, Clark, & Tellegen, 1988) was used to complement the felt uncertainty scale as a measure of generalized negative affect, and used identical instructions. Statements included “I feel irritable,” “I feel ashamed,” “I feel nervous,” and “I feel afraid.”

Results

Preliminary analyses. Participants completed a number of personality measures. Participants’ mean scores on these measures were entered into a principal-components analysis, and two factors emerged (see Table 1). The first factor was interpreted as representing trait anxiety. The measures which loaded most strongly onto the trait anxiety factor were the CES-Depression, the perceived stress scale, the uncertainty aversion scale, the Rosenberg self-esteem scale (reversed), the ECR anxiety subscale, and the rumination scale. Participants’ mean scores for these measures were standardized, and an overall mean score was created for each participant. Measures which loaded more strongly onto the second factor were not considered to represent trait anxiety and were not included in the overall mean score.

Hypotheses 1 and 2. Felt uncertainty and PANAS negative affect were individually regressed on trait anxiety, self-distancing condition (self-distancing vs. control), and the trait anxiety X self-distancing condition interaction. Following the West and Aiken (1996) guidelines for analyzing experimental personality designs involving interactions between categorical and continuous variables, the self-distancing condition was effect coded, and the distribution of trait anxiety needed to be centered to make the mean equal to zero. There was no need to do the latter because the trait anxiety scores were already standardized. Furthermore, following West and Aiken (1996), the first order and interaction terms were entered into the regression simultaneously. These same steps were applied to all subsequent regression analyses. Results

revealed no main effect of self-distancing condition on either felt uncertainty ($\beta = .02$, $t(144) = .36$, $p = .72$) or negative affect ($\beta = .07$, $t(144) = 1.03$, $p = .30$). This result did not support the first hypothesis in study 1. In the presence of threat, self-distancing did not cause a significant decrease in state anxiety among participants.

Furthermore, results did not reveal a significant effect self-distancing condition X trait anxiety interaction on felt uncertainty ($\beta = .01$, $t(144) = .08$, $p = .94$) or negative affect ($\beta = .06$, $t(144) = .71$, $p = .48$). This result did not support the second hypothesis in study 1. In the presence of threat, self-distancing did not cause a significant decrease in state anxiety among high trait anxious participants.

Hypotheses 3 and 4. BAS drive was regressed on trait anxiety, self-distancing condition (self-distancing vs. control), and the trait anxiety X self-distancing condition interaction. Results did not reveal a main effect of self-distancing condition on BAS drive, $\beta = -.11$, $t(144) = -1.32$, $p = .19$. This result did not support the third hypothesis in study 1. In the presence of threat, self-distancing did not cause a significant increase in BAS drive.

However, results revealed a significant self-distancing condition X trait anxiety interaction effect on BAS drive, $\beta = -.24$, $t(144) = -2.12$, $p = .04$. Simple effects analysis revealed a significant simple effect for manipulated self-distancing at high trait anxiety, $\beta = -.27$, $t(144) = -2.53$, $p = .01$. As shown in Figure 1, at one standard deviation above the mean in trait anxiety, BAS drive was significantly higher in the self-distancing condition than in the relaxation (control) condition. This result supported the fourth hypothesis in study 2. In the presence of threat, self-distancing caused a significant increase in BAS drive among high trait anxious participants.

Study 2

Given that the relationship uncertainty threat did not work as expected in study 1, it was not included in study 2. Because of the lack of threat, we did not expect low trait anxiety participants to respond similarly to high trait anxiety participants when subjected to the mindfulness manipulation.

Study 2 was designed to investigate how a mindfulness manipulation would affect state anxiety and approach motivated goal pursuit among high anxiety (vs. low anxiety) participants. Firstly, we hypothesized that mindfulness would reduce state anxiety among high trait anxiety participants. Secondly, we hypothesized that mindfulness would increase approach motivated goal pursuit among high trait anxiety participants.

In addition, although there is an abundance of mindfulness based studies, few experimental studies have presented adequate control conditions for their mindfulness conditions. Therefore, a secondary goal of study 2 was to present an adequate control condition for the mindfulness manipulation. The control condition in study 2 was designed to exactly mirror the wording of the mindfulness manipulation, aside from the key active ingredients in the mindfulness manipulation.

Method

Participants and procedure. One-hundred and forty-three undergraduate psychology students (106 females, 37 males; mean age = 20 years) participated over the URPP system for partial course credit between September 28 2013 and October 25 2013. The study was completed online, and was available to students through computers and mobile devices.

Trait anxiety measures. Similarly to study 1, multiple measures related to anxiety and depression were measured. These measures included the perceived stress scale (Cohen et al.,

1983), the Rosenberg self-esteem scale (Rosenberg, 1965), the CES-depression (Radloff, 1977), the uncertainty response scale-emotional uncertainty subscale (Greco & Roger, 2001), the rumination questionnaire (Trapnell & Campbell, 1999), the regulatory focus pride questionnaire (Higgins et al., 2001), the Regulatory Focus Questionnaire (Lockwood, Jordan & Kunda, 2002), the general self-control scale (Tangney, Baumeister, & Boone, 2004), the general self-efficacy scale (Schwarzer & Jerusalem, 1995), the mindful awareness attention scale (MAAS; Brown & Ryan, 2003), the Behavioural Inhibition System/Behavioural Activation System (BIS/BAS) questionnaire (Carver & White, 1994), the adult hope trait scale (Snyder et al., 1991), and the perceived need for structure scale (Neuberg & Newsom, 1993).

Similarly to study 1, later analyses revealed that many of these personality measures were similarly moderating the relationship between the mindfulness condition and the dependent variables. Therefore, principal components analysis was once again used to identify an overall trait anxiety factor. Again, participants' mean scores for those variables which loaded most strongly onto the trait anxiety factor were standardized, and an overall mean score was created for each participant.

Lastly, unlike in study 1, the trait anxiety related variables were measured before the manipulation.

Mindfulness manipulation. After completing the trait anxiety related measures, participants were randomly assigned to either a mindfulness or free thought (control) condition. Both the mindfulness and free thought conditions were introduced with the following statement: "People process their thoughts and feelings in different ways. This task investigates ways people notice and then process the thoughts and feelings that come across their minds."

Subsequently, participants specifically in the mindfulness condition were asked to “write any thoughts that come to your mind **just as they are**. In other words, try to observe your thoughts **nonjudgmentally** as you write them down. We would appreciate it if you tried to do this as best you can.” Participants were required to spend at least two minutes on this task. Alternatively, participants in the free thought (control) condition were asked to “write any thoughts that come to your mind. We would appreciate it if you tried to do this as best you can.” Again, participants were required to spend at least two minutes on this task.

State approach motivated goal pursuit. As in study one, the BAS questionnaire drive subscale (Carver & White, 1994) was slightly modified to measure state (rather than trait) approach motivation.

State anxiety and negative affect measures. Similarly to study 1, the felt uncertainty scale and the PANAS negative affect subscale were used.

Results

Preliminary analyses. As in study 1, participants completed a number of personality measures. Participants’ mean scores for these measures were entered into a principal-components analysis, and three factors emerged (refer to table 2). The first factor was interpreted as representing trait anxiety. The measures which loaded most strongly onto the trait anxiety factor were the perceived stress scale, the Rosenberg self-esteem scale, the CES-Depression scale, the uncertainty response-emotional uncertainty subscale, the rumination scale, the regulatory focus pride questionnaire, the regulatory focus questionnaire prevention subscale, the general self-control scale, the general self-efficacy scale, the adult trait hope scale, the trait BIS scale, and the MAAS. As in study 1, participants’ mean scores for these measures were standardized, and an

overall mean score was created for each participant. Measures which loaded more strongly onto any of the other factors were not considered to represent trait anxiety and were not included in the overall mean score for trait anxiety.

Hypothesis 1. Felt uncertainty and PANAS negative affect subscale were individually regressed on trait anxiety, mindfulness condition (mindfulness vs. control), and the trait anxiety X mindfulness condition interaction. Following the West and Aiken (1996) guidelines for analyzing experimental personality designs involving interactions between categorical and continuous variables, the mindfulness condition was effect coded, and the distribution of trait anxiety needed to be centered to make the mean equal to zero. There was no need to do the latter because the trait anxiety scores were already standardized. Furthermore, following West and Aiken (1996), the first order and interaction terms were entered into the regression simultaneously. These same steps were applied to all subsequent regression analyses.

Results did not reveal a significant effect of mindfulness condition X trait anxiety interaction on felt uncertainty ($\beta = .08$, $t(137) = .84$, $p = .40$) or on negative affect ($\beta = .08$, $t(137) = .76$, $p = .45$). These results did not support the first hypothesis of study 2. Mindfulness did not cause a significant decrease in state anxiety among high trait anxious participants.

Hypothesis 2. BAS drive was regressed on trait anxiety, mindfulness condition (mindfulness vs. control), and the trait anxiety X mindfulness condition interaction. Results revealed a significant mindfulness X trait anxiety interaction, $\beta = -.33$, $t(138) = -2.64$, $p = .01$. This effect remained significant even when controlling for trait BAS drive (i.e. measured before the mindfulness manipulation; $\beta = -.26$, $t(134) = -2.53$, $p = .01$).

Simple effects analysis revealed a marginally significant simple effect for manipulated mindfulness at high trait anxiety, $\beta = -.21$, $t(138) = -1.79$, $p = .08$. As shown in Figure 2, at one standard deviation above the mean in trait anxiety, BAS drive was marginally significantly higher in the mindfulness condition than in the control condition. This result supported the second hypothesis in study 2. Mindfulness caused a marginally significant increase in BAS drive among high trait anxious participants.

Simple effects analysis also revealed a significant simple effect for manipulated mindfulness at low trait anxiety, $\beta = .25$, $t(138) = 1.98$, $p = .05$. As show in Figure 2, at one standard deviation below the mean in trait anxiety, BAS drive was significantly lower in the mindfulness condition than in the control condition. This was an unexpected finding which is explored in the discussion.

III. General Discussion

Effect of Self-Distancing and Mindfulness on Approach Motivation

High Trait Anxiety Participants

Supporting hypothesis 4 in study 1 and hypothesis 2 in study 2, the self-distancing and mindfulness manipulations increased state BAS drive among trait anxious participants. This finding parallels prior studies demonstrating that mindfulness and self-distancing are positively associated with positive mood and reduced anxiety, which are also associated with approach motivation (Drake & Myers, 2006; Baer, 2003; Jimenez, Niles, & Park, 2010). Furthermore, the increase in BAS drive may indicate that mindfulness and self-distancing are capable of helping anxious participants focus on newer goals instead of engaging in anxious or ruminative thoughts.

However, increased BAS drive does not always refer to an increased pursuit of productive goals. It is possible that this increased approach motivation represents a maladaptive defensive response to threatening difficulties associated with attempting to follow the mindfulness and self-distancing manipulations. The manipulations essentially asked participants to notice their thoughts, which might very likely be anxious thoughts, and high trait anxious participants without adequate training could conceivably find this aversive and threatening.

As mentioned earlier, after experiencing threat, there is a tendency for people to react with approach motivation (referred to as reactive approach motivation or RAM). RAM's characteristic ability to single-mindedly focus on a new goal can be very useful when it is necessary to move from conflicted to non-conflicted goals. However, because RAM has anxiety reducing qualities, humans and other animals may pursue a new goal solely for the sake of escaping anxious uncertainty. This can be problematic because the adopted goal need not be useful (for any other reason besides reducing anxiety), and can even be harmful. For example, humans can pursue goals that are ideologically extreme or aggressive in order to activate approach motivation and reduce anxiety. McGregor, Nash, Mann, & Phills (2010) have repeatedly observed that after being threatened and made anxious (e.g. using academic uncertainty and relationship uncertainty threats), many participants become ideologically extreme and simultaneously demonstrate approach motivation as measured behaviorally, on self-report, implicitly, and by EEG (McGregor & Jordan, 2007; McGregor et al., 2009; McGregor, Nash, & Prentice, 2010; Nash et al., 2010). The RAM induced by threat is capable of being moderated and mediated by defensive idealism (McGregor, Nash, Mann, & Phills, 2010; McGregor, Nash, & Prentice, 2010). Therefore, there is experimental and neuroscience data

pointing to the role of defensive versions of RAM serving as palliative responses to anxious uncertainty.

Furthermore, to explore the likelihood of this defensiveness explanation for the obtained increase in BAS drive, we investigated the moderating role of personality traits. The relationship between perceived threat and RAM has been shown to be moderated by a number of personality traits, one of which is self-esteem (McGregor, Nash & Inzlicht, 2009). High self-esteem individuals are generally more approach motivated, and increased RAM among high self-esteem individuals after threat can be a sign of resilience in the presence of conflict (Heimpel, Elliot, & Wood, 2006). However, high self-esteem individuals are also more likely to engage in defensive forms of RAM, such as world-view defense and religious extremism (McGregor, Nash, & Inzlicht, 2009).

Therefore, additional analyses for studies one and two used a three-way interaction between self-esteem, condition and trait anxiety (new trait anxiety score was created without self-esteem) as a diagnostic tool for evaluating whether the increase in BAS drive among high anxiety participants may have been a defensive form of RAM. For both study 1 ($\beta = -.14$, $t(140) = -1.20$, $p = .23$) and study 2 ($\beta = .06$, $t(133) = .44$, $p = .66$), this interaction proved non-significant. This may indicate that participants who are high self-esteem/high anxiety are not responding differently than low self-esteem/high anxiety participants, and that the increased BAS drive among high anxiety participants is not necessarily a defensive form of RAM. This may suggest that self-distancing and mindfulness are in fact helping high anxiety participants pursue non-defensive goals.

Self-distancing and mindfulness may have enabled increased BAS drive by helping high anxiety participants temporarily change their relationship to anxiety. Kross and Ayduk (2008, 2009) have

demonstrated that self-distancing enables people to focus less on recounting their negative experiences, and more on reconstruing them such that they gain more closure and insight (Kross & Ayduk, 2011). Similarly, mindfulness' non-judgmental and accepting awareness is thought to reduce the aversiveness of anxious thoughts and help the individual develop a less fearful and more curious approach to understanding personal anxieties (Kabat-Zinn, 1992, 1990).

Approaching anxieties from a less threatened perspective may have allowed high anxiety participants to disengage from overactive BIS activity and defensive RAM, and to instead take a new approach with new goals.

Low Trait Anxiety Participants

Whereas high anxiety participants demonstrated significantly greater BAS drive after experiencing self-distancing or mindfulness, this was not the case for their low anxiety counterparts. In study 1, self-distancing (compared to control) did not affect BAS drive for low anxiety participants (refer to figure 1). This may have been because low anxiety participants were less receptive to the benefits of self-distancing for increasing BAS drive.

However, it is also possible that high anxiety participants were experiencing more distress compared to low anxiety participants, especially after the relationship uncertainty threat. This may have resulted in high anxiety participants engaging in defensive RAM to reduce anxiety, while low anxiety participants were less in need of using RAM for palliative purposes. However, as mentioned earlier, the three-way interaction between self-esteem, condition and trait anxiety was non-significant in studies 1 and 2. Therefore, it is unlikely that low anxiety participants demonstrated less BAS drive simply due to lower levels of defensive RAM.

Furthermore, low trait anxiety participants who experienced mindfulness also behaved differently from their high anxiety counterparts and, surprisingly, demonstrated the opposite effect (refer to figure 2). Specifically, low trait anxiety participants demonstrated significantly less BAS drive after experiencing mindfulness.

Past research has shown that different personality traits affect the type of meditation which is most effective for increasing approach motivation. For example, Barnhofer, Chittka, Nightingale, Visser, and Crane (2010) found that high brooding individuals demonstrated increased approach motivation after breathing meditation, but not after loving kindness meditation, and found the opposite trend among low brooding individuals. Self-distancing and mindfulness, although conceptually different, are similar practices which emphasize a clear awareness on one's cognitions. It is possible that low trait anxiety individuals simply do not respond to either of these practices the way high anxiety individuals do.

Effect of Self-Distancing and Mindfulness on State Anxiety

Contradictory to hypotheses, neither the self-distancing nor the mindfulness manipulations were able to decrease state anxiety (i.e. felt uncertainty and negative affect). Furthermore, they were equally ineffective in reducing state anxiety for high trait anxious participants. This was surprising given that past studies have shown self-distancing and mindfulness to be effective in reducing short-term and long-term emotional reactivity, anxiety and negative affect (Kabat-Zinn, 1992; Miller, Fletcher, & Kabat-Zinn, 1995; Ayduk & Kross, 2010).

Mindfulness and State Anxiety

The mindfulness manipulation in study two may not have worked as expected because it was unique and not necessarily reflective of how other studies have operationalized mindfulness (i.e.

with mindfulness based treatment programs and mindfulness audio guides). Therefore, the mindfulness manipulation may not have captured the concept as it is understood in the psychological literature, and may consequently not have led to the same reductions in anxiety and negative affect witnessed in other studies.

Furthermore, one of the key elements of mindfulness practice is the development of insight into the nature our distress, such as an awareness of one's harmful reactions to negative events or of the transient nature of one's distress (Sauer & Baer, 2010). This insight can be recalled during distress to help the individual regulate their anxiety. It has been shown that such insight can be developed with mindfulness training, but it typically requires some time (Erisman & Roemer, 2010; Feldman, Greeson, & Senville, 2010). Mindfulness based therapy programs have repeatedly been shown to result in lower levels of trait and state anxiety (Hofmann, Sawyer, Witt, & Oh, 2010). However, they typically last eight weeks and therefore afford far more time to practice mindfulness and to ultimately derive such useful bits of insight. On the other hand, the mindfulness manipulation in study 2 only lasted three minutes.

Furthermore, mindfulness is thought to be useful for lowering rumination and anxiety because of its emphasis on non-judgmental awareness of the present moment, which is thought to help redirect one's attention to present experiences rather than ruminative thought cycles. The mindfulness manipulation in study two differed, however, in that it made participants focus on their present cognitions rather than their present experiences overall. High anxiety participants may have inadvertently focused on cognitions related to past negative experiences or future fears, making them more distressed.

Self-Distancing and State Anxiety

On the other hand, the self-distancing manipulation used in study one was very similar to that used by other researchers, and in the past has been shown capable of reducing anxiety, rumination, emotional and physical reactivity, both in the short term and long-term (Ayduk & Kross, 2008; Kross & Ayduk, 2008). Despite this, study one's self-distancing manipulation was incapable of affecting state levels of anxiety. In past research, self-distancing has been found to be particularly effective for vulnerable populations, such as individuals struggling with moderate to severe levels of depression and rumination (Kross & Ayduk, 2011; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). It is possible that the manipulation did not have much of an effect due to the generally sub-clinical levels of trait anxiety among participants. In future research, it would be interesting to explore if the self-distancing manipulation can be more effective in reducing state anxiety for a group of people with moderate to severe trait anxiety.

Self-distancing may also have been ineffective at reducing state anxiety due to a control condition that specifically asked participants to relax. In previous self-distancing work, the control conditions have usually consisted of self-immersion or distraction (Kross & Ayduk, 2008). Self-immersion has not been found to be useful for coping with anxiety, while distraction has been found to be useful for reducing short-term anxiety but not long-term anxiety (Kross & Ayduk, 2008). It is possible that our relaxation control acted like Kross & Ayduk's (2008) distraction manipulation, proving to be just as effective as self-distancing in the short-term, but potentially not so in the long-term. On the other hand, although self-distancing did significantly boost approach motivation for anxious people, these results could indicate that past self-distancing manipulations may do no better at reducing state anxiety than simple instructions to relax.

Limitations

The studies had two major limitations. Firstly, the state measure of BAS drive was created by modifying the question stem of the original BAS scale (refer to Methods section above; Carver & White, 1994). This may have been a problem because the BAS scale was originally created to measure trait BAS, and the reliability of our modified version was not measured or tested.

Second, our operationalization of trait anxiety (calculation demonstrated in the preliminary analyses of the Methods section) included numerous variables which are not explicitly related to anxiety (e.g. hope, self-efficacy, etc.) Therefore, although the benefit of this construct lay in its open-ended and more inclusive nature, the studies may also have benefited from a trait anxiety measure composed of only the more obvious measures of trait anxiety (e.g. uncertainty aversion, perceived psychological stress, rumination, etc.)

IV. Future Research

One of the key elements of mindfulness practice seems to be the development of insight regarding the nature of one's distress, and this type of knowledge takes time to develop (Sauer & Baer, 2010). It is possible that our mindfulness manipulation did not affect state anxiety because participants did not have a chance to repeatedly practice. It would be interesting if future research could investigate the effects of our mindfulness manipulation over the long-term (e.g. practicing twice a day for ten minutes over 4 weeks). If a more long-term application of our mindfulness manipulation helps decrease anxiety, it could provide a very brief and practical means of practicing mindfulness.

As mentioned earlier, part of mindfulness' effectiveness is thought to come from its emphasis on an awareness of the present moment, which is thought to help redirect one's attention to present experiences rather than ruminative thought cycles (Jain et al., 2007, Davidson et al., 2003).

However, our mindfulness manipulation asked participants to focus on their present cognitions rather than present experiences overall. It is possible that this backfired for high anxiety participants and made them focus on cognitions related to past negative experiences or future fears, making them more distressed. It would be interesting to see if asking high anxiety participants to engage in a more general awareness (rather than being focused solely on their cognitions) might be more effective for reducing anxious distress. For example, rather than asking participants to “write any thoughts that come to your mind **just as they are...**”, participants could be asked to “write any thoughts, emotions or sensations that come to your mind **just as they are...**”.

Although our self-distancing manipulation did not reduce state anxiety, this may have been due to the relaxation condition working just as effectively. Kross and Ayduk (2008) demonstrated that self-distancing and distraction were equally effective at reducing distress in the short-term. However self-distancing maintained its anxiety reducing qualities in the long-term as well. Therefore, future studies might want to compare self-distancing to relaxation in the long-term. It is possible that the benefits of self-distancing (compared to relaxation) will only be noticeable a few months down the line.

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Appendix A

Table 1. Principal Components Analysis of Personality Measure Means for Study 1 (N=148).

Personality Variables	Loading on Each Factor	
	Trait Anxiety	Factor 2
Depression	.828	.127
Self-Esteem	-.772	.174
Perceived Stress	.754	.177
Uncertainty Response	.746	.265
ECR-Anxiety	.685	.308
Self-Efficacy	-.626	.596
Hope	-.615	.594
Rumination	.597	.488
Mindfulness-Awareness	-.221	.782
Mindfulness-Acceptance	-.405	-.683

Table 2. Principal Components Analysis of Personality Measure Means for Study 2 (N=143).

Personality Variables	Loading on Each Factor		
	Trait Anxiety	Factor 2	Factor 3
Perceived Stress	.827		
Self-Esteem	-.771	.223	.150
Depression	.766	.137	-.148
Uncertainty Response	.766	.250	.227
Rumination	.670	.270	.114
Pride	-.659	.350	.149
Prevention	.622	.422	
Self-Control	-.606		.492
Self-Efficacy	-.604	.457	-.107
Hope	-.602	.596	
BIS	.591	.348	.381
MAAS	-.567	-.202	.351
BAS-Reward		.758	
Promotion	-.163	.709	.230
BAS-Drive	-.203	.624	-.309
BAS-Fun		.455	-.704
PNS	.317	.202	.673

Appendix B

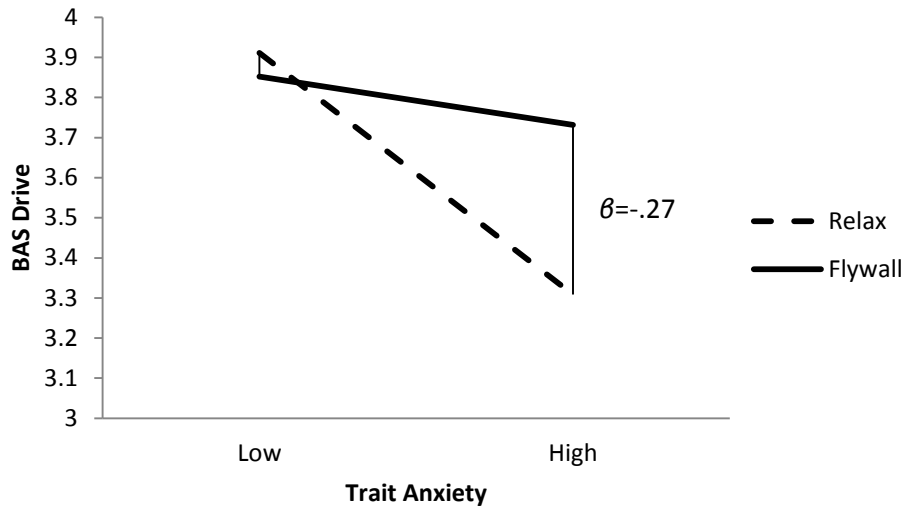
Figure 1. BAS drive measure as a function of trait anxiety and self-distancing condition in study 1.

Figure 2. BAS drive measure as a function of trait anxiety and mindfulness condition in study 2.

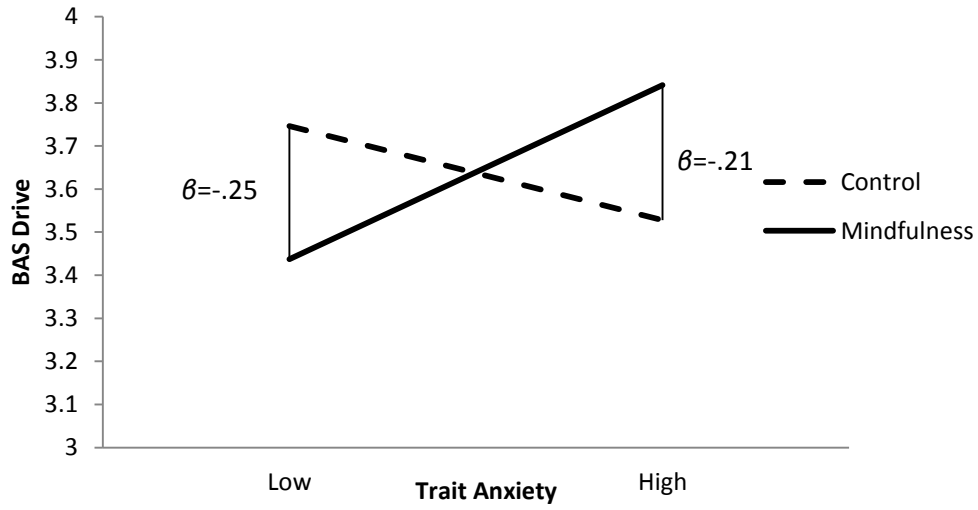


Figure 3. Order of Materials for Study 1.

1. Consent form
2. URPP number, age, gender
3. Experiences in close relationships scale-anxiety subscale (Fraley, Waller & Brennan, 2000)
4. Self-distancing condition vs. relaxation condition (random assignment)
5. Behavioural activation system scale (BAS; Carver & White, 1994)
6. PANAS-negative affect subscale (Watson, Clark, & Tellegen, 1988)
7. Felt uncertainty scale (McGregor, Prentice, & Nash, 2013)
8. Rosenberg self-esteem scale (Rosenberg, 1965)
9. Center for epidemiological studies depression scale (CES-D; Radloff, 1977)
10. Uncertainty response scale-emotional uncertainty subscale (Greco & Roger, 2001)
11. Philadelphia mindfulness scale (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008)
12. Adult hope scale (Synder et al., 1991)
13. General self-efficacy scale (Schwarzer & Jerusalem, 1995)
14. Perceived stress scale (Cohen, Kamarck, & Mermelstein, 1983)
15. Rumination reflection questionnaire-rumination subscale (Trapnell & Campell, 1999)
16. Compliance check
17. Debriefing

Figure 4. Order of Materials for Study 2.

1. Consent
2. URPP, age and gender
3. BAS scale (Carver & White, 1994)
4. Mindful awareness attention scale (Brown & Ryan, 2003)
5. Adult hope trait scale (Snyder et al., 1991)
6. General self-efficacy scale (Schwarzer & Jerusalem, 1995)
7. Perceived stress scale (Cohen et al., 1983)
8. Rumination reflection questionnaire-rumination subscale (Trapnell & Campell, 1999)
9. Perceived need for structure scale (Neuberg & Newsom, 1993)
10. Regulatory focus questionnaire (Lockwood, Jordan & Kunda, 2002)
11. Regulatory focus pride questionnaire (Higgins et al., 2001)
12. Rosenberg self-esteem scale (Rosenberg, 1965)
13. General self-control scale (Tangney, Baumeister, & Boone, 2004)
14. CES-D scale (Radloff, 1977)
15. Uncertainty response scale-emotional uncertainty subscale (Greco & Roger, 2001)
16. Mindfulness condition vs. control condition (random but even assignment)
17. State BAS scale (modified from Carver & White, 1994)
18. PANAS- negative affect subscale (Watson, Clark, & Tellegen, 1988)
19. Felt uncertainty scale (McGregor, Prentice, & Nash, 2013)
20. Manipulation checks
21. Compliance check
22. Debrief