



Emotional intensity reduces later generalized anxiety disorder symptoms when fear of anxiety and negative problem-solving appraisal are low



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ABSTRACT

While research based on the emotion dysregulation model indicates a positive relationship between intense emotions and generalized anxiety disorder (GAD) symptoms, emotion-focused intervention involves the use of techniques to enhance emotional experiences, based on the notion that GAD patients are engaging in avoidance strategies. To reveal the conditions under which intense emotions lead to reduced GAD symptoms, we designed a longitudinal study to monitor changes in GAD symptoms among students ($N = 129$) over 3 months. Our focus was on possible moderators of the effect of emotional intensity. Results indicated that when fear of emotions and negative appraisals about problem solving were low, negative emotional intensity reduced later GAD symptoms. Moreover, under the condition of high responsibility to continue thinking, emotional intensity tended to reduce later GAD symptoms. Results suggest that reduced fear of emotions and reduced negative appraisals about problem solving may enhance the use of emotional processing techniques (e.g., emotional exposure). The interaction between responsibility to continue thinking and emotional intensity requires further examination.

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Generalized anxiety disorder (GAD) is debilitating and difficult to treat, and is characterized by long-lasting, pervasive, and uncontrollable worrying (Andrews et al., 2010). Although there is evidence supporting the efficacy of cognitive behavioral therapy (CBT) in treating GAD, there is room for improvement (for a meta-analysis, see Cuijpers et al., 2014; Hanrahan, Field, Jones, & Davey, 2013). Therefore, further understanding of the etiological process is required, especially with regard to investigating mechanisms related to emotions, because although techniques for enhancing emotional processing are recommended in recent theories (Borkovec & Sharpless, 2004; Mennin, 2006), there is considerable theoretical debate over the function of worry and emotion in GAD, which means that the optimal target of exposure in treatment is not always clear (Newman & Llera, 2011).

There are several theoretical models of GAD, many of which postulate avoidance of emotions as being among the etiological factors (Behar, DiMarco, Heckler, Mohlman, & Staples, 2009). The avoidance model developed by Borkovec, Alcaine, and Behar (2004) considers worry as a maladaptive strategy used to suppress emotional arousal via the mechanism of verbal-linguistic thoughts, as opposed to imagery. The emotion dysregulation model of Mennin, Heimberg, Turk, and Fresco (2005) aimed to extend the avoidance model, proposing that the following four components of emotion dysregulation lead to emotional avoidance in GAD: heightened intensity of emotions, poor understanding of emotions, negative appraisal of emotions, and lack of efficient control over emotions. Among these four factors, heightened intensity and lack of control over emotions are especially strong predictors of GAD (e.g., Mennin, Holaway, Fresco, Moore, & Heimberg, 2007; Mennin, McLaughlin, & Flanagan, 2009; Stapinski, Abbott, & Rapee, 2010; Turk, Heimberg, Luterek, Mennin, & Fresco, 2005). This model led to the development of emotion regulation therapy (Mennin, 2006), wherein the focus is enhanced emotional awareness, skills training for adaptive regulation, and emotional exposure.

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1. Expected longitudinal interaction of emotional intensity with emotional avoidance

Emotion-focused intervention seeks to use intense emotions to treat a problem that is related to intense emotions. Therefore, it is important to clarify the contexts in which intense emotions heighten or reduce GAD symptoms. Although cross-sectional evidence has indicated that there is a link between emotional intensity and GAD, the relationship between the two factors may be rather complicated. Newman and Llera (2011) reviewed evidence indicating that worrying does not dampen emotions but, contrary to the expectation of avoidance theory, actually intensifies them (e.g., McLaughlin, Borkovec, & Sibrava, 2007). Therefore, it is expected that the cross-sectional evidence will reflect, at least in part, the effect of continued worrying on intense emotions. On the other hand, the application of emotional processing techniques (e.g., emotional exposure) for treating GAD considers that fully experiencing emotions without trying to avoid these leads to reduced GAD symptoms (Foa & Kozak, 1986; Mennin, 2006). Even if worrying does not reduce anxiety, GAD patients may still use avoidance strategies (c.f., Newman & Llera, 2011). Therefore, when avoidance attempts are reduced, increased emotional intensity may indicate successful emotional processing (Foa & Kozak, 1986), thus reducing GAD symptoms.

Based on this reasoning, it is expected that emotional intensity may reduce GAD symptoms under the following two conditions: (a) if it is measured preceding GAD (longitudinally) and (b) if emotional avoidance is low. If these conditions are not met, it may be that emotional intensity is related to increased GAD symptoms, as repeatedly found in previous cross-sectional studies (e.g., Mennin et al., 2007). To address this hypothesis, we examined the longitudinal interactive predictive power of both emotional intensity and emotional avoidance on GAD symptoms and worrying. We measured fear of emotions as an index of emotional avoidance (Roemer, Salters, Raffa, & Orsillo, 2005).

2. Possible longitudinal interaction of emotional intensity with problem solving

Although the chief moderator investigated in this study is emotional avoidance, we also explored the interaction of emotional intensity with appraisals about problem solving. This is based on the initiation–termination (I–T) model of worrying (Berenbaum, 2010), which considers that deficient problem solving is a major factor in the continuation of worrying. The I–T model postulates that perceived threats lead to initiation of worrying, and that a prolonged worrying comes from lack of acceptance of the possibility of threat when one feels that s/he has taken reasonable concrete actions to achieve acceptance. This model indicates that emotional avoidance and problem-solving confidence work in tandem to induce prolonged worrying. Low problem-solving confidence and emotional avoidance hinder the use of active strategies to confront problems, thus preventing one from feeling a sense of closure. For example, emotionally avoidant people may also avoid problematic situations that tend to elicit emotions and distress (e.g., interpersonal conflicts). Therefore, we explored how etiological factors related to problem solving interact with emotional intensity.

As the interaction of emotional intensity with problem-solving-related factors is at the exploratory stage, it is difficult to articulate concrete hypotheses. However, it will be helpful to focus on the aspects of appraisals about problem solving, which have been demonstrated to be related to worrying and can be conceptually tied to the I–T model. We chose the following two factors for this purpose: the responsibility to continue thinking and low problem-

solving confidence. Both are measured using the Problem-Solving Related Meta-Cognitions Questionnaire (Sugiura, 2007). The responsibility to continue thinking is the belief that one needs to engage in prolonged thinking about stressful problems. Low problem-solving confidence is closely related to negative problem orientation (dysfunctional attitudes toward problem solving), which has been shown to be related to GAD symptoms (e.g., Dugas et al., 2007). The relation of both factors to worry/GAD symptoms has been shown in previous studies, as detailed in the method section. These factors are equivalent to those of the I–T model, with the responsibility to continue thinking reflecting a perseverative iterative style—another factor that delays termination of worrying in addition to inducing a reduced sense of closure—and low problem-solving confidence delaying termination of worrying by hindering the active confrontation of problematic situations, as discussed above.

3. Need for longitudinal study of GAD

Longitudinal prediction of GAD and worry has been recommended but it remains a relatively understudied research area. Hale, Klimstra, and Meeus (2010) followed adolescents for five years and found a reciprocal relationship between worrying and neuroticism, with a stronger effect from the former to the latter rather than vice versa. Because emotional intensity is closely related to neuroticism (Mennin et al., 2007), it is possible that the cross-sectional correlation of emotional intensity with worrying includes the effect of worrying on emotional intensity. Dugas, Laugesen, and Bukowski (2012) followed adolescents for 5 years and found a reciprocal relationship between intolerance of uncertainty and fear of anxiety on one hand, and worry on the other. Based on this finding, Dugas et al. recommended controlling for symptom severity in examining etiological factors. It may not be realistic to eliminate the possibility of worry affecting model variables; however, it is worth assessing whether model variables predict worrying even after controlling for prior worrying.

4. The current study

The purpose of this study is to examine whether emotional intensity can predict a later reduction in GAD symptoms. It was predicted that if fear of emotions is low, increased emotional intensity will be related to a reduction in GAD. This study also explored problem solving-related metacognitions as a possible moderator of this relationship.

5. Method

5.1. Participants and procedure

Japanese college students participated voluntarily, completing questionnaires at two time points during classes. At Time 1, they completed scales of model variables and symptoms, and symptom measures were then repeated at Time 2 (about 3 months later). Participants produced for themselves a confidential six-digit number used to match data at the two time points, while preserving anonymity. The Time 1 questionnaire was completed by 173 participants (51% women; Mean age = 19.29, *SD* = 1.16), while that at Time 2 was completed by 170 participants (61% women; Mean age = 19.39, *SD* = 0.84). We matched data for 129 participants for subsequent statistical analysis (59% women; Mean age = 19.38, *SD* = 0.87). The institutional ethical review board approved the study. The nature and purpose of the study were explained to participants, who were told that they could choose not to take part.

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