

THE ROLE OF ATTACHMENT DIMENSIONS IN USING POSITIVE EMOTIONS
TO REGULATE STRESS FROM INTERPERSONAL CONFLICTS IN CLOSE
RELATIONSHIPS

BY

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Abstract

Attachment theory suggests that attachment dimensions could play a role in emotion regulation. However, not enough studies have been conducted to unveil the relationship between attachment dimensions and interpersonal stress regulation using positive emotions. Therefore, the current study, building on attachment theory and emotion regulation research, aims to advance knowledge in this area. In Study 1, I examined how general attachment dimensions predicted emotion regulation goals and the use of emotion regulation strategies involving positive emotions (positive reappraisal, relational savoring, and positive distraction) to cope with typical interpersonal stressors in general close relationships. In Study 2, I investigated how relationship-specific attachment dimensions predicted the probability, perceived effectiveness, and the choice of strategies to cope with a specific interpersonal stressor in their close relationships. Both studies found a negative relationship between attachment avoidance and relational savoring, and that positive distraction might be a favorable strategy for more avoidantly attached individuals. The present study findings have potential implications for future research on attachment and emotion regulation, and for intervention programs to improve positive emotions and relational wellness for less securely attached individuals undergoing interpersonal stress.

Keywords: attachment avoidance, attachment anxiety, positive emotions, positive reappraisal, relational savoring, positive distraction, interpersonal stress, conflict

The Role of Attachment Dimensions in Using Positive Emotions to Regulate Stress from Interpersonal Conflicts in Close Relationships

Attachment theory provides a framework for understanding individual differences in stress regulation. According to the theory (Cassidy & Kobak, 1988; Mikulincer & Shaver, 2003), in the face of stress, anxiously attached individuals display negative emotions to establish proximity to their attachment figures, so that they can gain access to more love and support, whereas avoidantly attached individuals suppress negative emotions to minimize closeness to their attachment figures, so that they can keep everything under their control. The theory is, however, lacking in the predictions on how attachment dimensions (attachment anxiety and attachment avoidance) may affect the experience and regulation of positive emotions in times of stress, which brings about cognitive, emotional, and relational benefits (Fredrickson, 2005; Werner, 2000). Therefore, knowing how and why secure and insecure individuals might use positive emotions to cope with stress will have important implications for helping and supporting different personalities to reap the benefits of positive emotions and to maintain psychological equilibrium and wellbeing.

In the first section, I will discuss the attachment predictions of regulating negative emotions, as well as basic concepts in attachment theory. In the second section, I will analyze the benefits of positive emotions. In the third section, I will review the literature on attachment and emotion regulation using positive emotions. In the fourth section, I will explain the rationale of focusing on the stress from interpersonal conflict. In the last section, I will summarize the purpose and the hypotheses of the present study.

Attachment Model of Emotion Regulation

Attachment theory delineates how attachment behavioral systems and attachment figures could play a role in one's emotion regulation process (Mikulincer & Shaver, 2019). When individuals are under stress, their attachment systems activate and prompt them to seek support from their attachment figures, who could provide *safe haven* support to help downregulate negative emotions through the protection from harm and relief from stress (Bowlby, 1982). When individuals are feeling safe and exploratory, their attachment figures could also provide *secure base* support, which helps to upregulate positive emotions through the encouragement to discover novelty (Bowlby, 1982).

People's interactions with attachment figures, especially in times of need, result in systematic individual differences in their attachment systems functioning (Bowlby, 1973). Those who have relatively available and responsive attachment figures from an early age tend to develop a sense of *attachment security*, which allows them to seek out support, rely on others, form close relationships, and explore new environments (Shaver & Mikulincer, 2011). Furthermore, these individuals are thought to have cultivated positive mental representations of self and others (also called *attachment working models*), reflected by high self-worth, self-efficacy, and trust in others (Shaver & Mikulincer, 2011). As a result of their attachment functioning, individuals with a sense of security are more resilient in times of stress, more confident in their ability to cope, and have a more constructive repertoire of emotion regulation strategies, as shown in a systematic review (Mikulincer & Shaver, 2016).

In contrast, people whose needs are not being consistently met at an early stage of life potentially will obtain a sense of *attachment insecurity* and will develop negative

mental representations of self and/or others. They might not think they are worthy of love or concern, and/or they might not perceive others as available or supportive (Bowlby, 1973). In addition, because their primary strategy of establishing proximity to attachment figures fails, they tend to engage in either one of two secondary strategies, i.e., *hyperactivation* or *deactivation*, in order to increase or decrease their proximity to attachment figures, respectively (Cassidy & Kobak, 1988; Mikulincer & Shaver, 2003).

On the one hand, hyperactivation is characterized by upregulation of negative emotions and intensification of support seeking behavior (Shaver & Mikulincer, 2002). Hyperactivating strategies include being dominant and pressing, demanding more attention and care, and depending excessively on attachment figures for protection (Shaver & Mikulincer, 2002). On the other hand, deactivation is featured by downregulation of negative emotions and inhibition of support seeking behavior (“compulsive self-reliance”, Bowlby, 1982). Deactivating strategies encompass being independent and detached, distancing physically and psychologically from attachment figures, trivializing potentially attachment-activating stressors, and suppressing the need for intimacy and support (Shaver & Hazan, 1993).

These individual differences in attachment system functioning are named *attachment styles*, and they are commonly measured in terms of two dimensions: *attachment anxiety* and *attachment avoidance* (Collins et al., 2010; Shaver & Mikulincer, 2011). The dimension of attachment anxiety indicates the degree to which one fears abandonment and rejection and engages in hyperactivating strategies, whereas the dimension of attachment avoidance reflects the extent to which one assumes malicious intentions and engages in deactivating strategies (Shaver & Mikulincer, 2011).

Earlier studies adopted categorical measures of attachment styles (secure, preoccupied, dismissing-avoidant, fearful-avoidant), which can be mapped into four regions on a two-dimensional space (Bartholomew & Horowitz, 1991). Individuals who are high on attachment anxiety and low on attachment avoidance are believed to be anxiously attached, whereas individuals who show the opposite pattern (low attachment anxiety, high attachment avoidance) are thought to be avoidantly attached. Individuals who are high on both dimensions are regarded as fearful-anxiously attached, whereas those who are low on both dimensions are seen as securely attached.

However, increasing evidence has shown that scaling people in terms of dimensions is more appropriate, and that classifying people into categories will lose important information about their variations (e.g., Fraley et al., 2015; Gillath et al., 2016; Shaver & Mikulincer, 2011). Therefore, the dimensional measure of attachment, rather than the categorical measure of attachment, will be used in the present study.

The Role of Positive Emotions in Emotion Regulation

Positive emotions (PE) make an important impact on people's wellbeing and relationships. According to the broaden and build theory, positive emotions not only provide fleeting moments of joy, but also contribute to long-term flourishing (Fredrickson, 1998), due to their cognitive, emotional, and relational benefits. Cognitively, positive emotions widen one's thoughts and actions and cultivate mental resources for future use; emotionally, positive emotions cancel out the psychological and physiological effects of negative emotions (NE); relationally, positive emotions can be brought to others, promoting more positivity, greater resilience, and closer relationships (Fredrickson, 2005; Werner, 2000).

The broaden and build theory suggests that positive emotions have important emotion-regulatory functions. Indeed, Waugh (2020) has proposed a framework in which positive emotions could be used to cope with a stressor in three ways. The first way is to increase stressor related PE as the end goal, such as using savoring (reflecting on positive aspects related to the stressor) or positive reappraisal (turning negative aspects of the stressor to positive). The second way is to increase stressor related PE to facilitate the end goal of decreasing stressor related NE, such as using positive reappraisal. The third way is to increase non-stressor related PE to help regulate any stressor related emotions, such as using positive distraction (turning to other positive things in life).

Despite numerous research endeavors uncovering the benefits and ways of using PE to cope with stress, it is relatively less understood and worth investigating when and how individuals use PE to regulate their emotional responses to the stressor. First, individuals might differ in their goals to regulate emotions, whether they want to increase positive emotions or decrease negative emotions, and whether they want to focus on the stressor or not. Second, individuals might vary in the strategies they choose and the emotional outcomes they achieve.

Research on Attachment and Emotion Regulation Using Positive Emotions

Attachment theory provides a starting point for understanding individual differences in stress regulation. However, attachment theory and research mainly focus on how and why people with insecure attachment styles might experience negative emotions when coping with stress (i.e., anxious individuals display NE to obtain care and support; avoidant individuals suppress NE to maintain control and distance). Therefore,

how and why secure and insecure individuals might regulate their positive emotions to cope with stress warrants more research attention, considering the benefits of doing so.

Integrating existing theory and prior research, the present study aims to investigate how attachment dimensions affect people's emotion regulation goals, their cognitive attitudes towards using positive emotions to regulate stress, and their behavioral use as well as choice of using positive emotions to regulate stress. This section reviews relevant literature on attachment dimensions and emotion regulation using positive emotions.

Emotion Regulation Goals Involving Positive Emotions

It is evident that secure individuals experience more positive emotions than insecure individuals both in daily life and in times of stress. Some studies found that highly anxiously or avoidantly attached people tend to have low positive affect and high negative affect, as measured by the PANAS (Positive Affect and Negative Affect Scale) (e.g., Barry et al., 2007; Wearden et al., 2005). Secure individuals, on the contrary, hold more optimistic beliefs about life and harbor fewer catastrophic thoughts about threats (Mikulincer & Shaver, 2016). Indeed, secure attachment is consistently linked to high well-being, whereas anxious and avoidant attachment are usually associated with low well-being (Kafetsios & Sideridis, 2006; La Guardia et al., 2000; Lavy & Littman-Ovadia, 2011; Wei et al., 2011). In light of secure individuals' stress resilience, self-efficacy, and effective repertoire of coping tools (Mikulincer & Shaver, 2016), secure individuals might not only be more motivated to feel more positive emotions and feel fewer negative emotions, but also be more motivated to upregulate positive emotions and

downregulate negative emotions in order to cope with stress, compared to insecure individuals.

Despite being less positive and more negative overall than secure individuals, avoidant individuals might seek more positive emotions than anxious individuals in stressful situations. Many studies show that avoidant individuals tend to turn attention away from stressors through denial, whereas anxious individuals tend to engage more with stressors through rumination (e.g., Garrison et al., 2014; Holmberg et al., 2011; Shallcross et al., 2014). In addition, one study shows that highly avoidant, low anxious individuals may have higher well-being and use more adaptive regulation strategies than highly anxious, low avoidant individuals (Karremans & Vingerhotes, 2012). Avoidant individuals, therefore, may be more motivated to increase their positive emotions in other parts of their life, instead of focusing on the stressor.

Since anxious individuals tend to focus on unpleasant things and experience more negative emotions, it is very likely that their ultimate goal is to decrease their negative emotions related to the stressor, through social support, or a less adaptive way, rumination (Garrison et al., 2014; Mikulincer & Shaver, 2014). According to attachment theory, when individuals are in times of need, their attachment systems will be activated and motivate them to seek proximity to attachment figures, with the goals of not only obtaining support and protection, but also achieving a sense of security. Once felt security is attained, the system will be deactivated (Bowlby, 1973, 1982; Sroufe & Waters, 1977). As a result of their heightened distress, anxious individuals might be more motivated to seek out ways to feel more secure in close relationships, to deactivate attachment systems, and to downregulate their negative emotions.

Therefore, in the current study, I predict that more avoidantly attached individuals will be more motivated to feel more positive in other parts of their life than less avoidantly attached individuals. However, they might refuse to feel more positive about the stressor, or feel less negative about the stressor or other parts of their life than less avoidantly attached individuals. The predictions are based on the fact that more avoidantly attached individuals tend to shun away from negative emotions and stressors, so they might avoid processing and regulating any emotions are either negative or stressor related. Moreover, less avoidantly attached individuals are more securely attached, so they might be more motivated to regulate their emotions in different adaptive ways.

I also predict that more anxiously attached individuals will be more motivated to feel less negative about the stressor than less anxiously attached individuals. On the contrary, they might not want to feel more positive about the stressor or other parts of their life, or feel less negative about other parts of their life than less anxiously attached individuals. The predictions are based on the fact that more anxiously attached individuals tend to fixate on negative emotions and stressors, so they might be motivated to regulate stressor related negative emotions. Moreover, less anxiously attached individuals are more securely attached, so they might be more motivated to regulate their emotions in many possible ways.

Emotion Regulation Strategies Using Positive Emotions

Among emotion regulation strategies using positive emotions, positive reappraisal, relational savoring, and positive distraction are of most interest to us. The reason why we only focus on these three strategies is that their targets are intrinsically

different from each other: the stressor that induces stress, the relationship where the stressor occurs, and one's life outside the stressor.

Positive reappraisal is defined as seeing the stressor in a more positive light in order to improve positive emotions (McRae et al., 2012). While keeping the negative aspects in mind, people could use positive reappraisal to focus on the benefits brought by the event, such as opportunities for personal growth or relationship improvement (Shiota, 2006). Positive reappraisal has been positively associated with resilience and positive mood (McRae & Mauss, 2016; Shiota, 2006), while being negatively associated with anxiety, depression, and post-breakup stress (Garnefski et al., 2002; Slotter & Ward, 2015). However, positive reappraisal might only be beneficial when stressors are uncontrollable (e.g., the loss of a loved one), so that people can choose to change their emotions instead of changing the situation without experiencing negative consequences (Troy et al., 2013). It might also be beneficial when stressors are less severe, because the failure to accurately perceive and address more severe stressors (e.g., physical abuse by a partner) might result in long-term detrimental consequences (O'Mara et al., 2011).

Relational savoring is defined as attending to the positive aspects of the relationship in order to increase happiness and attachment security (Borelli et al., 2014). Relational savoring is a specific type of savoring based on attachment, with the goal of focusing on positivity and connectedness in close relationships, such as recalling the provision or receipt of love, care, and support from another person (Borelli et al., 2020; Wang et al., 2021). Benefits of relational savoring include improved positive emotions and enhanced relational satisfaction in long-distance relationships (Borelli et al., 2015; Burkhart et al., 2015), as well as increased felt security and lowered cardiovascular

reactivity (Borelli et al., 2019; Borelli et al., 2020). Relational savoring may also help to decrease attachment insecurity and buffer against relationship threat (Borelli et al., 2015). The major difference between positive reappraisal and relational savoring is that, in the context of a relationship stressor, the former addresses the negative aspect by changing it to positive, whereas the latter solely focuses on the positive aspects of the relationship.

Positive distraction is defined as engaging in alternative pleasant activities or thoughts in order to induce positive emotions (Waugh et al., 2020). As a disengagement strategy (not involving the stressor or stressor related emotions; Carver et al., 1989), positive distraction has yielded adaptive outcomes, e.g., increased life satisfaction, improved coping self-efficacy, and better personal transformation (Iwasaki, 2001; Kleiber et al., 2002; Tsaur & Tang, 2012). The primary distinction between positive distraction and avoidance, the maladaptive form of disengagement, is that the former disengages from the stressor temporarily to cultivate mental resources for engagement later, whereas the latter disengages from the stressor permanently to avoid dealing with the stressor any more (Connor-Smith et al., 2000; Skinner et al., 2003; Waugh et al., 2020).

The three strategies, despite all involving positive emotions, reflect different degrees of engagement with the stressor: from reinterpreting the interpersonal stressor as positive (positive reappraisal), to discovering positivity within the relationship (relational savoring), to switching attention to pleasurable activities outside the relationship (positive distraction). Going from positive reappraisal to positive distraction, they move further away from the center of conflict (the stressor), to the relationship, to the external

environment. In summary, positive reappraisal focuses on the stressor, relational savoring focuses on the relationship, and positive distraction focuses on neither.

To date, there is no empirical finding on attachment dimensions and positive reappraisal. Only a few studies have looked into the link between attachment dimensions and cognitive reappraisal. Note that people use cognitive reappraisal simply to change one's perspective about the stressor (Winterheld, 2016), without emphasizing making the stressor more positive or increasing one's positive emotions. Three studies show that secure attachment is positively associated with reappraisal, and anxious attachment is negatively linked to reappraisal, possibly because more anxiously attached individuals are more vigilant of potential threats and have less cognitive flexibility to reframe stressors (Kahwagi et al., 2021; Karremans & Vingerhotes, 2012; Winterheld, 2016). In a similar vein, high trait anxiety has been associated with less reappraisal (Arndt et al., 2013; Efringer et al., 2019). In terms of attachment avoidance, low anxious, highly avoidant people may use more reappraisal than highly anxious people, but they tend to prefer suppression (a disengagement strategy) more than reappraisal, possibly due to their tendency to deny the existence of stress (Karremans & Vingerhotes, 2012). These findings imply that people who are less anxious and less avoidant (i.e., more secure) might be more willing to change their perspectives about the stressor, and due to their positive nature, find the silver lining about the stressor, using positive reappraisal.

Therefore, in the current study, I predict that more avoidantly attached or more anxiously attached individuals will be less likely to use positive reappraisal or to perceive it as effective than less avoidantly attached or less anxiously attached individuals, respectively. Additionally, since positive reappraisal is the only one out of the three

strategies that directly deals with the stressor, it is likely that more anxiously attached individuals will choose positive reappraisal more than the other two strategies. However, it is also possible that none of these strategies appeal to more anxiously attached individuals, because they all require engaging in positive emotions in the face of stress, which might not appear adaptive or appropriate for these individuals, who are highly sensitive and reactive to potential threats.

Given that relational savoring is a less researched phenomenon, it is unsurprising that the studies on attachment dimensions and relational savoring are even scarcer. Only two studies thus far have linked relational savoring with attachment dimensions: the quality of relational savoring was positively linked with attachment security (Bond & Borelli, 2017), and that relational savoring only decreased negative emotions among people with lower attachment avoidance (Borelli et al., 2014). This might due to more avoidantly attached individuals' tendency to limit emotional connections and avoid intimate moments in relationships. Regarding savoring, one study shows a negative link between attachment avoidance and trait savoring (i.e., the ability to savor; Palmer & Gentzler, 2019), and another study reveals negative associations between both avoidance and anxiety and the amount of savoring (Goodall, 2015). These findings infer that insecure people might use less relational savoring (i.e., appreciating the happy moments of one's relationship), due to anxious individuals' preoccupation with negativity and avoidant individuals' detachment from intimacy.

Therefore, in the current study, I predict that more anxiously attached or more avoidantly attached individuals will be less likely to use relational savoring or to perceive it as effective than less avoidantly attached or less anxiously attached individuals,

respectively. Additionally, if people have to make a choice among the three strategies, more insecurely attached individuals will be less likely to choose relational savoring than the other two strategies.

There is no empirical evidence that directly supports the links between attachment dimensions and positive distraction. However, many prior studies have demonstrated that, compared to other strategies, more avoidant individuals tend to use more disengagement and distancing strategies to deal with stress, and positive distraction is a disengagement strategy (Frías et al., 2014; Holmberg et al., 2011; Mikulincer & Shaver, 2019; Pascuzzo & Moss, 2013; Shallcross et al., 2014). Along the same line, low trait anxiety has been linked to more distraction over reappraisal or venting (Cho et al., 2019). These findings indicate that people who are less anxiously attached or more avoidantly attached individuals are more likely to disengage from the stressor, distance from the relationship, and look for pleasure in the external environment, using positive distraction. Considering that more securely attached individuals are more flexible and resilient in regulating their emotions, more securely individuals are still more likely to use positive distraction to a greater extent than less securely attached individuals.

Therefore, in the current study, I predict that more avoidantly attached or more anxiously attached individuals will be less likely to use positive distraction or to perceive it as effective than less avoidantly attached or less anxiously attached individuals, respectively. Additionally, since positive distraction is the only one out of the three strategies that does not engage with the stressor at all, it is likely that more avoidantly attached individuals will choose positive distraction more than the other two strategies, if they have to make a choice among the three strategies to cope with stress. It is also

possible that more avoidantly attached individuals are as likely to prefer positive distraction as less avoidantly attached individuals, considering that more securely attached individuals are flexible with using different emotion regulation strategies.

Interpersonal Conflict: A Type of Interpersonal Stress

In terms of stress, I will use attachment dimensions to predict how people use PE to cope with *interpersonal stress* (i.e., stress in interpersonal relationships). Because attachment styles are a persistent set of relationship-related expectations, emotions, and behaviors based on past attachment experiences (Bowlby, 1973; Fraley & Shaver, 2000), the impact of attachment dimensions on people's attitudes and behaviors towards interpersonal stress might be more consequential than other kinds of stress.

Interpersonal stress has two broad categories, interpersonal conflict and loss (Rook et al., 2004). In this study, I will examine interpersonal conflict, as it denotes the negative social interactions between social members of the same network (Rook et al., 2004). These negative social interactions, such as disagreements, transgressions, criticisms, and rejections, could occur on a regular basis and cause significant distress to the individuals involved (Buerki & Adler, 2005; Laursen & Hafen, 2010; Rook et al., 2004). A literature review of interpersonal stressors outlines four domains of interpersonal conflicts: others' inability to provide support, unwanted advice, inconsiderate or disapproving behaviors, and dismissal or indifference (Rook et al., 2004). These four domains of interpersonal conflicts are antithetical to four domains of positive social interactions: instrumental support, informational support, emotional support, and companionship (Rook et al., 2004).

Summary of Prior Literature and Purpose of Current Study

To summarize, compared to less secure individuals, more securely attached (i.e., less avoidantly attached or less anxiously attached) individuals are more likely to use positive reappraisal, relational savoring, and positive distraction, due to their more effective repertoire of coping strategies and more frequent experience of positive emotions (Mikulincer & Shaver, 2016). More avoidantly attached individuals might be less likely to use positive reappraisal, relational savoring, and positive distraction than less avoidantly attached individuals. However, if individuals are encouraged to make a choice among the three strategies, attachment avoidance might positively predict the choice of positive distraction over positive reappraisal and relational savoring, because more avoidantly attached individuals prefer disengagement over engagement strategies (e.g., Frías et al., 2014; Holmberg et al., 2011). Similarly, more anxiously attached individuals might be less likely to use positive reappraisal, relational savoring, and positive distraction than less anxiously attached individuals. However, out of the three strategies, more anxiously attached individuals might be more likely to choose positive reappraisal over the other two strategies, because only positive reappraisal deals with the negative aspect of the stressor.

Although attachment theory posits that attachment dimensions have influences on emotion regulation, few studies have investigated the link between attachment dimensions and interpersonal stress regulation using positive emotions. Among those existing studies, they have only examined the use of reappraisal, savoring, and disengagement. There is no empirical knowledge of how people of different attachment orientations might use positive emotions to regulate interpersonal stress, which might

activate their attachment systems and trigger their attachment responses in a more pronounced way. There is also a lack of understanding of the outcomes of using PE to regulate stress between these groups of individuals, despite the well-known benefits of positive emotions to individual and relational well-being. Therefore, the purpose of the current study is to fulfill the knowledge gap and expand existing theory and research.

Study 1

In Study 1, I examined how attachment dimensions predicted emotion regulation goals and the frequency of using emotion regulation strategies (positive reappraisal, relational savoring, and positive distraction) to cope with typical interpersonal stressors. In terms of emotion regulation goals, I hypothesized that attachment avoidance would be positively associated with the goal of increasing non-stressor related PE and negatively associated with other emotion regulation goals, and that attachment anxiety would be positively associated with the goal of decreasing stressor-related NE and negatively associated with other emotion regulation goals. In terms of the frequency of using emotion regulation strategies, I hypothesized that both attachment avoidance and attachment anxiety would be negatively associated with use of positive reappraisal, relational savoring, and positive distraction.

Hypothesis Set 1: Attachment Dimensions and ER Goals

First, I proposed the following hypotheses about the links between attachment dimensions and emotion regulation goals in the face of generic interpersonal stressors:

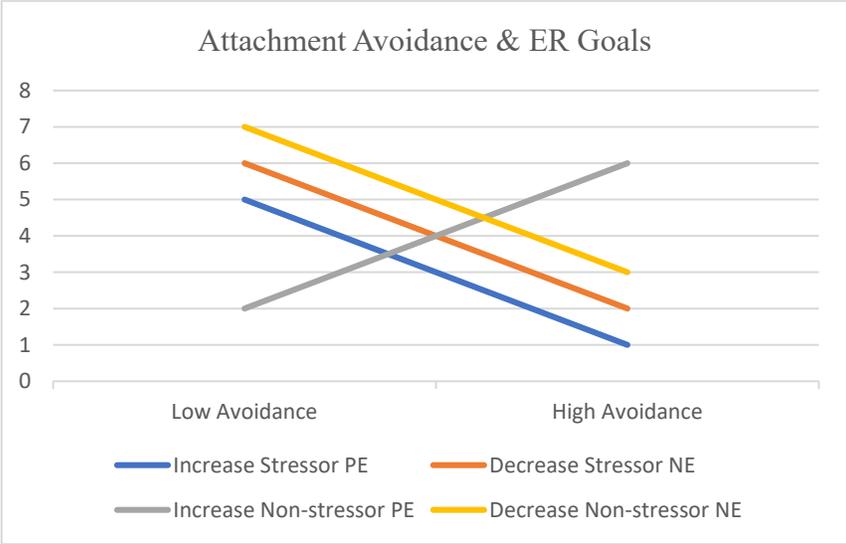
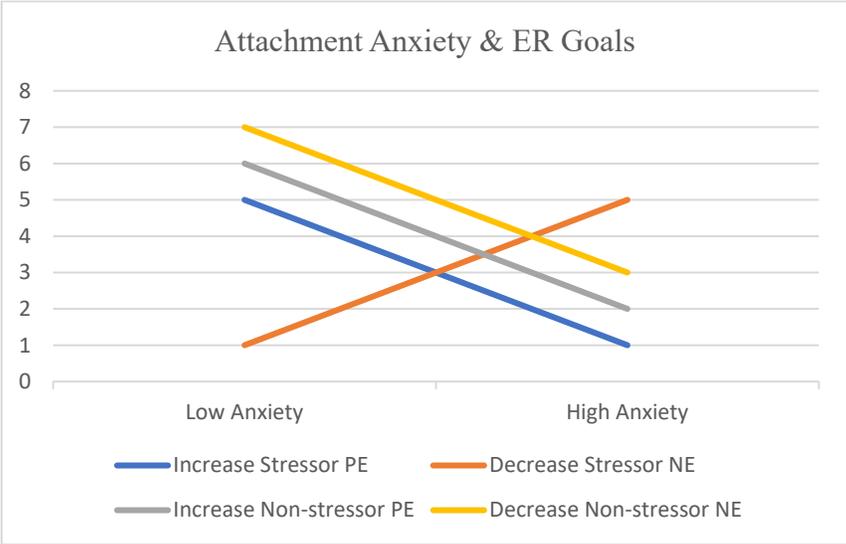
1. Attachment anxiety and ER goals:

- a. Attachment anxiety will be significantly, positively correlated with the goal of decreasing stressor related NE, even after controlling for attachment avoidance.
 - b. Attachment anxiety will be significantly, negatively correlated with the goal of decreasing non-stressor related NE, even after controlling for attachment avoidance.
 - c. Attachment anxiety will be significantly, negatively correlated with the goal of increasing stressor related PE, even after controlling for attachment avoidance.
 - d. Attachment anxiety will be significantly, negatively correlated with the goal of increasing non-stressor related PE, even after controlling for attachment avoidance.
2. Attachment avoidance and ER goals:
- a. Attachment avoidance will be significantly, positively correlated with the goal of increasing non-stressor related PE, even after controlling for attachment anxiety.
 - b. Attachment avoidance will be significantly, negatively correlated with the goal of increasing stressor related PE, even after controlling for attachment anxiety.
 - c. Attachment avoidance will be significantly, negatively correlated with the goal of decreasing stressor related NE, even after controlling for attachment anxiety.

- d. Attachment avoidance will be significantly, negatively correlated with the goal of decreasing non-stressor related NE, even after controlling for attachment anxiety.

Figure 1

Attachment Dimensions and Emotion Regulation Goals



Note. The plots only reflect the directions and not the strengths of the correlations. All correlations are hypothesized to be significant.

Hypothesis Set 2: Attachment Dimensions and the Frequency of Strategy Use

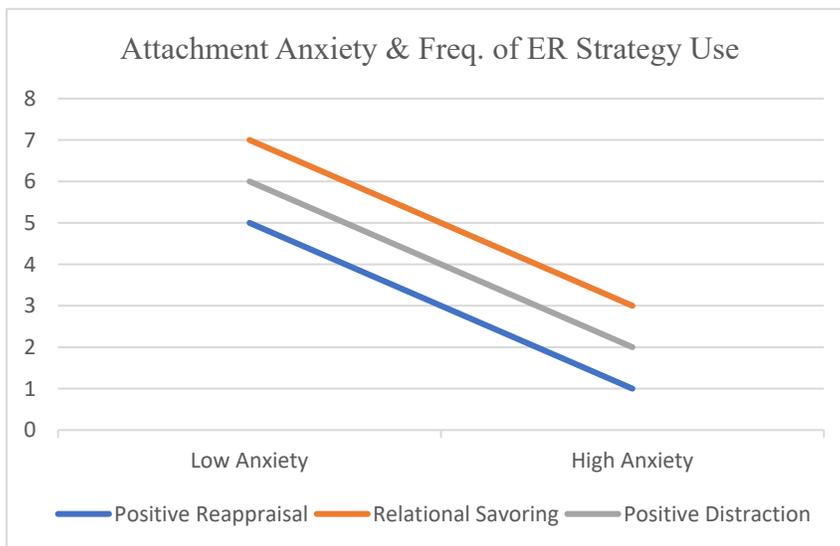
Furthermore, I proposed the subsequent hypotheses about the links between attachment dimensions and the frequency of using positive reappraisal, relational savoring, and positive distraction to regulate stress elicited by generic interpersonal stressors:

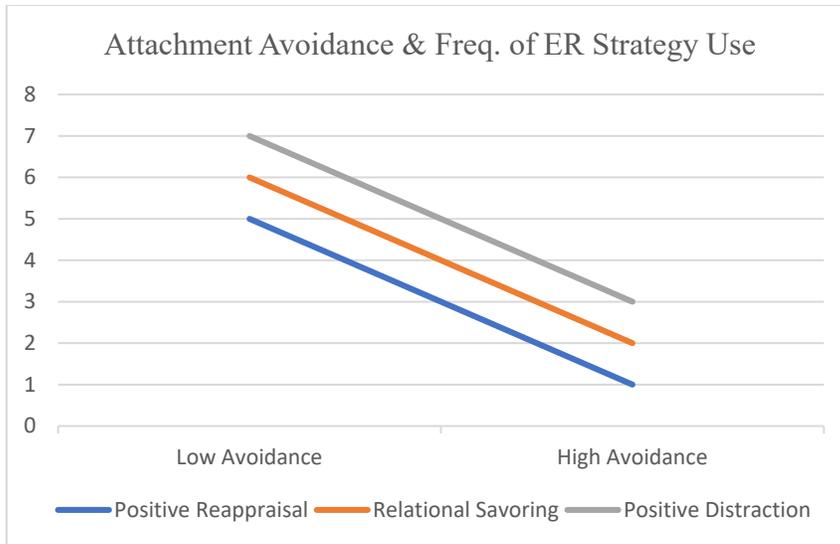
1. Attachment anxiety and the frequency of strategy use:
 - a. Attachment anxiety will be significantly, negatively correlated with the frequency of using positive reappraisal, even after controlling for attachment avoidance.
 - b. Attachment anxiety will be significantly, negatively correlated with the frequency of using relational savoring, even after controlling for attachment avoidance.
 - c. Attachment anxiety will be significantly, negatively correlated with the frequency of using positive distraction, even after controlling for attachment avoidance.
2. Attachment avoidance and the frequency of strategy use:
 - a. Attachment avoidance will be significantly, negatively correlated with the frequency of using positive distraction, even after controlling for attachment anxiety.

- b. Attachment avoidance will be significantly, negatively correlated with the frequency of using positive reappraisal, even after controlling for attachment anxiety.
- c. Attachment avoidance will be significantly, negatively correlated with the frequency of using relational savoring, even after controlling for attachment anxiety.

Figure 2

Attachment Dimensions and the Frequency of Using ER Strategies





Note. The plots only reflect the directions and not the strengths of the correlations. All correlations will be significant.

Methods

Participants

One hundred and forty-five participants aged between 18 and 55 years old ($M_{age} = 31.27$, $SD_{age} = 8.91$) were recruited from the Prolific subject pool, with 59.3% being female, 37.9% male, and 2.8% other. The racial breakdown is as follows: 77.9% White/Caucasian, 6.2% Black/African-American, 4.8% Asian, 4.2% biracial, 3.4% American Indian or Alaskan Native, 2.8% other, and .7% unknown. To be eligible, participants had to be aged between 18 and 55 years old, speak fluent level of English, and currently reside in the United States.

For both studies, the sample size was determined to detect an effect size of .23 at $\alpha = .05$ (two-tailed) and 95% power, based on the average effect size of four different studies (Bond & Borelli, 2017; Pascuzzo et al, 2013; Read et al., 2018; Stevenson et al.,

2017). In a meta-analysis of the relationship between attachment orientation and mindfulness, the overall sample-weighted mean effect size between mindfulness and anxiety was $r_+ = -.36$, and that between mindfulness and avoidance was $r_+ = -.28$ (Stevenson et al., 2017). In a study of the relationship between attachment dimensions and emotion regulation, the size of unique association between avoidance and suppression was $sr^2 = .193$, and that between anxiety and reappraisal was $sr^2 = .08$ (Read et al., 2018). A maternal attachment study showed that mothers' attachment avoidance was positively correlated to maternal rumination, $\Delta R^2 = .123$, and that attachment anxiety was also positively correlated to maternal rumination, $\Delta R^2 = .395$ (Bond & Borelli, 2017). Finally, a longitudinal study showed that attachment anxiety predicted more use of emotion-oriented strategies, $R^2 = .23$ (Pascuzzo et al, 2013).

Measures

General Attachment Dimensions in Close Relationships

The Experiences in Close Relationships-Relationship Structures Questionnaire (ECR-RS; Fraley et al., 2011) measured general attachment orientations in close relationships on a scale from 1 (strongly disagree) to 7 (strongly agree). The first 6 items estimated attachment avoidance, and an example item was "I don't feel comfortable opening up to others". Items 7-9 estimated attachment anxiety, and an example item was "I'm afraid that other people may abandon me". The item order was randomized. The Cronbach's α were .838 for the attachment avoidance subscale and .879 for the attachment anxiety subscale.

Generic Interpersonal Conflict Recall Task

This task prompted people to reflect on their general experiences of interpersonal conflicts with close others. The instructions were adapted from The Interpersonal Stress Coping Scale (ISCS; Kato, 2014): “Please reflect on your past experiences of interpersonal conflicts in emotionally intimate relationships (e.g., partners, spouses, close friends, parents). These may include quarreling with others, being talked about behind your back, feeling rejected or neglected, and failing to get their support.” The instructions were followed by randomized items from the three scales below.

Positive Reappraisal

The Positive Reinterpretation and Growth scale, a four-item subscale from the COPE inventory (Carver et al., 1989), was adapted to assess the frequency of which one uses positive reappraisal on a scale from 1 (never) to 7 (all the time). An example item was “I try to see it in a different light, to make it seem more positive”. The Cronbach's α for this scale was .777.

Relational Savoring

The Reminiscence scale, a four-item subscale from the Savoring Beliefs Inventory (SBI; Bryant, 2003), was adapted to measure the frequency of which one reminisces about past positive events in the relationship on a scale from 1 (never) to 7 (all the time). The instructions noted that the word “relationships” in the items referred to the ones where the conflicts took place. One example item was “I enjoy looking back on happy times from my relationships”. The Cronbach's α for this scale was .888.

Positive Distraction

This six-item subscale from the Distraction scale (Waugh et al., 2020) was adapted to assess the frequency of engaging in positive behavioral and cognitive distraction on a scale from 1 (never) to 7 (all the time). An example item was “you distract yourself by thinking about fun activities you want to do”. The Cronbach's α for this scale was .812.

Emotion Regulation Goals

This scale (Waugh et al., 2020) estimated motivations to regulate emotions on a scale from 0 (no motivation) to 10 (high motivation). The four motivation items were “to reduce negative emotions related to the stressor”, “to increase positive emotions related to the stressor”, “to reduce negative emotions in other parts of my life (not directly related to the stressor)”, and “to increase positive emotions in other parts of my life (not directly related to the stressor).”

Procedure

Participants accessed the Qualtrics survey with their Prolific accounts. After participants electronically signed the consent form, they completed a short demographic survey about their age, race, ethnicity, gender, education level, and family income level. Then, they completed the general attachment measure in close relationships. Next, they went through a generic interpersonal conflict recall task, where they were asked to reflect on their general experiences of interpersonal conflicts with close others (e.g., partners, spouses, close friends, parents). They were presented randomized items from the positive reappraisal scale (from COPE), the relational savoring scale (from SBI), and the positive

distraction scale (from Distraction). Lastly, they completed the coping motivation scale. After completing these tests, participants were debriefed and thanked for participation. They were directed back to the Prolific website and automatically compensated for completion. The compensation was \$1.00 for the 10 minutes estimated to finish the survey.

Results

Attachment Dimensions and Emotion Regulation Goals

Attachment avoidance was not significantly correlated with attachment anxiety, $r(143) = .136, p = .104$. This shows that the more avoidantly attached an individual may not be more anxiously attached.

To control for the effect of multiple comparisons on type I error, a p-value correction was executed in R with the `p.adjust` function, containing p-values of all eight correlations (Benjamini & Hochberg, 1995). For all of the corrections in this study, I used the Benjamini and Hochberg method (i.e., the False Discovery Rate correction), which accounts for the false discovery rate (the expected proportion of false discoveries among the rejected hypotheses) (Benjamini & Hochberg, 1995).

Among the hypotheses on the links between attachment anxiety and emotion regulation goals, only one was supported. As predicted, attachment anxiety was significantly, negatively correlated with the goal of feeling more positive about the conflict, $r(143) = -.333, p < .001$. Contrary to our predictions, attachment anxiety was not correlated with the goal of feeling more positive about other parts of one's life, $r(143) = -.172, p = .118$, the goal of feeling less negative about the conflict, $r(143) = -.157, p$

= .118, or the goal of feeling less negative about other parts of one's life, $r(143) = -.125$, $p = .180$. These findings show that more anxiously attached individuals might be less likely to be motivated to increase stressor related positive emotions, compared to less anxiously attached individuals. However, more anxiously attached individuals might be as motivated to increase non-stressor related positive emotions, decrease stressor related negative emotions, or decrease non-stressor related negative emotions as those who are less anxiously attached.

None of the hypotheses on the links between attachment avoidance and emotion regulation goals were supported. Contrary to our predictions, attachment avoidance was not correlated with the goal of feeling more positive about the conflict, $r(143) = -.062$, $p = .457$, the goal of feeling more positive about other parts of one's life, $r(143) = -.163$, $p = .118$, the goal of feeling less negative about the conflict, $r(143) = -.067$, $p = .457$, or the goal of feeling less negative about other parts of one's life, $r(143) = -.133$, $p = .178$. These findings indicate that more avoidantly attached individuals might be as motivated to increase stressor related positive emotions, increase non-stressor related positive emotions, decrease non-stressor related negative emotions, or decrease non-stressor related negative emotions, as much as less avoidantly attached individuals.

All above relationships held, when controlling for the other attachment dimension.

Table 1

Attachment Dimensions and ER Goals

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>p^c</i>
	Feel less negative about the stressor				
Anxiety	-.208	.115	-1.803	.074	.174

Avoidance	-.093	.168	-.551	.582	.665
Feel more positive about the stressor					
Anxiety	-.502	.121	-4.136	<.001***	<.001***
Avoidance	-.039	.177	-.219	.827	.827
Feel less negative about other parts of life					
Anxiety	-.163	.125	-1.301	.195	.260
Avoidance	-.258	.182	-1.414	.160	.256
Feel more positive about other parts of life					
Anxiety	-.209	.113	-1.849	.067	.174
Avoidance	-.285	.165	-1.724	.087	.174

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. p^c stands for corrected p value.

Attachment Dimensions and the Frequency of Using Emotion Regulation Strategies

To control for the effect of multiple comparisons on type I error, a p -value correction was executed in R with the `p.adjust` function, containing p -values of all six correlations.

As predicted, attachment anxiety was significantly, negatively correlated with the frequency of using positive reappraisal, $r(143) = -.234, p = .015$. Contrary to our predictions, attachment anxiety was not significantly correlated with the frequency of using relational savoring, $r(143) = -.059, p = .607$. Attachment anxiety was not significantly correlated with the frequency of using positive distraction, $r(143) = -.004, p = .965$.

As predicted, attachment avoidance was significantly, negatively correlated with the frequency of using relational savoring, $r(143) = -.286, p = .003$. Contrary to our predictions, attachment avoidance was not significantly correlated with the frequency of using positive reappraisal, $r(143) = -.145, p = .164$. Attachment avoidance was not significantly correlated with the frequency of using positive distraction, $r(143) = -.056, p = .607$.

All above relationships held, when controlling for the other attachment dimension.

Table 2

Attachment Dimensions and ER Strategies Using PE

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>p^c</i>
Positive Reappraisal					
Anxiety	-.092	.034	-2.673	.008**	.024*
Avoidance	-.071	.050	-1.409	.161	.322
Relational Savoring					
Anxiety	-.011	.043	-.247	.805	.963
Avoidance	-.217	.062	-3.495	.001**	.006**
Positive Distraction					
Anxiety	.002	.035	.047	.963	.963
Avoidance	-.034	.051	-.664	.508	.762

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. p^c stands for corrected p value.

Post-hoc Analysis: The Mediation of Emotion Regulation Goal on the Link Between Attachment Anxiety and the Use of Positive Reappraisal

As the results indicate, attachment anxiety was significantly, negatively correlated with the goal of feeling more positive about the conflict, as well as the use of positive reappraisal. Positive reappraisal is to focus on the positive aspect of a stressor, in order to feel more positive about the stressor (McRae et al., 2012). Therefore, it is highly likely that the goal of feeling more positive about the conflict mediates the link between attachment anxiety and positive reappraisal. To examine the mediation effect of this goal, a bootstrapping method was conducted using SPSS Process Macro, which is based on 5000 bootstrap samples (Hayes, 2018).

As expected, there was a significant, indirect, negative relationship between attachment anxiety and positive reappraisal through the goal of feeling more positive about the conflict, $B = -.057$, $SE = .018$, 95%CI $[-.097, -.025]$. Due to the full mediation

effect, the direct effect of attachment anxiety on positive reappraisal became nonsignificant, $B = -.042$, $SE = .034$, $95\%CI [-.108, .025]$. The mediation effect indicates that more anxiously attached individuals use less positive reappraisal, possibly because they are not motivated to increase positive emotions about the stressor.

Post-hoc Analysis: The Correlations Between Attachment Dimensions and the Differences in the Use of Emotion Regulation Strategies

Our findings indicate that attachment anxiety was negatively linked with positive reappraisal, and that attachment avoidance was negatively linked with relational savoring. It would be interesting to see if attachment dimensions also predict within-individual differences among less securely attached individuals in their use of emotion regulation strategies, i.e., more or less use of one emotion regulation strategy over another. Knowing this will help us understand what strategies are more or less favorable for less securely attached individuals. Three new variables were created with each representing the difference in use between positive reappraisal and relational savoring, the difference in use between positive reappraisal and positive distraction, and the difference in use between relational savoring and positive distraction.

The post-hoc correlation results show that attachment avoidance was positively, significantly correlated with the use of more positive reappraisal than relational savoring, $r(143) = .176$, $p = .034$. Attachment avoidance was also positively, significantly correlated with the use of more positive distraction than relational savoring, $r(143) = .235$, $p = .004$. These findings imply that more avoidantly attached individuals may use less relational savoring than positive reappraisal, and even less relational savoring than

positive distraction, although the difference between positive distraction use and positive reappraisal use is not significant.

Attachment anxiety was positively, significantly correlated with the use of more positive distraction than positive reappraisal, $r(143) = .198, p = .017$. This finding implies that more anxiously attached individuals tend to use more positive distraction than positive reappraisal, and that the differences between their positive distraction and relational savoring use, or between their positive reappraisal and relational savoring use, are not as pronounced.

Discussion

In terms of emotion regulation goals, people who are more anxiously attached tend to be less motivated to increase positive emotions about the stressor, relative to those who are low in attachment anxiety. People who are more avoidantly attached seem to exhibit no differences in emotion regulation goals than people low in attachment avoidance. These findings are in line with prior inferences that secure individuals (low anxious, low avoidant) and dismissing individuals (low anxious, highly avoidant) might be less prone to negativity and more ready to regulate their emotions about the stressor than those who are high in attachment anxiety (Karremans & Vingerhotes, 2012; Mikulincer & Shaver, 2016). Therefore, regardless of their levels of attachment avoidance, people who are higher in attachment anxiety might be more reluctant to increase their positive emotions about the stressor to cope with stress.

Regarding emotion regulation strategies, people who are more anxiously attached are less likely to use positive reappraisal, and people who are more avoidantly attached are less likely to use relational savoring. The pattern shown by more anxiously attached

individuals are aligned with previous findings that they use less cognitive reappraisal than less anxiously attached individuals, regardless of their avoidance levels (Kahwagi et al., 2021; Karremans & Vingerhotes, 2012; Winterheld, 2016). Further, as the post-hoc mediation analysis shows, more anxiously attached individuals might avoid using positive reappraisal, due to their lower motivation to feel more positive about the stressor.

The behavior exhibited by more avoidantly attached individuals are consistent with prior findings that they show lower ability and lesser amount of general savoring (Goodall, 2015; Palmer & Gentzler, 2019). The findings on the use of emotion regulation strategies are also supported by attachment theory, which posits that more anxiously attached individuals are usually preoccupied with negative emotions brought by the stressor, and that more avoidantly attached individuals are usually detached from intimate feelings in the relationship (Shaver & Hazan, 1993; Shaver & Mikulincer, 2002).

Our findings may suggest that, more anxiously attached individuals might be as willing to use relational savoring and positive distraction as less anxiously attached individuals, and that more avoidantly attached individuals might be as willing to use positive reappraisal and positive distraction as less avoidantly attached individuals. Indeed, as the post-hoc correlation results reveal, more anxiously attached individuals tend to use more positive distraction than positive reappraisal, and more avoidantly attached individuals tend to use more positive reappraisal and perhaps an even greater amount of positive distraction than relational savoring.

Study 2

In Study 1, I examined how people's general attachment dimensions might affect their typical emotion regulation goals and use of three emotion regulation strategies

(positive reappraisal, relation savoring, and positive distraction) to cope with general interpersonal stressors in close relationships. In order to further test the relationships between attachment dimensions and emotion regulation strategies, I launched Study 2.

In Study 2, it would be interesting to find out if people's typical coping attitudes and behaviors in Study 1 would be consistent if people are asked to cope with a specific, recent stressor between them and their close other. It is important to measure both attitudes and behaviors, because they don't always perfectly align with each other.

To investigate whether people's attachment dimensions towards their close other might affect their coping attitudes and actual coping behaviors towards a specific interpersonal stressor, I would ask them to: 1) evaluate the probability and perceived effectiveness of using the three strategies, 2) make a choice among the strategies to cope with the stressor, and 3) use their chosen strategy to regulate their emotions. Moreover, I would measure their positive and negative mood levels throughout the survey, which is important for ensuring the effectiveness of manipulation procedure and for exploring the influences of emotion regulation strategies and attachment dimensions on mood level changes.

I expected I would replicate the same findings in Study 1, so that attachment anxiety would be correlated with less positive reappraisal, and that attachment avoidance would be correlated with less relational savoring, in terms of both probability and perceived effectiveness of use. Furthermore, consistent with the post-hoc analyses from Study 1, I expected that attachment anxiety would predict the choice of positive distraction over positive reappraisal, and that attachment avoidance would predict the

choice of positive distraction over others and positive reappraisal over relational savoring.

Hypothesis Set 1: Attachment Dimensions on the Probability of Strategy Use

First, I proposed hypotheses about the links between attachment dimensions and the probability of using the three strategies (positive reappraisal, relational savoring, or positive distraction) to regulate a specific interpersonal stressor:

1. Attachment anxiety will be significantly, negatively correlated with the probability of using PR, even when controlling for attachment avoidance.
2. Attachment avoidance will be significantly, negatively correlated with the probability of using RS, even when controlling for attachment anxiety.

Hypothesis Set 2: Attachment Dimensions on the Perceived Effectiveness of Strategy Use

Next, I proposed hypotheses about the links between attachment dimensions and the perceived effectiveness of using the three strategies (positive reappraisal, relational savoring, or positive distraction) to regulate a specific interpersonal stressor:

1. Attachment anxiety will be significantly, negatively correlated with the perceived effectiveness of using PR, even when controlling for attachment avoidance.
2. Attachment avoidance will be significantly, negatively correlated with the perceived effectiveness of using RS, even when controlling for attachment anxiety.

Hypothesis Set 3: Attachment Dimensions and Strategy Choice

Then, I proposed hypotheses about the links between attachment dimensions and the choice of one out of three strategies (positive reappraisal, relational savoring, or positive distraction) to regulate a specific interpersonal stressor:

1. Attachment anxiety will significantly, positively predict the choice of PD over PR, when controlling for attachment avoidance.
2. Attachment avoidance will significantly, positively predict the choice of PR over RS, when controlling for attachment anxiety.
3. Attachment avoidance will significantly, positively predict the choice of PD over RS, when controlling for attachment anxiety.
4. Attachment avoidance will significantly, positively predict the choice of PD over PR, when controlling for attachment anxiety.

Mood Manipulation Check and Exploratory Analyses

I measured how positive and negative people felt at baseline, after the stressor description task, before the emotion regulation choice, and after the emotion regulation task. I predicted that people would experience the following changes in their mood levels: they would feel less positive and more negative after the stressor description task and feel more positive and less negative after the emotion regulation task. I would also explore how people's attachment dimensions and emotion regulation strategy choices might affect their mood level changes.

Methods

Participants

One hundred and forty-five participants aged between 19 and 54 years old ($M_{age} = 30.44$, $SD_{age} = 8.40$) were recruited from the Prolific subject pool, with 66.9% female, 32.3% male, and 0.8% other. The racial breakdown is as follows: 75.9% White/Caucasian, 7.5% Asian, 6.8% Black/African-American, 4.7% biracial, 0.8% American Indian or Alaskan Native, 3.8% other, and .8% unknown. To be eligible, participants had to be aged between 18 and 55 years old, speak fluent level of English, and currently reside in the United States. Stressor description and emotion regulation task responses were screened for relevance, and none was excluded. Twelve participants were removed due to attention check failure, resulting in a final sample size of 133.

Just as Study 1, the sample size of Study 2 was determined to detect an effect size of .23 at $\alpha = .05$ (two-tailed) and 95% power, based on the average effect size of four different studies (Bond & Borelli, 2017; Pascuzzo et al, 2013; Read et al., 2018; Stevenson et al., 2017).

Measures

Close Other Recall and Report Task

In this task, participants read the following instructions: “Now, please think of an important person in your life. This person can be a current partner or spouse (if applicable), a family member, a close friend, etc.” They were asked to identify their relationship with this person with the following options: “a current partner or spouse”, “a

family member”, “a close friend (non-partner, non-spouse, non-family member”, and “other”. They were also asked to report the initials of their close other’s name.

Relationship-Specific Attachment Dimensions

The same attachment questionnaire from Study 1 (ECR-RS; Fraley et al., 2011) was adapted to measure relationship-specific attachment orientations with a close other on a scale from 1 (strongly disagree) to 7 (strongly agree). Different from Study 1, I changed the relational target from “people” to “this person”, referring to their close other. The first 6 items estimated attachment avoidance, and an example item was “I don't feel comfortable opening up to this person”. Items 7-9 estimated attachment anxiety, and an example item was “I'm afraid that this person may abandon me”. The item order was randomized. The Cronbach's α were .889 for the attachment avoidance subscale and .805 for the attachment anxiety subscale.

Stressor Recall and Description Task

This task prompted people to reflect on a recent interpersonal conflict with their close others. The instructions were adapted from The Interpersonal Stress Coping Scale (ISCS; Kato, 2014): “Please reflect on one recent conflict between you and [initials of close other] in the past 6 months. These may include quarreling with them, being talked about behind your back, feeling rejected or neglected, or failing to get their support.” The instructions were followed by a two-minute stressor description task.

In this two-minute task, participants read the following instructions: “Please describe this conflict with [initials of close other] in some level of detail. For example: What happened? What caused it? Why do you think it happened? How did you feel about

it? etc.” Since the button to proceed to the next part of the survey appeared after one minute, participants were asked to use the full time to respond. When they completed the writing task, they were asked to report the time of the conflict as an attention check question. They selected “in the past x months” from a drop list of numbers ranging from 1 to 12, and responses with numbers larger than 6 were excluded.

Probability and Perceived Effectiveness of Strategy Use

This survey measured the extent to which individuals were likely to use the strategy and perceive the strategy to be effective to cope with the described conflict, on a scale from 0 (not at all) to 10 (very). Three strategies were presented in random order. Positive reappraisal was described as “thinking of something that is positive about the conflict itself (e.g., it makes me learn and grow as a person; it helps me understand the other person better)”. Relational savoring was described as “thinking of something that is positive about your relationship with this important person (e.g., I have always felt loved and cared by this person; I have spent a lot of good times together)”. Positive distraction was described as “thinking of something that is positive in your daily life, unrelated to the conflict or the relationship” (e.g., something good happened to me recently; I am looking forward to something fun and exciting in the future). Two questions were presented following each strategy, with one question assessing the probability of strategy use (“How likely would you try to use the strategy to make you feel better right now?”) and the other question assessing the perceived effectiveness of strategy use (“How much do you think using the strategy will make you feel better right now?”).

Emotion Regulation Choice and Writing Task

In this task, participants were asked to make a choice among the three strategies: “Next, we're going to ask you to try and make yourself feel better about the conflict you described using one of the three previously mentioned strategies. After you select a strategy, you are going to use that strategy to try to make yourself feel better for a couple of minutes on the next screen. Please select which strategy you would like to use”. They then used their chosen strategy by completing a two-minute writing task. Since the button to proceed appeared after one minute, they were asked to use the full time to respond.

Mood Level Rating

This survey measured positive and negative emotional levels on a scale from 1 (not at all) to 10 (very) with two questions: “How positive do you feel right now?” and “How negative do you feel right now?”.

Procedure

Participants accessed the Qualtrics survey with their Prolific accounts. After participants electronically signed the consent form, they completed a short demographic survey about their age, race, ethnicity, gender, education level, and family income level. Then, they were asked to report the initials of an important person in life and complete the relationship-specific attachment measure with this person in mind. Next, they were asked to reflect on one recent conflict with their close others in the past 6 months and complete a two-minute stressor description task to describe this conflict in detail. They then answered an attention check question about the time at which the conflict occurred. After that, they were presented three emotion regulation strategies with examples in

random order (positive reappraisal, relational savoring, and positive distraction) and asked to indicate the probability and perceived effectiveness of them using each strategy to cope with the described conflict. They then chose one of three strategies to cope with the conflict and used that strategy to make them feel better in a two-minute writing task. The participants' mood levels were measured four times, at the beginning of the survey (baseline), after the stressor description (post-stressor), before the strategy choice (pre-choice), and after the emotion regulation task (post-regulation). After completing these tests, participants were debriefed and thanked for participation. They were directed back to the Prolific website and automatically compensated for completion. The compensation was \$3.00 for the 20 minutes estimated to finish the survey.

Results

Attachment Dimensions as Predictors of the Probability and Perceived Effectiveness of Emotion Regulation Strategy Use

Attachment avoidance was significantly, positively correlated with attachment anxiety, $r(131) = .363, p < .001$. This shows that the more avoidantly attached an individual is, the more likely that this person is anxiously attached, and vice versa. This also indicates the importance of controlling for the other dimension to predict an outcome.

As predicted, attachment avoidance was negatively, significantly correlated with the probability of using relational savoring, $r(131) = -.343, p < .001$, and the perceived effectiveness of using relational savoring, $r(131) = -.300, p < .001$. When controlling for attachment anxiety, the above relationships held. As such, the more avoidantly attached

individuals are with their close other, the less they may consider using relational savoring strategy or perceive it as adaptive to cope with a recent conflict with their close other.

Contrary to predictions, attachment anxiety was not significantly correlated with the probability of using positive reappraisal, $r(131) = -.081, p = .355$, or the perceived effectiveness of using positive reappraisal, $r(131) = -.076, p = .382$. When controlling for attachment avoidance, the above relationships held. As such, more anxiously attached individuals might not differ much from less anxiously attached individuals in their consideration and evaluation of using positive reappraisal to cope with a recent conflict with their close other.

The above relationships held, when controlling for the time of conflict, such that individuals' cognitive perceptions of the three emotion regulation strategies using positive emotions were not affected by the number of months passed, given that the conflict occurred within the past six months.

Exploratory Analyses

To control for the effect of multiple comparisons on type I error, two p-value corrections were executed in R with the p.adjust function, one containing p-values of the following four correlations involving probability, and other containing p-values of the following four correlations involving perceived effectiveness.

Exploratory analyses show that attachment avoidance was not significantly correlated with the probability of using positive reappraisal, $r(131) = -.151, p = .296$, or the perceived effectiveness of using positive reappraisal, $r(131) = -.173, p = .094$. When controlling for attachment anxiety, the above relationships held. As such, more

avoidantly attached individuals might not vary much from less avoidantly attached individuals in their hypothetical use and rated efficiency of positive reappraisal strategy to cope with a recent conflict with their close other.

Additionally, attachment avoidance was not significantly correlated with the probability of using positive distraction, $r(131) = .011, p = .899$, or the perceived effectiveness of using positive distraction, $r(131) = -.051, p = .558$. When controlling for attachment anxiety, the above relationships held. As such, more avoidantly attached individuals might not vary much from less avoidantly attached individuals in their hypothetical use and rated efficiency of positive distraction strategy to cope with a recent conflict with their close other.

Exploratory analyses also reveal that attachment anxiety was not significantly correlated with the probability of using relational savoring, $r(131) = -.126, p = .296$, or the perceived effectiveness of using relational savoring, $r(131) = -.193, p = .094$. When controlling for attachment avoidance, the above relationships held. As such, more anxiously attached individuals might not vary much from less anxiously attached individuals in their hypothetical use and rated efficiency of relational savoring strategy to cope with a recent conflict with their close other.

Additionally, attachment anxiety was not significantly correlated with the probability of using positive distraction, $r(131) = -.052, p = .739$, or the perceived effectiveness of using positive distraction, $r(131) = -.131, p = .179$. When controlling for attachment avoidance, the above relationships held. As such, more anxiously attached individuals might not vary much from less anxiously attached individuals in their

hypothetical use and rated efficiency of positive distraction strategy to cope with a recent conflict with their close other.

The above relationships held, when controlling for the time of conflict. The above null results show that more avoidantly attached individuals are likely to use positive reappraisal and positive distraction and perceive them to be effective to the same degree as less avoidantly attached individuals. Furthermore, more anxiously attached individuals are likely to use relational savoring and positive distraction and perceive them to be effective to the same degree as less anxiously attached individuals.

Table 3

Attachment Dimensions and Probability / Perceived Effectiveness of ER Strategy Use

	β	t	p	β	t	p
Relational savoring						
	Probability of use			Perceived effectiveness of use		
Anxiety	-.002	-.022	.983	-.097	-1.084	.281
Avoidance	-.342	-3.873	<.001***	-.264	-2.958	.004**
Positive reappraisal						
	Probability of use			Perceived effectiveness of use		
Anxiety	-.030	-.322	.748	-.016	-.172	.864
Avoidance	-.140	-1.508	.134	-.167	-1.799	.074
Positive distraction						
	Probability of use			Perceived effectiveness of use		
Anxiety	-.064	-.685	.495	-.129	-1.382	.169
Avoidance	.034	.367	.714	-.004	-.048	.962

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Attachment Dimensions as Predictors of Emotion Regulation Strategy Choice

The breakdown of participants by emotion regulation choice is as follows: 19.5% positive reappraisal, 54.9% relational savoring, and 25.6% positive distraction.

Interestingly, the majority of participants chose relational savoring as their emotion regulation strategy to cope with a recent stressor in their relationships.

As hypothesized, multinomial logistic regression analyses show that attachment avoidance significantly, positively predicted the choice of positive distraction over relational savoring, when controlling for attachment anxiety. Contrary to predictions, attachment avoidance did not significantly, positively predict the choice of positive reappraisal over relational savoring, when controlling for attachment anxiety. Attachment avoidance did not significantly, positively predict the choice of positive distraction over positive reappraisal, when controlling for attachment anxiety. Attachment anxiety did not significantly, positively predict the choice of positive distraction over positive reappraisal, when controlling for attachment avoidance. All above relationships held, when controlling for the time of conflict, such that individuals' behavioral choice among the three emotion regulation strategies using positive emotions were not affected by the number of months passed, given that the conflict occurred within the past six months.

Exploratory Analyses

Exploratory analyses of multinomial logistic regression between attachment dimensions and strategy choice show that attachment anxiety was not a significant predictor of any strategy over another, when controlling for attachment avoidance. Specifically, attachment anxiety did not significantly, positively predict the choice of positive distraction over relational savoring, or the choice of relational savoring over positive reappraisal. All above relationships held, when controlling for the time of conflict.

Table 4

Attachment Dimensions and Strategy Choice

<i>Exp(B)</i>	<i>95%CI</i>	<i>Exp(B)</i>	<i>95%CI</i>	<i>Exp(B)</i>	<i>95%CI</i>
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	PD over RS		PR over RS		PD over PR	
Avoidance	1.761	[1.159, 2.676]*	1.086	[.665, 1.773]	1.621	[.967, 2.718]
Anxiety	1.047	[.792, 1.384]	1.168	[.873, 1.564]	.896	[.644, 1.246]

Note. * $p < .05$.

Post-hoc Analysis: The Probability and Perceived Effectiveness of Emotion

Regulation Strategy Use as Predictors of Emotion Regulation Strategy Choice

Probability and perceived effectiveness of emotion regulation strategy use were correlated with each other for every emotion regulation strategy. Probability and perceived effectiveness were significantly, positively correlated for using positive reappraisal, $r(131) = .842, p < .001$, for using relational savoring, $r(131) = .694, p < .001$, and for using positive distraction, $r(131) = .738, p < .001$. Probability and perceived effectiveness were also significantly, moderately, positively correlated across strategies, except that the probability of using positive reappraisal and the perceived effectiveness of using positive distraction were not significantly correlated. This shows that people who were likely to use one strategy and perceive it to be effective were also likely to use another strategy and perceive that strategy as effective.

Exploratory analyses of multinomial logistic regression were performed with the probability and the perceived effectiveness of using emotion regulation strategy on strategy choice. In terms of positive reappraisal, the probability of using positive reappraisal significantly, positively predicted the choice of positive reappraisal over positive distraction, $Exp(B) = 1.632, 95\%CI [1.159, 2.298]$, and over relational savoring, $Exp(B) = 1.565, 95\%CI [1.175, 2.085]$, when controlling for perceived effectiveness. The perceived effectiveness of using positive reappraisal did not significantly, positively

predict the choice of positive reappraisal over positive distraction or relational savoring, when controlling for the probability of using positive reappraisal.

In terms of relational savoring, neither the probability nor the perceived effectiveness of relational savoring significantly, positively predicted the choice of relational savoring over positive reappraisal or positive distraction. The perceived effectiveness of relational savoring only marginally significantly, positively predicted the choice of relational savoring over positive reappraisal, $Exp(B) = 1.243$, 95%CI [.995, 1.552], when controlling for the probability of using relational savoring.

In terms of positive distraction, the probability of using positive distraction significantly, positively predicted the choice of positive distraction over relational savoring, $Exp(B) = 1.300$, 95%CI [1.005, 1.680], when controlling for the perceived effectiveness of using positive distraction, and perceived effectiveness was not significant in the model. Neither predictor significantly predicted the choice of positive distraction over positive reappraisal.

These results provided rationale behind participants' choice of strategy, such that they did not select their strategies randomly or on a whim.

Mood Manipulation Check

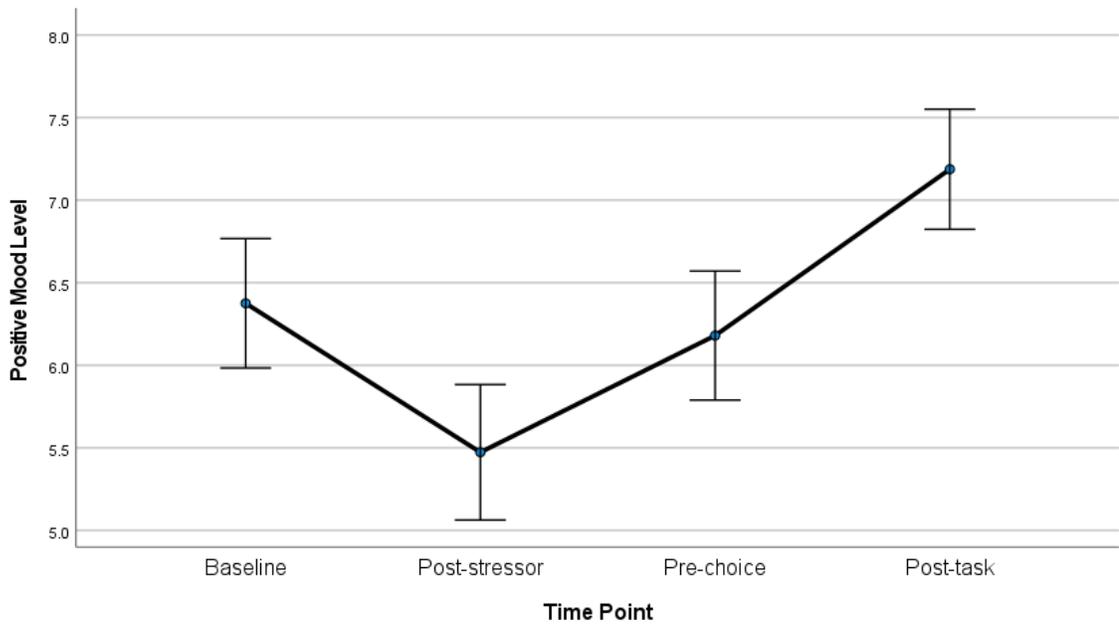
Positive Mood Level Changes

A repeated measures ANOVA with a Greenhouse-Geisser correction showed that positive mood levels differed statistically significantly across time points, $F(2.130, 281.225) = 67.622$, $p < .001$. Post-hoc analyses with Bonferroni corrections revealed that positive mood level significantly decreased from baseline to after stressor description,

$t(131) = -7.224, p < .001$. Then, positive mood level significantly increased from after stressor description to after rating strategy use probability and effectiveness, $t(131) = 7.463, p < .001$. The positive mood level before emotion regulation strategy choice was not significantly different from baseline, $t(131) = -2.005, p = .282$, indicating that participants' positive mood level had recovered from describing the stressor. Next, positive mood level significantly increased from before emotion regulation strategy choice to after emotion regulation task, $t(131) = 8.174, p < .001$. The positive mood level after emotion regulation task was significantly higher than all previous time points.

Figure 3

Positive Mood Level Changes Across 4 Time Points



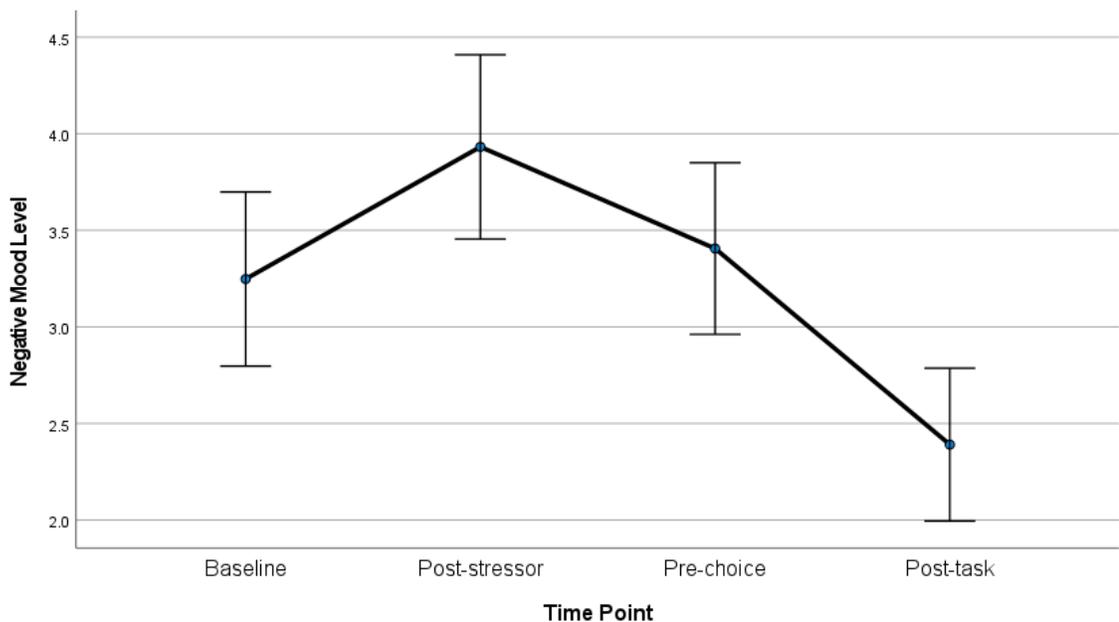
Negative Mood Level Changes

A repeated measures ANOVA with a Greenhouse-Geisser correction showed that negative mood levels differed statistically significantly across time points, $F(2.267,$

299.266) = 37.212, $p < .001$. Post-hoc analyses with Bonferroni corrections revealed that negative mood level significantly increased from baseline to after stressor description, $t(131) = 4.785, p < .001$. Then, negative mood level significantly decreased from after stressor description to before emotion regulation strategy choice, $t(131) = -4.016, p < .001$. The negative mood level before emotion regulation strategy choice was not significantly different from baseline, $t(131) = 1.122, p = 1.000$, indicating that participants' negative mood level had recovered from describing the stressor. Next, negative mood level significantly decreased from before emotion regulation strategy choice to after emotion regulation task, $t(131) = -9.027, p < .001$. The negative mood level after emotion regulation task was significantly lower than all previous time points.

Figure 4

Negative Mood Level Changes Across 4 Time Points



Post-hoc Analysis: The Effect of Emotion Regulation Strategy Choice on Mood Level Changes

Strategy Choice on Positive Mood Level Changes

A 4 (time point: baseline, post-stressor, pre-choice, post-task) by 3 (emotion regulation strategy choice: positive reappraisal, relational savoring, positive distraction) mixed ANOVA was conducted with positive mood level as the dependent variable, time point as the within-subjects variable, and emotion regulation strategy choice as the between-subjects variable. There was a significant main effect of time point on positive mood level, $F(2.150, 279.545) = 51.364, p < .001$, such that positive mood levels significantly differed across time. There was not a significant interaction between time point and emotion regulation strategy choice on positive mood level, $F(4.301, 279.545) = 2.121, p = .073$, such that emotion regulation strategy choice had no significant effect on the changes in positive mood level across time.

Strategy Choice on Negative Mood Level Changes

A 4 (time point: baseline, post-stressor, pre-choice, post-task) by 3 (emotion regulation strategy choice: positive reappraisal, relational savoring, positive distraction) mixed ANOVA was conducted with negative mood level as the dependent variable, time point as the within-subjects variable, and emotion regulation strategy choice as the between-subjects variable. There was a significant main effect of time point on negative mood level, $F(2.286, 297.147) = 26.393, p < .001$, such that negative mood levels significantly differed across time. There was not a significant interaction between time point and emotion regulation strategy choice on negative mood level, $F(4.571, 297.147)$

= 1.612, $p = .163$, such that emotion regulation strategy choice had no significant effect on the changes in negative mood level across time.

Post-hoc Analysis: The Effect of Attachment Dimensions on Mood Level Changes

Attachment Dimensions on Positive Mood Level Changes

A 4 (time point: baseline, post-stressor, pre-choice, post-task) by 2 (attachment dimensions: attachment anxiety, attachment avoidance) mixed ANOVA was conducted with positive mood level as the dependent variable, time point as the within-subjects variable, and standardized attachment dimensions as the covariates. There was a significant main effect of time point on positive mood level, $F(2.140, 278.260) = 67.267$, $p < .001$, such that positive mood levels significantly differed across time. There was not a significant interaction between time point and attachment avoidance on positive mood level, $F(2.140, 278.260) = .246$, $p = .797$. There was not a significant interaction between time point and attachment anxiety on positive mood level, $F(2.140, 278.260) = 1.153$, $p = .320$. Therefore, neither attachment dimensions had significant effect on the changes in positive mood level across time.

Attachment Dimensions on Negative Mood Level Changes

A 4 (time point: baseline, post-stressor, pre-choice, post-task) by 2 (attachment dimensions: attachment anxiety, attachment avoidance) mixed ANOVA was conducted with negative mood level as the dependent variable, time point as the within-subjects variable, and standardized attachment dimensions as the covariates. There was a significant main effect of time point on negative mood level, $F(2.260, 293.840) = 37.369$, $p < .001$, such that negative mood levels significantly differed across time. There was not

a significant interaction between time point and attachment avoidance on negative mood level, $F(2.260, 293.840) = 1.165, p = .317$. There was not a significant interaction between time point and attachment anxiety on negative mood level, $F(2.260, 293.840) = 1.535, p = .215$. Therefore, neither attachment dimensions had significant effect on the changes in negative mood level across time. These interactions were non-significant, when either attachment anxiety or attachment avoidance was the only covariate.

Discussion

First, it is worth discussing how attachment dimensions may affect hypothetical emotion regulation use and actual emotion regulation choice. In coping with a specific relationship stressor, more avoidantly attached individuals may be less open to the possibility of using relational savoring, and they tend to evaluate relational savoring as less effective than those who are less avoidantly attached. Their behaviors appear to be consistent with their attitudes, such that they tend to prefer the choice of positive distraction over relational savoring. These findings converge with those from prior literature and Study 1 (Goodall, 2015; Palmer & Gentzler, 2019), indicating that more avoidantly attached individuals tend to minimize the need to feel closeness in relationships, which could be achieved by avoiding the recalling and savoring of pleasant, connected moments in close relationships.

Inconsistent with the findings from Study 1, more anxiously attached individuals seem to be as receptive to using positive reappraisal and perceive it to be as effective, as less anxiously attached individuals do. Their behaviors are consistent with their attitudes, such that they do not tend to favor any strategies over positive reappraisal. A possible explanation is that, although more anxiously attached individuals may use less positive

reappraisal in their daily life, they are open to the possibility of using positive reappraisal, when they are encouraged to reflect on its potential effectiveness. Additionally, positive reappraisal was depicted as a coping strategy and illustrated by two concrete examples in Study 2 (compared to the broad, vague item statements in Study 1), which could enable more anxiously attached individuals to understand, imagine, and relate to positive reappraisal in a better way.

The exploratory analyses show that more avoidantly attached individuals are as likely to use and effectively perceive positive reappraisal and positive distraction as less avoidantly attached individuals. More anxiously attached individuals are as likely to use and effectively perceive relational savoring and positive distraction as less anxiously attached individuals. Again, this might indicate that when people are encouraged to think about using the strategy in possible ways as the examples indicated, as well as the potential benefits of doing so, they are more able to put themselves into the situation, more willing to make an effort to cope, and more convinced that the strategy might actually work. The current exception, though, is the reluctance to adopting relational savoring among more avoidantly attached individuals, so we might need to spend more effort in motivating these individuals to attempt relational savoring.

The mood manipulations by both stressor description and emotion regulation task were effective. Indeed, positive mood levels significantly decreased after stressor description and increased after emotion regulation task, and that negative mood levels significantly increased after stressor description and decreased after emotion regulation task. Interestingly, positive mood also significantly increased and negative mood significantly decreased from after stressor description to before strategy choice, during

which participants were asked to rate the probability and perceived effectiveness of each emotion regulation strategy. This shows that merely thinking of these emotion regulation strategies, not even practicing them, could be beneficial for increasing positive emotions and decreasing negative emotions, even though thinking might not be as helpful as practicing them.

Post-hoc analyses reveal that emotion regulation strategy choice and attachment dimensions had no effect on mood level changes across time. The fact that strategy choice had no significant interaction with positive or negative mood level changes across time indicates that all three emotion regulation strategies were equally effective in elevating positive mood and reducing negative mood. Furthermore, the fact that attachment dimensions had no significant interaction with positive or negative mood level changes across time indicates that individuals of various levels of attachment anxiety or avoidance were equally able to increase positive mood and decrease negative mood using any of the three emotion regulation strategies.

It is worth noting that I did not compare across different relational targets, due to the lack of power, and due to the belief that the strength of the relationship would be more important than the nature of the relationship. Again, participants were asked to report their relationships and conflicts with “an important person in their life”.

General Discussion

The current studies offered new insights into how attachment dimensions might influence emotion regulation using positive emotions, which is a relatively understudied area. Attachment theory posits that attachment avoidance is associated with

downregulation of negative emotions, and that attachment anxiety is associated with upregulation of negative emotions, which has been sufficiently supported by research (e.g., Bowlby, 1982; Cassidy & Kobak, 1988; Mikulincer & Shaver, 2003). However, the theory, on the one hand, is lacking in predicting how attachment dimensions might affect the use of positive emotions to cope with stress in close relationships. Empirical research, on the other hand, is limited in scope by only looking at how cognitive reappraisal, savoring, and disengagement might be related to attachment dimensions in different studies.

Study 1 provided initial evidence that more anxiously attached individuals might use less positive reappraisal than less anxiously attached individuals, consistent with previous findings that linked anxious attachment with lower cognitive reappraisal than secure or avoidant attachment (Kahwagi et al., 2021; Karremans & Vingerhotes, 2012; Winterheld, 2016). However, Study 2 refuted this finding by showing that attachment anxiety had no significant relationships with the probability, perceived effectiveness, or even the choice of positive reappraisal. Therefore, there is hope that anxiously attached individuals will learn to embrace the mental flexibility in viewing the stressor from a different, more positive perspective, although they might by default focus more on negative aspects of the stressor and easily fall into the trap of rumination (e.g., Garrison et al., 2014; Holmberg et al., 2011; Shallcross et al., 2014). This emphasized the importance of good instructions and vivid examples that open the door of positive reappraisal to people who are more prone to negative emotions.

Due to the inconsistency above, the Study 2 finding that more anxiously attached individuals might be as receptive to positive reappraisal as less anxiously attached

individuals requires replication. The negative link between attachment anxiety and positive reappraisal in Study 1 was consistent with prior studies, perhaps because Study 1 and prior studies used generic, self-report measurement for emotion regulation strategies, which captures people's typical attitudes and behaviors (Kahwagi et al., 2021; Karremans & Vingerhotes, 2012; Winterheld, 2016). In contrast, Study 2 used in-situ, behavioral measurement for emotion regulation strategies, so its inconsistency with prior studies might be due to a difference between what people report they typically do and what people actually do in the situation. While this is a strength of Study 2, future studies using behavioral measures should be conducted to confirm the finding from Study 2. Moreover, in Study 2, people were focusing on their "most important person" as instructed, so they might be more willing to try different ways to resolve conflict with this person. In study 2, people were also asked to report a conflict in the past 6 months, and there might not be a major conflict recently, which might have made positive reappraisal easier for people. Therefore, future studies should try to control for relational targets and conflict severity, in order to understand better when and why anxiously attached individuals might be willing to use positive reappraisal to cope with interpersonal stress.

Both studies established a strong, negative link between attachment avoidance and relational savoring. Study 1 found that people who were more avoidantly attached in close relationships used significantly less relational savoring to cope with stress from general interpersonal conflicts. Study 2 found that people who were more avoidantly attached with their close others (i.e., in a specific close relationship) rated the use of relational savoring as significantly less likely and less effective to cope with a recent interpersonal conflict with their close others, and they also chose relational savoring

significantly less frequently positive distraction. It seems that more avoidantly attached individuals' aversion to relational savoring is consistent across situations. This is supported by studies that linked attachment avoidance with lower savoring, especially savoring interpersonal events or savoring via social activities, but not those that are non-interpersonal, such as a personal achievement (Borelli et al., 2014; Goodall, 2015; Palmer & Gentzler, 2019). This is also consistent with attachment theory that avoidantly attached individuals admire independence and depreciate interdependence (e.g., Bowlby, 1982; Cassidy & Kobak, 1988; Mikulincer & Shaver, 2003), so they try to eschew anything that might close their distance with others and expose their vulnerabilities. Perhaps, more important than teaching these individuals to use relational savoring is to teach them to overcome the fear of, build the trust in, and improve the skills to healthy relationships.

Despite the strong evidence above, the negative link between attachment avoidance and relational savoring may or may not apply to all kinds of interpersonal conflicts: others' inability to provide support, unwanted advice, inconsiderate or disapproving behaviors, and dismissal or indifference (Rook et al., 2004). To more avoidantly attached individuals, the more severe kinds of conflicts might be those that are intrusive and interfering with their independence (such as unwanted advice), or those that are undermining and destructive to their self-value (such as disapproval). The absence of support might have less negative impact on them, due to their relatively low expectations for support. Depending on the conflict type, relational savoring might be more or less acceptable to these individuals. Relational savoring might also be easier for people who are more satisfied with their relationships, because they will have more pleasant memories that they can capitalize. Therefore, future studies should look at whether

people, especially those who are high on attachment avoidance, will be more inclined to use relational savoring when the conflict is not perceived as a “deal-breaker”, or when the individual is more satisfied with their relationship.

Both studies also provided preliminary evidence that positive distraction is a favorable strategy for more avoidantly attached individuals, compared to other strategies. Post-hoc analyses from Study 1 found that more avoidantly attached individuals used significantly more positive distraction than relational savoring. Study 2 confirmed this finding by showing that more avoidantly attached individuals tend to choose positive distraction more than relational savoring. Moreover, more avoidantly attached individuals also perceived positive reappraisal as less effective than less avoidantly attached individuals. The preference of positive distraction among more avoidantly attached individuals is consistent with prior research that linked attachment avoidance with the more frequent use of disengagement and distancing strategies (e.g., denial, suppression) to cope with stress (e.g., Karremans & Vingerhotes, 2012; Mikulincer & Shaver, 2019; Pascuzzo & Moss, 2013). This is not too surprising, considering more avoidantly attached individuals’ deactivating strategy of downregulating negative emotions and distancing from the stressor, per attachment theory and research (Bowlby, 1982; Cassidy & Kobak, 1988; Mikulincer & Shaver, 2003).

Despite theoretical predictions, more research evidence will be needed to confirm the positive relationship between attachment avoidance and positive distraction. The current study does not support that more avoidantly attached individuals will always choose to use positive distraction over any other strategy, or more than less avoidantly attached individuals. Future studies could consider expanding the selection of emotion

regulation strategies or emotion regulation tasks. For example, participants could be allowed to physically engage in a distraction activity, such as a virtual reality game, which might be more distracting and enjoyable than cognitively engaging with an activity by writing about it. In addition, future studies could consider inducing stress through an experiment, so that the stressor will be more salient to the participants, which might make positive distraction even more favorable to more avoidantly attached individuals.

Lastly, the current research provided some support for the established benefits of positive reappraisal, relational savoring, and positive distraction. While the advantages of positive reappraisal and positive distraction to cope with stress after the incident are more documented (e.g., Slotter & Ward, 2015; Troy et al., 2013; Waugh, 2020), relational savoring has only been shown to buffer against threat prior to the occurrence of the stressor (Borelli et al., 2015), so the present study is among the first to support the stress-coping benefit of relational savoring. Indeed, Study 2 found that all emotion regulation strategies were equally effective in increasing positive mood and decreasing negative mood, regardless of attachment anxiety or attachment avoidance levels. I also found anecdotal evidence in participants' relational savoring responses that it not only helped them to increase felt security and relational satisfaction (which is consistent with prior studies; Borelli et al., 2015; Burkhart et al., 2015), but also in some cases, encouraged them to positively reappraise the event or solve the problem more effectively.

Due to the lack of random assignment, the inference that all three strategies were equally effective is limited. In Study 2, people were allowed to choose their own strategy to cope with the stress. In other words, people made their choice based on their prior knowledge that what strategy might work for them. It is then not surprising that their

chosen strategy was effective. Future studies should randomly assign people to different emotion regulation strategies, in order to rule out pre-existing, systematic between-group differences that might account for strategy outcomes. In addition, future studies should allow participants to make multiple or none of the choices, because it is likely that people choose to use multiple strategies at once, or they might not choose to use any of the strategies. Another methodological limitation lies in the ECR-RS measure. Theoretically, the two distinct dimensions should be uncorrelated, which is found in my Study 1, but in practice, they have been found to be weakly correlated, especially in committed relationships, which is found in my Study 2 (Fraley et al., 2011). A possible explanation is that people's general attachment dimensions might be more diluted than their relationship-specific attachment dimension, because some people feel very different levels of security in different close relationships.

Conclusion

In conclusion, more avoidantly attached individuals are as open to positive distraction, but less receptive to relational savoring, than less avoidantly attached individuals. When they have to make a confined choice among positive reappraisal, relational savoring, and positive reappraisal, they tend to choose positive distraction more than relational savoring. Thus, positive distraction might be a favorable, or at least acceptable, emotion regulation strategy for them to cope with interpersonal stress. More importantly, these patterns do not just happen typically and hypothetically, but they also occur in the moment.

The findings for more anxiously attached individuals are mixed. Study 1 found that more anxiously attached individuals used positive reappraisal less, possibly due to

their lower motivation to increase positive emotions about the stressor. Study 2, however, failed to support this finding. In fact, Study 2 did not show any significant findings regarding attachment anxiety. It may suggest that, when dealing with their close other, more anxiously attached individuals are as open to using all three strategies as less anxiously attached individuals. Perhaps, they are more motivated to try different ways to resolve conflicts and re-establish proximity with their close other.

Future research could address these limitations and provide more insights by expanding more research efforts into when and why insecurely attached individuals might use emotion regulation strategies to increase positive emotions. The implications of the present research are also important for counselors and therapists to develop intervention programs targeting mental health and relational issues among more insecurely attached individuals.

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CURRICULUM VITAE

Fanyi Zeng

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Education

Wake Forest University, Winston-Salem, NC

Bachelor of Arts in Psychology, May 2019

Master of Arts in Psychology, May 2022

GRE: 329, Verbal 163 (93rd), Quantitative 166 (89th)

Relevant Coursework

Research Design & Analysis I & II, Developmental Psychology, Cognitive Psychology, Personality & Social Psychology, Biopsychology, Data Science for Psychologists

Languages and Computer Skills

Native in Mandarin and Cantonese, proficient in English, and intermediate in German
Proficient in G suite and Microsoft Office, Qualtrics, SPSS, and R, and some experience with MATLAB, E-Prime, Python, iBook, and Adobe Photoshop

Manuscript

Zeng, F., Brunsting, N., Brocato, N., Kiang, L., Jayawickreme, E., & Kathuria, S. (2021). Biopsychosocial factors associated with depression among U.S. undergraduate international students. *Journal of International Students, 12*(1).
<https://doi.org/10.32674/jis.v12i1.2914>

Brunsting, N. C., Bettini, E., Rock, M. L., Royer, D. J., Common, E. A., Lane, K. L., Xie, F., Chen, A., & **Zeng, F.** (2021). Burnout of special educators serving students with emotional-behavioral disorders: A longitudinal study. *Remedial and Special Education. <https://doi.org/10.1177/07419325211030562>*

Zeng, F. & Waugh, C. E. (2022). The role of attachment dimensions in using positive emotions to regulate stress from interpersonal conflicts in close relationships. *Manuscript in Preparation.*

Presentations

Zeng, F., Brunsting, N. C., Hubbard, K., Ziesel, J., & Kathuria, S. (2020, February). *Whose support is most important for international students' well-being: Faculty, domestic students, and/or other international students?* A paper presented at the Workshop on Intercultural Skills Enhancement (WISE), Winston-Salem, NC, USA.

Brunsting, N. C., Kathuria, S., **Zeng, F.,** & Harrison, K. (2020, March) *Whose support is most important for international students' well-being: faculty, domestic students, or other international students? A quantitative study.* A paper presented virtually over Zoom for Comparative and International Education Society, Miami, FL.

Research Experience

Graduate Student Researcher, Wake Forest University, August 2020 – May 2022

Research Advisors: Dr. Lara Kammrath & Dr. Christian Waugh

- Designed questionnaires on Qualtrics and collected data via Amazon MTurk and Prolific
- Content analyzed emotional support stories, created emotional support scales, and performed exploratory factor analysis on SPSS to validate scales
- Conducted literature research on support and attachment styles, presented findings in poster, and successfully defended Major Area Paper
- Completed and defended Master's Thesis on attachment dimensions and emotion regulation

Global Research Intern, Global Research and Assessment, Center for Global Programs and Studies, Wake Forest University, August 2019 – July 2020

Research Advisor: Dr. Nelson Brunsting

- *Project PWB: Predictors of Well-being*
 - Led research manuscript on variables associated with depression for international students using a large multi-institutional dataset
 - Conducted systematic literature review process
 - Completed IRB and analyzed data
 - Submitted first-authored manuscript
- *Project DGC: Developing Global Competency (Funded research)*
 - Supporting research project on an intervention curriculum designed to enhance secondary students' global competency
 - Interviewed students and scored with rubric
 - Conducted systematic literature review and supporting manuscript writing
- *Project RISE: Research on International Student Experience*
 - Supporting multi-wave, multi-institutional longitudinal research project
 - Supported participant recruitment and oversaw data cleaning
- *Project ASE: Assessment of Study-abroad Experience*
 - Leading systematic literature review and supporting manuscript writing

Research Assistant, Department of Psychology, Wake Forest University, September 2019 – May 2020

Research Advisor: Dr. Christian Waugh

- Provided assistance with E-Prime experimental coding and procedural design
- Trained lab members in collecting data and recruited participants via the SONA system
- Processed physiological data (ECG, respiration, skin conductance, and pulse) with ANSLAB
- Cleaning up data from E-Prime, Qualtrics, math task, and virtual reality scenario

Research Assistant, Department of Psychology, Wake Forest University, September 2018 – May 2019

Research Advisor: Dr. Anthony Sali

- Utilized effective organization and communication skills when scheduling studies, preparing for lab, and running undergraduate participants
- Collected surveys, recorded information in Excel, and analyzed data with SPSS
- Monitored saccadic movement for attention assessment with an eye-tracker
- Discussed prior research and current project in weekly research seminars

Student Intern, Department of Cancer Pharmacology, St. John's University, New York, NY, July – August 2014

Lab Supervisor: Dr. Zhe-Sheng Chen; Mentor: Dr. Yijun (Alex) Wang

- Performed cancer cell culture, medium preparation, and anti-cancer drug testing
- Practiced experimental techniques and discussed results with faculty and graduate students

Teaching Experience

Teaching Assistant, Research Methods, Wake Forest University, August 2020 – May 2022

Faculty Supervisors: Dr. E.J. Masicampo & Dr. Veronica Cole

- Identified student needs, prepared course materials, reviewed statistical concepts, and taught SPSS skills in weekly lab sessions
- Guided students through scientific research and writing processes and communicated statistical findings to students in simple language

Teaching Assistant, Educational Psychology, Wake Forest University, January – May 2020

Faculty Supervisor: Dr. Nelson Brunsting

- Prepared course materials and taught three sessions of a one-semester course
- Disseminated announcements, graded assignments, and proctored exams

CRLA-certified Tutor, Learning Assistance Center, Wake Forest University, September 2016 – May 2019

- Provided individual tutoring for students in Introduction to General Chemistry, Quantitative Analysis, Financial Accounting, Buddhism, and multiple German classes
- Helped tutees review and summarize lecture materials to achieve greater understanding
- Introduced effective problem-solving strategies and alternative memorization techniques
- Offered constructive feedback for written assignments in terms of organization and revisions

Teaching Assistant, School of Business, Wake Forest University, May – December 2017

Faculty Supervisor: Dr. Anna Cianci

- Assisted in proctoring exams and timing presentations for Introductory Financial Accounting
- Guided students through homework problems during weekly 2-hour help lab sessions
- Supervised 40+ students and answered questions during quiz and exam reviews
- Worked with graduate students in grading examinations and team projects

University Service

Mental Health Ambassador, University Counseling Center, October 2019 – May 2020

- Promoting positive mental health and suicide prevention as a nationally certified peer educator
- Assisted with “Brovember” tabling and pumpkin smash events to de-stigmatize men’s mental health issues and increase conversation around emotional well-being
- Will assist with Signs of Stress campaign, Body Image project, and suicide prevention training

Invited Reviewer, Journal of International Students, September 2019

- Reviewed manuscript “Loneliness among African international students in Portugal”
- Reviewed manuscript “Employee Retention, Engagement, and Job Satisfaction: Perceptions of Bahamian Special Educators”

Director, Digital Publications, The Media, Wake Forest University, January 2018 – May 2019

- Supervised the weekly translation and publication of school news digests in three separate languages, Chinese, Korean, and Portuguese, on Wake Forest social media accounts
- Edited and uploaded 52 school news articles per year, translated by team members and proofread by a faculty advisor on the Chinese WeChat platform with 1000+ followers
- Coordinated monthly interviews between graduate students from translational studies and student or faculty representatives from the undergraduate department
- Transferred MSA/MBA/MSBA program brochures into iBook on Apple’s online bookstore
- Attended weekly executive board meetings, reported work progress, and discussed plans

Member, Education Affairs, The Media, Wake Forest University, January 2017 – January 2018

- Shot 5+ educational videos on campus per semester, including lectures and interviews
- Edited videos in Adobe and uploaded on iTunes U on behalf of Wake Forest University

Chair of Diversity, Chinese Studies Club, Wake Forest University, January 2017 – May 2018

- Contributed ideas on event planning and community outreach in weekly board meetings
- Managed the club's official WeChat account by sending notifications, posting articles, and interacting with followers in a chat group of 90+ students
- Hosted cultural events, prepared food and drinks, and educated audience on the event's historical origins and current cultural significance

Volunteer Experience

Tax Preparer, Volunteer Income Tax Assistance program, Winston-Salem, NC, January – April 2018

- Received onsite and online tax law training and obtained the VITA volunteer certificate
- Interviewed taxpayers to determine if all income, deductions, and credits were claimed
- Provided free tax return assistance to low-income, physically challenged, or elderly individuals and families by using the TaxSlayer Software and filing returns electronically

Participant, Wake Alternative Break, Women's Center, Wake Forest University, March 2017

- Cleaned bedrooms of a domestic violence shelter and assembled care packages for survivors
- Learned about legal support for victims and observed protective order trials at the courthouse
- Raised awareness of sexual violence by providing bystander intervention training to staff at alcohol serving establishments and posting flyers with hotlines in public places
- Discussed critical issues with group members and reflected on activities of the day

Member, Promotion and Design, WFU DESK, Wake Forest University, April 2016

- Designed campaign posters and promoted the event via chapter visits and social media
- Interacted with Old Salem Elementary School students in a school pre-party event
- Created a team "Starving Artist" and helped our assigned student to make a DIY desk

Ambassador, Admissions Department, Wake Forest Baptist Health, Winston-Salem, NC, January 2016 – May 2016

- Escorted patients and guests to their designated areas, answered questions, and adjusted beds
- Transported medical records and blood samples between departments and delivered flowers and magazines to patients' rooms

Honors and Awards

Full Tuition Remission & TA-ship, M.A. in Psychology, August 2020 – May 2022

W. D. Sanders Scholarship (\$4,000), awarded by the German Department for an intensive 8-week language & cultural program at Goethe Institut in Berlin, Germany, Summer 2018

Dean's List, Fall 2015, Fall 2016, Spring 2017, Spring 2018, Fall 2018, and Spring 2019

Campus Winner (\$1,000), PwC's Case Challenge Competition, September 2016

References

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