Emotion and emotion preferences in daily life

Vanderlind, W. Michael; Everaert, Jonas; Cabarello, Camilla; Cohodes, Emily; Gee, Dylan

Published in:
Clinical Psychological Science

DOI:
10.1177/21677026211009500

Publication date:
2022

Document Version
Peer reviewed version

Emotion and Emotion Preferences in Daily Life: The Role of Anxiety

W. Michael Vanderlind[1], Jonas Everaert[2], Camila Caballero[3], Emily M. Cohodes[3], and Dylan G. Gee[3]

[1]Department of Psychiatry, Weill Cornell Medicine, New York City, USA

[2]Department of Experimental Clinical and Health Psychology, Ghent University, Ghent, Belgium

[3]Department of Psychology, Yale University, New Haven, USA

Corresponding Author:

W. Michael Vanderlind

Department of Psychiatry

Weill Cornell Medicine

525 East 68th Street

New York, New York 10065

wiv9019@med.cornell.edu

Abstract

People vary in their emotion preferences (i.e., desired emotional states). No study, however, has examined the nature of emotion preferences in anxiety. The current study utilized a 14-day ecological momentary assessment (EMA) paradigm to investigate the daily dynamics of emotion preferences and state emotion as they relate to individual differences in trait anxiety and anxiety symptom severity. Individuals with higher levels of trait anxiety and with more severe anxiety symptoms report greater preferences for state anxiety compared to their low anxiety counterparts. Relations between anxiety preferences and subsequent anxiety vary as a function of trait anxiety and symptom severity, and different associations are observed between the two measures of anxiety. The current findings suggest that aberrant emotion preferences may contribute to emotion dysfunction in anxiety, and highlight emotion preferences as a novel treatment target for interventions that aim to improve emotion functioning among people with elevated levels of anxiety.

Keywords: trait anxiety; anxiety symptoms; emotion; emotion preferences; ecological momentary assessment

Declarations

Funding: Preparation of this manuscript was supported by a postdoctoral fellowship from the Research Foundation – Flanders (FWO-Vlaanderen, Belgium) awarded to Jonas Everaert; a Ford Foundation Predoctoral Fellowship to Camila Caballero; a National Science Foundation Graduate Research Fellowship Program Award (DGE-1752134), American Psychological Foundation Elizabeth Munsterberg Koppitz Child Psychology Graduate Fellowship, The Society for Clinical Child and Adolescent Psychology (Division 53 of the American Psychological Association) Donald Routh Dissertation Grant, American Psychological Association Dissertation Research Award, and Dissertation Funding Award from the Society for Research in Child Development Student and Early Career Council to Emily Cohodes; and a National Institutes of Health (NIH) Director's Early Independence Award (DP5OD021370), Brain & Behavior Research Foundation (National Alliance for Research on Schizophrenia and Depression; NARSAD) Young Investigator Award, Jacobs Foundation Early Career Research Fellowship, and The Society for Clinical Child and Adolescent Psychology (Division 53 of the American Psychological Association) Richard "Dick" Abidin Early Career Award and Grant to Dylan Gee.

Acknowledgements: The authors gratefully acknowledge Haley Hegefeld, Alexis Hopkins, Landon Allen, Daphne Zhu, and Sarah McCauley for assistance with study materials and data collection for ecological momentary assessment (EMA), and Aaron Heller for helpful discussions regarding EMA implementation.

Conflicts of interest: The authors have no conflicts of interest to report.

Availability of data and material: The current data can be provided to the anonymous reviewers and will be provided to researchers, as requested, upon the acceptance and publication of this manuscript.

Code availability: R code can be made available for the anonymous reviewers and will be made publicly available via the Open Science Framework upon acceptance of this manuscript.

Authors' contributions: Camila Caballero, Emily Cohodes, and Dylan Gee designed a larger ecological momentary assessment study and collected the data for that study; a subset of data from that project was used for the present study. Michael Vanderlind, Jonas Everaert, and Dylan Gee identified the primary aims of the current study. Michael Vanderlind and Jonas Everaert analyzed the data and wrote the first draft of the manuscript. Camila Caballero, Emily Cohodes, and Dylan Gee reviewed the manuscript and assisted in making revisions. All authors agree to the order in which they are listed.

Emotion and Emotion Preferences in Daily Life: The Role of Anxiety

Emotions differ in their hedonic value; some emotions are thought to be generally pleasant, whereas others are thought to be generally unpleasant. It is often assumed that people prefer to experience pleasant over unpleasant emotions (Larsen, 2000). However, theoretical models and empirical evidence show that people vary in their emotion preferences (Tamir, 2009b; Tamir, 2016). Emotion preferences refer to the emotional states that people want to experience, and, according to emotion preference frameworks, people attempt to experience emotions that are congruent with their preferences.[1] Prior work highlights that there are individual differences in emotion preferences that may be linked to psychopathology. For example, individuals with major depression endorse relatively greater preference for negative emotion and relatively less preference for positive emotion than individuals without a history of depression (Millgram, Joormann, Huppert, & Tamir, 2015; Millgram et al., 2019; Yoon et al., 2019). No study, however, has examined the nature of emotion preferences in anxiety. This empirical gap is particularly critical as people with elevated levels of anxiety also exhibit emotion dysfunction, including elevated levels of negative emotion and reduced levels of positive emotion (Watson, Clark, & Carey, 1988; Brown, 2007; Kashdan, 2007). Further, clinically-significant difficulties with anxiety are the most common clinical phenomenon, as illustrated by the high prevalence rates of anxiety disorders (Kessler et al., 2012). The current study therefore sought to examine the relation between emotion and emotion preferences as they relate to anxiety.

Emotion Preferences

Within an emotion preference framework (Tamir 2009b; Tamir 2016), preferences are driven by two factors: pleasure and utility. People prefer emotions that are either pro-hedonic (i.e., maximally pleasant and minimally unpleasant) or emotions that are perceived to be useful,

independent of hedonic principles. Although most people typically want to feel good and avoid feeling bad (Elliot & Thrash, 2002), people may elect to forgo pleasurable emotional states and instead want to experience less pleasurable emotion states because of the perceived utility of those emotional states. For example, if an individual has the goal to achieve a good grade on an exam, then they may want to feel anxiety, so as to increase their motivation to study. Enhanced preference for anxiety in lieu of more pleasurable states is driven by a preference for a useful, albeit less hedonic, emotional state because it is congruent with the individual's goal of performing well on an exam.

Emotion preferences, and the perceived utility of emotional states, vary as a function of both state factors and trait factors. For instance, individuals prefer anger when anticipating confrontation with others (Tamir, Mitchell, & Gross, 2008; Tamir & Ford, 2009). Anger may be deemed useful given that anger promotes aggressiveness and competitiveness and may yield better negotiation outcomes (van Kleef, De Dreu, & Manstead, 2004; van Dijk, van Kleef, Steinel, & van Beest, 2008). In contrast, participants who expect to encounter collaborative social interactions exhibit a greater preference for happiness, as happiness is both pro-hedonic and, in this particular context, useful in that it promotes sociability and friendliness and fosters cooperative attitudes (Forgas, 1998). At the trait level, individuals who exhibit high levels of neuroticism report increased motivation to avoid threatening situations (Elliot & Thrash, 2002). Further, participants who report high levels of extraversion exhibit increased preferences for happiness prior to stressful events (Tamir, 2009a). Notably, people may exhibit persistent irrational beliefs, whether consciously or unconsciously, regarding the expected utility of certain emotional states (Tamir, Chiu, & Gross, 2007), and there are instances in which people may consistently forgo pro-hedonic emotional states in favor of unpleasant emotions because they

perceive negative emotional states to be useful despite actually being disadvantageous. Illustrations of this process are seen in recent work on the nature of emotion preferences as they relate to clinical phenomena (Millgram et al., 2020).

Emotion Preferences in Clinical Contexts

Prior research documents differences in emotion preferences between individuals with psychiatric disorders (e.g., major depression) and individuals with no history of psychopathology. Millgram et al. (2015), for instance, found that individuals with major depression report relatively greater preference for negative emotions and relatively reduced preference for positive emotions relative to participants with no history of psychopathology. Depression-related emotion preferences have been replicated in subsequent work (Yoon et al., 2019; Millgram et al., 2019). Further, individuals with major depression attempt to elicit emotional states that are congruent with their emotion preferences. Among individuals with depression, greater preference for negative emotion relates to tendencies to select negative stimuli in a situation selection task (e.g., choosing to listen to sad music instead of happy music), and a relatively reduced preference for positive emotion relates to a decreased likelihood of selecting positive stimuli (Millgram et al., 2015; Millgram et al., 2019). Taken together, recent evidence shows that emotion preferences vary as a function of psychopathology and that people with major depression pursue emotional states that are congruent with their preferences. Despite these advances, the majority of research on emotion preferences has focused on the function of emotion preferences in depression and research has yet to expand emotion preference models to other clinical phenomena, in particular to the study of emotion in anxiety. Anxiety, too, is characterized by elevated levels of negative affect and reduced levels of positive affect (Watson et al., 1988; Brown, 2007; Kashdan, 2007). Therefore, the primary aim of the current study is to

examine the relation between emotion and emotion preferences to better understand emotion dysfunction in anxiety.

Emotion Preferences and Anxiety

Anxiety is a complex construct that has been operationalized in a variety of ways. Lewis (1970), for example, describes anxiety as an unpleasant, negative emotion that involves future-oriented, subjective aspects as well as physiological disturbances, and likens anxiety to a closely-related emotion, fear. Lang and Cuthbert (1984) report that anxiety is characterized by "verbal reports, fear-related behaviors, visceral and somatic activation". Cutting across the many operationalizations is the multi-faceted nature of anxiety; it consists of subjective experience, physiological activation, negative appraisals of specific stimuli or future events, and behavioral responses (e.g., avoidance). In addition to the experience of state anxiety, which involves responding to specific situations that are perceived as dangerous, some people consistently experience subjective, physiological, cognitive, and behavioral aspects of anxiety over time, a concept known as *trait* anxiety (Spielberger, 1966). Further, persistent difficulties with anxiety that result in significant psychological distress and/or social or occupational impairment are conceptualized as anxiety disorders (American Psychiatric Association, 2013), which represent the most prominent form of psychopathology (Kessler et al., 2012).

Given that anxiety is operationalized in multiple ways, the current study took a comprehensive approach towards the examination of anxiety, as it relates to emotion preferences. Specifically, we examined the relation between emotion, including state anxiety, and emotion preferences as they relate to both trait anxiety and clinical symptoms of anxiety. Consistent with research showing that anxiety exists along a continuum, and may be best captured when

measured dimensionally (Brown & Barlow, 2009), we focused on individual differences in trait anxiety and anxiety symptom severity.

Various theoretical models may help to understand the nature of emotion preferences in anxiety. Behavioral models of anxiety implicate avoidance as a key feature of both anxiety experiences and anxiety disorders (Mowrer, 1960; Foa & Kozak, 1986; Hayes et al., 1996). The two-factor theory of avoidance learning postulates that, first, situations become feared through classical conditioning and, subsequently, the fear of said situation is maintained via avoidance or escape of the feared stimulus (Mowrer, 1960). Of particular relevance to the present study, avoidance extends beyond a specific situation and to emotional experiences themselves. For example, the fear of fear concept entails direct avoidance of the subjective and physiological components of anxiety, and is implicated, in particular, in agoraphobia (Goldstein & Chambless, 1978). Researchers postulate that people with elevated levels of anxiety also want to avoid cognitive and behavioral manifestations of anxiety states (Foa & Kozak, 1986). Research on anxiety sensitivity emphasizes that people may avoid anxiety, not only because of the distress surrounding its experience, but also because of beliefs that the experience will have negative implications, such as causing illness, embarrassment, or additional anxiety (Reiss & McNally, 1985; Reiss, 1991). In addition to the avoidance of feared situations, Hayes and colleagues (1996) describe experiential avoidance as involving the avoidance of mental representations of feared situations given that such representations elicit similar emotional, behavioral, and physiological reactions as those provoked by the feared situations themselves. The aforementioned etiological models of anxiety converge in defining avoidance as a central aspect of anxiety disorders. Thus, one would predict that greater levels of anxiety would be associated with relatively reduced preferences for state anxiety. In this context, reduced preferences for

negative emotions are driven by principles of pleasure (i.e., avoid pain) and, possibly, principles of utility, if anxiety is believed to result in negative consequences.

Theoretical models of worry – a cognitive process putatively associated with anxiety – yield different predictions about the nature of emotion preferences in anxiety. Worry consists of negatively-valenced cognitions, generally regarding the future, and is thought to involve verbal thought activity rather than imagery (Borkovec & Inz, 1990). Engagement in worry is thought to foster the discovery of strategies to avoid future stressful events and to increase feelings of preparedness should one be unable to avoid worst-case scenarios (Borkovec & Roemer, 1995). Further, worry is thought to aid in the cognitive avoidance of emotional information processing, thereby limiting changes to emotional states (Borkovec, 1994). However, despite its short-term goal of limiting emotion processing, worry is thought to maintain anxiety in the long term, and greater elaboration on the effects of worry on experiential anxiety are described in contrast avoidance models (Newman & Llera, 2011; Llera & Newman, 2014). Developed to characterize the nature and function of worry in generalized anxiety disorder (GAD), the contrast avoidance model suggests that individuals with a diagnosis of GAD fear large upward shifts in negative emotions and, in turn, engage in worry to avoid feeling vulnerable to negative emotional contrasts. Worry, however, produces and sustains low levels of anxiety in the service of inhibiting additional increases in negative emotions following stress. In this context, individuals with GAD may prefer higher levels of state anxiety compared to those without GAD given the perceived utility of mild anxiety states in protecting from larger spikes in negative emotions.

Models grounded in basic affective science and social psychology also shed light on the nature of emotion preferences in anxiety. In brief, in a recent review paper on emotion preferences and psychopathology, Millgram and colleagues (2020) hypothesized that individuals

with elevated levels of anxiety would endorse relatively increased preference for negative emotions and relatively decreased preference for positive emotion; their prediction is based on the notion that people may prefer emotions that are familiar, even if unpleasant (Ford & Tamir, 2014). Relatedly, and consistent with self-verification theory (Swann, Stein-Seroussi, & Giesler, 1992), people may prefer to experience emotions that verify one's identity. People with elevated levels of anxiety may hold the belief that chronic anxiety is a core feature of their identity or sense of self and thus may have greater preferences for anxiety states in order to maintain this self-image. Given the differing hypotheses that are generated by the aforementioned models, the current study took an exploratory approach towards the examination of emotion preferences in anxiety.

The Current Study

The current study sought to examine state emotion and emotion preferences across dimensions of trait anxiety and anxiety symptom severity. Emotions are dynamic and vary as a function of multiple factors that change over time (Kuppens & Verduyn, 2017). As such, an ecological momentary assessment (EMA) framework was utilized to investigate the dynamics of emotions and emotion preferences over time in real-world settings. In light of prior research showing that anxiety is associated with dysfunction across multiple emotion categories (Brown, 2007; Kashdan, 2007), a broad approach towards the measurement of emotional experiences was used in the current study. Separate models were run to assess the role of emotion preferences in understanding anger, fear, sadness, and happiness as they relate to individual differences in trait anxiety and anxiety symptom severity. This approach afforded us the possibility of exploring whether emotion preferences and state emotion effects were general or emotion-specific.

Specific aims.

The first aim was to document the nature of emotion preferences in anxiety. Relatively reduced preferences for negative emotions among individuals with elevated levels of anxiety, at both a trait and symptom level, would be consistent with predictions based on avoidance-based models of anxiety (Mowrer, 1960; Foa & Kozak, 1986; Hayes et al., 1996; Goldstein & Chambless, 1978; Reiss & McNally, 1985). Conversely, relatively enhanced preferences for negative emotion (particularly for anxiety) and relatively lower overall preferences for positive emotion, compared to participants with low levels of anxiety, would be consistent with predictions based on models of worry in anxiety (Borkovec, 1994; Newman & Llera, 2011) as well as hypotheses stemming from both social psychology (Swann et al., 1992) and affective science frameworks (Ford & Tamir, 2014; Millgram et al., 2020).

The second aim of the study was to examine directionality of emotion-emotion preference relations. We tested whether emotion preferences predicted subsequent changes in state emotion and, conversely, whether state emotion predicted subsequent changes in emotion preferences. In line with theoretical models of emotion preferences, we hypothesized that individuals would exhibit subsequent increases in state emotion that were congruent with their preference (e.g., greater preference for negative emotion would be associated with elevations in negative emotion). We did not have specific hypotheses for the reverse relation (i.e., state emotion predicting subsequent changes in emotion preferences).

Finally, we aimed to investigate whether emotion-emotion preference relations were moderated by anxiety levels. Again, given the exploratory nature of this question, we did not register specific predictions regarding the degree to which anxiety may enhance or dampen the effects of preferences on emotion.

Method

Participants

The current study used a community sample to examine transdiagnostic processes in anxiety. Individuals with varying levels of anxiety symptoms were recruited to investigate relations between emotions and emotion preferences, as they relate to individual differences in anxiety. Participants were recruited using flyers and online advertisements in the New Haven area. To be included in the current study, all participants had to be between the ages of 18 to 30 years old and were also required to have access to a mobile device with internet capabilities. Exclusion criteria included 1) cognitive impairment (Full-Scale Intelligence Quotient < 80), 2) history of head injury or concussion, 3) history of chronic medical illness or neurological disorder, 4) lifetime history of psychotic disorders, autism spectrum disorder, bipolar disorder, conduct disorder, non-alcohol or non-tobacco substance use disorder, current alcohol or tobacco use disorder, current primary diagnosis of attention-deficit/hyperactivity disorder or major depressive disorder, 5) acute suicidal ideation, 6) current use of psychotropic medication, 7) colorblindness, 8) visual impairment that cannot be corrected, 9) hearing impairment. Contraindications for an MRI scan (e.g., braces, metal implants) and left-handedness were also exclusionary given that a separate component of the study involved an MRI scan. Consistent with sample sizes from prior EMA research on emotion processes (Thompson et al., 2012; Wu et al., 2017), a sample of 78 individuals was used for all subsequent analyses.

The majority of the sample (70.1%) identified as female. Participants' ages ranged from 18 to 30 years old (M = 23.15, SD = 3.31). Half of the current sample were Caucasian, 18.42% were Asian/Asian American, 15.79% were African American, 11.84% were Hispanic, and 3.90% identified as mixed race. On average, participants completed 14.96 years of education (SD = 2.08, range = 12-20 years). Participants exhibited variable levels of trait anxiety and anxiety

symptoms. Indeed, total scores on the trait anxiety subscale of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) ranged from 22 to 68 (M = 37.34, SD = 10.77). Total scores on the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988) ranged from 0 to 37 (M = 7.49, SD = 7.72). Twenty participants met criteria for a current anxiety disorder, and an additional seven participants met criteria for a past anxiety disorder based on the Anxiety Disorders Interview Schedule for DSM-5 (ADIS-5; Brown & Barlow, 2014).

All study procedures were approved by the Institutional Review Board at Yale University, and all participants provided informed consent prior to participating in the current study. Participants were compensated $25 per hour for the laboratory session. Informed by prior EMA research (Thompson et al., 2012; Wu et al., 2017), a compensation structure based on survey completion was used for the EMA portion of the study. Participants were compensated $60 if they completed at least 50% of surveys or $90 if they completed at least 80% of surveys.

Materials

Measures used for assessing study eligibility.

The ADIS-5 (Brown & Barlow, 2014) was used to assess for presence of current or past psychiatric disorders. Trained doctoral students and research assistants administered the ADIS-5 during an in-person laboratory session and were supervised by a clinical psychologist. The Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 2011) was used to assess general intellectual functioning.

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988).

The BAI is a 21-item measure of anxiety symptom severity and is one of the most widely used measures of anxiety severity, both in clinical and non-clinical populations. It was originally developed to uniquely measure anxiety given the high correlation between measures of anxiety

and depressive symptoms and, as such, the BAI has better discriminant validity than do many other anxiety measures (Fydrich, Dowdall, & Chambless, 1992). Given the primary aim underlying the development of the measure, the BAI consists of items that are specific to the physiological and cognitive symptoms of anxiety and independent of symptoms of depression (Leyfer, Ruberg, & Woodruff-Borden, 2006). Consequently, most items reflect the physiological aspects of anxiety, and the BAI is highly correlated with panic symptoms (Cox, Cohen, Direnfled, & Swinson, 1996). Further, BAI scores among individuals with a diagnosis of panic disorder are higher relative to those of people with a diagnosis of GAD or specific phobia (Leyfer et al., 2006). Participants are asked to rate the extent to which they have been bothered by a variety of symptoms (e.g., "numbness or tingling", "unable to relax", "fear of losing control"). Items are rated on a 4-point Likert scale ranging from 0 ("not at all") to 3 ("severely–it bothered me a lot"). Higher scores indicate more severe levels of anxiety symptoms. In the current study, anxiety symptom severity was measured using the BAI total score. Prior research has demonstrated that the BAI has adequate internal consistency and satisfactory levels of convergent and discriminant validity (Beck et al., 1988; Beck & Steer, 1991; Osman et al., 1997). In the current study, the BAI total score demonstrated high internal consistency (Cronbach's alpha = .90), and participants reported a mean BAI total score of 7.47 (*SD* = 7.78).

State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

The trait subscale of the STAI was used to assess trait anxiety, which refers to an individual's tendency to appraise situations as threatening, avoid anxiety-provoking situations, and demonstrate elevated physiological arousal at baseline. Trait anxiety is considered a vulnerability factor for greater frequency and intensity of anxiety experiences and of anxiety

disorders (Elwood, Wolitzky-Taylor, & Olatunji, 2012). Given the construct that it measures, the STAI focuses less exclusively on the physiological components of anxiety and instead assesses general patterns of cognitive, emotional, physiological, and behavioral responding. To this end, there is relatively greater correlation between STAI scores and measures of depressive symptoms as compared to the BAI, and prior research suggests that the STAI may assess constructs that are implicated across multiple forms of internalizing psychopathology (Knowles & Olatunji, 2020). The trait subscale of the STAI is composed of 20 items. Sample items include "I worry too much over something that really doesn't matter" and "I feel nervous and restless". Participants were asked to rate each item using a 4-point scale ranging from "Almost Never" to "Almost Always". Higher scores indicate greater levels of trait anxiety. Total STAI scores were used to index trait anxiety within the current study. The STAI has been shown to have sufficient internal consistency, test-retest reliability, and construct validity (Spielberger et al., 1983). In the current study, the STAI total score demonstrated high internal consistency (Cronbach's alpha = .92), and participants reported a mean STAI total score of 37.19 (*SD* = 10.79).

Ecological momentary assessment (EMA) measures.

Measures of state emotion and emotion preferences were included within the EMA paradigm. The current study was part of a broader EMA study. Supplement 1 provides a comprehensive review of all EMA questionnaire items. Only items that are relevant to the current study are described below. To preserve brevity of EMA surveys and ensure study compliance, single-item measures were constructed to measure state emotion and emotion preferences, consistent with numerous previous EMA studies (Starr, 2015; Starr et al., 2017).

State emotion. To assess a breadth of emotional experiences, participants rated state levels of anxiety, anger, sadness, and happiness. Participants were asked, "How [emotional state]

do you feel right now?" for each of the four emotions. Multiple descriptors were provided when assessing each emotional state. Specifically, "anxious, scared, or nervous" were descriptors used to describe anxiety, "mad or angry" were used to describe anger, "sad or down" were used to describe sadness, and "happy or joyful" were used to describe happiness. Ratings were collected using a slider scale ranging from 0 ("Not at all") to 100 ("Very much"). Higher scores indicated greater levels of the given emotional state.

Emotion preferences. Participants rated their current preference for experiencing each emotion. Participants were asked to rate "How [emotional state] do you want to feel right now?". Ratings were collected using a slider scale ranging from 0 ("Not at all") to 100 ("Very much"). Higher scores indicated greater preference for the given emotional state.

Procedure

Participants first completed a laboratory session in which they completed a demographics questionnaire, the BAI, the STAI, the ADIS-5, and the WASI. Following this initial visit, participants enrolled in a 14-day EMA component of the study using a mobile device. All participants first completed a standardized onboarding process with a trained researcher. During the onboarding process, during which they were informed that they would receive four surveys across the course of each day for a total of 14 days. Participants were instructed to respond as soon as possible (and, at a minimum, within one hour) after receiving each survey prompt. All replies to the surveys were stored on a HIPAA-compliant platform (i.e., REDCap; Harris et al., 2009) and were de-identified for participant confidentiality.

EMA surveys assessed daily real-time data on state emotions and emotion preferences. Participants received four daily SMS surveys over the course of 14 days; however, given that the final survey of each day did not assess state emotion and emotion preferences, those time points

were not used in the current study. Thus, a total of 42 time points were used for each participant. Surveys were delivered across the morning, midday, and afternoon times, with at least two hours in between each survey. Surveys prompted participants to provide ratings of state emotion and emotion preferences. On average, participants completed 91.36% of surveys (*SD* = 7.23, range = 61.90 to 100.00).

Data Analysis

To address the first study aim (i.e., document the nature of emotion preferences in anxiety), multiple regression models were constructed to examine how overall emotion preferences are related to trait anxiety and anxiety symptom severity. Regression models were tested separately for baseline STAI and BAI scores as dependent variables. In each model, overall emotion preference scores for anxiety, sadness, anger, and happiness preferences were simultaneously entered into the regression equation. Overall emotion preference scores were computed by averaging the individual ratings for each discrete emotion for each completed EMA survey across the 14-day survey period. Bias-corrected bootstrapped 95% confidence intervals with 10000 re-samples were generated for the regression coefficients. Intervals that do not contain zero indicate significant effects.

The second and third research aims were to document the directionality of state emotion-emotion preference associations and to investigate whether anxiety moderated the relation between state emotion-emotion preferences, respectively. To address these aims, multilevel models were fitted to examine emotion-emotion preference relations.[2] Multilevel modeling accounts for the nested structure of the data, namely measurement probes (*t*: 1-42 EMA surveys) nested within persons (*j*: 1-78 participants). Analyses were conducted using R version 3.6.3 (R Core Team, 2018) and the *lme4* package (Bates, Mächler, Bolker, & Walker, 2015).

A first series of multilevel models tested whether state emotion preferences predicted subsequent changes in state emotion and whether trait anxiety and anxiety symptoms moderated this relation. Separate multilevel models were fitted for each discrete emotion (i.e., anxiety, anger, sadness, and happiness). At Level-1, we constructed a model in which state emotion preference at occasion *t* was associated with the change in state emotion from occasion *t* to *t+1*. Level-1 predictors were person-mean centered. At Level-2, we modeled the random intercept and slope of state emotion preferences as a function of individual differences in trait anxiety (STAI) and anxiety symptoms (BAI). Both STAI and BAI total scores were grand-mean centered. In addition, a (grand-mean centered) time-invariant component of state emotion preference (i.e., a person's mean score across measurement probes) was included as a predictor of the random intercept to obtain unbiased estimates of the effects of state emotion preferences on the outcome (Hamaker, Kuiper, & Grasman, 2015). In each model, a first-order autoregressive covariance structure accounted for higher correlations among assessments that were more proximal in time and for lower correlations among assessments that were more distal in time (Singer & Willett, 2003). All analyses controlled for the growth curve of each state emotion (by adding the time variable and its random slope to the models). The general Level-1 and Level-2 models were as follows:

$$state\ emotion_{\,t+1j}$$
$$= \pi_{0j} + \pi_{1j}\,(state\ emotion_{tj}) + \pi_{2j}\,(state\ emotion\ preference_{tj})$$
$$+\ \pi_{3j}\,(time_{tj}) + e_{tj}$$
$$\pi_{0j} = \beta_{00} + \beta_{01}\,(STAI_j) + \beta_{02}\,(BAI_j) + \beta_{03}(average\ emotion\ preference_j) + r_{0j}$$
$$\pi_{1j} = \beta_{10}$$

$$\pi_{2j} = \beta_{20} + \beta_{21}\,(STAI_j) + \beta_{22}\,(BAI_j) + r_{2j}$$

$$\pi_{3j} = \beta_{30} + r_{3j}$$

Next, a second series of multilevel models tested whether state emotion predicted changes in state emotion preferences and whether trait anxiety and anxiety symptoms moderated this relationship. Again, separate models were fitted for each discrete emotion. At Level-1, we constructed a model in which state emotion at occasion *t* was associated with the change in state emotion preference from occasion *t* to *t+1*. All level-1 predictors were person-mean centered. At Level-2, we modeled the random intercept and slope of state emotion as a function of grand-mean centered STAI and BAI scores as well as the grand-mean centered time-invariant component of state emotion (i.e., a person's mean across measurement probes). These models used a first-order autoregressive covariance structure and controlled for the growth curve of each state emotion preference. The general Level-1 and Level-2 models were as follows:

$$\text{state } emotion\ preference_{t+1j} = \pi_{0j} + \pi_{1j}\,(\text{state } emotion\ preference_{tj}) + \pi_{2j}\,(state\ emotion_{tj}) + \pi_{3j}\,(time_{tj}) + e_{tj}$$

$$\pi_{0j} = \beta_{00} + \beta_{01}\,(STAI_j) + \beta_{02}(BAI_j) + \beta_{03}(average\ state\ emotion_j) + r_{0j}$$

$$\pi_{1j} = \beta_{10}$$

$$\pi_{2j} = \beta_{20} + \beta_{21}\,(STAI_j) + \beta_{22}\,(BAI_j) + r_{2j}$$

$$\pi_{3j} = \beta_{30} + r_{3j}$$

Results

Overall Emotion Preferences and Individual Differences in Trait Anxiety and Anxiety Symptom Severity (Research Aim 1)

Table 1 presents statistics for each tested model. The results of the regression on STAI scores showed that the overall emotion preferences for anxiety, sadness, anger, and happiness explained a significant amount of the variance, $F(4, 72) = 3.09$, $p = .021$, adjusted $R^2 = .10$. Overall anxiety preference (95% bootstrap CI: [0.16, 1.77]) was uniquely associated with trait anxiety levels. Overall emotion preferences regarding anger, sadness, and happiness did not explain a significant portion of the variance in trait anxiety.

Furthermore, the second regression analysis indicated that overall emotion preferences explained a significant proportion of the variance in BAI scores, $F(4, 72) = 3.26$, $p = .016$, adjusted $R^2 = .11$. Overall anxiety preference (95% bootstrap CI: [0.26, 1.72]) was uniquely associated with variation in anxiety symptom levels. Overall emotion preferences for anger, sadness, and happiness did not explain a unique proportion of variance in anxiety symptom severity.

State Emotion-Emotion Preference Dynamics and Individual Differences in Trait Anxiety and Anxiety Symptom Severity (Research Aims 2 and 3)

Table 2 provides the means, standard deviations, and intraclass correlation coefficients for state emotion and state preferences for anxiety, anger, sadness, and happiness. The results from the multilevel analyses examining changes in state emotion and state emotion preferences are presented in Table 3 and Table 4, respectively.

Predicting changes in state emotion. With respect to *state anxiety*, no significant association was found between state anxiety preference at time *t* and change in state anxiety between time *t* to *t+1*. The results showed that a person's average anxiety preference as well as

both STAI and BAI scores were related to one's average level of reported state anxiety. Specifically, higher average levels of state anxiety preferences, trait anxiety, and anxiety symptom severity were related to higher levels of state anxiety.

The cross-level interactions between state anxiety preference at time *t* and both STAI and BAI were statistically significant, suggesting that trait anxiety and anxiety symptom severity moderated the relation between state anxiety preferences and changes in state anxiety. Simple slope tests were conducted to examine the relation between state anxiety and state anxiety preferences at time t at each level of STAI and BAI. With respect to STAI scores, the relation between state anxiety preferences at time *t* and state anxiety at *t+1* was -0.22 and not significant ($t(2609)=1.85$, $p=.065$) at -1SD of STAI (STAI = -10.72). At +1SD of STAI (STAI = 10.72), the relation between state anxiety preferences at time *t* and state anxiety at *t+1* was 0.26 and significantly different than zero ($t(2609)=2.42$, $p=.016$). These findings suggest that state anxiety preferences predict subsequent increases in state anxiety for individuals reporting relatively higher, but not relatively lower, levels of trait anxiety. With regard to BAI scores, the relation between state anxiety preferences at time *t* and state anxiety at *t+1* was 0.30 at -1SD of BAI (BAI = -7.72; $t(2609)=2.65$, $p=.008$) and -0.26 at +1SD of BAI (BAI = 7.72; $t(2609)=2.68$, $p=.008$). This result suggests that state anxiety preferences predict subsequent increases in state anxiety for individuals reporting relatively lower anxiety symptoms, but decreases in state anxiety for individuals reporting relatively higher anxiety symptom levels.

With respect to *state anger*, the results showed that a person's average anger preferences, as well as STAI and BAI scores, were related to one's average level of state anger. Specifically, relatively higher levels of average state anger preferences, trait anxiety, and anxiety symptom severity were related to higher levels of average state anger. No significant relationship was

found between state anger preference at time *t* and the change in state anger between time *t* to *t+1*. There were no cross-level interactions, indicating that STAI and BAI scores do not moderate the relation between state anger preferences and changes in state anger.

Analyses of *state sadness* revealed that individuals' average sadness preferences, as well as STAI and BAI scores, were related to their average level of state sadness. Relatively higher levels of sadness preferences, trait anxiety, and anxiety symptom severity were related to higher levels of average state sadness. There was no significant relationship between state sadness preference at time *t* and the change in state sadness between time *t* to *t+1*. However, there was a cross-level interaction between sadness preference at time *t* and BAI (but not STAI) scores. Simple slope tests showed that the relation between state sadness preferences at time *t* and state sadness at *t+1* was -0.43 at -1SD of BAI (BAI = -7.72; $t(2605)=2.57$, $p=.010$) and 0.05 at +1SD of BAI (BAI = 7.72; $t(2605)=0.39$, $p=.699$). This finding suggests that state sadness preferences predict subsequent decreases in state sadness for individuals reporting lower, but not higher, severity of anxiety symptoms.

Finally, regarding *state happiness*, results showed that participants' average happiness preferences, as well as STAI and BAI scores, were related to their average level of state happiness. Specifically, higher levels of state happiness were related to greater preferences for happiness but lower levels of trait anxiety and anxiety symptom severity. No significant association was found between state happiness preference at time *t* and the change in state happiness between time *t* to *t+1*. Neither STAI nor BAI scores moderated the relation between state happiness preferences and changes in state happiness.

Predicting changes in emotion preferences. With respect to *state anxiety preferences*, a significant association was observed between state anxiety at time *t* and change in state anxiety

preferences between time *t* to *t+1*. Relatively higher levels of state anxiety at time *t* were associated with subsequent increases in state anxiety preferences. Moreover, an individual's average level of state anxiety was related to their average level of state anxiety preferences, with higher average levels of anxiety related to a greater preference for anxiety. Neither STAI nor BAI scores moderated the relation between state anxiety and changes in anxiety preferences.

As for *state anger preferences*, results indicated that an individual's average state anger was related to their average level of state anger preferences. Specifically, higher levels of anger were related to higher levels of anger preferences. No significant association was found between state anger at time *t* and the change in state anger preferences between time *t* to *t+1*, and STAI and BAI scores did not moderate the association between state anger and changes in state anger preferences.

Analyses of *state sadness preferences* revealed that an individual's average sadness levels were related to their average level of state sadness preferences, such that higher levels of sadness were related to higher levels of state sadness preferences. There was no significant relationship between state sadness at time *t* and the change in state sadness preferences between time *t* to *t+1*. There were no cross-level interactions with STAI or BAI scores, suggesting that trait anxiety and anxiety symptom severity do not moderate sadness-sadness preference relations.

Finally, regarding *state happiness preferences*, results indicate that an individual's average reported state happiness and STAI scores were related to one's average level of state happiness preferences. Relatively higher levels of happiness and trait anxiety were related to greater preferences for happiness. No significant association was found between happiness at time *t* and the change in state happiness preferences from time *t* to *t+1*. Neither STAI nor BAI

total cores moderated the association between state happiness and changes in state happiness preferences.

Discussion

The current study investigated the relation between state emotion and emotion preferences as they relate to individual differences in trait anxiety and anxiety symptom severity. The first research aim was to examine the nature of emotion preferences in anxiety. Findings indicated that trait anxiety and anxiety symptom severity were positively associated with preferences to experience anxiety in daily life. Anxiety measures were not consistently associated with preferences for sadness, anger, or happiness. The second research aim was to investigate the directionality of emotion-emotion preference relations. Results suggested that the association between emotion and emotion preferences is bidirectional. We discovered that individuals' average level of a given emotion was positively associated with their preference for that emotion and that state anxiety positively predicted subsequent changes in one's preference to feel anxious. Results also revealed that trait emotion preferences (i.e., one's average preference for a given emotional state across the EMA period) were positively correlated with state levels of that emotion (e.g., greater levels of average anxiety preferences across the EMA period were associated with higher ratings of state anxiety at each time point). There was minimal evidence of state emotion preferences predicting subsequent changes in emotion. However, in line with the third research aim, there were significant, and differential, relations between state preferences for anxiety and subsequent levels of anxiety as a function of trait anxiety and symptom severity. In particular, among individuals with high trait anxiety, greater state preference for anxiety was associated with subsequent increases in anxiety. An opposite pattern was found when assessing anxiety symptom severity. Among individuals with more

severe symptoms, greater preference for anxiety was associated with less subsequent anxiety, whereas state anxiety preferences were positively correlated with subsequent anxiety among participants reporting relatively less severe symptoms of anxiety.

Relation to the Extant Literature

To our knowledge, the current study is the first to document that anxiety is associated with emotion preferences; higher levels of both trait anxiety and symptom severity are linked to relatively greater preference for anxiety. These findings are consistent with predictions stemming from worry-based models of anxiety (Borkovec, 1994; Newman & Llera, 2011), self-verification theory (Swann et al., 1992), and hypotheses related to emotion preferences put forth by Millgram and colleagues (2020). Although each of these aforementioned models implicate different underlying reasons, they converge in offering support for the notion that individuals with greater levels of anxiety exhibit relatively elevated preferences for state anxiety because that emotional state is perceived to be useful. Exploration of the relation between anxiety preferences and anxiety-related functions specific to each model – facilitating preparedness, avoidance of emotional instability, preferring familiar emotions, desiring emotions that verify one's sense of self – is needed to further elucidate the primary factors contributing to the enhanced preferences for anxiety among individuals with relatively more severe anxiety symptoms and high trait anxiety.

Evidence that individual differences in trait anxiety and anxiety symptom severity are associated with emotion preferences extends a growing body of research on emotion preferences as they relate to clinical phenomena. Indeed, prior research has demonstrated that individuals with major depression report relatively greater preferences for sadness and relatively lower preferences for happiness (Millgram et al., 2015; Yoon et al., 2019; Millgram et al., 2019). The

current findings also complement recent work documenting associations between anxiety symptoms and ideal affect, namely that individuals with relatively higher anxiety symptom severity value both high arousal positive and negative emotional states to a greater degree relative to individuals with less severe anxiety-related symptoms (Swerdlow, Pearlstein, & Johnson, 2019).

The current data demonstrate that only anxiety preferences explain unique variance in trait anxiety and anxiety symptom severity when considering all emotion preferences simultaneously. Although anxiety is characterized by broad emotion dysfunction (Brown, 2007; Kashdan, 2007), this unique relation may reflect the notion that state anxiety is the predominant emotional experience for people high with high trait anxiety or anxiety symptom severity; thus, those individuals may have stronger thoughts, attitudes, and feelings about that emotional state. Regardless of the underlying reason, the present results suggest that emotion preferences may play an important role in helping to understand the elevated levels of state anxiety, in particular, among individuals with greater trait anxiety or more severe anxiety symptoms.

The current study is also among the first to document the bidirectional relation between emotion and emotion preferences. Theoretical models of emotion preferences (Tamir, 2009b; Tamir, 2016) often conceptualize preferences as a temporal predecessor of state emotion, and the relation between preferences and emotion is thought to be mediated, at least in part, by the ways in which people attempt to modify their emotions, a concept known as emotion regulation (McRae & Gross, 2020). Consistent with these models, we find that greater trait preferences are associated with higher levels of a given emotional state. However, results also suggest that an individual's emotional state plays an important role in what they subsequently want to feel. Specifically, participants report greater preferences for emotional states that they typically

experience. Further, the present data reveal that variability in state anxiety is associated with subsequent changes in anxiety preferences such that, when people feel anxious, their desire to feel anxious increases. The concept of state emotion influencing emotion preferences complements the affect-as-information theory (Scott & Cervone, 2002). This theory posits that people may consider current emotional states as being reflective of important information that can support decision-making, and in this sense, people may desire to feel more of that emotion given its perceived value in aiding decision-making. Further exploration of the mechanisms underlying how and why state emotions influence emotion preferences is an important direction for future research.

Although results of the present study suggest that state emotion preferences do not generally predict subsequent changes in emotion, this is not the case when examining whether individual differences in trait anxiety and anxiety symptom severity moderate the relation between anxiety preferences and state anxiety. Indeed, this study is the first to show that individual differences in anxiety may influence the ways in which preferences are associated with experienced emotion. Unexpectedly, we see a divergence in the association between emotion preferences and subsequent emotion states across the two measures of anxiety. For those reporting relatively high trait anxiety, greater state preference for anxiety is associated with greater subsequent increases in anxiety. The relation between state anxiety preference and state anxiety among individuals with high trait anxiety is consistent with research on the relation between emotion preferences and emotion in depression (see Millgram et al., 2020, for a review). Furthermore, this finding supports the possibility that relative increases in preferences for anxiety may help to explain the elevated levels of anxiety that commonly characterize individuals with high trait anxiety.

In contrast, preference for anxiety is associated with subsequent decreases in anxiety among people reporting relatively greater anxiety symptom severity. Although unexpected, the inverse relation between emotion preferences and state anxiety in this group may reflect an underlying third variable or mechanism, such as a habituation process. The highly arousing nature of anxiety is difficult to sustain for prolonged periods of time and, instead, tends to habituate over time (Epstein, 1971). Thus, for people who experience chronically elevated levels of anxiety, further increasing anxiety, even when desired, may prove difficult given habituation processes. In contrast, individuals reporting lower BAI scores – those who do not experience chronic elevations in anxiety – show increases in state anxiety when they want to feel anxious. The notion that habituation of anxiety following enhanced preferences for state anxiety may be observed among people who report higher BAI scores, but not higher STAI scores, is further supported by the inherent differences between the measures. As previously described, compared to the STAI, the BAI more exclusively assesses physiological manifestations of anxiety, which are most sensitive to habituation. Of note, this possibility is merely speculative and requires further research. Though more work is needed to better understand the differential emotion preference-emotion relations across various manifestations of anxiety (trait anxiety, symptom severity), the current results highlight the importance of measuring anxiety comprehensively.

Limitations

The current study is not without limitations. In line with research showing that anxiety is a dimensional construct (Brown & Barlow, 2009), we examine the primary variables of interest as they relate to individual differences in trait anxiety and anxiety symptom severity. However, individuals with clinically-diagnosed anxiety disorders often exhibit the greatest level of emotion dysfunction, and, as such, it is important to investigate whether the current findings extend to

treatment-seeking clinical samples. Though the current study included participants who met criteria for a current or past anxiety disorder, replication in a sample of individuals seeking treatment for anxiety disorders would provide greater support for the notion that emotion preferences play an important role in understanding emotion dysfunction in anxiety.

In addition, in line with previously published EMA protocols, the current study relied on single-item measures of emotion and emotion preferences in order to mitigate participant burnout (Starr, 2015; Starr et al., 2017). It is commonly assumed that it is advantageous to use multiple items to measure a given variable because doing so minimizes threats to construct validity. However, there is evidence that single- and multi-item measures of similar constructs do not necessarily differ in their validity (Bergkvist & Rossiter, 2007). Further, others argue that using more items to measure a construct can actually undermine construct validity (Burisch, 1997). Nevertheless, future research comparing multi-item to single-item measures of state emotion and emotion preferences is needed to investigate the degree of divergence between both types of measurement and to document the strengths and limitations of each approach, particularly in the context of EMA-based research.

Finally, the current study includes data from a sample with a restricted age range and limited racial and ethnic diversity. These limitations are important given prior research showing that demographic and cultural factors are related to emotion preferences and similar constructs. Specifically, desires to maintain, or enhance, negative emotion and to decrease positive emotion are more prevalent among adolescents, whereas older age is associated with greater desires to maintain positive emotion and to decrease negative emotion (Riediger, Schmiedek, Wagner, & Lindenberger, 2009). Moreover, Tsai and colleagues (2007) have demonstrated that Americans placed more cultural value on high-arousal positive emotion states (e.g., excitement) relative to

low-arousal positive emotion states (e.g., serenity), in contrast to Chinese and other East Asian cultures. Future research with a more diverse developmental and cultural sample is certainly needed to better understand how anxiety may interact with age and culture to understand emotion preferences and their role in explaining emotion dysfunction within anxious samples.

Future Directions & Clinical Implications

Having begun to document the nature of emotion preferences in anxiety, a critical avenue for future research is to explore the association between emotion preferences and emotion regulation among anxious and non-anxious samples. As previously mentioned, emotion preference frameworks suggest that preferences influence emotional states through emotion regulation strategies (Tamir, 2009b; Tamir, 2016). An abundance of empirical research documents emotion regulation dysfunction across a variety of anxious samples (Hofmann, Sawyer, Fang, & Asnaani, 2012; Wirtz, Hofmann, Riper, & Berking, 2014; Mennin, McLaughlin, & Flanagan, 2009). Elevated levels of anxiety are maintained, in part, by the tendency to use certain emotion regulation strategies that typically maintain, or enhance, negative emotion (Cisler & Olatunji, 2012). However, to date, no study has yet examined whether enhanced preference for anxiety predicts engagement in regulatory strategies that serve to maintain or up-regulate anxiety over time. Moreover, investigation as to how interindividual factors, such as affective style (i.e., one's belief that an emotional state is tolerable) and emotion regulation flexibility (i.e., the tendency to adjust strategy use to fit a given situation), may modulate emotion preference-emotion regulation associations among individuals with and without anxiety disorders represents an exciting and promising next step in this line of research (see Hofmann et al., 2012 for a comprehensive model).

The present findings raise important treatment implications. In particular, they highlight a potential new treatment target (i.e., emotion preferences) for interventions aimed at addressing emotion dysfunction among individuals with significant anxiety. Cognitive-Behavioral Therapy (CBT) is widely considered the gold-standard treatment for anxiety (Norton & Price, 2007; Otte, 2011; Roshanaei-Moghaddam et al., 2011). CBT largely focuses on enhancing skills designed to tolerate or down-regulate the experience of anxiety and to disrupt behavioral processes (e.g., avoidance) that serve to maintain or increase anxiety over time. Though the exact relation between preferences and emotion regulation remains unclear, training individuals to use strategies aimed at down-regulating anxiety may be a moot point if that regulation attempt is not aligned with their preferences. Thus, in light of the current data, treatments for emotion dysfunction in anxiety may benefit from addressing emotion preferences in conjunction with enhancing cognitive and behavioral skills for managing anxiety and modifying processes that maintain anxiety.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*, 1–48.

Beck, A.T., Epstein, N., Brown, G., & Steer, R.A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, *56*, 893-897.

Beck, A. T., & Steer, R. A. (1991). Relationship between the Beck anxiety inventory and the Hamilton anxiety rating scale with anxious outpatients. *Journal of Anxiety Disorders*, *5*(3), 213-223.

Bergkvist, L., & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research*, *44*(2), 175-184.

Borkovec, T. D. (1994). *The nature, functions, and origins of worry.* In G. C. L. Davey & F. Tallis (Eds.), *Wiley series in clinical psychology. Worrying: Perspectives on theory, assessment and treatment* (p. 5–33). John Wiley & Sons.

Borkovec, T. D., & Inz, J. (1990). The nature of worry in generalized anxiety disorder: A predominance of thought activity. *Behaviour Research and Therapy*, *28*(2), 153-158.

Borkovec, T. D., & Roemer, L. (1995). Perceived functions of worry among generalized anxiety disorder subjects: Distraction from more emotionally distressing topics? *Journal of behavior Therapy and Experimental Psychiatry*, *26*(1), 25-30.

Brown, T. A. (2007). Temporal course and structural relationships among dimensions of temperament and DSM-IV anxiety and mood disorder constructs. *Journal of Abnormal Psychology*, *116*(2), 313-328.

Brown, T. A., & Barlow, D. H. (2009). A proposal for a dimensional classification system based on the shared features of the DSM-IV anxiety and mood disorders: Implications for assessment and treatment. *Psychological Assessment*, *21*(3), 256-271.

Brown, T. A., & Barlow, D. H. (2014). *Anxiety and Related Disorders Interview Schedule for DSM-5 (ADIS-5): Client Interview Schedule*. Oxford University Press.

Burisch, M. (1997). Test length and validity revisited. *European Journal of Personality*, *11*(4), 303-315.

Carver, C.S., & Scheier, M.F. (2000). On the structure of behavioral self-regulation. In Boekaerts, M., Pintrich, P.R., Zeidner, M. (Eds). *Handbook of Self-Regulation* (pp. 41-84). San Diego, CA, US: Academic Press.

Cisler, J. M., & Olatunji, B. O. (2012). Emotion regulation and anxiety disorders. *Current Psychiatry Reports*, *14*(3), 182-187.

Cox, B. J., Cohen, E. V. A., Direnfeld, D. M., & Swinson, R. P. (1996). Does the Beck Anxiety Inventory measure anything beyond panic attack symptoms?.*Behaviour Research and Therapy*, *34*(11-12), 949-954.

Elliot, A. J., & Thrash, T. M. (2002). Approach-avoidance motivation in personality: approach and avoidance temperaments and goals. *Journal of Personality and Social Psychology*, *82*(5), 804-818.

Elwood, L. S., Wolitzky-Taylor, K., & Olatunji, B. O. (2012). Measurement of anxious traits: a contemporary review and synthesis. *Anxiety, Stress & Coping*, *25*(6), 647-666.

Epstein, S. (1971). Heart rate, skin conductance, and intensity ratings during experimentally induced anxiety: Habituation within and among days. *Psychophysiology*, *8*(3), 319-331.

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: exposure to corrective information. *Psychological Bulletin*, *99*(1), 20-35.

Ford, B. Q., & Tamir, M. (2014). Preferring familiar emotions: As you want (and like) it? *Cognition & Emotion*, *28*(2), 311-324.

Forgas, J. P. (1998). On feeling good and getting your way: Mood effects on negotiator cognition and bargaining strategies. *Journal of Personality and Social Psychology*, *74*(3), 565-577.

Fydrich, T., Dowdall, D., & Chambless, D. L. (1992). Reliability and validity of the Beck Anxiety Inventory. *Journal of Anxiety Disorders*, *6*(1), 55-61.

Goldstein, A. J., & Chambless, D. L. (1978). A reanalysis of agoraphobia. *Behavior Therapy*, *9*(1), 47-59.

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. (2015). A critique of the cross-lagged panel model. *Psychological methods*, *20*(1), 102-116.

Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, *42*(2), 377-381.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, *64*(6), 1152-1168.

Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, *36*(5), 427-440.

Hofmann, S. G., Sawyer, A. T., Fang, A., & Asnaani, A. (2012). Emotion dysregulation model of mood and anxiety disorders. *Depression and Anxiety*, *29*(5), 409-416.

Kashdan, T. B. (2007). Social anxiety spectrum and diminished positive experiences: Theoretical synthesis and meta-analysis. *Clinical Psychology Review*, *27*(3), 348-365.

Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, *21*(3), 169-184.

Knowles, K. A., & Olatunji, B. O. (2020). Specificity of trait anxiety in anxiety and depression: Meta-analysis of the State-Trait Anxiety Inventory. *Clinical Psychology Review*, 101928.

Kruglanski, A. W., Jasko, K., Chernikova, M., Milyavsky, M., Babush, M., Baldner, C., & Pierro, A. (2015). The rocky road from attitudes to behaviors: Charting the goal systemic course of actions. *Psychological Review*, *122*, 598-620.

Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. (2002). A theory of goal systems. In Zanna, M.P., (Ed). *Advances in Experimental Social Psychology*, Vol. 34 (pp. 331-378). San Diego, CA, US: Academic Press.

Kuppens, P., & Verduyn, P. (2017). Emotion dynamics. *Current Opinion in Psychology*, *17*, 22-26.

Lang, P. J., & Cuthbert, B. N. (1984). Affective information processing and the assessment of anxiety. *Journal of Behavioral Assessment*, *6*(4), 369-395.

Larsen, R. J. (2000). Toward a science of mood regulation. *Psychological Inquiry*, 11(3), 129-141.

Leyfer, O. T., Ruberg, J. L., & Woodruff-Borden, J. (2006). Examination of the utility of the Beck Anxiety Inventory and its factors as a screener for anxiety disorders. *Journal of Anxiety Disorders*, *20*(4), 444-458.

Lewis, A. (1970). The ambiguous word" anxiety". *International Journal of Psychiatry*, *9*, 62-79.

Llera, S. J., & Newman, M. G. (2014). Rethinking the role of worry in generalized anxiety disorder: Evidence supporting a model of emotional contrast avoidance. *Behavior Therapy*, *45*(3), 283-299.

McRae, K., & Gross, J. J. (2020). Emotion regulation. *Emotion*, *20*(1), 1-9.

Mennin, D. S., McLaughlin, K. A., & Flanagan, T. J. (2009). Emotion regulation deficits in generalized anxiety disorder, social anxiety disorder, and their co-occurrence. *Journal of Anxiety Disorders*, *23*(7), 866-871.

Millgram, Y., Huppert, J. D., & Tamir, M. (2020). Emotion Goals in Psychopathology: A New Perspective on Dysfunctional Emotion Regulation. *Current Directions in Psychological Science*, *29*(3), 242-247.

Millgram, Y., Joormann, J., Huppert, J. D., Lampert, A., & Tamir, M. (2019). Motivations to experience happiness or sadness in depression: Temporal stability and implications for coping with stress. *Clinical Psychological Science*, *7*(1), 143-161.

Millgram, Y., Joormann, J., Huppert, J. D., & Tamir, M. (2015). Sad as a matter of choice? Emotion-regulation goals in depression. *Psychological Science*, *26*(8), 1216-1228.

Mowrer, O. H. (1960). *Learning Theory and Behavior.* John Wiley & Sons Inc.

Newman, M. G., & Llera, S. J. (2011). A novel theory of experiential avoidance in generalized anxiety disorder: A review and synthesis of research supporting a contrast avoidance model of worry. *Clinical Psychology Review*, *31*(3), 371-382.

Norton, P. J., & Price, E. C. (2007). A meta-analytic review of adult cognitive-behavioral treatment outcome across the anxiety disorders. *Journal of Nervous and Mental Disease*, *195*(6), 521-531.

Osman, A., Kopper, B. A., Barrios, F. X., Osman, J. R., & Wade, T. (1997). The Beck Anxiety Inventory: Reexamination of factor structure and psychometric properties. *Journal of Clinical Psychology*, *53*(1), 7-14.

Otte, C. (2011). Cognitive behavioral therapy in anxiety disorders: current state of the evidence. *Dialogues in Clinical Neuroscience*, *13*(4), 413-421.

Reiss, S. (1991). Expectancy model of fear, anxiety, and panic. *Clinical Psychology Review*, *11*(2), 141-153.

Reiss, S., & McNally, R. J. (1985). Expectancy model of fear. In S. Reiss & R. R. Bootzin (Eds.), *Theoretical issues in behavior therapy* (pp. 107-121). Academic Press.

Riediger, M., Schmiedek, F., Wagner, G. G., & Lindenberger, U. (2009). Seeking pleasure and seeking pain: Differences in prohedonic and contra-hedonic motivation from adolescence to old age. *Psychological Science*, *20*(12), 1529-1535.

Roshanaei-Moghaddam, B., Pauly, M. C., Atkins, D. C., Baldwin, S. A., Stein, M. B., & Roy-Byrne, P. (2011). Relative effects of CBT and pharmacotherapy in depression versus anxiety: is medication somewhat better for depression, and CBT somewhat better for anxiety?.*Depression and Anxiety*, *28*(7), 560-567.

Scott, W. D., & Cervone, D. (2002). The impact of negative affect on performance standards: Evidence for an affect-as-information mechanism. *Cognitive Therapy and Research*, *26*(1), 19-37.

Singer, J. D. & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York, NY: Oxford University Press.

Spielberger, C. D. (1966). Theory and research on anxiety. In C. D. Spielberger (Ed). *Anxiety and Behavior* (pp. 3-20). New York and London: Academic Press.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Starr, L. R. (2015). When support seeking backfires: Co-rumination, excessive reassurance seeking, and depressed mood in the daily lives of young adults. *Journal of Social and Clinical Psychology*, *34*(5), 436-457.

Starr, L. R., Hershenberg, R., Li, Y. I., & Shaw, Z. A. (2017). When feelings lack precision: Low positive and negative emotion differentiation and depressive symptoms in daily life. *Clinical Psychological Science*, *5*(4), 613-631.

Swann, W. B., Wenzlaff, R. M., & Tafarodi, R. W. (1992). Depression and the search for negative evaluations: More evidence of the role of self-verification strivings. *Journal of Abnormal Psychology, 101*(2), 314–317.

Swerdlow, B. A., Pearlstein, J. G., & Johnson, S. L. (2019). Multivariate associations of ideal affect with clinical symptoms. *Emotion*, *19*(4), 617-628.

Tamir, M. (2009a). Differential preferences for happiness: Extraversion and trait-consistent emotion regulation. *Journal of Personality*, *77*(2), 447-470.

Tamir, M. (2009b). What do people want to feel and why? Pleasure and utility in emotion regulation. *Current Directions in Psychological Science*, 18(2), 101-105.

Tamir, M. (2016). Why do people regulate their emotions? A taxonomy of motives in emotion regulation. *Personality and Social Psychology Review*, 20(3), 199-222.

Tamir, M., Chiu, C. Y., & Gross, J. J. (2007). Business or pleasure? Utilitarian versus hedonic considerations in emotion regulation. *Emotion*, 7(3), 546-554.

Tamir, M., & Ford, B. Q. (2009). Choosing to be afraid: Preferences for fear as a function of goal pursuit. *Emotion*, *9*(4), 488-497.

Tamir, M., Mitchell, C., & Gross, J. J. (2008). Hedonic and instrumental motives in anger regulation. *Psychological Science*, *19*(4), 324-328.

Thompson, R. J., Kircanski, K., & Gotlib, I. H. (2016). The grass is not as green as you think: Affect evaluation in people with internalizing disorders. *Journal of Affective Disorders*, *203*, 233-240.

Thompson, R. J., Mata, J., Jaeggi, S., Buschkuehl, M., Jonides, J., & Gotlib, I. H. (2012). The everyday emotional experiences of adults with major depressive disorder: Examining emotional instability, inertia, and reactivity. *Journal of Abnormal Psychology, 121*(4)*,* 819-829.

Tsai, J. L. (2007). Ideal affect: Cultural causes and behavioral consequences. *Perspectives on Psychological Science*, *2*(3), 242-259.

Tsai, J. L., Louie, J. Y., Chen, E. E., & Uchida, Y. (2007). Learning what feelings to desire: Socialization of ideal affect through children's storybooks. *Personality and Social Psychology Bulletin*, *33*(1), 17-30.

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology*, *90*(2), 288-307.

Tsai, J. L., Miao, F. F., Seppala, E., Fung, H. H., & Yeung, D. Y. (2007). Influence and adjustment goals: sources of cultural differences in ideal affect. *Journal of Personality and Social Psychology*, *92*(6), 1102-1117.

van Dijk, E., van Kleef, G. A., Steinel, W., & van Beest, I. (2008). A social functional approach to emotions in bargaining: When communicating anger pays and when it backfires. *Journal of Personality and social Psychology*, *94*(4), 600-614.

van Kleef, G. A., De Dreu, C. K., & Manstead, A. S. (2004). The interpersonal effects of anger and happiness in negotiations. *Journal of Personality and Social Psychology*, *86*(1), 57-76.

Vanderlind, W. M., Millgram, Y., Baskin-Sommers, A. R., Clark, M. S., & Joormann, J. (2020). Understanding positive emotion deficits in depression: From emotion preferences to emotion regulation. *Clinical Psychology Review*, *76*, 101826.

Watson, D., Clark, L. A., & Carey, G. (1988). Positive and negative affectivity and their relation to anxiety and depressive disorders. *Journal of Abnormal Psychology*, *97*(3), 346-353.

Wechsler, D. (2011). *Wechsler Abbreviated Scale of Intelligence–Second Edition (WASI-II)*. San Antonio, TX: PsychCorp.

Wirtz, C. M., Hofmann, S. G., Riper, H., & Berking, M. (2014). Emotion regulation predicts anxiety over a five-year interval: A cross-lagged panel analysis. *Depression and Anxiety*, *31*(1), 87-95.

Wu, H., Mata, J., Furman, D. J., Whitmer, A. J., Gotlib, I. H., & Thompson, R. J. (2017). Anticipatory and consummatory pleasure and displeasure in major depressive disorder: An experience sampling study. *Journal of Abnormal Psychology*, *126*(2), 149-159.

Yoon, S., Verona, E., Schlauch, R., Schneider, S., & Rottenberg, J. (2019). Why do depressed people prefer sad music?. *Emotion*, *20*(4), 613-624.

Table 1. *Regression models predicting trait anxiety and anxiety symptoms*.

Variable	Parameter	B	SE_B	*t*	*p*	95% bootstrap CI
STAI-T						
	Intercept	27.82	5.62	4.95	<.001	18.75, 37.97
	Anxiety preferences	1.05	0.37	2.84	.006	0.16, 1.77
	Anger preferences	-0.43	0.74	0.58	.563	-2.21, 1.57
	Sadness preferences	-0.28	0.47	0.60	.554	-1.87, 0.59
	Happiness preferences	0.10	0.07	1.42	.159	-0.03, 0.23
BAI						
	Intercept	-0.40	4.03	0.10	.921	-10.69, 5.35
	Anxiety preferences	0.91	0.27	3.42	.001	0.26, 1.72
	Anger preferences	-1.21	0.53	2.28	.026	-2.69, 0.06
	Sadness preferences	0.33	0.34	0.99	.328	-0.49, 1.03
	Happiness preferences	0.09	0.05	1.68	.098	-0.00, 0.24

Note. STAI-T= State-Trait Anxiety Inventory – Trait version; BAI=Beck Anxiety Inventory.

Table 2. *Means, standard deviations and intraclass correlation coefficients for study variables*.

Variable	*M*	*SD*	ICC
State anxiety	16.35	21.70	.35
State anger	10.35	18.41	.30
State sadness	14.94	21.68	.47
State happiness	54.53	24.30	.41
Anxiety preference	4.81	11.11	.28
Anger preference	3.43	9.89	.18
Sadness preference	3.91	9.98	.26
Happiness preference	72.56	23.89	.46

Table 3. Estimated parameters from multilevel models examining changes in state emotion.

Model	Fixed effects					Random effects			
	Effect	Estimate.	*SE*	*t*	*p*	Effect	Estimate	CI_{95}(*SD*)	
State anxiety at t+1	Intercept (β_{00})	14.08	1.27	11.10	<.001	Intercept	9.63	7.78	11.93
	State anxiety at t (β_{10})	0.05	0.02	2.33	.020	Anxiety preference at t	0.25	0.14	0.43
	State Anxiety preference at t (β_{20})	0.02	0.08	0.27	.791	Time	0.39	0.31	0.48
	Average anxiety preference (β_{03})	1.13	0.17	6.63	<.001	Correlation Intercept - State anxiety preference at t	0.37	-0.13	0.72
	STAI-T (β_{01})	0.24	0.12	2.01	.048	Correlation Intercept - Time	-.56	-.73	-.33
	BAI (β_{02})	0.59	0.17	3.59	<.001	Correlation State anxiety preference at t - Time	-.49	-.78	-.03
	Time (β_{30})	0.06	0.05	1.18	.237	Residual	0.15	0.10	0.22
	State anxiety preference at t * STAI-T (β_{21})	0.02	0.01	2.85	.004				
	State anxiety preference at t * BAI (β_{22})	-0.04	0.01	3.84	<.001				
State anger at t+1	Intercept (β_{00})	7.97	1.11	7.18	<.001	Intercept	8.55	6.98	10.48
	State anger at t (β_{10})	-0.02	0.02	0.77	.440	Anger preference at t	0.28	0.13	0.59
	State anger preference at t (β_{20})	0.05	0.09	0.50	.615	Time	0.32	0.6	0.38
	Average anger preference (β_{03})	1.08	0.18	5.90	<.001	Correlation Intercept - State anger preference at t	.43	-.19	.81
	STAI-T (β_{01})	0.24	0.10	2.28	.026	Correlation Intercept - Time	-.57	-.74	-.35
	BAI (β_{02})	0.38	0.14	2.65	.010	Correlation State anger preference at t - Time	-.10	-.46	.29
	Time (β_{30})	0.03	0.04	0.82	.410	Residual	0.23	0.18	0.29
	State anger preference at t * STAI-T (β_{21})	0.01	0.01	0.59	.557				
	State anger preference at t * BAI (β_{22})	0.00	0.01	0.07	.945				
State sadness at t+1	Intercept (β_{00})	12.52	1.50	8.37	<.001	Intercept	12.25	10.17	14.77
	State sadness at t (β_{10})	0.09	0.02	4.13	<.001	State sadness preference at t	0.37	0.23	0.61
	Sadness preference at t (β_{20})	-0.19	0.10	-1.88	.060	Time	0.38	0.31	0.46
	Average sadness preference (β_{03})	1.04	0.24	4.39	<.001	Correlation Intercept - State sadness preference at t	.17	-.68	.82
	STAI-T (β_{01})	0.60	0.16	3.81	<.001	Correlation Intercept – Time	-.45	-.64	-.20
	BAI (β_{02})	0.44	0.22	2.02	.047	Correlation State sadness preference at t - Time	-.39	-.67	-.03
	Time (β_{30})	0.07	0.05	1.39	.016	Residual	0.12	0.07	0.19
	State sadness preference at t * STAI-T (β_{21})	-0.01	0.01	-0.83	.406				
	State sadness preference at t * BAI (β_{22})	0.03	0.01	2.12	.034				
State happiness at t+1	Intercept (β_{00})	53.01	1.64	32.25	<.001	Intercept	12.87	10.55	15.70
	State happiness at t (β_{10})	0.04	0.02	1.76	.079	Happiness preference at t	0.08	0.04	0.19
	State happiness preference at t (β_{20})	0.01	0.03	0.40	.686	Time	0.33	0.25	0.42
	Average happiness preference (β_{03})	0.63	0.08	8.27	<.001	Correlation Intercept - State happiness preference at t	.37	-.43	.85
	STAI-T (β_{01})	-0.51	0.16	3.20	.002	Correlation Intercept - Time	-.52	-.71	-.26
	BAI (β_{02})	-0011	0.22	0.51	.615	Correlation State happiness preference at t - Time	-.61	-.92	.15
	Time (β_{30})	0.05	0.05	1.13	.257	Residual	0.11	0.06	0.18
	State happiness preference at t * STAI-T (β_{21})	0.01	0.00	1.46	.144				
	State happiness preference at t * BAI (β_{22})	0.00	0.01	0.08	.938				

Table 4. Estimated parameters from multilevel models examining changes in state emotion preferences.

Model	Fixed effects					Random effects			
	Effect	Estimate.	*SE*	*t*	*p*	Effect	Estimate	CI_{95}(*SD*)	
State anxiety preference at t+1	Intercept (β_{00})	3.87	0.74	5.20	<.001	Intercept	6.09	5.07	7.33
	State anxiety preference at t (β_{10})	-0.15	0.02	7.08	<.001	State anxiety at t	0.04	0.03	0.07
	State anxiety at t (β_{20})	0.04	0.01	3.26	.001	Time	0.19	0.16	0.24
	Average anxiety (β_{03})	0.30	0.04	6.77	<.001	Correlation Intercept - State anxiety at t	.60	.20	.83
	STAI-T (β_{01})	0.02	0.07	0.22	.825	Correlation Intercept - Time	-.69	-.81	-.53
	BAI (β_{02})	-0.17	0.09	1.76	.083	Correlation State anxiety at t - Time	-.13	-.57	.37
	Time (β_{30})	-0.01	0.03	0.33	.745	Residual	0.21	0.15	0.29
	State anxiety at t * STAI-T (β_{21})	0.00	0.00	1.21	.227				
	State anxiety at t * BAI (β_{22})	-0.00	0.00	1.39	.164				
State anger preference at t+1	Intercept (β_{00})	1.55	0.43	3.63	<.001	Intercept	3.49	2.90	4.20
	State anger preference at t (β_{10})	-0.03	0.02	1.59	.112	State anger at t	0.03	0.02	0.04
	State anger at t (β_{20})	0.01	0.01	1.01	.312	Time	0.15	0.12	0.17
	Average anger (β_{03})	0.21	0.04	5.43	<.001	Correlation Intercept - State anger at t	.51	.03	.79
	STAI-T (β_{01})	0.02	0.05	0.33	.743	Correlation Intercept - Time	-.38	-.58	-.15
	BAI (β_{02})	-0.12	0.07	1.82	.073	Correlation State anger at t - Time	.34	-.09	.67
	Time (β_{30})	0.03	0.02	1.60	.111	Residual	0.16	0.11	0.23
	State anger at t * STAI-T (β_{21})	0.00	0.00	0.44	.664				
	State anger at t * BAI (β_{22})	0.00	0.00	0.99	.323				
State sadness preference at t+1	Intercept (β_{00})	1.85	0.44	4.21	<.001	Intercept	3.54	2.94	4.26
	State sadness preference at t (β_{10})	-0.04	0.02	2.06	.400	State sadness at t	0.04	0.02	0.06
	State sadness at t (β_{20})	0.02	0.01	1.57	.117	Time	0.17	0.14	0.20
	Average sadness (β_{03})	0.11	0.03	3.42	.001	Correlation Intercept - State sadness at t	.47	.08	.74
	STAI-T (β_{01})	-0.02	0.06	0.39	.698	Correlation Intercept - Time	-.06	-.28	.17
	BAI (β_{02})	-0.09	0.07	1.14	.259	Correlation State sadness at t - Time	.25	-.12	.56
	Time (β_{30})	0.05	0.02	2.39	.017	Residual	0.08	0.04	0.16
	State sadness at t * STAI-T (β_{21})	-0.00	0.00	0.21	.833				
	State sadness at t * BAI (β_{22})	0.00	0.00	0.09	.928				
State happiness preference at t+1	Intercept (β_{00})	74.20	1.63	45.50	<.001	Intercept	13.20	10.96	15.89
	State happiness preference at t (β_{10})	-0.01	0.02	0.45	.656	State happiness at t	0.05	0.02	0.14
	State happiness at t (β_{20})	-0.00	0.02	0.13	.900	Time	3.34	0.27	0.43
	Average happiness (β_{03})	0.75	0.09	8.15	<.001	Correlation Intercept - State happiness at t	.23	-.49	.76
	STAI-T (β_{01})	0.39	0.18	2.16	.034	Correlation Intercept - Time	-.38	-.60	-.12
	BAI (β_{02})	0.23	0.24	0.96	.342	Correlation State happiness at t - Time	-.21	-.68	.39
	Time (β_{30})	-0.03	0.05	0.69	.492	Residual	0.15	0.10	0.22
	State happiness at t * STAI-T (β_{21})	0.00	0.00	0.42	.677				
	State happiness at t * BAI (β_{22})	-0.00	0.00	0.27	.789				

Footnotes

[1] Emotion preferences are related to, but are not synonymous with, other emotion processes (Vanderlind et al., 2020). For example, despite clear degrees of overlap, emotion preferences are dissociable from emotion valuations (Kruglanski et al., 2002; Kruglanski et al., 2015). Tsai and colleagues (2006) describe ideal affect as emotional states that are valued, or ideally wanted. Ideal affect is a relatively stable construct that is greatly influenced by culture and socialization (Tsai, 2007; Tsai, Louie, Chen, & Uchida, 2007). Whereas valuation involves broad affective states that are generally considered to be ideal, emotion preferences refer to specific emotional states that may vary between and within contexts. Further, what people want does not always align with their ideals (Carver & Scheier, 2000; Kruglanski et al., 2002), and this divergence extends to emotional states. While happiness is considered ideal in many cultures (Tsai, 2007), there are situations where negative emotions are preferred.

In addition to ideal affect, there is a growing body of work on should affect, sometimes referred to as ought affect. Should affect refers to expectations as to how one is supposed to feel; such expectations are shaped by individual differences (e.g., perfectionism), social comparison, and perceived notions about how other people think that one should feel in a given situation (Thompson, Kircanski, & Gotlib, 2016). Thompson and colleagues describe should affect as having a stable trait component. Stability may stem from the notion that certain situations are expected to consistently entail a given emotional experience, for example. However, compared to ideal affect, should affect is posited to be more dynamic in nature (Thompson et al., 2016; Tsai et al., 2006). Indeed, Thompson and colleagues (2016) theorize that, if ideal and should affect were measured over time and directly compared, then one would observe more within-person variance in should affect relative to ideal affect. Similar to the distinction between ideal

affect and emotion preferences, should affect, too, does not always align with how people want to feel. For instance, though someone may believe that they should feel sad while attending a funeral, that person may instead prefer to feel happy and to celebrate the life of someone who recently passed away. Similar to should affect, though, emotion preferences are conceptualized as having a trait component but are also influenced by context (Tamir 2009b; Tamir 2016).

[2] Sensitivity analyses demonstrated that individual differences in depressive symptom levels (BDI-II) did not alter the pattern of findings reported in the paper. The output of these analyses is available upon request.