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Worry as Coping: The Roles of Worry Beliefs, Anxiety, and Emotion Regulation

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by

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ABSTRACT

High-anxious individuals may be particularly vulnerable to emotion dysregulation and overreliance on maladaptive coping strategies such as worry (e.g., Mennin et al., 2005). The existence of contradictory theories regarding the role of worry in anxious individuals' emotion regulation raises questions about what beliefs may undergird the use of worry. I collected data via an online survey of college students to examine associations between beliefs about worry and worry behavior, as well as associations among trait anxiety, contrast avoidance, and beliefs about worry. I found that affective beliefs predicted worry behavior over and above more-commonly studied instrumental beliefs. I also found a main effect of contrast avoidance on affective beliefs about worry. The association between trait anxiety and worry was not significant. These findings highlight the importance of affective beliefs and contrast avoidance in developing a more complete conceptualization of beliefs about worry. Implications for treatments and future research are discussed.

INDEX WORDS: Anxiety, Emotion Regulation, Worry, Instrumental Beliefs, Affective Beliefs, Contrast Avoidance

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DEDICATION

This document is dedicated to my family, for fostering a love of science and learning, to my friends who inspire, encourage, and challenge me every day, and to my partner for reminding me to find moments of rest and joy. I am eternally grateful for their support.

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1 INTRODUCTION

Emotion dysregulation encompasses a set of difficulties with responding adaptively and flexibly to emotions as they arise and managing them as they unfold and evolve over time (Gratz & Roemer, 2004). Emotion dysregulation might, for example, manifest as a tendency to have emotional experiences that feel particularly intense or uncontrollable, or as an inability to cope with emotions, regardless of their perceived intensity. This constellation of related problems is central to many types of psychopathology, including anxiety (Sheppes et al., 2015).

Both anxiety disorders and elevated trait anxiety are associated with emotion dysregulation, and researchers have suggested that emotion dysregulation is a risk factor for the development of anxiety disorders (e.g., Campbell-Sills et al., 2014; Mennin et al., 2005; Salters-Pedneault et al., 2006). High-anxious individuals' emotion dysregulation may be particularly characterized by high emotional intensity, difficulty identifying emotions, and trouble with emotion regulation (ER) strategy selection and use (Mennin et al., 2005). Notably, individuals with high anxiety report limited access to effective strategies for coping with their emotions (Salters-Pedneault et al., 2006). In other words, highly anxious people are more likely than low-anxious peers to report feeling unable to do anything to alleviate their own negative emotions, and thus to believe negative emotions will persist for a long time (Gratz & Roemer, 2004; Salters-Pedneault et al., 2006).

The research literature leaves it unclear whether highly anxious individuals' limited access to coping strategies arises from a lack of awareness of potential coping options or difficulty remembering and using options in the moment. Either way, this limited access may prevent anxious individuals from responding constructively in the face of emotional challenges. Moreover, whether or not they possess an adequate repertoire of coping or regulatory strategies,

anxious individuals may depend excessively on maladaptive means of emotion regulation, such as emotional suppression or worry (i.e., engaging in repetitive thoughts that are future-oriented and negatively valenced; Mennin et al., 2002).

Indeed, in his metacognitive theory of generalized anxiety disorder (GAD), Wells (1995) asserted, despite providing little evidence to substantiate this claim, that highly anxious individuals may use worry as their primary coping strategy. On the surface, this idea seems counterintuitive; many studies have shown that worrying generates negative affect, and thus worrying seems unlikely to function as a useful strategy for coping with negative emotions (see Newman & Llera, 2011 for a review). However, given the high frequency with which anxious individuals (e.g., those with GAD or subthreshold GAD) endorse worrying (Gonçalves & Byrne, 2013), it is possible that worry serves emotion regulation functions that are not superficially apparent.

In attempts to explain why anxious individuals might rely on worry in the face of distressing circumstances, researchers have proposed several theories regarding the role of worry in anxious individuals' emotion regulation (e.g., Borkovec et al., 2004; Newman & Llera, 2011). Although each of these theories has empirical support (e.g., Hazlett-Stevens & Borkovec, 2001; Llera & Newman, 2014), they offer ideas that are in many ways contradictory. Moreover, even if taken together, they present an incomplete picture of why people might worry.

One way to help complete this picture is to conceptualize worry as the result of a decision about how to behave and to draw on ideas from the broader literature about behavioral decision making for insight into why individuals may choose, deliberately or not, to engage in worry behavior (e.g., Ajzen, 1991; Conner et al., 2013; Lawton et al., 2007; Trafimow & Sheeran, 1998). This literature focuses on the relative contributions of varied factors to the process of

forming an intention to perform certain behaviors. Behavioral decision-making researchers have investigated both explicit and implicit decision-making processes, making it possible to apply this body of work to behaviors such as worry, which people may engage in without knowingly electing to do so. Among the many factors that may contribute to intentions to perform behaviors, beliefs are of particular relevance to the study of worry, given their importance in psychopathology in general (Kube & Rosencrantz, 2021) and suggestions that worry-related beliefs may be useful for distinguishing pathological from adaptive worry (Wells, 2010).

I designed the current study to address gaps in the worry literature, with the overarching aim of expanding our knowledge about the beliefs that undergird people's tendencies to worry. I was also interested in clarifying how such beliefs relate to the use of this coping strategy among people who vary as a function of trait anxiety. I focused on beliefs that may help answer questions about the role of worry in anxious individuals' emotion regulation attempts. Specifically, I examined a) people's expectancy beliefs about the impact of worrying on their emotions, b) how these beliefs might relate to worry behavior, c) how trait anxiety might be associated with these beliefs, and d) how particular emotion regulation goals or tendencies might moderate the association between trait anxiety and expectancy beliefs.

In the following sections, I review research that provides a foundation for my hypotheses. First, I define and discuss the construct of worry, as well as theories regarding its role in emotion regulation and evidence supporting these theories. Although there are many theories of worry, I focus primarily on those that emphasize the interactions among worry and emotional experiences and regulation. I then review the literature on beliefs, including the distinction between instrumental and affective beliefs, in relation to emotion regulation decisions. In this discussion of beliefs, I present the theory of planned behavior (Ajzen, 1991) and suggest a novel application

of this theory to structure our understanding of how beliefs may predict engagement in worry behavior. Last, I include a brief overview of the current study.

1.1 Current Conceptualizations of Worry

Worry is typically defined in the research literature as a pattern of repetitive, negatively valenced thoughts generated in anticipation of uncertain future events (Barlow, 2002; Borkovec, 1985; Borkovec et al., 1998; Holaway et al., 2006). It is also a goal-directed activity comprising, by one account, "an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes" (Borkovec et al., 1983, p. 9). However, evidence suggests that worry does not usually lead to the generation of effective solutions to problems (Davey, 1994), which raises questions about why individuals so frequently engage in this type of thinking.

Worry is closely associated with anxiety. Some researchers have suggested that worry may simply be the core cognitive component of anxiety (Borkovec, 1985). However, in a series of three studies, Davey and colleagues (1992) found evidence that worry and anxiety are distinct constructs, demonstrating different sources of variance for each. Thus, whereas the close association between worry and anxiety has led some to question the utility of studying worry as its own construct, the counterargument, that the study of worry may be vital to understanding the nature of anxiety and developing treatments for it, is compelling (Borkovec et al., 2004).

Worry is also closely related to other constructs that involve negative, repetitive thoughts (e.g., rumination) and is sometimes studied in tandem with these related constructs under the umbrellas of perseverative cognition (Ottaviani et al., 2016), negative self-referential processing (NSRP; Mennin & Fresco, 2013), or repetitive negative thought (RNT; Ehring & Behar, 2020). Although the proposed study will focus on worry alone, beliefs about and functions of worry and

other forms of perseverative cognition may be similar, and findings may inform our understanding of multiple constructs.

Worry is a normative experience (Borkovec et al., 1991) that serves varied functional and adaptive purposes (Mennin & Fresco, 2013). Consequently, psychologists have struggled to identify boundaries that distinguish pathological from non-pathological worry. Holaway and colleagues (2006) suggested that worry becomes pathological when it occurs frequently, is perceived as difficult to control, and relates to a broad number of topics. Davey and colleagues (1992) argued that worry in isolation is adaptive, citing evidence of associations with problem-focused coping and information seeking, but that the addition of anxiety to worry leads to a pathological presentation.

In his metacognitive theory of GAD, Wells (1995, 2010) classified normative worry, which he labels Type 1 Worry, as worry that helps people to anticipate, avoid, or solve problems and is associated with positive beliefs about worry. Pathological worry, or Type 2 Worry, is metacognitive worry about worry, associated with negative beliefs such as worry being uncontrollable and/or having negative mental and physical health consequences (Wells 2010). Wells (2010) argued that Type 2 Worry leads to the development of GAD; however, there appears to be insufficient prospective longitudinal evidence to support this claim. Nevertheless, many worry researchers have found that people who endorse high levels of anxiety or meet diagnostic criteria for anxiety disorders experience, understand, and enact worry in ways that are distinct from low-anxious peers (e.g., Borkovec & Roemer, 1995; Davis & Valentiner, 2000; Newman & Llera, 2011).

Partially due to the lack of consensus about what comprises pathological worry, it is challenging to set precise clinical cutoffs that differentiate normative worry from worry that is

excessive or impairing. Persistent and excessive worry is a core feature of GAD; however, only a minority of individuals with high levels of worry meet full diagnostic criteria (American Psychiatric Association, 2013; Ruscio, 2002). Moreover, worry and other types of perseverative cognition manifest regularly in the context of multiple psychological disorders, including major depressive disorder (MDD; Newman & Llera, 2011), obsessive compulsive disorder (OCD; Dar & Iqbal, 2015), and social anxiety disorder (SAD; McEvoy et al., 2018). Thus, worry may be most usefully conceptualized as a transdiagnostic construct that merits study both within and outside the context of diagnosable DSM disorders (Ehring & Behar, 2020). In fact, researchers have suggested that worry specifically and NSRP more broadly may be particularly useful transdiagnostic constructs, given their prominence in both subclinical distress and treatment-refractory clinical profiles, highlighting a need for understanding that may facilitate development of targeted treatments (Ehring & Behar, 2020; Mennin & Fresco, 2013).

1.2 Worry and Emotion Regulation

Even if Wells' (1995) assertion that worry may be the coping strategy of choice for anxious individuals is true, it remains unclear *why* people vulnerable to anxiety might default to worry in order to regulate their emotions. This question is particularly puzzling because people, especially those with pathological anxiety, typically describe worry as an unpleasant experience (Ruscio & Borkovec, 2003), and thus should presumably opt to discontinue worry in favor of different strategies that are less likely to be distressing. In attempts to address this question, researchers have proposed several potential functions for worry in the context of ER. Notably, many of these functions may operate outside of individuals' awareness, which might help explain why people persist in using a coping approach that they experience consciously as unrewarding.

In their cognitive avoidance theory of worry, for instance, Borkovec and colleagues (2004) suggested that highly anxious individuals worry to avoid negative emotions—particularly the affective components of anxiety. They argued that worry is an abstract, verbal-linguistic process that enables avoidance of emotion-provoking negative imagery. This idea is based on evidence that imagery begets affect, where verbal thought does not (see Holmes & Mathews, 2010 for a review). For example, imagining an emotional scene produces high levels of physiological responding and perceived anxiety whereas verbal articulation of the same scene produces very little of either (Vrana et al., 1986). Furthermore, Borkovec and colleagues pointed to evidence that worrying prior to exposure to images of a feared stimulus reduces or eliminates cardiovascular responses to those images, whereas prior relaxation leads to strong initial cardiovascular responses during exposure (Sibrava & Borkovec, 2006). In other words, worry may mute physiological responses to anxiety-provoking stimuli.

In practice, according to Borkovec and colleagues' theory, when distressing images come to mind, anxious people shift their cognitive resources to worrying. The linguistic nature of worrying causes the image, and accompanying negative affect, to fade away. This process is negatively reinforcing, given that worrying may halt or avoid somatic anxiety (Borkovec et al., 2004). In sum, the cognitive avoidance theory suggests that highly anxious individuals worry to avoid, or down-regulate, negative emotion.

Recent information-processing models of perseverative thinking (including worry) suggest a similar function. These researchers claim that those predisposed to worry rely on a "better-safe-than-sorry" (BSTS) processing heuristic, wherein they prioritize near-term avoidance of negative mood over elaborative processing of emotional material, which may lead to immediate negative affect but reduce long-term distress (Van den Bergh et al., 2021). For

individuals with a BSTS processing style, abstract thought (i.e., worrying) dominates mental activity, prohibiting engagement with concrete negative thoughts and the severe negative affect that might come with such engagement (Van den Bergh et al., 2021). That is, when people worry, they engage only with general and decontextualized aspects of the object of worry (e.g., nonspecific thoughts about poor job performance), thus avoiding processing of details (e.g., specific thoughts about criticism from your boss) that might beget more intensely negative near-term emotional experiences. These information-processing models resemble the cognitive avoidance model in that each suggests worrying leads to avoidance of near-term negative affect via abstraction. However, information processing models name abstract "construals," or mental representations, broadly as the mechanism of avoidance, while the cognitive avoidance theory suggests that the inherent abstract nature of verbal-linguistic processes allows for avoidance of emotion-generating imagery.

Both the cognitive avoidance theory and the information-processing models suggest that anxious individuals' goal in worrying is a near-term down-regulation of negative affect. Another theory of worry, the contrast avoidance model, alternatively suggests that anxious individuals worry to sustain a tolerable level of negative affect. By doing so, they can avoid affective contrasts, or aversive downwards shifts from positive to negative affect (Newman & Llera, 2011).

Newman and Llera (2011) point out that it is unlikely that worry allows for near-term emotional avoidance, given evidence that worry generates negative affect and accompanying physiological activation (see Brosschot et al., 2006 for a review). Additionally, while Borkovec and colleagues cite evidence that worrying mutes physiological responses, proponents of the contrast avoidance model note that studies that compare pre-worry baseline arousal with arousal

experienced during and after worry demonstrate an increase in arousal during worry, which is then sustained during exposure to emotional stimuli (e.g., Stapinski et al., 2010). Furthermore, Llera and Newman (2014) found that individuals with GAD reported that worry was more helpful than relaxation in coping with exposure to negative emotion-inducing film clips, despite also reporting that worrying prolonged negative emotions. These findings have been replicated in both realistic lab paradigms (i.e., negative feedback on a challenging task) and in a study using an ecologically valid experience sampling methodology (Crouch et al., 2017; Jamil & Llera, 2021) Because worry generates and prolongs negative affect *and* highly anxious individuals experience worry as helpful coping, researchers claim that highly anxious individuals prefer to up-regulate and sustain negative affect rather than risk experiencing a downward shift from positive to negative emotional states (Newman & Llera, 2011).

Extant models present several contradictions. In particular, they offer conflicting perspectives about whether the function of worry is down- or up- regulating negative affect. In addition, they raise questions about the role that worry plays in emotion regulation and what other factors may contribute to a tendency to worry. Moreover, given that these models emphasize functions of worry that may not be apparent to the worrier, they leave unanswered questions regarding the role that explicitly articulated beliefs about worry might play in highly anxious individuals' reliance on worry to cope. Finally, by focusing exclusively on people who endorse high levels of anxiety, they leave open questions regarding whether and how worry might serve different functions in people less prone to feeling anxious.

1.3 Beliefs and Worry

Researchers have theorized about the content of beliefs about worry and the role that those beliefs might play in worry behavior (e.g., Borkovec & Roemer, 1995; Davey & Meeten,

2016; Freeston et al., 1994; Hebert et al., 2014; Wells, 1995), yet little consensus on this topic has been established. Davey and Meeten (2016) proposed a model for perseverative worry bouts, a type of pathological worrying in which an individual worries for an extended period of time. They argued that worriers' attentional bias toward threat leads to frequent threat perception. This elevated attunement to potential threats promotes a view of the environment as more threatening than it actually may be and activates beliefs about the utility (e.g., worry is useful for problem solving, worry is motivating) and uncontrollability of worry, creating a felt "need" to worry in order to cope with the anticipated threat. This need then activates goal-directed rules for worrying, or internal rules that halt worry when a goal is reached.

In the case of perseverative worry, the goal is feeling capable of coping with the perceived threat. Davey and Meeten (2016) argued that pathological worriers will decide to worry until they achieve this goal, which they often fail to do, leading to a perseverative bout of worrying (see Figure 1). Davey and Meeten (2016) considered the role of affect in this model, claiming that the presence of negative mood indicates to the worrier that their goal has not been reached, prolonging the worry bout. However, they argued only that negative mood leads to the continuation of worry, leaving open questions about the impact of worry on negative affect.

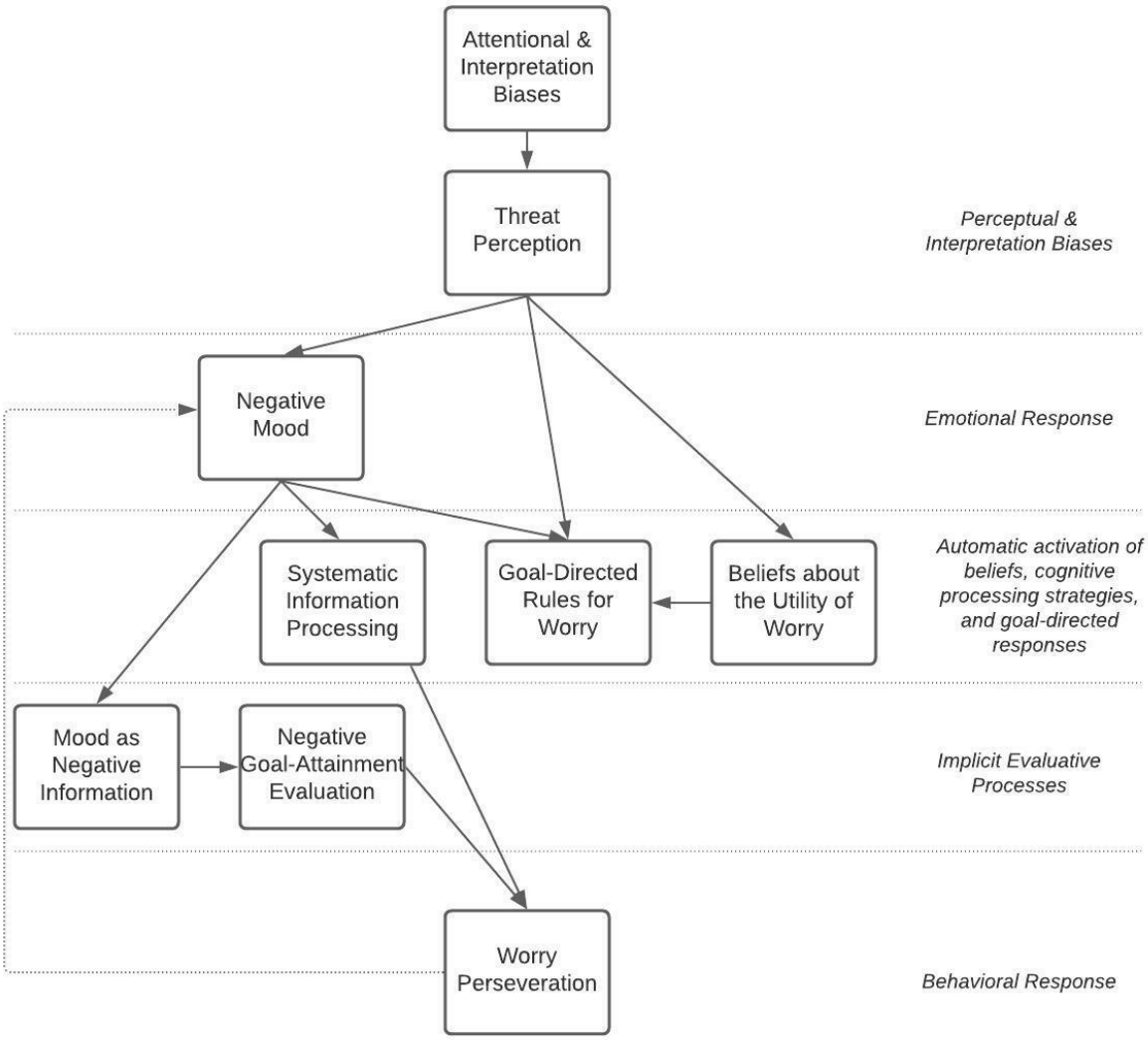

Figure 1 Processes Contributing to a Perseverative Worry Bout (Davey & Meeten, 2016, p. 239)

Results from a small body of research offer additional insight into people's explicit beliefs about the utility of worry. Borkovec and Roemer (1995), for instance, found that perceptions of worry as useful for distraction from "even more emotional things" discriminated between individuals with GAD and low-anxious controls (p. 29). Freeston and colleagues (1994) found that individuals meeting GAD criteria were more likely than healthy controls to endorse beliefs that worry is inevitable and can enable avoidance of negative outcomes and thoughts

about emotional topics. More recently, Hebert and colleagues (2014) found that beliefs that worry is useful for problem solving and protection from negative emotions are particularly strong predictors of worry severity. Taken together, these studies suggest that highly anxious individuals do explicitly believe that worrying down-regulates or permits avoidance of negative emotions. This provides evidence of explicit beliefs that are in line with Borkovec and colleagues' (2004) cognitive avoidance theory of worry.

It is important to note, however, that both studies focused on a limited set of beliefs about worry that were selected based on clinician reports and informal questioning of clients with GAD (Borkovec & Roemer, 1995; Hebert et al., 2014). These approaches may incompletely capture individuals' understanding of their own rationales for worrying. In fact, in an open-ended, qualitative study (Roth & Eng, 2002), high-anxious individuals' most commonly reported reasons for worrying were distinct from those that Borkovec and Roemer (1995), Freeston and colleagues (1994), and Hebert and colleagues (2014) identified. Participants reported reasons for worrying that focused minimally on the functions worry serves; for instance, people commonly attributed their own engagement in worry to personality factors and family influences (Roth & Eng, 2002). Additionally, recent research from Llera & Newman (2017) suggested that individuals with severe or impairing anxiety explicitly report beliefs in line with the contrast avoidance model, including worrying to generate and maintain negative mood in avoidance of emotional shifts. Taken together, these findings suggest that the small body of research to date may not capture the full range of beliefs that contribute to a tendency to worry.

1.4 Beliefs and Behavioral Decision Making

There is abundant evidence that beliefs and attitudes influence behavior (e.g., Ajzen & Timko, 1986; Conner & Armitage, 1998; Conner et al., 2013). Ajzen's (1991) theory of planned

behavior (TPB) provides a helpful frame for understanding the role that beliefs play in behavioral intentions. Ajzen suggested that beliefs, perceived behavioral control, and subjective norms combine to form an intention to perform a behavior (see Figure 2). In TPB, this intention immediately precedes actual performance of the behavior, and the strength of the intention is positively related to the likelihood of behavior performance (Ajzen, 2020). It is important to note that, for a given individual, each of these three variables may manifest differently, depending on the behavior that might be enacted. For example, perceived behavioral control for sleep hygiene would refer to whether someone believed they could control falling asleep, not to a global attitude such as locus of control.

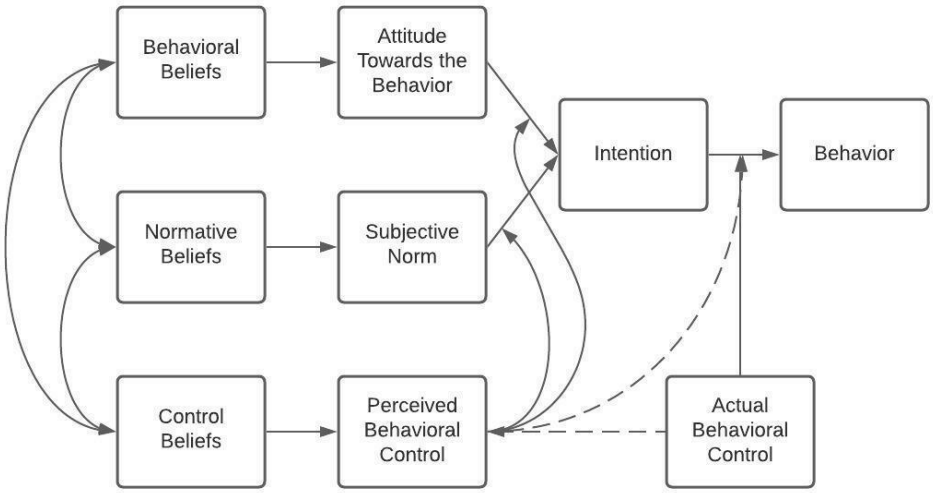

Figure 2 The Theory of Planned Behavior (adapted from Ajzen, 1991, p. 182)

While TPB is often applied to volitional choices, such as health and social decision making (e.g., speeding, voting), it was designed to function for behaviors where people have incomplete volitional control as well (Ajzen, 1991; Conner & Armitage, 1998; Loewenstein et al., 2001). Worry fits well into the latter category of behaviors; although it is a behavior that can be intentionally initiated or inhibited, people, especially highly anxious individuals, often do not

perceive worry as a choice (Davis & Valentiner, 2000). However, to my knowledge, worry has not yet been studied in the context of the TPB. Thus, the TPB presents a useful and underexplored frame for understanding the potential role of beliefs in individuals' intention to and performance of worry. Subjective norms and perceived behavioral control are out of the scope of the current study and remain important areas for future research in the study of worry behavior.

When reviewing the literature on beliefs, it is important to note that researchers have used the terms "beliefs" and "attitudes" relatively interchangeably, reflecting a departure from theoretically grounded definitions of the constructs (Breckler & Wiggins, 1989). Belief has been defined as "an enduring organization of perceptions and cognitions about some aspect of the individual's world" (Krech & Crutchfeld, 1948). Attitude, on the other hand, is defined as "a general and enduring positive or negative feeling about some person, object, or issue" (Petty & Cacioppo, 1981, p. 6). These constructs differ in that attitudes invoke a global, affectively charged orientation towards something, while belief indicates a more finely grained level of analysis at a cognitive level. In keeping with my goal of examining more specific thoughts about worry rather than general positive or negative feelings about the behavior, I will refer to beliefs throughout this paper.

1.5 Instrumental and Affective Beliefs

A common theme in the psychological literature focuses on a distinction between a phenomenon's cognitive and affective aspects. In lay terms, this might be considered a distinction between the "head" and the "heart." Following this "head" and "heart" distinction, cognitive psychologists have suggested an interacting cognitive subsystems (ICS) framework, within which individuals' mental codes can be classified at two levels of meaning—the

propositional, consisting of intellectual beliefs and specific concepts, and the implicational, consisting of emotional beliefs and holistic concepts (Clark & Egan, 2015; Teasdale, 1993). This framework is clinically relevant, given suggestions that emotional distress is maintained at the implicational level of meaning, and thus changing emotional beliefs must include interventions at the implicational level (Clark & Egan, 2015). The distinction between propositional and implicational levels of meaning has rarely been acknowledged in research on worry and worry beliefs and is largely absent from anxiety and emotion regulation research more broadly. It is possible that applying this distinction could help to clarify and unite contradictory theories about beliefs about the relationship between worry and emotion regulation.

This "head" and "heart" distinction is discussed differently in various subfields of psychology. Cognitive psychologists have not only identified propositional and implicational levels of meaning, but also have noted a distinction between remembering and a feeling of knowing (e.g., *I know I've heard that information before, but I don't remember learning it*) (Roediger & McDermott, 1995). Applied clinical psychologists distinguish intellectual and emotional knowing (e.g., *I know that I'm not worthless, but it feels like I am*) (Samoilov & Goldreid, 2000). Similarly, health psychologists distinguish between instrumental and affective beliefs (e.g., *I know smoking hurts my lungs, but it feels good*) (Lowe et al., 2002). Even within health psychology, various researchers have used the terms instrumental, cognitive, and evaluative beliefs to refer to the same phenomenon of rational beliefs regarding the benefits and costs of a behavior (Ajzen & Timko, 1986; Lowe et al., 2002; Trafimow & Sheeran, 1998). Because clinical science lacks a consistent terminology for the "head/heart" distinction, moving forward I will refer primarily to instrumental and affective beliefs, given that those definitions map most closely onto the beliefs about worry I intend to investigate.

The types of beliefs that have received attention in the worry literature to date fall largely into the instrumental category. That is, researchers have studied intellectual beliefs about the costs and benefits of worrying (e.g., worrying is helpful for problem solving). However, there is an extensive literature from health and cognitive psychology that highlights the importance of affective beliefs, or how one *feels* about performing a behavior, in predicting and understanding behaviors (e.g., Conner et al., 2013; Lawton et al., 2007; Trafimow & Sheeran, 1998). While Ajzen (2020) has argued that affective beliefs should not be included in the TPB for parsimony's sake, other researchers have contended that affective beliefs ought to be distinguished from instrumental beliefs and incorporated separately into the TPB, given evidence of their capacity to predict behavior over and above instrumental beliefs (Lowe et al., 2002).

Indeed, affective beliefs have been found to be more influential than instrumental beliefs for certain harmful health behaviors (Trafimow & Sheeran, 1998). In these cases, individuals can hold negative instrumental beliefs that a behavior (e.g., smoking) has harmful health consequences (e.g., increased cancer risk) but continue the behavior regardless, partially due to positive affective beliefs about the behavior (e.g., smoking is relaxing). In fact, in a study of affective and instrumental beliefs about smoking behavior in adolescents, affective beliefs were the only significant predictors of both self-reported and recorded smoking behavior (Lawton et al., 2007).

More recently, researchers have examined the impact of affective beliefs in comparison to instrumental beliefs on a wide variety of behaviors. For example, Brown-Kramer and Kiviniemi (2015) investigated affective and instrumental beliefs about self-examinations for testicular cancer and found that affective beliefs predicted self-examination frequency and mediated the relationship between instrumental beliefs and screening behavior. Conner and

Norman (2021) found that affective beliefs predicted eating behaviors prospectively at 4, 6, and 10 years post-initial assessment, where instrumental beliefs did not. Janssen and colleagues (2013) found affective beliefs about sun exposure risk predicted sun protection behavior where instrumental beliefs did not, and Janssen and Waters (2019) found that affective beliefs predicted exercise intentions over and above instrumental beliefs. In the latter paper, the authors claimed that affective beliefs are more predictive because they provide an intuitive sense of the overall "goodness" or "badness" of a behavior, and individuals will form intentions to engage in behavior that reduces bad feelings and increases good feelings (Janssen & Waters, 2019). In alignment with this claim, according to the cognitive avoidance model of worry, people worry to reduce bad feelings (Borkovec et al., 2004). However, in the contrast avoidance model, Newman and Llera (2011) suggest the goal in worrying may be to avoid a worse feeling (i.e., the affective contrast inherent in an abrupt and precipitous shift from positive to negative emotional experience).

Not only do affective beliefs hold more predictive power than instrumental beliefs in certain cases, but they may also be more enduring. In fact, a series of recent studies showed that affective beliefs are more stable over time than instrumental beliefs in a variety of contexts, and researchers have suggested that stability may be an important factor in determining the effect of beliefs on behavior (Rocklage & Luttrell, 2021). For instance, in the previously mentioned study investigating affective beliefs about eating behavior, Conner and Norman (2021) found that stability moderated the impact of beliefs on behavior.

Affective beliefs may be particularly relevant for predicting behaviors that have an immediate impact on a person's physiological state (Lawton et al., 2009). Furthermore, researchers have suggested that habitual or frequently performed behaviors might be more

strongly influenced by affective beliefs, given that implicit factors (e.g., an urge to complete a behavior) may be stronger than explicit factors (e.g., a thought-out decision to engage in a behavior) in predicting habitual behaviors and that affective beliefs may capture these implicit influences better than more explicit instrumental beliefs (Conner & Norman, 2021; Rivis et al., 2009). Because worry has been shown to generate physiological arousal (Stapinski et al., 2010) and is habitual for many high anxious individuals (Davey & Meeten, 2016), it follows that the influence of affective beliefs may be especially strong for worry, and possibly stronger than the more commonly studied instrumental beliefs. Despite these logical ostensible conclusions, the relative influence of affective and instrumental beliefs has yet to be considered in the worry and anxiety literature and doing so may help to broaden our understanding of why high-anxious individuals over-rely on worry.

1.6 Mood-Regulation Expectancies

Mood-regulation expectancies constitute one type of affective belief that warrants attention in the worry literature. Mood-regulation expectancies are a type of outcome expectancy representing beliefs about the likelihood that a particular coping strategy will reduce negative mood. Bandura's (1977) outcome expectancy theory postulates that individuals choose behaviors based on beliefs that a given behavior will elicit desirable outcomes. Consistent with this theory, researchers have investigated mood-regulation expectancies as an important factor in emotion regulation, specifically in coping strategy selection (e.g., Friedman-Wheeler et al., 2018; Hemenover & Harbke, 2017). High mood-regulation expectancies for certain coping strategies have been shown to predict projected, and in some cases actual, use of those coping strategies in a variety of situational contexts (Friedman-Wheeler et al., 2016; Friedman-Wheeler et al., 2018; Hemenover & Harbke, 2017). Mood-regulation expectancies have been studied in the health

psychology literature as well, labeled there as anticipated affect or anticipated affective reactions (AARs). Conner and colleagues (2013) found that negative AARs were the strongest predictors of increased intention to donate blood and blood donation behavior. After a meta-analysis of the impacts of AARs on various behaviors, Rivis and colleagues (2009) concluded that they should be added to the TPB as an additional predictor, given that they predict behavioral intentions over and above the beliefs already included in the TPB.

The aforementioned studies did not include worry as a coping strategy or behavior of interest, and literature regarding highly anxious individuals' expectancies for the mood-regulation outcomes of worry to cope is sparse. However, following outcome expectancy theory (Bandura, 1977) and given research suggesting that anxious individuals believe worry distracts from negative emotions (Borkovec & Roemer, 1994; Hebert et al., 2014), one viable possibility is that anxious people choose worry to cope based on high expectancies for worry's affect repair capabilities. However, Newman and Llera (2011) suggest that, for individuals high on contrast avoidance (i.e., individuals who find affective contrasts particularly aversive), the goal in worrying may be to up-regulate negative affect, such that a tolerable level of negative affect is maintained. These individuals may not endorse high mood-regulation expectancies for worry, given down-regulating negative affect may not be their true desired outcome.

1.7 Summary

Highly anxious individuals are vulnerable to emotion regulation difficulties (Mennin et al., 2005), which may include an overreliance on worry to cope with their emotions (Wells, 1995). Several theories have been proposed to explain the role of worry in anxious individuals' emotion regulation. For example, in their cognitive avoidance theory of worry, Borkovec and colleagues (2004) proposed that anxious people worry in order to distract from and down-

regulate negative affect by engaging in a linguistic process. Conversely, Newman and Llera (2011) proposed that highly anxious individuals worry to sustain a tolerable level of negative affect and thus avoid aversive affective contrasts. These theories—both of which enjoy empirical support—contradict each other, leaving open questions about the relationships among anxiety, worry, and emotion regulation.

Behavioral decision-making models, such as the theory of planned behavior (Ajzen, 1991) may be applied to help clarify what beliefs support a tendency to use worry as coping. Certain types of beliefs, particularly affective beliefs, may be especially useful in the study of worry given similarities between worry and other constructs with which affective beliefs are strongly associated. Mood-regulation expectancies may be a particularly salient type of affective belief, given their relevance to the use of other coping strategies (Friedman-Wheeler et al., 2018). The present study explored the relationships among anxiety, contrast avoidance, and affective beliefs for worry, and investigated the relative utility of instrumental and affective beliefs about worry in predicting worry behavior.

Taken together, the literatures I have reviewed here raise the possibility that affective beliefs about worry, particularly positive beliefs about its capacity to decrease or prevent negative affect, may support reliance on worry as a coping strategy more so than more commonly studied instrumental beliefs. Thus, I examined associations of both affective beliefs and instrumental beliefs with worry behavior. Given evidence that affective beliefs strongly influence physiologically impactful and habitual behaviors, I expected that affective beliefs for worry would account independently for significant variance in worry frequency over and above that accounted for by instrumental beliefs about worry (Hypothesis 1).

Additionally, affective beliefs may be particularly salient among people who are vulnerable to elevated anxiety, given that they appear to rely with high frequency on worry as a strategy for coping with distress. Therefore, I predicted that trait anxiety would be associated with a tendency to hold positive affective beliefs for worry. In an effort to reconcile conflicting theories about the function of worry—does it serve to down-regulate negative affect or to prevent precipitous shifts toward negative affect—I tested the hypothesis that the relationship between anxiety and affective beliefs about worry is moderated by preference for avoidance of affective contrasts. Those who are highly avoidant of affective contrast seem unlikely to endorse a belief that worrying will down-regulate their mood even in the presence of high trait anxiety, given their preference for up-regulating and sustaining negative emotion. Thus, I predicted that the positive relationship between anxiety and affective beliefs for worry would be significant only at low levels of contrast avoidance and nonsignificant at high levels of contrast avoidance (Hypothesis 2). That is, I anticipated the relationship between anxiety and affective beliefs for worry to be evident only at low levels of contrast avoidance.

However, due to the dearth of research on my variables of interest in nonclinical samples and low-anxious individuals, it is difficult to make inferences regarding their affective beliefs about worry. Thus, I tested an alternate hypothesis that I would find a main effect of contrast avoidance on affective beliefs for worry rather than an interaction effect with trait anxiety (Hypothesis 2a). To provide data that could help address these questions, participants completed a vignette measure of their affective beliefs for worry, as well as questionnaires regarding trait anxiety, worry frequency and severity, instrumental beliefs about worry, and contrast avoidance. Examining these factors will contribute to a more complete conceptualization of beliefs about worry. This in turn could inform treatments for clinical anxiety that target those beliefs and

supply more adaptive alternatives that achieve the functions that worry ostensibly serves for anxious individuals.

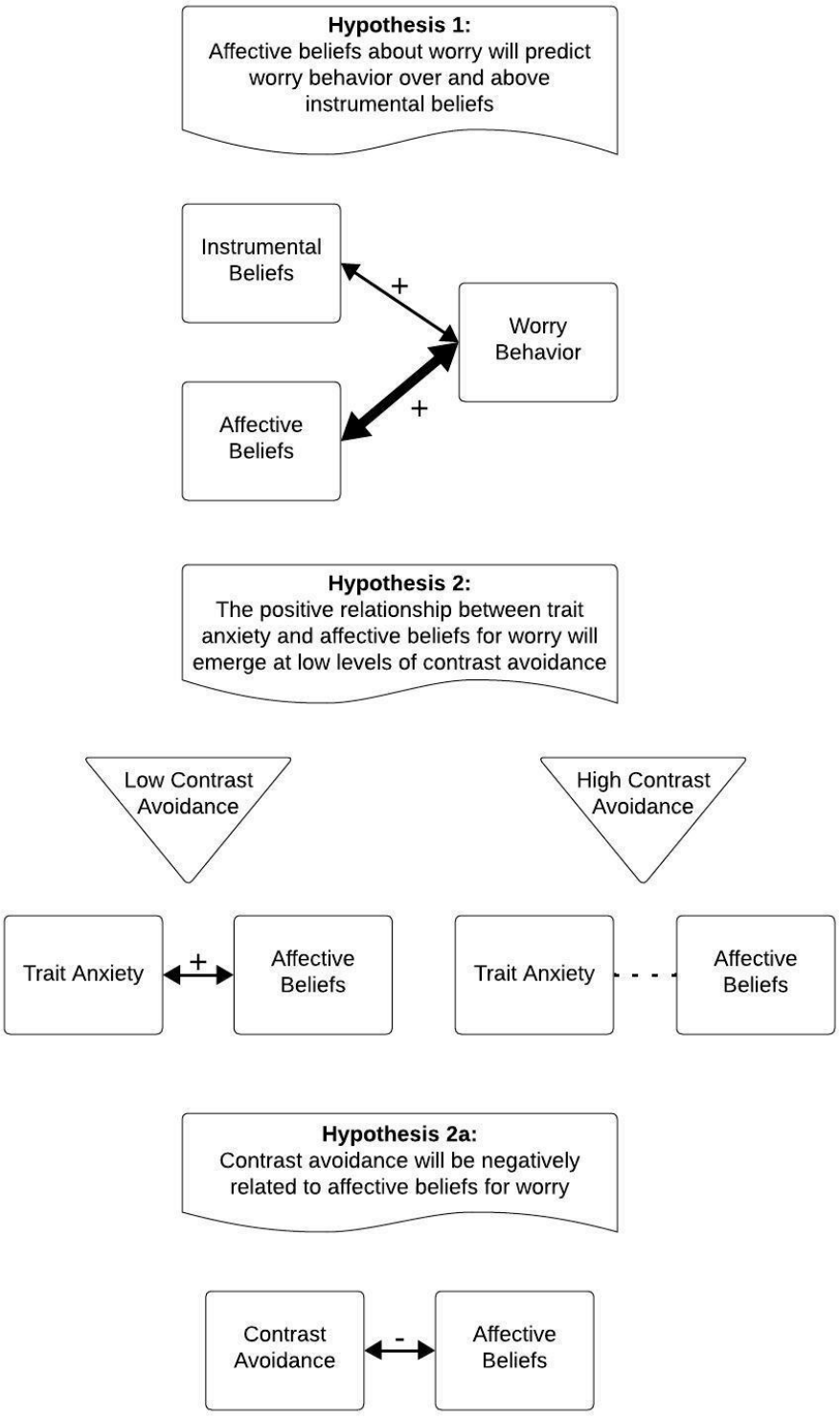

Figure 3 Hypotheses

2 METHOD

2.1 Participants

Following approval of the study by the Georgia State University Institutional Review Board and pre-registration of the study hypotheses and methods (Open Science Framework, https://doi.org/10.17605/osf.io/k4yc7), a total of 594 participants were recruited from undergraduate psychology courses at Georgia State University via an online research participant management system (Sona Systems) and were compensated with research participation credit delivered via Sona Systems. Participants were considered eligible to participate if they were between the ages of 18 and 65 years and reported fluency in English. To preserve the validity of the data, 97 participants (16.3%) were excluded after completing the survey due to failure to pass at least 75% of attention checks (Yarrish et al., 2019), leaving a final sample size of 497 participants.

Participants were racially diverse, with those included in the final sample most commonly self-identifying as Black or African American (n = 183; 36.8%), Asian (n = 89; 17.9%) and White (n = 87; 17.5%). Participants were majority women (n = 330; 66.4%). Participants in the final sample ranged in age from 18 to 55 years, with 91% of participants (n = 452) falling between 18 and 22 years of age.

I conducted chi-square tests of independence to assess for the presence of demographic differences between included and excluded participants. Analyses revealed no significant difference between included and excluded participants for race, $X^2(7, N = 580) = 10.302$, $p > .05$. I also found no significant difference between included and excluded participants for biological sex, $X^2(1, 589) = .06$, $p > .05$; however, analyses revealed significant differences in gender between the two groups, $X^2(5, 572) = 26.594$, $p < .001$. This difference appears to be driven by

an uneven distribution of nonbinary participants (all 23 nonbinary individuals were included). Additionally, an independent-samples t-test revealed no significant difference in age between included and excluded participants, $t(589) = .984$, $p > .05$. See Table 2 for core demographic data from included and excluded participants, see Table 6 in Appendix B for full demographic data.

Table 1 Participant Characteristics

Included Participants		Excluded Participants	
N (# of participants)	497	N (# of participants)	97
Gender		Gender	
% Woman*	66.4%	% Woman*	55.6%
% Man*	23.3%	% Man*	21.6%
% Nonbinary	4.6%	% Nonbinary	0%
% Other	3.0%	% Other	13.4%
% Declined	2.6%	% Declined	9.3%
Sex		Sex	
% Female	74.0%	% Female	69.0%
% Male	26.0%	% Male	25.8%
% Intersex	0.0%	% Intersex	0.0%
% Declined	0.0%	% Declined	5.2%
Race/Ethnicity		Race/Ethnicity	
% Asian	17.9%	% Asian	18.6%
% Black/African American	36.8%	% Black/African American	44.3%
% Latinx/Hispanic	14.3%	% Latinx/Hispanic	9.2%
% Native American	0.2%	% Native American	0.0%
% Pacific Islander	0.0%	% Pacific Islander	0.0%
% SWANA**	1.0%	% SWANA**	1.0%
% White	17.5%	% White	6.2%
% Multicultural	11.7%	% Multicultural	8.2%
% Other	0.2%	% Other	0.0%
% Declined	0.4%	% Declined	12.3%
Mean Age at Examination (SD)	19.97 (3.355)	Mean Age at Examination (SD)	20.38 (5.197)

Note: *Includes trans- and cisgender women and men **Southwest Asian/North African, sometimes referred to as “Middle Eastern,” see Culcasi (2023) for a complete discussion of these terms.

2.2 Procedure

Participants completed a series of questionnaires online via Qualtrics, a secure survey platform. No identifying information was collected within the survey, and responses were anonymized for participant protection. Participants read the informed consent form in Qualtrics

prior to beginning the survey, and then indicated their understanding of a set of key points (e.g., *I understand that I may withdraw at any time*). Endorsement of understanding of all points and subsequent advancement to the survey served as an indicator of implicit consent to participate. Then, survey measures were presented in randomized order across participants to reduce order effects. Three measures were excluded from the randomized order and presented at fixed times for all participants. A vignette measure of affective beliefs was presented first to avoid demand characteristics due to an expectation for a focus on worry inferred from other measures. A measure of GAD symptoms was presented second-to-last to help maximize the possibility that participants would respond openly about worry before they completed a face-valid measure pathologizing worry behavior. A qualitative measure of participants' definition of worry was presented last to avoid making the study's focus on worry obvious prior to completion of other measures. Attention checks consisting of items with simple instructions (e.g., "Select extremely likely") were included throughout the survey.

2.3 Measures

2.3.1 *Demographic Questionnaire*

An abbreviated version of the University of Massachusetts Boston Comprehensive Demographic Form (Suyemoto et al., 2016) provided descriptive demographic data; this measure assessed demographic characteristics in an inclusive, culturally sensitive manner. Participants were asked to answer items from the form related to age, race, ethnicity, gender identity, sexual orientation, and socioeconomic status as indexed by family household income and education level.

2.3.2 Affective Beliefs

A modified version of the Coping Expectancies Scale (CES; Friedman-Wheeler et al., 2016) provided a measure of mood-regulation expectancies (i.e., affective beliefs) for worry. The CES consists of six vignettes in which participants are prompted to imagine themselves in stressful situations spanning a variety of contexts. Participants then report how effective they anticipate various coping strategies would be in helping them feel better, using a 5-point scale from 1 (*extremely unlikely*) to 5 (*extremely likely*). The measure has three subscales: Active Behavioral Coping, Active Cognitive Coping, and Passive/Avoidant Coping. In previous studies, the CES has shown evidence of predictive validity: expectancies for coping strategies predict their use better than other types of coping (*rs* range from .49 to .73, *ps* < .001; Friedman-Wheeler et al., 2018), and the three subscales have shown satisfactory internal consistency reliability, with omega-totals (Ω_t) ranging from .55 to .77 on the three subscales in a diverse sample (Friedman-Wheeler et al., 2016).

The original CES was designed to measure mood-regulation expectancies for 13 coping strategies. The original measure included rumination as one of the 13 strategies but did not include worry. Given that worry and rumination are phenomenologically similar forms of perseverative thinking, differing primarily in temporal focus (e.g., Ehring & Behar, 2020), and that the focus of this study was worry, I prompted participants to report how effective they anticipate worry (rather than rumination) would be as a coping strategy in the vignette situations. While the focus of this study is on worry alone, the other 12 coping strategies were included to reduce demand characteristics and provide data for future analyses. Average worry score was used in two sets of analyses, first as an independent variable predicting worry behavior and then as a dependent variable, predicted by trait anxiety.

Additionally, for each coping strategy, participants were asked to rate on a sliding scale (with 11 rating options distributed from 0 to 100) whether their answer was more strongly driven by feelings (rating < 50) or by rational and logical thought (rating > 50; see Figure 4). I then averaged participants' decision-making scores across all six vignettes to yield a general decision-making score for the purpose of gathering descriptive data about whether instrumental or affective beliefs generally drove participant responding on the CES. Responses at one interval mark on the slider below the midpoint (i.e., less than 40) were considered to be more driven by thoughts, and responses higher than one interval mark above the midpoint (i.e., greater than 60) were considered to be more driven by feelings. Finally, a factual manipulation check was included to ensure that participants carefully read each vignette and thus responded with a complete understanding of the presented situation (Kane & Barabas, 2019). These consisted of one objective question about each vignette, presented immediately after the vignette.

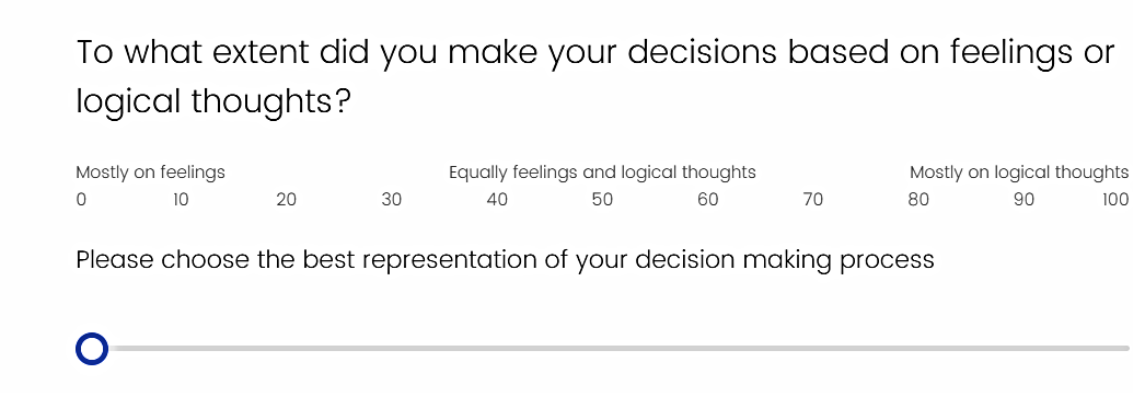

Figure 4 Decision-Making Slider Item

2.3.3 Instrumental Beliefs

The Consequences of Worrying Scale (COWS; Davey et al., 1996) is a 29-item measure of beliefs about the positive and negative consequences of worrying. Although this measure was

not explicitly designed for the purpose of measuring instrumental beliefs, it consists of items that do so (e.g., *worrying clarifies my thoughts and concentration*). In the test of hypothesis one, total COWS score served as an independent variable predicting worry behavior from instrumental and affective beliefs. The goal of hypothesis one was to test for significant associations between beliefs that promote worry behavior and actual worry behavior. Thus, I administered only the subscales featuring positive instrumental beliefs about worry (motivational influence and helpful analytical thinking), as these would, in theory, support worry behavior. Participants described the extent to which each item describes them when they worry on a 5-point scale from 1 (*not a lot)* to 5 (*a lot*). The positive subscales have shown acceptable and good internal consistency reliability (α's .72 and .85) and the COWS as a whole shows adequate convergent validity with measures of psychopathology (*r*'s ranging from .44 to .58) (Davey et al., 1996).

2.3.4 Worry

The Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) is a 16-item self-report measure of worry frequency and severity. Participants rate worry during the past week on a 5-point scale from 1 (*not at all typical of me*) to 5 (*very typical of me*). In the original development sample, the PSWQ showed excellent internal consistency reliability (α = .91; Meyer et al., 1990), whereas a more recent internet administered version showed acceptable internal consistency reliability (α = .73; Zlomke, 2009). The PSWQ is widely used and has shown good psychometric properties across a variety of studies of samples drawn from diverse populations within the United States (Tavakoli et al., 2019). In the test of my first hypothesis (predicting worry frequency from instrumental and affective beliefs about worry), total PSWQ score served as the dependent variable (worry behavior).

2.3.5 Trait Anxiety

The State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA; Ree et al., 2008) is a 42-item self-report measure of anxiety symptoms. The measure consists of two scales—one for current state anxiety and one for general trait anxiety. Participants rate the extent to which each of 21 statements describes their general mood state on a 4-point scale from 1 (*not at all*) to 4 (*very much so*). The STICSA shows better discriminant validity between measures of anxiety and depression than other commonly used anxiety measures (Grös et al., 2007), and has shown very good split-half reliability (coefficients ranging from 0.84-0.87; Ree et al., 2008). Total STICSA trait score served as the independent variable measure of trait anxiety in analyses predicting affective beliefs about worry.

2.3.6 Contrast Avoidance

The Contrast Avoidance Questionnaire- General Emotion (CAQ-GE; Llera & Newman, 2017) is a 25-item measure of avoidance of emotional contrasts. It has two subscales: Creating and Sustaining Negative Emotion to Avoid Negative Contrasts and Discomfort with Emotional Shifts. Participants rate their level of agreement with statements on a 5-point scale from 1 (*not at all true*) to 5 (*absolutely true*). This measure showed strong construct validity and test-retest reliability (r's range from .83-.93) in diverse samples (Llera & Newman, 2017). Total score on the CAQ-GE served as a moderating variable in analyses testing for an effect of the interaction between contrast avoidance and trait anxiety on affective beliefs about worry.

2.3.7 State Affect

The International Positive and Negative Affect Schedule Short Form (I-PANAS-SF; Thompson, 2007) is a 10-item measure of positive and negative affect, with one subscale for each affect dimension. To measure state affect, the "moment" instructions (i.e., *indicate to what*

extent you feel this way right now, that is, at the present moment) were used. Participants rate the extent to which they are experiencing each affective state on a 5-point scale from 1 (*very slightly or not at all)* to 5 (*extremely*). The I-PANAS-SF shows high test-retest reliability, with a coefficient of .84 for both positive and negative affect subscales and shows good convergent validity with other measures of distress and psychopathology (Thompson, 2007). I used the I-PANAS-SF to control for state negative affect in all analyses.

2.3.8 Daily Stressors

The Brief Daily Stressors Screening Tool (BDSST; Scholten et al., 2020) is a 10-item self-report measure of the intensity of stress experienced due to various life stressors. Participants rate the extent to which they have been affected by each of ten different life stressors (e.g., health problems, financial restrictions) in the past 12 months on a five-point scale from 0 (*not at all*) to 4 (*very much*). I used scores on this measure to descriptively characterize the sample in terms of perceived quantity and severity of daily life stress.

2.3.9 Generalized Anxiety Disorder Symptoms

The Generalized Anxiety Disorder Questionnaire- IV (GADQ-IV; Newman et al., 2002) is a 9-item self-report measure of symptoms of GAD corresponding to the DSM-IV criteria[1]. The measure consists of yes/no questions about symptoms (e.g., *Do you experience excessive worry?*), 8-point scales from 0 (*none*) to 8 (*very severe*) rating the extent to which symptoms cause distress and dysfunction, an item where participants select which somatic symptoms they have experienced, and an item where participants list their most frequent worry topics. The GADQ-IV has demonstrated good internal consistency reliability ($\alpha = .84$) and high concordance

[1] The GADQ-IV is the most recent version as a new questionnaire was not developed for DSM-5. Notably, all of the criteria which the questionnaire measures remain the same between DSM-IV and DSM-5 (Substance Abuse and Mental Health Services Administration, 2016).

with clinician-administered Anxiety Disorder Interview Schedule diagnoses ($\kappa = .70$) (Newman et al., 2002). Scores on this measure were used descriptively to help characterize anxiety pathology in the sample.

2.3.10 Participants' Definitions of Worry

Because worry is an ambiguous construct, participants were asked an open-ended question (*How would you define worry in your own words?*) at the end of the survey to gather data on lay definitions of worry. These data will be analyzed in the future and used to inform future projects.

2.4 Data Analysis Plan

I cleaned data by excluding participants who did not pass 75% of attention checks and examining data for consistency with the assumptions of multiple regression. I planned to transform data as needed to maximize conformity with these assumptions. The interrelated nature of the constructs of interest made multicollinearity between variables possible, thus I checked variable

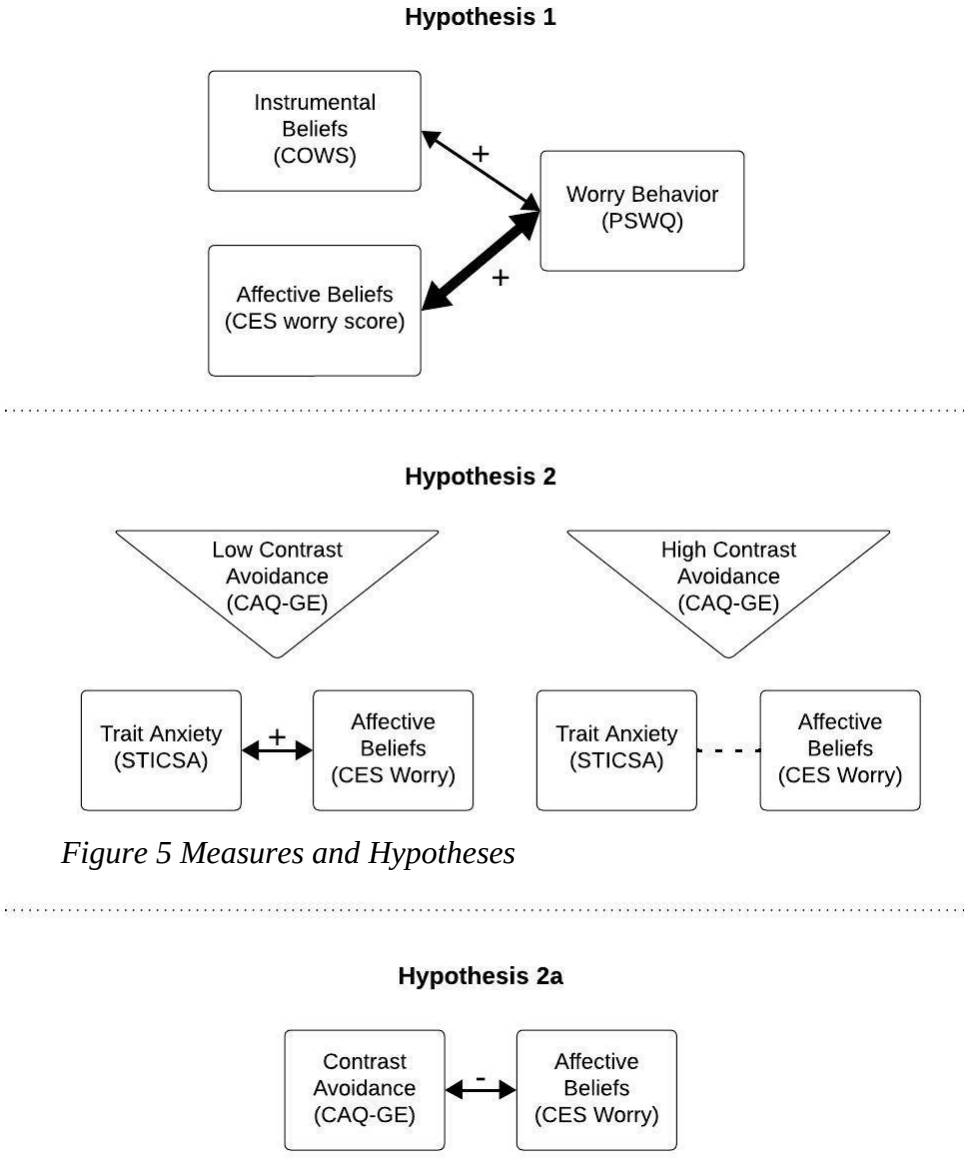

Figure 5 Measures and Hypotheses

inflation factors (VIF) to assess multicollinearity. If a VIF were greater than five, I planned to use an iterative process to determine whether variables needed to be dropped or combined.

I then conducted a hierarchical multiple regression analysis to test whether affective beliefs predict worry behavior over and above instrumental beliefs, while controlling for state negative affect. PANAS negative affect score and COWS score were entered at step one, and average coping expectancy score for worry was entered at step two with PSWQ score as the dependent variable.

I conducted a second hierarchical multiple regression analysis to test whether trait anxiety predicts affective beliefs for worry and whether this relationship was moderated by contrast avoidance, while controlling for state negative affect. PANAS negative affect score was entered at step one, STICSA score and CAQ-GE total score were entered at step two, and a STICSA x CAQ-GE interaction term was entered at step three with average coping expectancy score for worry as the dependent variable. This analysis also served to test the alternate hypothesis that I may find a main effect of contrast avoidance on expectancy beliefs.

Gender is often included as a covariate of interest in the study of worry and anxiety; however, findings are mixed (Robichaud et al., 2003). Due to these mixed findings and the importance of maintaining enough statistical power to detect an effect, as well as the skewed gender distribution in my sample, I did not include gender as a covariate in initial analyses. Instead, I completed a series of post-hoc exploratory analyses to determine whether including gender as a covariate might help to further explain the associations between the variables of interest in future work. Furthermore, although some have explored age-related differences in worry, the focus is generally on late adulthood (e.g., Basevitz et al., 2003) or adolescence (e.g., Barahmand, 2008) with variability in young and middle adulthood being comparatively

overlooked. Thus, age was also included as a covariate in post-hoc exploratory analyses, but not in core hypothesis tests. These post-hoc analyses consisted of the multiple hierarchical regressions as described above, with gender and age entered at step one.

2.5 Power Analysis

Hypotheses for the proposed project are grounded in a variety of literatures with varying effect sizes, which made selection of the most appropriate estimates of effects challenging. However, in a meta-analysis of the associations between affective beliefs and behavioral intentions, Rivis and colleagues (2009) found medium-to-large effect sizes in all studies according to Cohen's (1992) benchmark criteria ($r+ = .42$, $k = 32$, $N = 14647$). Thus, a statistical power analysis was performed to estimate the sample size needed to detect a medium effect. With a β-level of 0.80 and an α-level of 0.05, an a priori power analysis suggested that 84 participants would be needed to detect a medium effect in a single regression model with four predictor variables (Soper, 2021).

Because I tested two models in the proposed study, the sample size needed to be increased by a factor of 1.22, according to guidelines from Lazzeroni and Ray (2012). Researchers also suggest that sample sizes should be increased in interaction models in order to account for additional noise in the data (e.g., Leon & Heo, 2009). Despite some debate as to the necessary magnitude of increase, simulations suggest that variance in interaction models is fourfold that of main effects, thus sample sizes should be quadrupled to detect the same effect (Leon & Heo, 2009). Considering these recommendations, the sample size needed to detect an effect in all proposed analyses is 410. Thus, a sample size of 600 was determined to be adequate for analyses, accounting for exclusions due to inattentive responding.

3 RESULTS

3.1 Preprocessing Steps

I calculated total scores for attention and comprehension checks and I excluded participants (n = 97, 19.5%) who answered fewer than 75% of the checks correctly to protect against impacts of inattentive or random responding.

Next, I checked the data for compliance with assumptions of linearity, homoscedasticity, and normality. I found the data to meet all assumptions. Additionally, I assessed for outliers and found no evidence of outliers that would assert undue influence on the models that I planned to test. Missing data were likely missing mostly at random due to the length of the survey (Orme & Reis, 1991) and were thus excluded on a pairwise basis in all analyses.

Table 2 Descriptive Statistics

Scale	n	Mean	Standard Deviation	Skewness	Kurtosis
PANAS Negative	496	12.69	4.44	-0.53	0.22
STICSA	474	43.50	12.73	0.18	-0.67
PSWQ	487	56.73	14.19	-0.42	-0.62
CAQ-GE	475	55.14	18.52	0.69	0.11
CES Worry	497	3.07	1.11	-0.34	-1.09

To assess for multicollinearity, first I examined correlations between measures that were to be included in analyses. Pearson's bivariate correlations were significant between all variables of interest (see Table 3 for full correlation matrix). Therefore, to determine whether the degree of multicollinearity was high enough to warrant changing the data analysis plan, I calculated the variable inflation factors (VIF) for each variable in each regression model. All were below even the most conservative cutoffs (VIF $\geq$ 2.5; Johnston et al., 2018), indicating that multicollinearity between variables is not cause for concern in my planned regression analyses (see Appendix B, Table 4, which presents all VIFs).

Table 3 Correlation Matrix

	PANAS Negative	STICSA	PSWQ	CAQ-GE	CES Worry	COWS
PANAS Negative	--	.648**	.551**	.467**	.150**	.196**
STICSA	.648**	--	.674**	.607**	.150**	.305**
PSWQ	.551**	.305**	--	.501**	.203**	.362**
CAQ-GE	.467**	.607***	.501**	--	.248**	.351**
CES Worry	.150**	.150**	.203**	.248**	--	.176**
COWS	.196**	.674**	.362**	.351**	.176**	--

Note: **p <.01, ***p <.001

3.2 Descriptive Analyses

3.2.1 Current Life Stressors

I assessed for current life stressors in order to help contextualize participant experiences of anxiety and worry. The vast majority of participants (n = 490; 98.6%) reported having some level of daily stress from at least one of the ten listed stressors, and 86.0% (n = 427) of participants reported high or moderately high stress from at least one stressor. On average, participants reported high or moderately high stress levels stemming from four of the ten stressors. Participants most frequently indicated high or moderately high stress stemming from education or occupation (including workload and examinations; n = 272; 54.7%), family/friends/partners (n = 244; 49.1%), and financial challenges (n = 231; 46.5%). Current level of life stress was significantly associated with trait anxiety, $r = .530$, $p < .001$, and worry behavior, $r = .458$, $p < .001$.

3.2.2 Generalized Anxiety Disorder Symptoms

On the self-report GAD-Q measure, participants obtained average scores of 4.68 (SD = 4.69, maximum potential total score = 13). The clinical cutoff is a score of 5.7 or higher; 47.1% of participants (n = 234) reported scores at or above the clinical cutoff level (Newman et al., 2002). Participants' scores on the GAD-Q were significantly positively correlated with trait anxiety scores on the STICSA, $r = .612$, $p < .001$, and the PSWQ, which measures frequency and severity of worry behavior, $r = .694$, $p < .001$.

3.2.3 CES Decision Making

For each of the six CES vignettes, I asked participants to rate the extent to which their coping expectancy ratings were based on feelings or logical thoughts and then calculated an average decision-making score for each participant. Of participants, 11.6% (n = 58) rated their decisions as being at least 75% influenced by logical thoughts, whereas 3.2% of participants (n = 16) rated their decisions as being at least 75% influenced by feelings. Additionally, 39.7% of participants (n = 197) rated their decision making as more influenced by feelings, 44.9% (n = 244) rated their decision making as more influenced by thought, and 4.8% (n = 24) rated their decision as equally influenced by feelings and rational thought.

3.3 Hypothesis Tests

3.3.1 Results for Hypothesis 1

To test the hypothesis that affective beliefs predict worry behavior over and above instrumental beliefs when state negative affect is controlled for, I conducted a hierarchical multiple regression analysis with PANAS State Negative Affect score and COWS score entered at step one, CES worry score entered at step two, and PSWQ score as the dependent variable. The full model accounted for a significant proportion of variance in the dependent variable, $F(3,$

479) = 96.98, $p < .001$, $R^2 = .379$, $f^2 = .610$. As predicted, affective beliefs about worry made a significant independent contribution to variance in in worry behavior, $t(479) = 2.07$, $p = .039$, $ß = .077$, $sr^2 = .006$, as did instrumental beliefs, $t(479) = 6.819$, $p < .011$, $ß = .254$, $sr^2 = .060$.

Table 4 Coefficients for Hypothesis 1

Measure	ß	*t*	*p*	sr^2
Step 1				
Intercept	--	11.53	<.001	--
PANAS Negative	.50	13.59	<.001	.24
COWS	.27	7.18	<.001	.07
Step 2				
Intercept	--	9.53	<.001	--
PANAS Negative	.49	13.26	<.001	.23
COWS	.25	6.82	<.001	.06
CES Worry	.08	2.07	.04	.01

Note: Dependent Variable = PSWQ; sr^2 is the squared semi-partial correlation, or the percentage of variance in the outcome variable uniquely explained by each predictor.

3.3.2 Results for Hypothesis 2

I also predicted that with state negative affect covaried, trait anxiety would be associated with positive affective beliefs for worry and that contrast avoidance would moderate this association, such that the positive relationship between anxiety and mood regulation expectancies for worry would emerge at low levels of contrast avoidance. To test this hypothesis, I conducted a hierarchical multiple regression analysis with CES worry score as the dependent variable, PANAS State Negative Affect score entered at step 1 and STICSA score, CAQ-GE score, and a STICSA x CAQ-GE interaction term entered at step 2. All terms were centered around the mean to facilitate examination of the interaction term. The model yielded significant results overall, $F(4, 451) = 7.122$, $p < .001$, $R^2 = .06$, $f^2 = .06$. I found a main effect of contrast avoidance, $t(451) = 3.79$, $p < .001$, $ß = .227$, $sr^2 = .03$, providing support for my alternative hypothesis that contrast avoidance directly predicts positive affective beliefs for worry.

Contrary to my hypothesis, however, trait anxiety did not significantly predict affective beliefs for worry, $t(451) = -0.385$, $p > .05$. Additionally, contrast avoidance did not significantly moderate the relationship, $t(451) = .433$, $p > .05$.

Table 5 Coefficients for Hypothesis 2

Measure	ß	*t*	*p*	sr^2
Step 1	--	58.50	<.001	--
Intercept				
PANAS Negative	.14	3.1	<.01	.02
Step 2				
Intercept	--	51.82	<.001	--
PANAS Negative	.05	.80	.42	.001
CAQ-GE	.03	3.81	<.001	.031
STICSA	-.03	-.39	.70	<.001
STICSA x CAQ-GE	<.001	.43	.67	<.001

Note: Dependent variable = CES Worry score; sr^2 is the squared semi-partial correlation, or the percentage of variance in the outcome variable uniquely explained by each predictor

3.4 Post-Hoc Analyses

I completed a series of post-hoc analyses to assess associations between demographic variables and key study variables and to help inform whether the selected demographic variables might be important to include in future work. I first repeated the regression analyses described above with gender as a covariate at step one. In my first regression testing the associations between instrumental and affective beliefs for worry and worry behavior, gender was not a significant predictor, $t(466) = 1.66$, $p > .05$. Gender was also not a significant predictor in my second regression testing the associations between trait anxiety, contrast avoidance, and affective beliefs for worry, $t(438) = -.538$, $p > .05$. Next, I repeated my regression analyses with age as a covariate at step one. Age was not a significant predictor in regression 1, $t(466) = -.879$, $p > .05$ or regression 2, $t(438) = -.19$, $p > .05$.

4 DISCUSSION

The overarching purpose of this study was to fill gaps in the worry literature by examining patterns in beliefs and traits that are associated with worry behavior. Specifically, I sought to examine how data might help weave together threads of ostensibly incompatible theories of worry- cognitive avoidance theory (Borkovec et al., 2004) and contrast avoidance theory (Newman & Llera, 2011)- using the behavioral decision-making literature as a grounding framework. Using self-report data collected from a racially and ethnically diverse undergraduate sample, I tested whether affective beliefs, for worry, or emotional beliefs about how worry will make one feel, predict would predict worry behavior over and above instrumental beliefs for worry (rational beliefs about the costs and benefits of worrying). I also examined whether trait anxiety was predictive of affective beliefs for worry and if contrast avoidance, or avoidance of drastic shifts from positive to negative affective states, moderates this association.

Broadly, findings suggested that contrast avoidance predicts affective beliefs and that affective beliefs predict worry behavior, indicating that these two relatively under-studied constructs may be important to consider in the process of untangling why people worry. I discuss these findings, as well as their implications, in more detail below. I also suggest how they might contribute to a more complex and nuanced understanding of how beliefs are related to anxiety, worry behavior, and emotion regulation and how clarifying these associations could help yield a more complete conceptualization of why people worry. Such a richer conceptualization might in turn inform interventions that could support clients in interrogating, challenging, and finding alternatives to their beliefs about worry and expanding their belief in and capacity to implement more consistently effective forms of emotion regulation.

4.1 Descriptive Analyses

Results of descriptive analyses yielded evidence of a sample that was characterized by striking levels of distress. On a measure of daily stressors, almost all participants indicated high or moderately high stress from at least one daily stressor, and participants reported high or moderately high stress from an average of four separate stressors. This is unsurprising, given that a large body of literature documents a high prevalence of both stress and related conditions, such as depression, anxiety disorders, and insomnia, in undergraduate students (e.g., Ahmed et al., 2023; Gardani et al., 2022, Mofatteh, 2021). Additionally, nearly half of the sample obtained anxiety scores that exceeded the clinical cutoff for GAD (Newman et al., 2002). This is consistent with an upward trend in rates of clinically significant anxiety in undergraduate students which may be driven by the COVID-19 pandemic and subsequent return to pre-pandemic expectations regarding students' academic, professional, and social obligations. In a 2020 study, Chirikov and colleagues found that 39% of 30,725ndergraduates sampled exceeded clinical cutoffs for GAD using a common healthcare screening tool, whereas in a large 2007 sample of students at a public university using an earlier version of the same screening tool only 2.9% of 1,181 undergraduates sampled screened positive for GAD (Eisenberg et al., 2007). The findings in this study and elsewhere that current undergraduates endorse high levels of daily stress and clinical anxiety underscore the need for research regarding worry, coping, stress, and emotion regulation in college students, especially research that might inform treatments to support students' wellbeing.

Descriptive data also offered insight into participants' understanding of their own response patterns on the vignette measure of affective beliefs (CES). First, participants were fairly evenly divided according to whether thoughts or feelings were more influential in their

responses to the vignette measure of affective beliefs about coping strategies, with a slightly higher percentage identifying logical thought as more influential. Nearly all participants identified using some combination of thoughts and feelings in selecting their responses. Ideally, feelings would be the primary driver of responding to questions about affective beliefs, given that feelings are, at least in theory, the primary driver of the affective beliefs themselves (e.g., Trafimow & Sheeran, 1998).

The fact that most participants endorsed using some combination of feeling and thoughts to guide their responses to vignettes highlights the difficulty of measuring purely affective "heart" beliefs without the influence of the "head." In my review of literature on affective beliefs, I did not find any studies that assessed the extent to which thoughts or feelings guided participant responding, indicating a large need for further research and manipulation checks. However, TPB theorists and behavioral decision-making researchers generally agree that both thoughts and feelings are involved in forming beliefs and decisions broadly (e.g., Ajzen, 2020; Conner et al., 2013; Trafimow & Sheeran, 1998) thus it is not particularly surprising that survey responding, even in response to measures attempting to isolate affective beliefs, would be influenced by both thoughts and feelings.

4.2 Hypothesis 1: Affective Beliefs, Instrumental Beliefs, and Worry Behavior

My hypothesis that affective beliefs for worry would account for variance in worry behavior over and above that accounted for by instrumental beliefs was supported by the data. In other words, both emotional beliefs about how worry makes one feel (i.e., affective beliefs) and logical beliefs about the consequences of worry (i.e., instrumental beliefs) predict people's tendency to worry. This pattern of findings suggests that the heavy emphasis that prior studies have placed on instrumental beliefs in research about people's ideas about coping strategies,

including worry, has yielded an incomplete understanding of the role of beliefs in coping behavior. Affective beliefs appear to be similarly important to take into account if we are to develop a more comprehensive conceptualization of beliefs that inform the selection of coping responses, such as worry.

These findings align with evidence that affective beliefs are important in shaping other behavioral decisions (e.g., Brown-Kramer & Kiviniemi, 2015; Conner & Norman, 2021; Janssen & Waters, 2019). Historically, most of this research has occurred in the domain of behavioral decision making in health psychology, with a focus on decisions about behaviors such as cancer screenings (Brown-Kramer & Kiviniemi, 2015), eating (Conner & Norman, 2021), and exercise (Janssen & Waters, 2019) that have direct impacts on physical health. The present project extends this affective belief framework to an examination of decisions about a behavior—worry—that is typically linked to mental health; the convergent findings suggest that similar principles may apply. Of note, this overlap is unsurprising, given that worry has been shown to have significant physical health consequences including high blood pressure, increased cardiovascular activity, and blunted cortisol response (see Ottaviani et al., 2018 for a review).

At least two prior studies outside of the health psychology literature have yielded similar evidence of relationships between mood-regulation expectancies that could be defined as affective beliefs and selection of coping strategies such as acceptance, seeking social support, and turning to spirituality or religion (Friedman-Wheeler et al., 2018; Hemenover & Harbke, 2017). Notably, however, the current project appears to be the first to examine the relationship between worry-focused mood-regulation expectancies and worry behavior as a coping strategy and it thus expands our knowledge about the relationship between affective beliefs and coping strategy selection.

In summary, this project demonstrates that affective beliefs, a construct rarely examined outside of research on health psychology and behavioral decision-making, are an important predictor of worry, a coping behavior traditionally studied in the context of psychopathology-oriented research. This indication of convergence of findings across commonly siloed literatures highlights the benefits of interdisciplinary inquiry when seeking to understand complex psychological constructs.

Unexpectedly, instrumental beliefs accounted for a greater proportion of variance in worry behavior than did affective beliefs. In other words, logical beliefs about the consequences of worry were stronger predictors of a tendency to worry than were beliefs about how worry would make participants feel. This finding stands in contrast to a sizable body of evidence that affective beliefs have stronger ties to behavior than do instrumental beliefs (e.g., Conner et al., 2013; Janssen & Waters, 2019; Lawton et al., 2007; Trafimow & Sheeran, 1998), particularly when these beliefs are habitual and/or psychologically activating (e.g., Rivis et al., 2009). Indeed in some cases, studies have shown affective beliefs to predict behavior where instrumental beliefs do not (e.g., Conner & Norman, 2021; Janssen et al., 2013).

A possible explanation for this divergence is that perhaps individuals who worry frequently are particularly likely to endorse positive instrumental beliefs about worry in an effort to justify their behavior. Electing to view a behavior that they engage in regularly in a positive light could serve the purpose of reducing cognitive dissonance; in contrast, routinely engaging in a behavior which you believe is unhelpful and/or psychologically harmful would create cognitive dissonance (Harmon-Jones & Mills, 2019). By reducing cognitive dissonance via adopting positive instrumental beliefs about worry, habitual worriers might find relief from distress associated with engaging in a belief-incongruent behavior.

Because this study is, to my knowledge, the first to explore the relative contributions of affective and instrumental beliefs to variations in worry behavior, more research will be necessary to explain its divergence from previous work on affective and instrumental beliefs and behavior. Researchers might investigate whether similar patterns emerge with other coping strategies or behaviors more closely related to worry (e.g., rumination) than those previously explored in health psychology literatures. However, the present findings offer an important starting point on multiple fronts—first and foremost, it demonstrated that people actively endorse positive affective beliefs for worry, even when they are immersed in a cultural context that pathologizes worry and embraces the idea that people "should" know that worry is unpleasant and would not help them feel better. A variety of widely disseminated self-help and popular psychology publications, such as Psychology Today, assert that worry is unilaterally unhelpful, has negative psychological and physiological impacts, and should be avoided (e.g., Greenberg, 2019; LaFreniere, 2021; Robinson et al., 2023). Participants in the present study, however, who presumably encounter regular negative messages regarding worry, endorsed positive affective beliefs about worry. This ancillary finding provides exciting preliminary support for the idea that researchers can obtain varied and honest responses about affective beliefs regarding behaviors that might be commonly understood as negative. The use of a measure constructed around vignettes rather than global questions about habitual behaviors may have helped to elicit honest and accurate responding in this study. The process of imagining themselves in real-world situations might have supported responses that more closely aligned with participants' real feelings about worry and other coping behaviors, rather than what common knowledge and popular psychology might suggest they "should" say.

This project also adds to the literature that supports the inclusion of affective beliefs as a separate component of the TPB (Lowe et al., 2002). In a recent paper, Ajzen (2020) acknowledged that affective beliefs influence behavior but argued that they should not be included in the TPB because they compromise the parsimony of the model. In that paper, he outlined several criteria for evaluating whether additional predictors should be included in the TPB, including that predictors should be "applicable to a wide range of behaviors" (Ajzen, 2020 p. 318). The present study adds worry to the numerous and varied behaviors that affective beliefs predict, thus providing additional evidence that affective beliefs meet Ajzen's criterion. Furthermore, this project unites behavioral decision-making and clinical psychology literatures, underscoring that there may be additional overlooked behaviors that affective beliefs predict that have been sectioned off in psychology's various siloed subdisciplines.

4.2.1 Implications for Intervention

The association between affective beliefs and worry behavior observed in this study has broad implications for worry-focused therapeutic interventions, which tend to fall under the umbrella of cognitive behavioral therapy (CBT), along with treatments targeting anxiety more broadly (Querstret & Cropley, 2013). Although CBT has been labeled the "gold standard" of psychotherapy (David et al., 2018), Loerinc and colleagues (2015) found in a systematic review that only about half of individuals with anxiety disorders treated with manualized CBT responded to treatment[2]. This means that around half of clients experiencing anxiety are not getting all that they need from traditional manualized CBT.

[2] The criteria for determining whether a participant was a "responder" varied widely among studies included in the review. See Loerinc and colleagues' (2015) full review for a discussion and evaluation of various approaches to defining response to treatment.

One reason that CBT may not be as effective as it might be for some individuals prone to worry is that the cognitive component of manualized CBT generally focuses on instrumental beliefs, targeting the rationale for and logic of thoughts and using cognitive restructuring to support clients in developing more adaptive cognitions (David et al., 2018). Given my finding that affective beliefs impact worry behavior, and that worry behavior is a core feature of anxiety disorders, treatments for anxiety might improve outcomes by addressing clients' affective beliefs and supporting clients in making changes to how they *feel* about worry, rather than or in addition to what they think about it. This notion aligns with the interacting cognitive subsystems (ICS) framework, which proposes that interventions should be targeted towards the level of meaning in which a particular mental code can be classified (Clark & Egan, 2015). That is, emotional distress, which falls at the implicational level, can be more effectively changed with interventions at the implicational level (i.e., interventions targeting emotional beliefs) than with interventions at the propositional level (i.e., interventions targeting the logic of beliefs).

Therapeutic modalities that focus on affective experiences and beliefs, while less commonly practiced and less widely researched than traditional CBT, do exist and have been shown to be effective in treating a wide variety of presenting concerns, including anxiety disorders (e.g., Shahar, 2020; Timulak et al., 2017), couples' concerns (e.g., Beasley & Ager, 2019), complex trauma (Mlotek & Paivio, 2017), and eating disorders (e.g., Osoro et al., 2021). Emotion-focused therapy, for example, was developed out of the premise, which is echoed in the ICS framework, that emotional pain can be treated with emotion-focused interventions, and a major component of treatment involves working with how clients feel about past experiences and current interactions and behaviors (Greenberg, 2004). Emotion-focused therapy has been found to be effective at treating anxiety disorders, and in a recent randomized controlled trial, Timulak

and colleagues (2017) found emotion-focused therapy to be just as effective as CBT in reducing GAD symptoms, including worry, and improving general psychological functioning post-treatment and at 6-month follow up. Both the evidence from the present study regarding the influence of affective beliefs on worry and the body of evidence supporting emotion-focused treatments for anxiety disorders and other forms of distress present a strong argument for the inclusion of affectively oriented interventions as an augment or alternative to traditional psychotherapy.

4.3 Hypothesis 2: Trait Anxiety, Contrast Avoidance, and Affective Beliefs about Worry

Interestingly, given extensive research supporting a strong relationship between anxiety and worry (see Newman et al., 2013 for a review), I did not find support for my hypothesis that trait anxiety would be positively associated with affective beliefs for worry. The results suggested a non-significant, and in fact trending negative relationship, between these two variables. The metacognitive model of GAD suggests that individuals with GAD experience substantive distress due to metacognitive beliefs that worry has negative consequences (Wells, 1999). These negative metacognitions have been observed in highly anxious individuals without a GAD diagnosis as well (e.g., Lenzo et al., 2020). It follows, then, that some highly anxious individuals might be particularly likely *not* to endorse positive affective beliefs for worry. That is, these, individuals might be tuned in to the negative impacts of worrying on the basis of first-hand knowledge that it contributes to negative affect and diminishes well-being; thus, they worry for different reasons, such as a belief that worry is uncontrollable (Penney et al., 2013).

Additionally, I tested the relationship between trait anxiety and affective beliefs for worry, rather than actual worry behavior, given a large body of evidence that already offers support for the latter association. Though the relationship between anxiety and worry behavior is

strong and well-established, the evidence base connecting anxiety and worry beliefs is relatively small and findings are varied. In a study evaluating a measure of positive beliefs about worry, Hebert and colleagues (2014) found only small positive correlations between positive instrumental beliefs about worry and trait anxiety. This, along with the current results, suggests that anxiety may not be a significant or primary factor in shaping worry beliefs. In other words, even though highly anxious individuals worry frequently, they may not consistently endorse positive beliefs about their behavior.

One possible explanation for this disconnection between behavior and beliefs may be that whereas anxious individuals routinely engage in worry behavior, their affective beliefs about worry may be more informed by factors other than their anxiety. The present data do support the idea that contrast avoidance is a possible alternative factor that may shape affective beliefs about worry where trait anxiety does not. Contrary to my predictions, contrast avoidance was not a significant moderator of the relationship between trait anxiety and affective beliefs about worry; however, I did find a significant main effect of contrast avoidance on affective worry beliefs. That is, individuals who endorsed a greater degree of avoidance of affective contrasts were more likely to endorse a belief that worry would make them feel better when they were faced with vignette stressors. Research on the contrast avoidance theory of worry does not appear to have addressed the relationship between contrast avoidance and affective beliefs for worry, despite its central claims hinging on a strong relationship between worry and affect. Whereas causality cannot be inferred with the current research methodology, this study serves as preliminary support for the idea that peoples' tendencies to avoid affective contrasts may impact how they feel about worry, and how they believe worry will make them feel.

The direction of the relationship between contrast avoidance and affective beliefs for worry contradicted my expectations. Newman and Llera (2011) suggested that contrast avoidance serves to up-regulate and sustain negative affect at a consistent, low level, leading me to predict that individuals who were high on contrast avoidance would be less likely to endorse positive affective beliefs for worry. This expectation was not supported; in fact, high contrast avoidance was associated with *more* positive affective beliefs for worry.

One possible explanation for this pattern of association lies in the wording of the vignette measure itself, in line with a body of evidence suggesting that instruction word choice can impact responding on self-report questionnaires in a variety of contexts (e.g., Andrews, 1987; Ward & Meade, 2018; Ward & Pond, 2015). In the present study, participants were instructed to rate the extent to which each coping strategy would make them *feel better* in response to the given situation (Friedman-Wheeler et al., 2016). The concept of "feel better" is vague and is not defined explicitly in the instructions. I had originally conceptualized "feel better" as a shift towards positive affect, given that is what the questionnaire attempts to measure (Friedman-Wheeler et al., 2016). However, it is possible that participants held many different conceptualizations of "feel better" based on their personal goals, beliefs, and values. Participants who are high on contrast avoidance might endorse definitions of feeling better that are closer to "not feeling worse" or "feeling the same," given their strong preference for avoiding downward affective shifts. This might lead them to endorse positive expectancies for worry due to a belief that it will make them "feel better" by helping them to avoid unpleasant affective contrasts. This suggests an interesting area of further research that might include qualitative exploration of conceptualizations of "feel better" across a range of tendencies towards contrast avoidance.

Literature around the construct of intolerance of uncertainty provides some theoretical basis for the idea that individuals high on contrast avoidance might interpret “feel better” as “not feel worse” or “feel the same” and thus endorse positive affective beliefs for worry. Intolerance of uncertainty can be defined as a tendency to react to uncertain or ambiguous events, situations, and stimuli with a high degree of distress (Ladouceur et al., 2000). This distress then motivates individuals to engage in behaviors (e.g., worry) that work to reduce the perception of uncertainty (e.g., by thinking through all possible outcomes).

The literature offers ample evidence of a close relationship between intolerance of uncertainty and worry (e.g., Buhr & Dugas, 2009; Dugas et al., 1998; Dugas et al., 2001; Gu et al., 2020; Laposa et al., 2022; Rucker et al., 2010). In a recent paper, Llera and Newman (2023) explored the relationship between intolerance of uncertainty and contrast avoidance and suggested that individuals high on contrast avoidance might engage in worry in an attempt to make their emotional states more predictable. That is, by generating a consistent level of negative affect through worrying, they experience consistency in their mood and avoid uncertain drops in affects. It follows then, that for individuals high on contrast avoidance, worrying could create a level of affective certainty that would allow them to “feel better” than they might anticipate feeling in the presence of uncertainty.

4.4 Strengths, Limitations, and Future Directions

A key strength of this study lies in the racial, ethnic, and gender diversity of the sample. The sample was less than 20% White, which is highly uncommon in psychology research, which has been historically, and is often currently, dominated by entirely or mostly White samples (Roberts et al., 2020). This pattern reinforces White supremacist ideas that White participants are “race-neutral” and therefore can be considered representative of broader populations. By

studying constructs in racially diverse populations, we combat this notion and generate far more widely generalizable data. My sample also highlights the importance of asking about participant gender and sex separately, given that 6% of participants identified as trans and/or nonbinary, which is consistent with the percentage of US young adults who identify as such (Brown, 2022). Psychological research, and research broadly, frequently conflates sex and gender, and offers binary or limited options for both, excluding and alienating transgender participants and reinforcing false binaries in these constructs.

This project is also distinctive in that it draws together theories and constructs from multiple domains of psychology. I applied concepts from behavioral decision-making literatures, typically housed in health and social psychology, to clinical science. Researchers have pointed out the tendency in psychology and other scientific domains to study phenomena within their "disciplinary confines" (Valsiner, 2007, p. 1). This leads to both reinventing the wheel by studying the same or similar constructs in multiple specialized disciplines (see section 1.5 for a discussion) and failing to draw in knowledge from diverse disciplines that might support more nuanced research. Because of this, researchers have repeatedly called for more interdisciplinary inquiry in the psychological and behavioral sciences (e.g., Druckman et al., 2009; Kemp & Edwards, 2022; Valsiner, 2007; Waldman, 2013). This work takes up this call and presents exciting examples of the power of interdisciplinary inquiry to support our understanding of complex human behavior.

Another strength of this study was my use of a vignette measure of affective beliefs. Vignette measures are not particularly common in psychological research, often passed over for measures gauging participants' broad behavioral patterns or current states. More research is needed to compare vignettes and traditional questionnaire or survey measures; however, some

evidence suggests that using vignette measures rather than traditional measures may improve content and construct validity (e.g., Erfanian et al., 2019; Gould, 1996; Lithopoulos et al., 2020).

Lithopoulos and colleagues (2020) suggest that this enhanced validity may be due to vignettes encouraging participants to reflect more deeply on the measure items and how they apply to their own lives. Vignette measures also attempt to approximate the types of real-world behaviors and responses to situations that would otherwise only be attainable by observation or experience sampling methodologies, which are often not feasible due to limits on time and resources and present a unique set of ethical dilemmas (Gould, 1996). Furthermore, vignette measures may support participants in accurately reporting their real opinions and actions, possibly due to a reduction in social desirability pressures (see Erfanian et al., 2019 for a review). This suggests that my choice to use a vignette measure might have facilitated accurate reporting of beliefs about worry, even though it is pathologized in the popular media. Future studies might consider opportunities to incorporate or develop vignette measures to support our inquiry into a wide variety of beliefs and behaviors.

Because the present study is correlational in nature, it cannot offer insight into questions of causation and direction of relationships. However, the constructs involved are not easy, and in some cases relatively impossible, to manipulate experimentally in an ethical and effective manner. Whereas some of my constructs of interest, such as worry and anxiety, can be induced in the moment to varying degrees of success (e.g., Fisher & Newman, 2013; Liu & Li, 2020), these induction paradigms do not necessarily yield accurate representations of how these constructs function together in daily life. Nevertheless, future studies might consider the impact of state anxiety and worry inductions on worry beliefs and endorsement of contrast avoidant beliefs in the moment.

I also conducted this research in an undergraduate sample, which may not be representative of the broader population. Further research would be required in order to assess relationships among anxiety, worry beliefs, and contrast avoidance in populations other than young adults. In addition, future studies might investigate the impact of age on worry beliefs, worry behavior, trait anxiety, and contrast avoidance, providing valuable information on how these constructs might change developmentally throughout the lifespan. However, given ample recent evidence of high levels of stress and anxiety in undergraduate populations (e.g., Ahmed et al., 2023; Chirikov et al., 2020; Gardani et al., 2022, Mofatteh, 2021) perhaps this line of research is particularly needed in student populations.

A potentially important area for future research might be relationships between anxiety and coping strategies other than worry. Researchers have suggested that anxious individuals may over-rely on worry as a coping strategy (Llera & Newman, 2023) and therefore many have focused on worry as a coping strategy in anxious populations. However, this tendency leaves other coping strategies neglected, despite assertions that emotion dysregulation in anxious individuals is related to lack of access to adaptive coping strategies (Mennin et al., 2005). Researchers might investigate relationships between anxiety and other coping strategies, such as cognitive reappraisal and suppression, in order to provide additional context for this finding.

Finally, this research was conducted with a non-clinical population and used a non-diagnostic, non-clinical measure of trait anxiety, representing a departure from much previous research on anxiety and worry. This is not necessarily a limitation, given that constructs such as worry and contrast avoidance are relevant to clinical and non-clinical populations. However, many interesting inquiries might be made into how my constructs of interest relate to each other in clinical versus non-clinical populations. Future studies might explore how affective beliefs

function in clinical populations and how they are related to anxiety as measured by clinical tools commonly used in anxiety research, such as the GAD-Q IV.

Whereas instrumental and affective beliefs were both significant predictors of worry behavior, a sizeable proportion of variance in worry behavior was left unaccounted for by my model. This raises the question of what other constructs might undergird a decision to worry. Researchers have identified a great number of factors which contribute to a decision to worry, and yet it seems likely that there may be more yet unidentified factors. Qualitative studies of worry such as Roth and Eng's (2002) work have shown that individuals identify reasons for worry, such as family influences, that are not commonly studied in the worry literature. Further qualitative studies might support researchers in identifying additional constructs that individuals perceive as contributing to their worry behavior.

5 CONCLUSION

I sought to increase understanding of the relationships among a complex cluster of constructs that may influence a behavioral decision to worry. I found evidence of the importance of affective beliefs in the study of worry and for their relationship to worry behavior. I also found support for a relationship between contrast avoidance and positive affective beliefs for worry. Specifically, I found that contrast avoidance predicts affective beliefs for worry, and both affective and instrumental beliefs predict worry behavior. This study provides a novel application of the contrast avoidance theory and opens the door to a new line of inquiry into the relationship between contrast avoidant tendencies and various categories of beliefs about coping strategies. These results highlight the utility of incorporating constructs from various domains of psychology in support of more nuanced inquiry into complex aspects of human behavior. Additionally, they point to the importance of affective beliefs, which are generally overlooked in the literature and in treatment in favor of the more “rational” instrumental beliefs. These results have important implications for the treatment of anxiety and worry and may inspire research with the potential to develop a more complete picture of the relationships between beliefs and behavioral decisions along a wide variety of psychological domains.

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APPENDICES

Appendix A: Complete Measures

Appendix A.1 Abbreviated Demographic Questionnaire (Suyemoto et al., 2016)

The following questions are to help us get a better sense of who is responding to this survey. Some of the questions may be related to the other things we ask about in the survey, but many of them we don't expect to be related to the other questions. We just want to be able to describe the people who filled out these questionnaires so that we can clearly see how our findings might relate to people from different backgrounds. We know that many of these these categories may not fully capture the complexities of each individual's experience, however they are an attempt to reflect the diversity of people's identities. Remember that you are free to choose not to respond to any questions that you are not comfortable answering.

1. What is your current age? (please write in answer) _____
2. What is your biological sex?

   ☐ Male ☐ Female ☐ Intersex ☐ Not listed (*please specify)*_____
3. What is your gender identity?
4. ☐ Cisgender Man ☐ Cisgender Woman ☐ Transgender Man

   ☐ Transgender Woman ☐ Nonbinary/fluid/genderqueer ☐ Not listed (*please specify)*_____
5. What is your sexual orientation?

   ☐ Asexual ☐ Bisexual ☐ Gay or Lesbian ☐ Heterosexual ☐ Queer

   ☐ Pansexual ☐ Not listed (Specify if you choose _____)
6. What is the highest grade in school, year in college, or post-college degree work you ave completed?

   ☐ Grade 6 or less ☐ Grades 7 to 12 (without graduating high school)

   ☐ Graduated high school or high school equivalent ☐ Part college/trade school

   ☐ Graduated 2-year college or trade school ☐ Graduated 4-year college

   ☐ Part graduate/professional school ☐ Completed graduate/professional school
7. Are you currently:

   ☐ Part time student ☐ Full time student ☐ Not a student

8. Were you financially supported by someone else this past year? ☐ Yes ☐ No

   If yes: Currently, what is the total annual *household* income (all earners) of those who financially support you?

   ☐ $0-$15,000 ☐ $15,001-$25,000 ☐ $25,001-$35,000 ☐ $35,001-$50,000

   ☐ $50,001-$75,000 ☐ $75,001-$100,000 ☐ $100,001-$200,000

   ☐ More than $200,000

   If no: Currently, what is your total annual *household* income (you and a spouse/partner who lives with you, if applicable)

   ☐ $0-$15,000 ☐ $15,001-$25,000 ☐ $25,001-$35,000 ☐ $35,001-$50,000

   ☐ $50,001-$75,000 ☐ $75,001-$100,000 ☐ $100,001-$200,000

   ☐ More than $200,000

9. Racial categories are based on visible attributes (often skin or eye color and certain facial and bodily features) and self-identification. These groupings have social meanings that affect how people see themselves and are seen and treated by others. Race is not the same as ethnicity or culture. **In your own words, what is/are your racial identification(s)?**

   _____

10. Although the categories below may not represent your full identity or use the language you prefer, for the purpose of this survey, please indicate which group below most accurately represents your racial identification? (check all that apply)

    ☐ Native American/American Indian/Alaska Native/Indigenous ☐ Asian

    ☐ Black/African American ☐ Latinx/Hispanic (Non-White) ☐ Middle Eastern/Southwest Asian/North African (Non-White) ☐ Pacific Islander/Native Hawaiian ☐ White ☐ Multiracial (*please specify)*: _____

    ☐ Not listed (*please specify)*: _____

Appendix A.2 Modified Coping Expectancies Scale (Friedman-Wheeler et al., 2016)

Please read each scenario and try to imagine yourself in the situation described.

I. *Imagine yourself in this situation:*

A person who was very close to you, especially in recent times, has had to move away. When your friend left, you both said you would keep in touch. But your friend's new home is really far away. You wouldn't see each other often, if at all.

After a few weeks have passed, your friend hasn't gotten in touch with you.

Comprehension Check: Your friend now lives far away. True___ False____

How likely is each of these approaches to <u>make you feel better</u> in this situation? Please choose a number for each approach.

	extremely unlikely	unlikely		likely	extremely likely
1) worry about what will happen	0	1	2	3	4
2) do something distracting or fun	0	1	2	3	4
3) address the problem directly (try to get in touch with my friend)	0	1	2	3	4
4) eat, drink, and/or smoke	0	1	2	3	4
5) remind myself that it's my friend's fault, not mine	0	1	2	3	4
6) think about how much I've lost	0	1	2	3	4
7) talk to someone (other than the friend) about it	0	1	2	3	4
8) do nothing about the situation	0	1	2	3	4

9) accept that things don't always go the way I want them to	0	1	2	3	4
10) avoid things that remind me of my friend	0	1	2	3	4
11) remind myself that there could be many reasons I haven't heard from my friend	0	1	2	3	4
12) avoid being with people	0	1	2	3	4
13) turn to my religion or spirituality for support or guidance	0	1	2	3	4
14) exercise/play sports	0	1	2	3	4

To what extend did you make your decisions based on feelings or logical thoughts? Please move the slider to the position that best represents your decision-making process.

_____

Entirely on feelings — Entirely on logical thoughts

II. *Imagine yourself in this situation:*

You've been working at the same place for a while. A higher level job had an opening, and you applied for it. You have just learned that the position has been filled by someone else. This is not the first time something like this has happened. You really wanted this job- it seemed perfect for you.

Comprehension Check: You have been passed over for a promotion you wanted. True___ False____

How likely is each of these approaches to <u>make you feel better</u> in this situation? Please choose a number for each approach.

	extremely unlikely	unlikely		likely	extremely likely
1) worry about what will happen	0	1	2	3	4
2) do something distracting or fun	0	1	2	3	4
3) address the problem directly	0	1	2	3	4
4) eat, drink, and/or smoke	0	1	2	3	4
5) tell myself that the supervisor made a poor decision	0	1	2	3	4
6) think about how disappointed I am	0	1	2	3	4
7) talk to someone (other than the supervisor) about it	0	1	2	3	4
8) do nothing about the situation	0	1	2	3	4
9) accept that things don't always go the way I want them to	0	1	2	3	4
10) avoid everything that reminds me of this situation	0	1	2	3	4
11) remind myself that there will be other opportunities	0	1	2	3	4
12) avoid being with people	0	1	2	3	4
13) turn to my religion or spirituality for support or guidance	0	1	2	3	4
14) exercise/play sports	0	1	2	3	4

To what extend did you make your decisions based on feelings or logical thoughts? Please move the slider to the position that best represents your decision-making process.

_____

Entirely on feelings — Entirely on logical thoughts

III. *Imagine yourself in this situation:*

You have been having a difficult time with your romantic partner over the past several weeks. On a few occasions you felt the urge to criticize your partner, but you didn't say anything. Now they are saying that you have "really been a pain" recently.

Later your partner is repeating the criticism. You're not really sure what your partner is referring to- they seem to be avoiding giving you an explanation.

Comprehension Check: Your partner is criticizing you because you haven't helped around the house. True___ False____

How likely is each of these approaches to <u>make you feel better</u> in this situation? Please choose a number for each approach.

	extremely unlikely	unlikely		likely	extremely likely
1) worry about what will happen	0	1	2	3	4
2) do something distracting or fun	0	1	2	3	4
3) address the problem directly (talk to my partner about it)	0	1	2	3	4
4) eat, drink, and/or smoke	0	1	2	3	4
5) tell myself that the conflict is my partner's fault	0	1	2	3	4

6) think about how I messed things up	0	1	2	3	4
7) talk to someone (other than my partner) about it	0	1	2	3	4
8) do nothing about the situation	0	1	2	3	4
9) accept that things don't always go the way I want them to	0	1	2	3	4
10) avoid my partner	0	1	2	3	4
11) tell myself that we will be able to work things out	0	1	2	3	4
12) avoid being with people	0	1	2	3	4
13) turn to my religion or spirituality for support or guidance	0	1	2	3	4
14) exercise/play sports	0	1	2	3	4

To what extend did you make your decisions based on feelings or logical thoughts? Please move the slider to the position that best represents your decision-making process.

_____

Entirely on feelings — Entirely on logical thoughts

IV. *Imagine yourself in this situation:*

Your landlord tells you that he is considering cancelling your lease. He will probably need your home for his own use. You are used to the apartment and you like the place and its location.

Comprehension Check: Your landlord wants to rent the house to different tenants. True___ False____

How likely is each of these approaches to <u>make you feel better</u> in this situation? Please choose a number for each approach.

	extremely unlikely	unlikely		likely	extremely likely
1) worry about what will happen	0	1	2	3	4
2) do something distracting or fun	0	1	2	3	4
3) address the problem directly (talk to my landlord about it, start looking for other apartments)	0	1	2	3	4
4) eat, drink, and/or smoke	0	1	2	3	4
5) remind myself that it's my landlord's fault	0	1	2	3	4
6) think about how disappointed I am	0	1	2	3	4
7) talk to someone (other than my landlord) about it	0	1	2	3	4
8) do nothing about the situation	0	1	2	3	4
9) accept that things don't always go the way I want them to	0	1	2	3	4
10) avoid my landlord	0	1	2	3	4
11) remind myself that wherever I live will be fine	0	1	2	3	4
12) avoid being with people	0	1	2	3	4

13) turn to my religion or spirituality for support or guidance	0	1	2	3	4
14) exercise/play sports	0	1	2	3	4

To what extend did you make your decisions based on feelings or logical thoughts? Please move the slider to the position that best represents your decision-making process.

_____

Entirely on feelings — Entirely on logical thoughts

V. *Imagine yourself in this situation:*

A child in your neighborhood desperately wants to go to summer camp this summer, but his parents can't afford to send him. You have agreed to help raise money to pay for him to go. You have worked hard and raised some money, but it's not enough. Camp starts tomorrow, and there's no way to get the rest of the money before then.

Comprehension Check: You raised some money for the child to go to camp. True___ False____

How likely is each of these approaches to <u>make you feel better</u> in this situation? Please choose a number for each approach.

	extremely unlikely	unlikely		likely	extremely likely
1) worry about what will happen	0	1	2	3	4
2) do something distracting or fun	0	1	2	3	4
3) address the problem directly	0	1	2	3	4
4) eat, drink, and/or smoke	0	1	2	3	4

5) tell myself that other people just weren't generous enough	0	1	2	3	4
6) think about how I failed my neighbor's child	0	1	2	3	4
7) talk to someone about it	0	1	2	3	4
8) do nothing about the situation	0	1	2	3	4
9) accept that things don't always go the way I want them to	0	1	2	3	4
10) avoid thinking about the situation	0	1	2	3	4
11) tell myself that although the child will be disappointed, he will be OK	0	1	2	3	4
12) avoid being with people	0	1	2	3	4
13) turn to my religion or spirituality for support or guidance	0	1	2	3	4
14) exercise/play sports	0	1	2	3	4

To what extend did you make your decisions based on feelings or logical thoughts? Please move the slider to the position that best represents your decision-making process.

_____

Entirely on feelings — Entirely on logical thoughts

VI. *Imagine yourself in this situation*

Your boss gives you a task which you are supposed to do for the next two days. This job is inconvenient for you, because you have a lot of other work at the moment. Your boss tells you that your regular work also has to be done.

As you begin to work on the new task, it becomes evident how difficult and time-consuming it really is. It seems like you will only finish if you ignore your other work, and even then you may have to work overtime to get everything done.

Comprehension Check: Your boss said that someone else would cover your regular duties. True___ False____

How likely is each of these approaches to <u>make you feel better</u> in this situation? Please choose a number for each approach.

	extremely unlikely	unlikely		likely	extremely likely
1) worry about what will happen	0	1	2	3	4
2) do something distracting or fun	0	1	2	3	4
3) address the problem directly (talk to my boss about it)	0	1	2	3	4
4) eat, drink, and/or smoke	0	1	2	3	4
5) remind myself that it's my boss's fault	0	1	2	3	4
6) think about how much trouble I'm in	0	1	2	3	4
7) talk to someone (other than my boss) about it	0	1	2	3	4
8) do nothing about the situation	0	1	2	3	4
9) accept that things don't always go the way I want them to	0	1	2	3	4

10) avoid work	0	1	2	3	4
11) remind myself that I've always managed to get everything done in the past	0	1	2	3	4
12) avoid being with people	0	1	2	3	4
13) turn to my religion or spirituality for support or guidance	0	1	2	3	4
14) exercise/play sports	0	1	2	3	4

To what extend did you make your decisions based on feelings or logical thoughts? Please move the slider to the position that best represents your decision-making process.

_____

Entirely on feelings — Entirely on logical thoughts

Appendix A.3 Consequences of Worrying Scale- Positive Subscales (Davey et al., 1996)

Please indicate, by choosing the appropriate number, how much you think each of the following statements describes YOU when you worry

1 = Not at all

2 = A little

3 = Moderately

4 = Quite a bit

5 = A lot

4 By worrying, I reorganize and plan my time better- if I stick to it, it makes me feel better.

1 2 3 4 5

5 Worrying starts off as a process of preparing me to meet new situations.

1 2 3 4 5

6 Worrying clarifies my thoughts and concentration.

1 2 3 4 5

7 Worrying acts as a stimulant.

1 2 3 4 5

8 Worrying challenges and motivates me, without them I would not achieve much in life.

1 2 3 4 5

9 Worrying gives me the opportunity to analyze situations and work out the pros and cons.

1 2 3 4 5

10 Worrying allows me to work through the worst that can happen, so when it doesn't happen, things are better.

1 2 3 4 5

11 Worrying makes me do things by increasing my adrenalin levels.

1 2 3 4 5

12 In order to get something done, I have to worry about it.

1 2 3 4 5

13 Worrying makes me reflect on life by asking questions I might not usually ask when happy.

1 2 3 4 5

14 Worrying adds concern to the problem and as such leads me to explore different possibilities.

1 2 3 4 5

15 Worrying increases my awareness, thus increasing my performance.

1 2 3 4 5

Appendix A.4 Penn State Worry Questionnaire (Meyer et al., 1990)

Enter the number that best describes how typical or characteristic each item is of you, putting the number next to the item.

1	2	3	4	5
Not at all typical		Somewhat typical		Very typical

1. If I don't have enough time to do everything, I don't worry about it _____
2. My worries overwhelm me _____
3. I do not tend to worry about things _____
4. Many situations make me worry _____

5. I know I shouldn't worry about things, but I just cannot help it _____
6. When I am under pressure I worry a lot _____
7. I am always worrying about something _____
8. I find it easy to dismiss worrisome thoughts _____
9. As soon as I finish one task, I start to worry about everything else I have to do _____
10. I never worry about anything _____
11. When there is nothing more I can do about a concern, I don't worry about it anymore _____
12. I've been a worrier all my life _____
13. I notice that I have been worrying about things _____
14. Once I start worrying, I can't stop _____
15. I worry all the time _____
16. I worry about projects until they are done _____

Appendix A.5 State-Trait Inventory for Cognitive and Somatic Anxiety (Ree et al., 2008)

Below is a list of statements which can be used to describe how people feel. Beside each statement are four numbers which indicate how often each statement is true of you (e.g., 1 = *not at all,* 4 = *very much so*). Please read each statement carefully and circle the number which best indicates how often, in general, the statement is true of you.

	Not at all	A little	Moderately	Very much so
1. My heart beats fast	1	2	3	4
2. My muscles are tense	1	2	3	4
3. I feel agonized over my problems	1	2	3	4
4. I think that others won't approve of me	1	2	3	4
5. I feel like I'm missing out on things because I can't	1	2	3	4

make up my mind soon enough				
6. I feel dizzy	1	2	3	4
7. My muscles feel weak	1	2	3	4
8.I feel trembly and shaky	1	2	3	4
9. I picture some future misfortune	1	2	3	4
10. I can't get some thoughts out of my mind	1	2	3	4
11. I have trouble remembering things	1	2	3	4
12. My face feels hot	1	2	3	4
13. I think that the worst will happen	1	2	3	4
14. My arms and legs feel stiff	1	2	3	4
15. My throat feels dry	1	2	3	4
16. I keep busy to avoid uncomfortable thoughts	1	2	3	4
17. I cannot concentrate without irrelevant thoughts intruding	1	2	3	4
18. My breathing is fast and shallow	1	2	3	4
19. I worry that I cannot control my thoughts as well as I would like to	1	2	3	4

20. I have butterflies in the stomach	1	2	3	4
21. My palms feel clammy	1	2	3	4

Appendix A.6 Contrast Avoidance Questionnaire- General Emotion (Llera & Newman, 2017)

Please indicate the extent to which each of the items below are true for you.

	Not at all true	Slightly true	Somewhat true	Very True	Absolutely True
1. I focus on the negative because I want to be emotionally prepared in case something terrible happens	1	2	3	4	5
2. I tend to expect the worst outcome so that I am not emotionally caught off guard	1	2	3	4	5
4. I would rather feel bad now, because at least I won't experience an emotional rollercoaster if terrible things happen	1	2	3	4	5
5. Because bad things could happen at any time, it's more comfortable to already be in a gloomy mood	1	2	3	4	5
6. I am particularly uneasy with sharp shifts in my negative emotions	1	2	3	4	5
7. I prefer to have a pessimistic outlook, so that I can be pleasantly surprised if something good happens	1	2	3	4	5
8. I tend to predict failure because I don't like to look	1	2	3	4	5

forward to something in case it doesn't happen					
9. If I notice I'm feeling happy, I tend to immediately remind myself of all the bad things that could happen	1	2	3	4	5
10. I never get my hopes up so that I am not disappointed	1	2	3	4	5
11. It really throws me off when I suddenly feel very bad	1	2	3	4	5
12. I prefer to feel bad now so I don't have to endure losing my happiness later	1	2	3	4	5
13. When I have already been in a bad mood, it has been easier to endure bad news	1	2	3	4	5
14. I don't like it when external events control my ups and downs	1	2	3	4	5
15. When my emotions fluctuate it makes me feel out of control	1	2	3	4	5
16. When I am relaxed or calm, I focus on the negative as a way to avoid a sudden shift in my mood if something bad happens	1	2	3	4	5
17. I don't anticipate that anything good will happen so that everything will feel like a pleasant surprise	1	2	3	4	5

18. I maintain a negative mood because it makes it easier to cope when bad things happen	1	2	3	4	5
19. When my emotions go up and down, it makes me uncomfortable	1	2	3	4	5
20. I focus on the negative because at least I know not much can happen that could make me feel worse	1	2	3	4	5
21. I would rather feel down than have to go through life experiencing ups and downs	1	2	3	4	5
22. Allowing myself to feel happy leaves me vulnerable to feeling terrible in the end	1	2	3	4	5
23. Strongly fluctuating emotions are particularly unpleasant for me	1	2	3	4	5
24. I try to stay focused on the bad things that could happen, because it prevents me from feeling emotionally vulnerable	1	2	3	4	5
25. Sometimes I would rather just feel bad now, instead of having to wait and see how things are going to turn out	1	2	3	4	5

Appendix A.7 International Positive and Negative Affect Schedule Short Form (Thompson, 2007)

Indicate the extent you have felt this way over the past week

	Never				Always
Upset	1	2	3	4	5
Hostile	1	2	3	4	5
Alert	1	2	3	4	5
Ashamed	1	2	3	4	5
Inspired	1	2	3	4	5
Nervous	1	2	3	4	5
Determined	1	2	3	4	5
Attentive	1	2	3	4	5
Afraid	1	2	3	4	5
Active	1	2	3	4	5

Appendix A.8 Daily Stressors Screening Tool (Scholten et al., 2020)

There are occasional minor and major challenges in daily life that can constantly reoccur, to which one can sometimes not get used to, and which can be more or less burdensome. Please tick whether and how strongly you have been affected by the following annoyances or inconveniences OVER THE PAST 12 MONTHS.

	not at all				very much
1) Difficulties with social obligations (e.g., associations, organizations)	0	1	2	3	4
2) Difficulties with family responsibilities (e.g., household, care services, parenting, school)	0	1	2	3	4
3) Health problems (e.g., diseases, chronic sufferings)	0	1	2	3	4
4) Financial restrictions (e.g., low income, instalments)	0	1	2	3	4
5) Dissatisfaction with education/occupation (e.g., examinations, work overload)	0	1	2	3	4
6) Difficulties with (secondary) employment (e.g., compatibility with school/college, high responsibility, noise pollution)	0	1	2	3	4
7) Dissatisfaction with housing situation (e.g., noise, small flat)	0	1	2	3	4
8) Close persons (e.g., family, household, friends, partner)	0	1	2	3	4

9) Other persons (e.g., colleagues, fellow- students, neighbors, tenants, landlords)	0	1	2	3	4
10) Another burden/stressor not yet mentioned	0	1	2	3	4

Appendix A.9 Generalized Anxiety Disorder Questionnaire- IV (Newman et al., 2002)

1. Do you experience excessive worry? Yes_____ No_____
2. Is your worry excessive in intensity, frequency, or amount of distress it causes? Yes_____ No_____
3. Do you find it difficult to control your worry (or stop worrying) once it starts? Yes_____ No_____
4. Do you worry excessively or uncontrollably about minor things such as being late for an appointment, minor repairs, homework, etc? Yes_____ No_____
5. Please list the most frequent topics about which you worry excessively or uncontrollably:
   a. _____ d. _____
   b. _____ e. _____
   c. _____ f. _____
6. During the last six months, have you been bothered by excessive worries more days than not? Yes_____ No_____
7. During the past six months, have you often been bothered by any of the following symptoms?
   _____ restlessness or feeling keyed up or on edge
   _____ difficulty falling/staying asleep or restless/unsatisfying sleep
   _____ difficulty concentrating or mind going blank
   _____ irritability
   _____ being easily fatigued
   _____ muscle tension
8. How much do worry and physical symptoms interfere with your life, work, social activities, family, etc.? Choose one number:
   0 1 2 3 4 5 6 7 8

None Mild Moderate Severe Very Severe

9. How much are you bothered by worry and physical symptoms (how much distress does it cause you? Choose one number:

0 1 2 3 4 5 6 7 8

No Distress Mild Distress Moderate Distress Severe Distress Very Severe Distress

Appendix A.10 Qualitative Worry Question

How would you define worry in your own words?

_____

_____

Appendix B: Additional Tables

Table 6 Variable Inflation Factors

Regression 1		Regression 2	
Variable	VIF	Variable	VIF
Negative Affect	1.06	Negative Affect	1.73
Instrumental Beliefs	1.06	Trait Anxiety	2.10
Affective Beliefs	1.05	Contrast Avoidance	1.71
		Trait Anxiety x Contrast Avoidance	1.09

Table 7 Additional Participant Characteristics

Included Participants		Excluded Participants	
N (# of participants)	497	N (# of participants)	97
Education Level		Education Level	
% Grade 12 or Lower	0.2%	% Grade 12 or Lower	1.1%
% High School or Equivalent	56.3%	% High School or Equivalent	52.6%
% Part College/Trade School	35.6%	% Part College/Trade School	20.6%
% Graduated 2-Year College or Trade School	4.6%	% Graduated 2-Year College or Trade School	11.3%
% Graduated 4-Year College	2.4%	% Graduated 4-Year College	5.2%
% Part Graduate/Professional School	0.2%	% Part Graduate/Professional School	2.1%
% Completed Graduate/ Professional School	0.6%	% Completed Graduate/ Professional School	0.0%
% Declined	0.0%	% Declined	7.2%

Student Status		Student Status	
% Full Time Student	87.9%	% Full Time Student	84.5%
% Part Time Student	11.7%	% Part Time Student	10.3%
% Declined	0.4%	% Declined	5.2%
Annual Household Income (Supported by Parent/ Guardian)		Annual Household Income (Supported by Parent/ Guardian)	
% $0 - $15,000	4.2%	% $0 - $15,000	3.1%
% $15,001 - $25,000	6.0%	% $15,001 - $25,000	10.3%
% $25,001 - 35,000	9.5%	% $25,001 - 35,000	7.2%
% $35,001 - $50,000	11.1%	% $35,001 - $50,000	9.3%
% $50,001 - $75,000	12.1%	% $50,001 - $75,000	9.3%
% $75,001 - $100,000	13.3%	% $75,001 - $100,000	8.2%
% $100,001 - $200,000	13.7%	% $100,001 - $200,000	12.4%
% >$200,000	4.2%	% >$200,000	7.2%
% Declined	4.4%	% Declined	60.8%
% Total Supported by Parent/Guardian	78.5%	% Total Supported by Parent/Guardian	80.6%
Annual Household Income (Supported by Self)		Annual Household Income (Supported by Self)	
% $0 - $15,000	5.4%	% $0 - $15,000	4.1%
% $15,001 - $25,000	3.8%	% $15,001 - $25,000	3.1%
% $25,001 - 35,000	3.6%	% $25,001 - 35,000	4.1%
% $35,001 - $50,000	3.4%	% $35,001 - $50,000	1.0%
% $50,001 - $75,000	2.2%	% $50,001 - $75,000	2.1%
% $75,001 - $100,000	0.6%	% $75,001 - $100,000	1.0%
% $100,001 - $200,000	0.6%	% $100,001 - $200,000	1.0%
% >$200,000	0.0%	% >$200,000	0.0%
% Declined	1.6%	% Declined	2.1%
% Total Supported by Self	19.7%	% Total Supported by Self	19.4%
Sexual Orientation		Sexual Orientation	
% Asexual	3.6%	% Asexual	8.2%
% Bisexual	14.3%	% Bisexual	8.2%
% Gay or Lesbian	4.4%	% Gay or Lesbian	1.0%
% Heterosexual	67.2%	% Heterosexual	67.0%
% Pansexual	4.8%	% Pansexual	1.0%
% Queer	3.8%	% Queer	2.1%
% Other	0.8%	% Other	6.2%
% Declined	1.0%	% Declined	6.2%